THE PROPENSITY TO PAY DIVIDENDS AMONG NIGERIAN LISTED COMPANIES

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ABSTRACT

This study examined the disappearing dividend phenomenon in the Nigerian market from 2003 to 2012. It also investigated the impact of financial crisis on the payout decisions. The dividend pattern was explained using descriptive analysis. Panel logistic regression was employed to explain the determinants of the choice "to pay" or "not to pay" dividends while multinomial logistic regression was used to examine the determinants of four mutually exclusive payout choices. Findings indicate a reduction in the proportion of dividend payers and the amount of dividends paid in the latter years. Determinants of the choice "to pay" or "not to pay" include foreign ownership, retained earnings to total equity, profitability, cash flow and past dividends. Thus, the study supports the clientele effect, free cash flow hypothesis and dividend smoothing hypothesis in explaining the decision "to pay" or "not to pay" dividends. However, the implication stated in the catering theory is not supported in the binomial model. Multinomial estimates revealed that firms alter their payout decisions in line with the necessity to maintain financial flexibility and to mitigate going concern risks during the crisis. Firms with higher leverage and lower cash flows have a higher likelihood to omit dividends during the crisis. Thus, free cash flow and transaction costs hypothesis became relevant during crisis. Clientele effect which was supported in the pre-crisis period became insignificant during the crisis. Catering theory became relevant during crisis as investor's demand for dividends have a positive impact on dividend- increase decisions. In consistency with dividend smoothing hypothesis, results indicate that some firms endeavour to maintain their dividend levels despite the crisis. Profitability as a characteristic of a dividend payer is significant in the crisis and the non-crisis periods. The study found no evidence in support of the implication stated in the life cycle theory.

Keywords: disappearing dividend, dividend payout, foreign ownership, financial crisis

ABSTRAK

Kajian ini meneliti fenomena dividen yang hilang dalam pasaran di Nigeria bagi tahun 2003 hingga 2012. Ianya juga mengkaji kesan krisis kewangan terhadap pembayaran dividen. Corak pembayaran dividen dijelaskan melalui analisis deskriptif. Kaedah logistik diguna untuk menerangkan faktor-faktor yang menyumbang kepada keputusan sama ada pembayaran dividen dibuat ataupun tidak. Sementara itu, kaedah multinomial logistik diguna untuk mengkaji faktor-faktor penentu kepada empat pilihan pembayaran yang berbeza. Hasil kajian menunjukkan bilangan pembayar dan jumlah dividen yang dibayar menurun pada tahun-tahun terakhir kajian. Pemilikan asing, nisbah perolehan tertahan kepada jumlah ekuiti, keuntungan, aliran tunai, dan dividen tahun lalu adalah penentu kepada pilihan sama ada dividen dibayar ataupun tidak. Hasil kajian menyokong kesan pelanggan, hipotesis aliran tunai bebas dan hipotesis *dividend smoothing* dalam menjelaskan keputusan sama ada pembayaran dividen dibuat ataupun tidak. Namun begitu, implikasi yang dinyatakan oleh teori *catering* tidak dapat disokong oleh model binomial. Hasil yang diperolehi daripada kaedah multinomial logistik menunjukkan bahawa syarikat mengubah keputusan pembayaran mereka seiring dengan keperluan untuk mengekalkan kelenturan kewangan dan mengurangkan risiko semasa krisis. Syarikat dengan hutang yang tinggi serta aliran tunai yang rendah lebih cenderung untuk tidak membayar dividen semasa krisis. Oleh itu, hipotesis aliran tunai bebas dan hipotesis kos transaksi menjadi tidak relevan semasa krisis. Kesan pelanggan menjadi tidak relevan semasa krisis, berbeza dengan hasil yang diperolehi sebelum krisis berlaku. Teori *catering* menjadi tidak relevan semasa krisis kerana permintaan untuk dividen yang dibuat oleh pelabur memberi kesan yang positif terhadap keputusan untuk meningkatkan pembayaran dividen. Selaras dengan hipotesis *dividend smoothing*, hasil kajian menunjukkan bahawa beberapa syarikat berusaha untuk mengekalkan tahap dividen yang dibayar walaupun ketika krisis berlaku. Keuntungan sebagai ciri pembayar dividen adalah signifikan semasa krisis berlaku dan juga semasa krisis tidak berlaku. Kajian ini tidak menemui bukti untuk menyokong implikasi yang dinyatakan oleh teori kitaran hayat.

Kata kunci: dividen yang hilang, pembayaran dividen, pemilikan asing, krisis kewangan.

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AMCON	Asset Management Corporation of Nigeria
AME	Average Marginal Effect
AMEX	American Stock Exchange
CAMA	Companies and Allied Matters Act
CBN	Central Bank of Nigeria
CEE	Central Eastern European Region
CGT	Capital Gains Tax
CITA	Companies Income Tax Act
CPI	Consumer Price Index
CSCS	Central Securities Clearing System
ETF	Exchange Traded Funds
FDI	Foreign Direct Investment
FPI	Foreign Portfolio Investment
IIA	Independent Irrelevant Alternative
ICT	Information and Communication Technology
ISA	Investment and Securities Act
MEM	Marginal Effect at Means
MM	Miller and Modigliani
MNL	Multinomial Logit
NASDAQ	Nasdaq Stock Market
NEPD	Nigerian Enterprise Promotion Decree
NIPC	Nigerian Investment Promotion Council
NSE	Nigerian Stock Exchange
NYSE	New York Stock Exchange

OLS	Ordinary Least Square
PITA	Personal Income Tax Act
PCP	Percentage of Correct Predictions
REITS	Real Estate Investment Trusts
SEC	Securities and Exchange Commission
UK	United Kingdom
US	United States
USD	US Dollar
VIF	Variance Inflation Factor
WHT	Withholding Tax

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

One of the key aspects in maximizing the wealth of shareholders is payment of regular and sustainable income in the form of dividends. Understanding dividend payout policy is imperative as firms give back to shareholders considerable amounts of capital through payment of dividends. Kalay and Lemmon (2008) for instance reported that the US firms distribute between 40% to 70% of their earnings to the shareholders which equals to 2% to 5% of the aggregate market capitalization during 1972 to 2003. Cash dividend made up 54% of the total distributed earnings in 2003 while the remaining was paid through stock repurchase[1]. The literature has shown that firms carefully guard their payout policy so that they achieve both objectives of meeting investor's expectations and maintaining sufficient financial slack to support future growth.

It is as a result of this that many finance scholars have carried out extensive research and have built different models to explain dividend behavior. Regardless of this fact, payment of dividends remains one of the crucial concerns in corporate finance that researchers are still trying to resolve. This has long been recognized by Black (1976) who referred to dividend as a puzzle. Black (1976) noted that "the harder we look at the dividend picture, the more difficult it seems like a puzzle, with pieces that just don't fit

[1] Stock repurchase is an alternative method to distribute earnings to the shareholders. Outstanding shares could either be bought back in the open market, through tender offer, auction or private negotiation with selected major shareholders. Kalay and Lemmon (2008) showed that repurchase became an important form of payout in the US since 1983.

together" (p. 5). Therefore, empirical researches continue in this area in order to provide solutions to the puzzle.

A recent stream of literature pioneered by Fama and French (2001) document that dividends are disappearing. However, findings on the disappearing dividends remain inconclusive as some studies provide contrary evidence to this phenomenon. Researchers have attempted to offer different explanations on this disappearing dividends phenomenon. While considerable attempt has been made to investigate the disappearing dividends phenomenon in developed markets, this issue remains largely unexplored in emerging markets particularly in the African region. Investigating this phenomenon is imperative as it is widely established in the literature that dividends affect market value of the firm. Thus, its disappearance may have implications for the firm. The issue of disappearing dividends may be more pronounced during financial crisis as the ability of a firm to maintain stable dividends may be impeded during such periods. Floyd, Li, and Skinner (2013) noted that dividend payment may be largely wiped out during financial crisis. This may be due to difficult financial situation resulting from the crisis or managers using the crisis as an excuse to omit or reduce dividend payments. Thus, companies may adjust their dividend policies in response to financial crisis. Despite the considerable efforts made on dividend payout policies, studies focusing on this issue during crisis have not received much attention in the literature. In addition, it is important to examine how crisis affects dividend policy due to the need to examine whether the implication of the dividend theories holds during the crisis or not.

Apart from the question of why do some firms pay dividends while others do not, there is also a burgeoning literature that investigates how ownership structure affects

dividend payout policy. There are varying types of ownership structures ranging from family, state, government, institutional, retail, foreign and domestic ownership. The basic premise underpinning these studies is that each of the different categories of owners has preferences for dividend payout. For instance, foreign shareholders may press for more dividends due to the high information costs they face and their inability to exert efficient monitoring as compared to domestic investors who are familiar with local market conditions. Prior research on how ownership structure affects dividend payout policy have majorly focused on the US, UK, and few European countries (Bena & Hanousek, 2008; Elston, Hofler & Lee, 2011; Kowalewski, Stetsyuk & Talavera, 2008; Mancinelli & Ozkan, 2006; Moscu, 2012). The impact of foreign stockholder ownership in dividend policy has not received much attention in the literature especially in the African markets. Results obtained in developed markets may not be applicable to emerging markets as the relationship between ownership structure and dividend policy is expected to vary with environment (Mehrani, Moradi, & Eskandar, 2011).

Considerable increase in the holdings of foreign investors in some markets which is a consequence of financial globalization has raised concerns on whether their presence can influence corporate policies. Kim, Sul, and Kang (2010) noted that there is a growing public concern on the presence of foreign investors. This is due to the wide belief that foreign investors are only interested in receiving dividends and their presence may shrink firm's investment. Therefore, significant presence of foreign investors is sometimes viewed negatively as it is believed that they have negative implications for local growth. Acikalin, Aktas, and Unla (2008) opined that the benefit of foreign portfolio investment to developing economies is doubtful. However, Ferreira, Massa, and Matos (2010)

dismissed the claim that foreign investors' presence has negative implications and argued that the presence of foreign institutions increases corporate savings and re-investment by firms resulting from lower dividend payment in response to their low preference for dividend. To the best of the researcher's knowledge, no empirical evidence exists on how foreign ownership impact on firm's dividend policy in any African country.

1.2 Problem Statement

Despite the large empirical evidence on dividend policies in many parts of this world, dividend policy is relatively under researched in emerging markets, particularly in the African region. Many questions remain unanswered. These include (1) the propensity to pay dividends; (2) firm's dividend payout pattern during financial crisis; (3) foreign ownership effects on dividend policy. The implication of the catering and the life cycle theory also remain largely unexplored in emerging markets. One of the major issues confronting the Nigerian stock market relates to the issue of non-payment phenomenon. Anecdotal evidence suggests many companies listed on the Nigerian Stock Exchange (NSE) have not been meeting the expectations of shareholders with regards to dividend payment. Nwidobie (2011) for instance reported in a survey that dividend payment by listed firms in Nigeria is 15% of investor's expectations in the market. Evidence from this thesis also shows that 67% of listed Nigeria firms did not pay dividend in 2012. These findings are puzzling considering the fact that cash dividend is the only payout method to reward shareholders since the share repurchase option was only introduced in Nigeria in 2008. Presently, there exists no empirical evidence on the existence of declining propensity to pay dividend as documented in developed countries. Different reasons have been given to explain the choice to pay or not to pay dividends in developed markets.

Particularly, the catering theory and the life cycle theory of dividend have received some attention in recent times in offering explanation to changes in the dividend behavior of firms in developed markets. However, prior evidence in support of these theories as explanation for propensity to pay is mixed. In addition, these theories have not received attention in emerging markets.

The ability to meet up with dividend payments may be further constrained in periods of financial crisis as He, Li, and Lu (2012) reported that firm's payout ability drops during market crashes. The Nigerian stock market is not spared from the recent global financial crisis. Total market capitalization dropped from USD82.17 billion in 2007 to USD33.99 billion in 2009[2]. The banking sub-sector was significantly affected and this extended to the real sector of the economy as banks reduced their credit lines and increased the cost of borrowing. This translated to higher cost of production and eroded the profitability of many firms. Therefore, this crisis has put so many companies in a difficult financial situation and this may have influence on their payout decisions. More so, the continuous decline in market capitalization due to the crisis resulted in loss of confidence and divestment by local and foreign investors. Extant literature on payout policy is mostly based on the assumption of normal economic conditions and the scant evidence available on dividend payout during crisis is focused on developed markets. More so, most studies from the scant literature on payout policy during crisis have focused on the pattern of dividend payment during crisis while paying little or no

[2] Exchange rate of USD1 to Nigeria Naira (₦) is ₦ 133.9 in 2003; ₦133.0 in 2004; ₦131.1 in 2005; ₦126.9 in 2006; ₦123.9 in 2007; ₦117.0 in 2008; ₦146.8 in 2009; ₦148.3 in 2010; ₦151.8 in 2011; ₦160.4 in 2012 (Euromonitor International, 2012).

attention to the factors that explain payout policies after the financial crisis. Only little explanation based on opinion survey of managers exists in this regard.

Another major issue confronting the Nigerian market is the significant presence of foreign investors in listed firms. The percentage of foreign investor's shareholdings in most listed firms exceeds the domestic shareholdings (Adelegan, 2009). Ogunde (2012) also stated that 70% of the daily buying and selling that transpires on the Nigerian Stock Exchange is dominated by foreign institutional investors. In a bid to promote foreign investment in Nigeria, the government eliminated all legislations which impose restrictions on free flow of foreign capital into the Nigerian economy. Therefore, there are no restrictions on foreign ownership in Nigeria as foreign investors are permitted to have 100% ownership of firms excluding the oil and gas sector (Sec 17, Nigerian Investment Promotion Commission (NIPC) decree of 1995). Foreign investors are only allowed maximum shareholdings of 40% in the oil and gas sector. Olisaemeka (2009) noted that there was a pull out of foreign investors from the market due to the stock market crisis. However, this did not last for long as foreign investors have heightened the pace of investment within the last few years, particularly in year 2011 and the market is dominated by foreign investors. The percentage of foreign institutional ownership in the Nigerian capital market during 2003 to 2012 is shown in Figure 1.1. The figure depicts an increasing trend in the percentage of foreign institutional investment from year 2003 to 2011. Besides the liberalization of the market, the increasing trend during this period can be traced to the reforms which took place in the market during the period. The reforms were targeted at making the capital market a major investment hub through corporate restructuring and measures employed to enhance market liquidity. A major part of the

reform is the financial reforms which include banking sector reforms and pension reforms. These reforms boosted the operations of the market and made it an attractive place for foreign investors. There was a slight drop in 2012, however, the market remain dominated by foreign investors. Overall, the proportion of foreign institutional shareholdings increased from 6.81% in year 2003 to 61.4% in 2012.

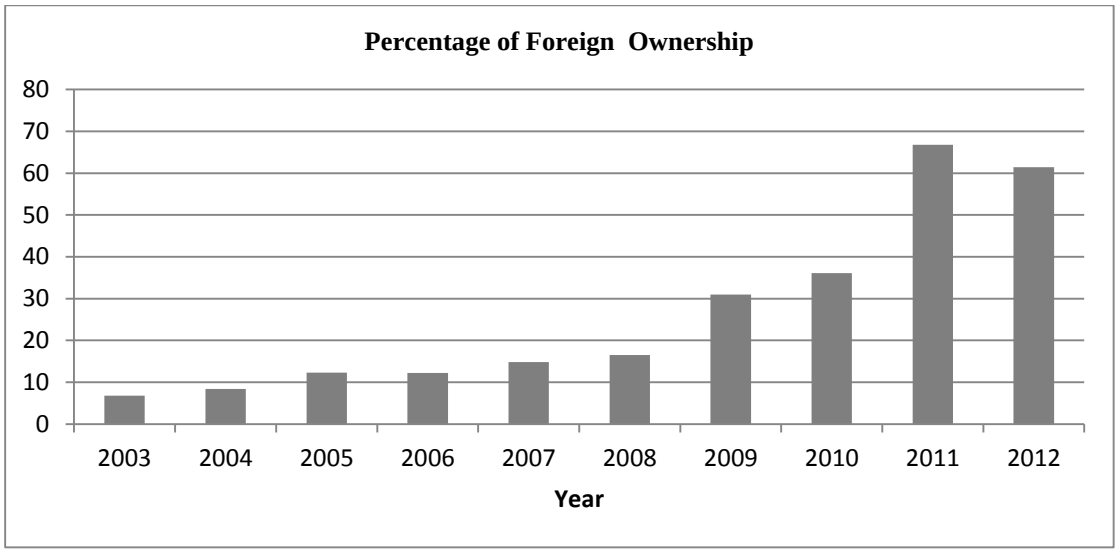

Figure 1.1
Percentage of Foreign Ownership

Dominance by foreign investors is worrisome as it has led to significant control of the Nigerian market by foreigners. Obiora (2012) reported that 75% of the volume of trade recorded on the stock market in year 2011 was from foreign investors. The implication of this is that the market is foreign driven.

Consequently, the Nigerian stock market nearly collapsed as a result of withdrawal of funds by foreign investors at the early stage of the global financial crisis. The total outflow of foreign portfolio investments in the year 2008 is USD3.92 billion which is about 81% of total foreign portfolio investment recorded in that year (Proshare News, 2013). Despite the withdrawal of funds through sale of securities, the percentage

of foreign investment increased over the years as shown in Figure 1.1. The pull out of funds by some foreign investors during the crisis contributed to the significant decline in market capitalization. The implication of this is that the current dominance of the foreign investors could also serve as a source of future volatility for the market. Olanrewaju (2013) noted this dominance leads to hot money influx in the market which causes market instability. This instability emanates from the transient nature of foreign portfolio investment which is usually targeted at short term benefits (Onuorah & Okoli, 2013). This instability of foreign investment flows which change with the economic conditions may affect firms' dividend payout policies since foreign investors are the dominant investors in most of the listed firms. Babatunde and Olaniran (2009) noted that in some firms listed on the exchange, foreign institutions have the single largest shareholdings accounting for up to 40% of the total shareholdings of the firm[3]. This necessitates investigating whether foreign ownership influence dividend payouts by firms listed on the Nigerian Stock Exchange. In addition, there is a need to extend existing literature by investigating whether this effect is altered during the financial crisis when many of the foreign investors pulled out. The scant literature on ownership structure in Nigeria covers different ownership types ranging from foreign, domestic, institutional, private and state ownership but they focused on how these varying ownership types affects corporate performance (Aburime, 2008; Adenikinju, Ayonrinde & Adenikinju, 2006; Uwalomwa & Olamide, 2012). To the best of the researcher's knowledge, effect of foreign ownership on corporate dividend policies remains unexplored in Nigeria.

[3] For example, Presco, a company engaged in agricultural business is 60% owned by Siat group, a company based in Brussels (NSE Factbook, 2012).

1.3 Scope of the Study

The study focuses on the Nigerian stock market which is one of the growing economies in Africa. The Nigerian Stock Exchange is the second largest stock exchange in the African region after Johannesburg Stock Exchange (South Africa) in terms of market capitalization and the leading exchange in West Africa. The study covers all the firms listed on the Nigerian stock market between years 2003 to 2012. The choice of time period was motivated by the fact that there is need to study the observed phenomena before and after the recent crash of the stock market. Therefore, for the purpose of this study, the period 2003 to 2007 is defined as the pre-stock market crisis, 2008 to 2009 as the crisis period and 2010 to 2012 is regarded as the post stock market crisis period.

1.4 Research Questions

As highlighted earlier, the existing empirical research on dividend policy provide little explanation on the dividend practices of firms listed in Nigeria. The "disappearing dividend" phenomenon and what drives the propensity to pay or not to pay is still uncertain in the Nigerian context. It is also believed that the recent financial crisis may affect the firm's dividend policies as they may adjust their payout policies in response to the crisis. In addition, despite the significant presence of foreign institutional investors on the Nigerian stock market, their role in shaping firm's dividend policy remains unanswered. In view of the problems highlighted in section 1.2, the study seeks to proffer answers to the following research questions with respect to the Nigerian stock market.

1. How is the pattern of dividend payment among listed firms in Nigeria during the period under study?

2. Does foreign ownership affect Nigerian firm's propensity "to pay" or "not to pay" dividends?

3. What other factors affect Nigerian firm's propensity "to pay" or "not to pay" dividends?

4. Do Nigerian firms adjust their dividend policy in response to the global financial crisis?

5. What are the factors that affect firm's propensity to cut/increase/maintain/omit dividends across different period (pre-crisis; during crisis; and post crisis).

1.5 Research Objectives

In line with the issues raised, the study examines the dividend payout policies of firms listed on the Nigerian Stock Exchange by pursuing the following objectives:

1. To describe the pattern of dividend payment among listed firms in Nigeria during the period under study.

2. To investigate whether or not foreign ownership affects propensity "to pay" or "not to pay" dividends among listed firms in Nigeria.

3. To investigate other factors that can explain the propensity to "pay or "not to pay" dividends among listed firms in Nigeria.

4. To examine how Nigerian firms adjusted their dividend policies in response to the global financial crisis.

5. To examine the factors that affect firm's propensity to cut/increase/maintain/omit dividends across different period (pre-crisis; during crisis; and post crisis).

1.6 Significance of the Study

This research is important as it is expected to contribute to the ongoing attempt in resolving the dividend puzzle particularly with reference to African region in the following ways. Firstly, the study examines for the first time the “disappearing dividends” and dividend concentration phenomena in Nigeria market. Secondly, the study extend the dividend literature in African region by examining whether foreign ownership, catering theory and life cycle theory can explain the Nigerian firms’ dividend payout decisions. The first factor is a new contribution to the literature. Second and third factors are relatively new theories developed by Baker and Wurgler (2004) and DeAngelo, DeAngelo, and Stulz (2006) that are yet to be applied in an African setting. The study also extends dividend literature by examining dividend payout policy during financial crisis. The scant evidence available in this regard has majorly focused on developed markets. In addition, studies that have been conducted to investigate the disappearing dividends phenomenon have attempted to offer explanations to the phenomenon by analyzing factors that influences the choice "to pay" or "not to pay". As a result, the study contributes methodologically by decomposing firms’ payout choices to four mutually exclusive options (to increase, to cut, to maintain and to omit). Multinomial logistic method is adopted by examining firms’ payout in the pre-crisis, during crisis and post-crisis periods. This method allows us to clearly establish channels through which firms’ adjust their payout policy in different economic conditions (e.g. whether firms cut their dividend during the crisis period). Lastly, in explaining factors that influence firm's

payout choices, this study looks beyond the firm characteristics which most other studies have focused on. Therefore, the study is important as it establishes whether the roles of the firm characteristics changes or not when other external factors (financial crisis, stock market performance, interest rate) are taken into consideration.

Findings of this research will make regulators have a better understanding of the fundamental issues associated with foreign dominance in the Nigerian market and its impact on dividend decisions. It is aimed that the study will provide an in-depth understanding of the issues that drive dividend policy in the market so as to assist the regulatory bodies of the Nigerian stock market to design appropriate regulatory policies that can enhance further growth of the market. This will also educate and guide local and foreign investors to make better investment decisions in the future.

1.7 Organization of the Thesis

This thesis is organized into six chapters. Chapter one discusses the background arguments to the issue being studied. In this chapter, the research problem is explained and research questions and objectives that emanate are also discussed. The chapter also sheds light on the significance of the study. Chapter two provides an overview of the Nigerian stock market. The chapter traces the evolution and development of the market. It covers discussion on the performance of the market in the last ten years with particular reference to the crisis period. The chapter also discussed dividend payment procedures in Nigeria. An extensive review of literature is given in chapter three. Relevant theories related to the study are discussed in the chapter. The chapter also presents past empirical works related to the study.

Chapter four is focused on the methodology to be adopted. These include discussions on the research design, research framework and statement of hypotheses to be tested in order to achieve the stated objectives. The chapter also covers measurement of variables, data collection techniques, sampling procedures and techniques of data analysis. This is followed by chapter five that provides empirical findings on the propensity to pay dividend on the Nigerian Stock Exchange and discussion of these findings in relation to prior evidences. The chapter also discussed the implication of findings on the relevant theories. Chapter six provides summary of research and concluding thoughts on the study. Implication of the findings for policy and practice has also been discussed in this chapter. It also highlights the limitations of the study. The chapter concludes by suggesting possible future research areas that can be carried out.

CHAPTER TWO

OVERVIEW OF THE NIGERIAN STOCK MARKET AND DIVIDEND PAYMENT PROCEDURES

2.0 Introduction

The importance of the stock market in any economy cannot be over emphasized. Stock market plays a critical role in mobilizing savings and investment and this makes it an agent of economic growth and development in any economy. The Nigerian Stock Exchange is the center of activity for the market while the Securities and Exchange Commission (SEC) is the regulatory body. This chapter traces the development of the Nigerian stock market, the system of operation, regulatory structure, as well as the performance of the market over the last ten years. The chapter concludes by giving an insight into the recent stock market crisis from which the market is yet to fully recover from.

2.1 Evolution and Development

The origin of the Nigerian stock market can be traced back to the period when Nigeria was being ruled by the British government (Osaze, 2011). During this period, the colonial administration deemed it necessary to set up a financial system in order to procure more funds for running the local administration. Initially, the colonial administration developed a ten-year plan for the floatation of government stock in 1956 (Odife, 2000). Subsequently, a committee (Prof. Barback committee) was set up to look into the prospects of launching a capital market in Nigeria. Based on the committee's recommendations, the Lagos Stock Exchange was established in 1960. In line with the provisions of the Lagos Stock Exchange Act 1960, the exchange was established as a

private limited liability company which is limited by guarantee. The Lagos Stock Exchange which was established to mobilize long term funds commenced operations in 1961. At inception, the exchange had 19 listed securities which include three equities, six federal government bonds and ten industrial loans. The Capital Issues Commission was set up in 1973 to serve as the governing body for the market. Currently, it is known as the Securities and Exchange Commission.

The Lagos Stock Exchange was renamed as the "Nigerian Stock Exchange" in 1977 based on the recommendations which the Federal Government Financial System Review offered in 1976. This also led to the establishment of six additional branches of the stock exchange across different parts of the country. In 1985, the Second-Tier securities market was established to assist small and medium size enterprises to gain access to resources in the market. The Nigerian Stock Exchange was internationalized in 1995 when the government abolished the laws which restricted foreign participation in the Nigerian stock market. This enhanced communication among local and international participants. Presently, there are 13 branches of the Nigerian Stock Exchange including the head office in Lagos. The stock market hosted 194 listed companies by the end of year 2012 in diverse sectors which include: agriculture; conglomerates; construction/real estate; consumer goods; financial services; health care; information and communications technology (ICT); industrial goods; natural resources, oil and gas, and services. Oteh (2012) stated that the banking industry accounts for a large proportion of the total market capitalization. As shown in Figure 2.1, the financial services sector accounts for 34% of the total market capitalization as at end of 2012 while the consumer goods contribute 32% to the market capitalization. The industrial goods sector also contributes 27% of the total

market capitalization. Contribution from the other sectors is very low. Oil and Gas contribute 2% while healthcare, services, ICT, conglomerate, and construction and real estate sectors contribute 1% each to the market capitalization. The impact of the natural resources sector and the agricultural sectors are trivial at 0.13% and 0.34% respectively.

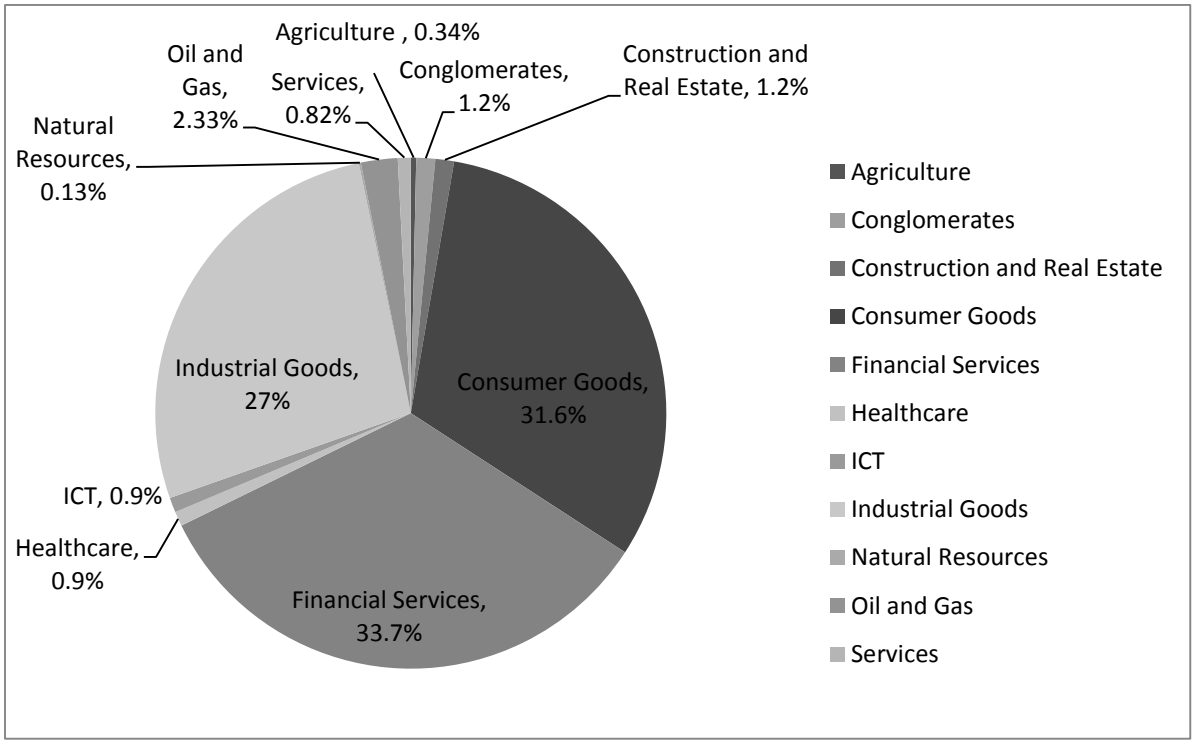

Figure 2.1
Sectoral Contribution to Total Market Capitalization
Source: NSE FACTBOOK (2012)

2.2 Financial Instruments

The channeling of funds from the surplus to deficit unit is done through financial instruments. Hence, the major instruments used to raise funds on the Nigerian Stock Exchange include equities (ordinary shares and preference shares); bonds (government bonds and corporate bonds); and exchange traded funds (ETF launched in year 2011). However, the market is predominantly equity driven. This limits the number of asset classes available in the market and over-concentration of investment in equities. NSE

Market Review (2012) specified that the total number of listed securities in the market stands at 255 comprising of 197 equities, 57 bonds and 1 ETF.

2.3 Trading System

The Nigerian Stock Exchange is the only center of activity for trading in securities in Nigeria. In year 2000, the Abuja Stock Exchange was set up as a second stock exchange in Nigeria. However, it was converted to a commodity exchange based on the argument that there was no need for a second stock exchange in the country. Since the inception of operations of the Nigerian Stock Exchange up till the use of automated method in 1997, the call trading system was used across the different branches of the exchange due to the small number of securities as well as the relatively small size of the market (Olujide, 2000). The call trading system is a manual system whereby securities are called and members willing to buy or sell indicate their interest. This system caused serious delay in completion of transactions. Presently, the Nigerian Stock Exchange operates an automated trading system with dealers connected to a server linking a network of computers. Trading on the exchange which is done by dealers start from 9.30am everyday and closes at 2.30pm.

2.4 Market Participants

The market participants include the regulators, market operators and others. The Securities and Exchange Commission (SEC) is the regulator of the capital market in Nigeria. As depicted on Figure 2.2, the forerunner of the SEC is the Capital Issues Committee established in 1962 to regulate the issuing of securities to the public. The committee had no legal backing and was therefore replaced with the Capital Issues Commission in March, 1973. The commission was eventually replaced by the SEC in

1979. It was established under the SEC Act of 1979 (amended as decree no. 29 in 1988) with the authority to regulate and to enhance the development of the market, decide the prices of securities and establish the basis on which allotment of securities is made.

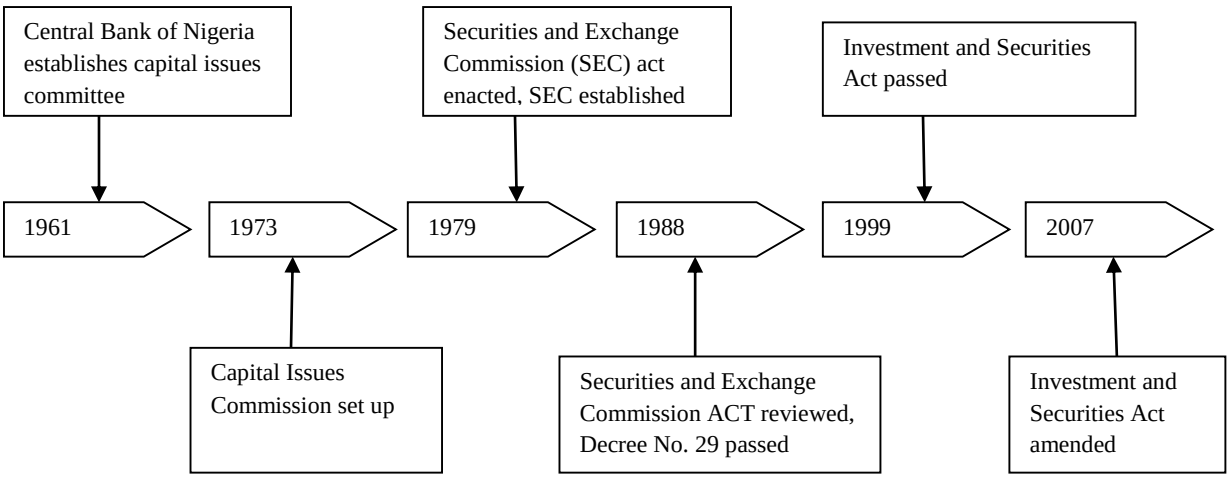

Figure 2.2
Development of Regulatory Framework for NSE
Source: SEC Report, 2009

Other regulatory participants in the market are Federal Ministry of Finance and the Central Bank of Nigeria. The Federal Ministry of Finance is conferred with the responsibilities of controlling and managing the public finances of the federation. Based on this, it is also charged with securing and managing investments of the federation under the Finance Act, Cap. 144 of 1958. Similarly, the Central Bank of Nigeria (CBN) is charged with regulating the financial system and forms part of the securities regulatory board. Apart from the regulatory participants, the Central Securities Clearing System (CSCS) is also a prominent participant in the Nigerian stock market. The CSCS was found in 1992 to provide the services of automated clearing and settlement. The CSCS also served as the capital market central depository. The CSCS is an integrated central depository, clearing and settlement system for all stock market transactions. It was established to eliminate the delay in completion of transactions. The system ensures that

all transactions are completed within five working days in electronic book entry form. The Abuja Securities and Commodity Exchange was also initially incorporated as Abuja Stock Exchange in 1988 to compete with the NSE but was eventually converted to a commodity exchange. The main market operators are majorly the issuing houses, stockbrokers, trustees, and registrars. Other market participants include receiving banks, insurance companies, pension funds, solicitors, reporting accountants, receiving agents, individual and institutional investors.

2.5 Regulatory Framework

The following legislations guide dealings in the Nigerian stock market:

1) Investment and Securities Act (ISA): The ISA act established the Investment and Securities Tribunal in 1999 to resolve disputes arising from investment and securities transactions in a fair manner. The Investment and Securities Act No 45 of 1999 replaced the SEC Act of 1988. This was later replaced with the Investment and Securities Act which was re-enacted in 2007(See Figure 2.2).

2) Companies and Allied Matters Act (CAMA) 1990 was passed into law to regulate the incorporation and activities of all companies in Nigeria. The administration of CAMA is vested on the Corporate Affairs Commission. Sections 541-623 of CAMA cover laws that relates to dealings in securities on the Nigerian Stock Exchange.

2.6 The Nigerian Stock Market Performance

Over the past one decade, the Nigerian stock market has experienced dramatic growth. Total market capitalization has expanded from a mere USD9.9 billion in 2003 to USD57.6 billion in 2012. Total number of listed firms increased from 199 to 217 between

year 2003 and 2010[4]. However, number of listed firms reduced to 194 as at end of 2012 due to delisting of firms arising from regulatory sanctions as well as voluntary delisting by some other firms. Transaction cost is quite enormous on the Nigerian Stock Exchange. High cost of listing constitutes impediments to companies wishing to list their shares. This has become a major factor for the few listed firms (Osinubi, 2004). The initial listing fee on the Nigerian Stock Exchange is set at 0.3% of the newly listed firm's market capitalization. This is considered high compared to 0.06% and 0.04% at Nairobi (Kenya) and Johannesburg (South Africa) Stock Exchanges respectively (Nnorom, 2012). High annual listing fee (also 0.3% of market capitalization up to a maximum limit of USD27, 000) may also be the factor for voluntary exit by some listed firms. Similarly, the process of listing is long and burdensome. It takes about 27 weeks (6.8 months) to issue an equity. This process starts from filling the application for listing to the registration of securities to be listed with SEC. Following this, the council of the stock exchange approves the application and a completion board meeting is held by the directors of the company making the security offering. Therefore, securities can only be distributed to the public after going through this long procedure.

[4] Different reasons account for the large increase in market capitalization despite the few number of listed companies over the years. Besides the increase in the market value of some companies, the drive to meet the changes in regulatory requirement also led to large number of IPOs especially in the financial sector. This led to significant increase in market capitalization. In addition, injection of funds by foreign investors also had consequential effect on the market capitalization.

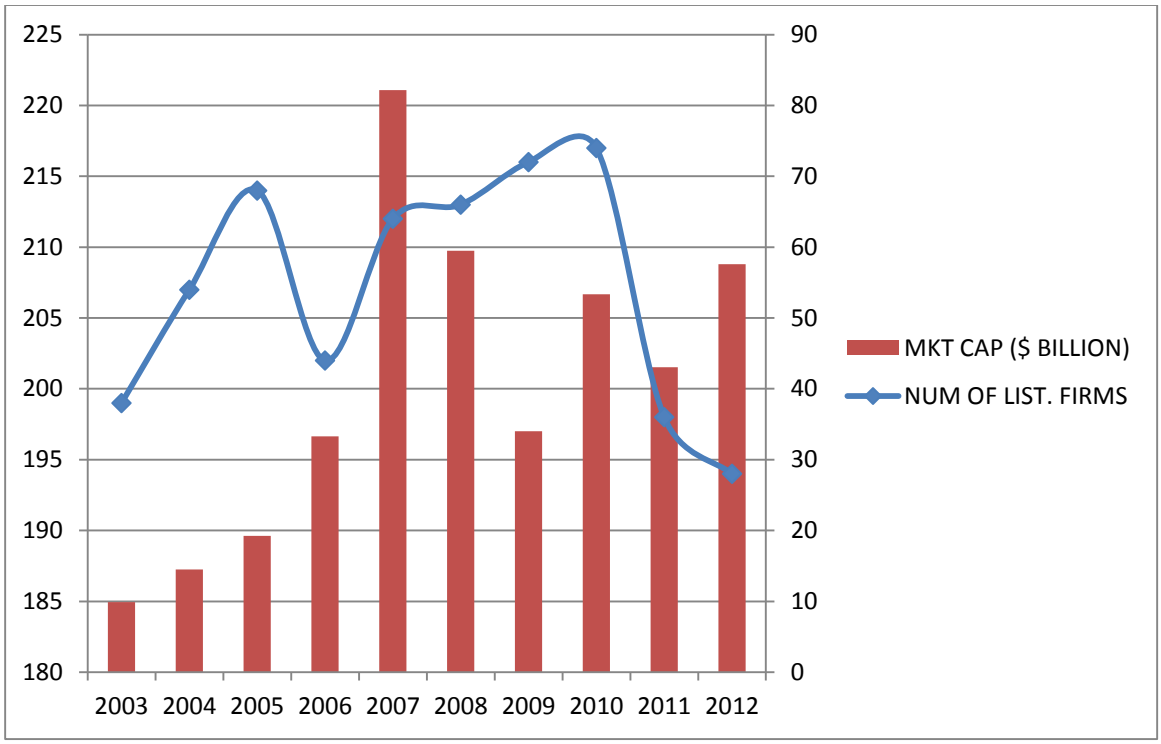

Figure 2.3

Growth of Listed Firms and Market Capitalization on the Nigerian Stock Exchange

The market recorded continuous increase in performance between year 2003 and 2006. Market capitalization increased from USD9.89 billion to USD33.31 billion. The market capitalization increased by 140.83% to USD82.17 billion in 2007. The sharp increase in year 2007 was regarded as an artificial increase (Oladipupo, 2010; Oteh, 2012). A major reason attributed to this unprecedented rise in stock market performance which reached its peak in year 2007 can be attributed to deregulation of the market (Osaze, 2011) and the reforms that took place in the stock market within this period, particularly the financial sector which account for a huge portion of the market capitalization (Oladipupo, 2010; Osaze, 2011; Oteh, 2012). The financial reforms were intended to boost the ability of the financial sector in the financial intermediation process with a view to promoting economic growth and development (Oke & Adeusi, 2012). There was the enactment of Pension Reform Act in year 2004 which requires significant

increase in annual contributions to pension funds. This led to the pooling of long term investible funds and a strong growth in annual contributions. In the same year, CBN also ordered banks to increase their capital base to USD187.97 million from USD15.04 million. In the year 2005, insurance companies were also ordered to increase their capital base as follows: life insurance was increased to USD15.26 million from USD1.15 million); general insurance was increased to USD22.88 million. These reforms forced banks and insurance companies to raise fresh capital from the market through secondary public offerings in order to meet up with the requirement, thus leading to huge increase in the market capitalization.

The stock market experienced a serious crash in year 2008 due to the contagion effect of US subprime mortgage crisis which extended to other stock markets. Although the market witnessed unexpected growth before the crisis, Oteh (2012) lamented that the year 2007 and 2008 radical spikes in total market capitalization and trading volumes were clear departures from the trend line in the market's natural growth**.** Oladipupo (2010) also referred to the growth during this period as "Cosmetic growth". As a result of the crisis, the performance of the stock market dropped by the end of year 2008. Year 2009 also followed the same direction. Between 2007 and 2009, market capitalization had dropped by 50.99%. Although total market capitalization reached its peak in 2008 with a figure of USD107.69 billion but declined sharply by 31.66% by end of same year. Stock prices dropped significantly and investors lost huge amount of money due to this decline in share prices.

The stock market recorded market capitalization of USD33.99 billion as at end of 2009. The significant decrease in year 2008 which extended till 2009 was heightened by

the contagion effect of the global financial crisis which was greatly felt within this period. Okereke (2012) noted that the global financial crisis which began in the USA reached its climax in year 2008 and affected equity prices in many stock exchanges across the world. Foreign investors who had troubles in their home economies withdrew funds to cover up their financial position. The decline in market performance worsened in year 2009. However, there was a good sign of recovery in the year 2010 as the market capitalization increased by 58.61% of the amount recorded in the previous year. Ekwere (2012) stated that the rise in year 2010 is as a result of the purchase of toxic assets[5] by the Asset Management Corporation of Nigeria (AMCON). AMCON was jointly established in year 2010 by the Central Bank of Nigeria and the Federal Ministry of Finance to assist revitalize the financial system by buying over the non-performing loan assets of banks in Nigeria.

The recovery of the market did not last as performance dropped again in year 2011. Market capitalization dropped to USD43.03 billion from USD53.36 billion obtained in the previous year. Several efforts made to resuscitate the market yielded positive impact as the market capitalization increased by 37.38% in year 2012. The efforts include setting up of a committee to make recommendations on how the performance of the market can be improved, creating the Asset Management Corporation of Nigeria (AMCON) to resolve non-performing loans of banks, elimination of value added tax on all commissions related to market transactions (such as commission earned

[5] This refers to financial assets whose value has declined considerably. Thus, it becomes impossible to dispose such assets at any reasonable value acceptable to the holder.

on shares traded; commission payable to SEC, NSE or CSCS). However, the ability to sustain this improvement remains uncertain.

Oladipupo (2010) observed that while other markets are recovering from the effect of the global financial meltdown, the Nigerian stock market has found it difficult to recover from this effect. He attributed this to the artificial growth which preceded the crisis. Different efforts have been made to assist the market to recover from its present state. In 2008, the Nigerian government instituted a committee which recommended the introduction of market makers and share buybacks. In addition, the regulatory authority in the capital market (SEC) constituted a committee of 15 charged with the duty of evaluating market structure and processes. The committee offered 32 suggestions targeted at improving the market. The management of the SEC has started implementing some of these recommendations. One of the key recommendations given by the committee is the development of new product lines which include futures and options.

2.7 Dividend Payment Procedure on the Nigerian Stock Exchange

Cash dividend payment is the most widely adopted means of distributing cash to shareholders on the Nigerian Stock Exchange. Payment of dividend is approved at the annual general meeting of shareholders. Dividend declaration by firms listed on the exchange is usually accompanied with announcement date for closure of register (ex-dividend date). The Nigerian Securities and Exchange Commission requires that within 24 hours of declaration, the registrar of the company should open an account and the total dividends declared is paid all together into such an account pending onward payment to shareholders. Evidence of opening of the account and payment into the account must be forwarded to SEC within 24 hours. Thereafter, the registrar of the company effects the

payment to shareholders either through issuance of dividend warrants or through electronic transfer. The registrar shall be liable to a penalty for failure to effect dividend payment within the time stipulated after declaration. The electronic dividend (E-dividend) payment procedure was introduced in year 2008 on the Nigerian Stock Exchange in order to improve efficiency and to minimize forfeiture of dividends. Prior to the introduction of e-dividend, dividend warrants were sent to shareholders but this method was characterized by non-receipt of dividend warrants by many shareholders. Banji (2008) claimed that the role of registrars in remittance of shareholder's dividends in Nigeria is very disappointing. He lamented that the registrars blamed non-receipt of dividend warrants on postal agencies when such warrants were never posted or posted to the wrong address. Some shareholders were also made to physically visit the registrar of companies to obtain their warrants. This method is widely seen as primitive and punitive.

It is expected that through e-dividend payment method, shareholders will have the opportunity of receiving the proceeds of dividend payments promptly. SEC mandated all registrars to effect payment of dividends on behalf of their clients electronically and such payment should be made at no cost to the shareholders. The Nigerian interbank settlement system is used as a platform to effect the payments into shareholder's account. However, the Central Securities Clearing System (CSCS) reported in year 2012 that only about 40% of shareholders have filled the e-dividend mandate**.** As a result of this, the registrars still adopt two methods: e-dividend payment for those that have filled the mandate and issuance of dividend warrants for those that have not. The SEC recently issued directives of its decision to stop the issuance of dividend warrants effective from 3rd June, 2013.

2.7.1 Stock Repurchase on the Nigerian Stock Exchange

Unlike in many other stock markets across the world, the share repurchase option is still new in Nigeria. The stock repurchase option was introduced in year 2008 as part of the efforts made to resuscitate the stock market. At the peak of the market crisis, many investors pulled out their funds and dumped shares on the NSE. This led to supply of shares outweighing the demand. Due to the weak demand that flooded the market as a result of loss of investor's confidence, the share buy-back was adopted as a way to minimize this problem. Based on the regulations laid down by SEC, listed firms cannot purchase more than 15% of their currently issued and paid up capital in any fiscal year. However, Proshare News (2013) reported that share buy- back option has been slow in its implementation in the Nigerian stock market and companies have not embraced this payout option.

2.8 Pronouncements Related to Dividend Payments

Listed firms are expected to notify the market of any announcement in dividend, any dividend declared to be paid including approval for payment of dividends in their corporate actions report to the NSE as well as in major national newspapers. Any company making such declaration must have complied with the following provisions.

1) Sec 379 (1) of the Companies and Allied Matters Act (CAMA) provides that a company can declare dividends for any particular period based on the recommendations given by the board of directors in a general meeting.

2) Sec 379 (5) of CAMA states further that contingent on provisions of the act, companies can only pay dividends to shareholders out of their distributable profits.

It can be inferred from the provisions of this section that profitability may be an important determinant of a firm's decision to distribute dividends on the Nigerian Stock Market. In the same vein, we can infer that firms facing cash flow constraints may have low propensity to pay dividends since they cannot augment their dividend levels with external financing. This is clearly stated in Sec 381 (1) of CAMA states that a company should not pay dividends if such dividend payment will affect its ability to pay its liabilities as and when due after the payment. It can also be inferred that debt level may impede the ability of firms to pay dividends based on this act. This is because the higher the debt level, the lower the resources available to finance dividend payment.

2.9 Tax Treatment of Dividends and Capital Gains in Nigeria

The Nigerian tax laws subject companies doing business in Nigeria to corporate income tax and individuals to personal income tax. Based on this, dividend income of individuals and corporations in Nigeria is subject to 10% withholding tax (Sec 72 of Personal Income Tax Act (PITA) and Sec 63 of Companies Income Tax Act (CITA)). However, dividend paid by a Nigerian company to another Nigerian company is tax exempt [Sec 63(2) of CITA]. The paying companies are statutorily required to deduct the withholding tax on dividends and remit to the relevant tax authority within 30 days of deduction. In order to prevent double taxation, dividend received by investors after deduction of withholding tax is regarded as franked investment income [Sec. 62(3) of CITA]. As such, the shareholder only suffers the withholding tax which is regarded as final tax and such dividend is not taxable again in the hand of individual shareholders. The following dividend incomes are exempted from tax in Nigeria:

- Dividend paid between two Nigerian companies.

- Dividend received from small companies in the manufacturing sector within the first five years of operation.

- Dividend received from investment in wholly export-oriented businesses.

- Dividend distributed by a unit trust.

- Dividend distributed by pioneer companies during the pioneer period.

Capital gains tax in Nigeria is levied at 10%. However, gains arising from the sale of securities have been exempted from capital gains tax since 1998 (CGT ACT, Sec 26). Foreign investors are also subjected to 10% withholding tax on their dividend income. The rate is reduced to 7.5% in some cases where there is double taxation treaty between Nigeria and the country in which the foreign company is resident. However, Nigeria has only few tax treaties compared to its counterparts. Currently the country has double taxation agreement with only 12 countries whereas South Africa has over 60 tax treaties which include major countries such as US (PWC, 2014).

2.10 Foreign Investment in Nigeria

Prior to 1995, there were restrictions on foreign investment in the Nigerian economy. The Exchange Control Act of 1962 prevented free entry and free exit of investment funds in and out of the country. Similarly, the Nigerian Enterprise Promotion Decree (NEPD) of 1989 was promulgated to make Nigerians have greater control of the economy, thus restricting foreign investors from gaining access to the capital market. However, these laws preventing free flow of capital were abolished by the government in 1995 in order to encourage inflow of foreign investment into the country. The abolition of these laws removed all restrictions on foreign ownership as Sec. 17 of the NIPC decree of 1995

allows 100% of foreign ownership outside the oil and gas sector. Generally, foreign investment in Nigeria takes the form of foreign direct investment (FDI) or foreign portfolio investment (FPI). Despite this, capital flows to Nigeria have majorly been in the form of foreign direct investment in the prior years (Chukwuemeka, 2008). However, in recent years, foreign portfolio investment has dominated with an increasing trend in the percentage of foreign investor's shareholdings in the Nigerian stock market between year 2007 and 2011. As at end of year 2012, foreign investor's shareholdings in the Nigeria stock market stood at 61.4% as opposed to 38.6% held by domestic investors. The following laws regulate foreign investment in Nigeria:

-The Nigerian Investment Promotion Commission Act No. 16 of 1995

-Foreign Exchange (Monitoring and Miscellaneous Provisions) Act No. 17 of 1995

2.11 Summary

The Nigerian Stock Market has developed over the years with major contributions from the financial sector, consumer goods sector, and the industrial goods sector. However, this development was recently hampered by the stock market crisis which the market has not fully recovered from. It is expected that the market will rebound to its pre-crisis level. Dividends are majorly paid through cash dividends in Nigeria. However, the payment of dividend is prohibited when a company is not financially sound.

CHAPTER THREE

LITERATURE REVIEW

3.0 Introduction

The chapter consists of two main parts: underlying theory and empirical evidence. Following the discussion of relevant theories, the chapter presents detailed review of related empirical studies. Prior studies on the phenomenon of rise in non payment of dividends were reviewed. Following this, prior studies on effect of foreign ownership on dividend payout decisions were discussed. The chapter then proceeds to discussing other explanatory factors that prior studies have shown to explain dividend payout decisions. Empirical evidence on dividend payments during crisis was also discussed. The chapter concludes by providing a brief summary.

3.1 Underlying Theories

There are two main divergent views that tend to proffer answer to whether dividend payments affects the value of the firm or not: dividend irrelevance and dividend relevance. Dividend irrelevance proposition by Miller and Modigliani (1961) states that investors are indifferent as to whether they receive dividends or capital gains, therefore, dividend does not affect the firm's value. The position of Miller and Modigliani (1961) form the basis of argument on dividend policy of firms. Researchers have argued that assumptions of the MM theory may not hold in the real world where imperfections exist. As such, different theories have been propounded overtime to prove the relevance of dividends. These theories indicate why firms may be inclined towards one pattern of dividend above the other and why investors may have their own dividend preferences.

Different dividend theories relates to the research questions raised in this study. The effect of foreign ownership dividend payout policies can either be explained using the agency or clientele theory. Similarly, studies in developed markets have offered explanations on the propensity to pay dividends in line with the catering theory and the life cycle theory. The signaling theory can be used to explain firm's dividend behavior during market crisis. Therefore, following a brief explanation of the MM dividend irrelevance theory, the following sub-section presents a chronological explanation of the theories which relates to the study.

3.1.1 Dividend Irrelevance Theory (MM Theory)

The genesis of dividend irrelevance can be traced to the MM theory which was propounded by noble laureates Modigliani and Miller in 1958 which is also referred to as capital structure irrelevance principle. Vilamil (2008) noted that what is currently understood as MM theorem comprises four distinct results from series of papers (1958, 1961, & 1963). The theory, under a certain market price process, in the absence of taxes, bankruptcy costs, agency costs and asymmetric information and in an efficient market, brings up certain propositions: Firstly, the theory asserts that the value of the firm is unaffected by how the firm is financed. The implication of this is that given two firms that are similar in all respect (except in their financial structures), the value of the firms are the same regardless of the differences in leverage. The second proposition of the theorem states that the firm's leverage has no effect on its average cost of capital.

The concern of this study relates to the paper of Miller and Modigliani published in 1961 which brought about the third proposition. This proposition asserts that the dividend policy of a firm has no effect on its market value. The implication of this is that

dividend policy has no effect on the price of the firm's stock and therefore shareholders are indifferent about dividends and capital gains. Al-Malkawi, Rafferty, and Pillai (2010) explained that the reason for the indifference is that shareholders wealth is affected by income generated by the investment decisions a firm makes and not by how the firm distributes its income. In a world with no resistance as assumed by Modigliani and Miller (1958, 1961), investment is held constant and higher dividend payout lead to lower retained earnings and capital gains. In the same vein, lower dividend payout lead to higher retained earnings and capital gains thus leaving total wealth of the shareholder's unchanged. Therefore, the position of the MM dividend irrelevance theory is that the value of the firm is affected by the earnings power and its decision but not by the dividend payout policy. Therefore, the value of the firm depends on the free cash flow left after all viable investments have been met. The argument of the MM theorem is based on certain assumptions: existence of perfect market and rational behavior by the investors; free information is available to the investors; no time lag and no transaction cost exist; securities can be split into any part; no taxes and floatation cost; and the investment decisions are taken firmly and the profits are therefore known with certainty.

3.1.2 Dividend Smoothing Hypothesis (Lintner's Model)

This hypothesis which establishes the importance of dividend stability derive from the survey evidence provided in the seminal work of Lintner (1956). Lintner's (1956) findings revealed that firms are largely concerned about maintaining stable dividend levels. This is because investors put a high premium on firms that have stable dividend policy and this is reflected in higher valuation of the firm by the market. As such, firms consider past dividend rates when setting current dividend levels. Findings from his

survey also indicate that managers are usually unwilling to cut dividends and will only do so when there is no alternative. Similarly, the survey evidence indicate that managers will not increase dividend levels unless they are convinced that higher dividends can be sustained by the earnings. Therefore, Lintner's (1956) survey revealed that earnings and past dividend are the most important factors that determine any decision on dividend changes.

Following these survey findings, Lintner developed a model which indicates that managers consider the proportion of earnings to be paid out as dividends to set a target payout rate. The model theorizes that firms employ a slow adaptive process in setting current dividend levels and this current level is taken as an adjustment of existing dividend rate to the target rate. Thus, firms set their dividends based on dividend paid in the previous year and the level of current earnings. Managers alter their dividend levels slowly to adjust with the target payout ratio and the rate of adjustment towards this target is the speed of adjustment. However, the speed of adjustment towards the target payout rate differs among companies. In offering further explanation to Lintner's model, Baker and Wurgler (2011) described the model as a model in which "past dividends are reference points against which current dividends are judged" (p. 35). The authors argued that if current dividend level fall below the reference point set by past dividend, then some investors may sell off stock which will lead to decline in price. Thus, the main conclusion in Lintner's model is that existing rate of dividend is the yardstick for setting future dividend levels.

3.1.3. The Clientele Theory of Dividend

There are two different views on the clientele theory of dividend depending on whether clienteles will affect the firm's value or not. Dividend clientele was first recognized by Miller and Modigliani (1961), however they are of the view that such clienteles have no effect on the firm's value. On the other hand, other authors have shown that dividend clienteles have effect on the value of the firm (Brennan, 1970; Elton & Gruber, 1970).

Dividend clientele refers to a group of investors with preference for a particular dividend policy that best suits their interests (Al-Malkawi, Rafferty & Pillai, 2010). This theory explains the fact that the different groups of investors have preferences for the varying policies of a company. As a result, investors alter their shareholdings in response to changes in company policies and this has effect on the share prices (Allen, Bernardo & Welch, 2000; Al-Malkawi *et al.*, 2010). Therefore share prices vary in line with the interests of the different types of investors and the theory gives an insight to increases/decreases in stock prices according to changes in company's policies. Usually, investors can be categorized into three groups: those that desire dividend; those that are indifferent and those that are averse to dividends. The implication of this is that investors are likely to invest in companies whose dividend policy matches their needs. Therefore, the 'clientele effect" arises from stakeholder's preference for one dividend pattern above the other. Thus, investors who prefer immediate returns on their investment rather than capital gains will invest in stocks that pay high dividend while investors in high tax bracket who desire future capital gains as opposed to current income will invest in stocks with low dividends. Dividend preferences resulting from differential taxation on dividend and capital gains will depend on how capital gains tax is implemented in a particular

country. With exemption of shares from capital gains tax in Nigeria, tax disadvantage exists on dividend relative to capital gains. The situation is the same for countries that do not implement capital gains tax at all. However, this clientele argument is weakened in a country where capital gains tax on shares exist at the same rate with dividend tax. In such situation, the investor may be indifferent since the same tax rate is imposed on dividend and capital gains. In many instances, a particular group of investors desire that the company will follow a certain dividend policy which is most suitable to them but this is not always the most advantageous to the company. This effect shows that a major reason why an investor is attracted to a particular company is its dividend policy.

Miller and Modigliani (1961) explained that there are costs associated with market imperfections: transaction costs and differential tax rate. Such costs influence the portfolio preference of investors. In a bid to reduce these costs, investors may therefore prefer one portfolio above the other. The resultant effect is to either have tax-minimization induced clientele or transaction cost minimization induced clientele (Al-Malkawi *et al*., 2010). Based on this, Miller and Modigliani (1961) referred to dividend clientele effect as the likelihood that investors will favour a particular type of dividend paying stock. Although Miller and Modigliani (1961) recognized the existence of clientele effect and agreed that clienteles may be formed on age or income preferences but they disagreed that such effect have any impact on the value of the corporation because they argued that one clientele is as good as another. Miller and Modigliani (1961) recognized that clienteles may be formed on age basis based on the assumption that while the older clientele groups (such as retired persons) prefer "income stocks" to meet their immediate consumption needs, the younger clientele groups prefer low payout as they

desire to accumulate wealth. However, the authors argued against the clientele effect by suggesting that investors do not have to depend on the firm in deciding their preferred pattern of cash flow. An investor who has current need for cash from his investment can sell off part of his stock or in other words could have "homemade" dividends.

Tax induced clientele effect advanced by Brennan (1970) and Elton and Gruber (1970) is the most popular explanation for the clientele theory. Brennan (1970) developed the asset pricing model which encompasses differences in the taxation of dividend and capital gains. In the perfect market, taxes do not exist but they do in the real world. Differences in the taxation of dividends and capital gains influence investor's preference for a particular dividend pattern. The tax clientele explains the fact that some investors are tax advantaged while others are tax disadvantaged. The former category will prefer high-yield firms while the latter will prefer low-yield firms. Some investors are indifferent to the dividend yield of their portfolio as they are tax exempt. In some instances, because personal income tax paid by individual investors are taxed more, they tend to prefer low yield stocks than institutional investors who prefer high yield stocks as they are less affected by tax. Elton and Gruber (1970) gave further explanation on tax-induced clientele effect using stock price movement on the ex-dividend date. Their hypothesis explains that stock price movement on ex-dividend day is based on the differences in the taxation on dividend and capital gains. Shares purchased prior to the ex-dividend date include a claim on dividend announced while shares purchased on the ex-dividend date do not include such claim. Thus, the change in price of the share resulting from the dividend claim makes it possible to estimate the marginal valuation of dividends and capital gains in the market. Their hypothesis shows that stock prices react

to ex-dividend day's stock prices by falling less or more than the amount of dividends. Thus, the stock price reaction will depend on marginal stockholder tax rate which derives from the differential valuation which the market places on dividend and capital gains.

The transaction cost induced clientele (Brennan, 1970) on the other hand, counters the position of Miller and Modigliani (1961) on the ability of investors to make "homemade" dividends. This is based on the fact that transaction costs arise from changing portfolio or from the sale of stocks. This transaction cost associated with selling stocks may be significant for investors who require dividend for their immediate liquidity needs, therefore such investors may stick to high and stable dividend stocks. Transaction cost-induced clientele may also arise when firms need to raise external financing. The issuing cost may be significant, hence causing firms to rely on retained earnings as opposed to external financing. The implication of this is that dividends are reduced. Therefore, the hypothesis predicts a negative relationship between dividend and transaction cost.

Apart from the ability of investors to create "homemade" dividends as argued by Modigliani and Miller (1961), the issue of diversification may cause clientele effect to be suppressed (Allen *et al.*, 2000). A clientele may diversify from a portfolio that best suit their interest (tax bracket) just to decrease the risk of their portfolio. For instance, an institutional investor may prefer firms with low dividends to diversify their portfolio and reduce their risk. Similarly, the impact of the clientele effect can be nullified through what Black and Scholes (1974) referred to as the "supply effect". This suggests that at a point in time, the market reaches equilibrium and no firm can influence share price by adjusting its dividend policy (to suit a clientele). This argument was criticized by Allen *et*

al. (2000) where it was shown that investment by certain group of shareholders can have positive effect on certain firms (high quality firms). Another effect also put forward by Black and Scholes (1974) to weaken the clientele effect argument is the "uncertainty effect". This effect states that investors may not consider dividend yield in making their portfolio decisions as they are ignorant of the effect of this yield on portfolio returns.

3.1.4. Transaction Cost Hypothesis

Firms may incur costs when dividends are paid while investors may also incur costs by collecting dividends. Therefore, the influence of transaction costs on dividend policy has been explained from two different perspectives in the literature. On one hand, one of the issues highlighted in Miller and Modigliani's (1961) perfect capital market assumption is that trading of securities does not involve transaction costs. However, subsequent explanations have shown that transaction costs do exist and the need to minimize such costs may lead investors to having preference for one form of dividend stocks above the other. This is highlighted in the discussion on clientele effect in sub-section 3.1.3.

Besides the transaction costs which relates to clientele effect, transaction costs also arises due to the fact that payment of dividend makes it necessary for the firm to seek external financing either through issuing of new equity or debt financing. Regardless of which one is adopted, transaction costs are involved and this might lead to the firms having less preference for external financing. The transaction cost which firms incur due to the need to resort to external financing is referred to as "cost of dividend" in Bhattacharya's (1979) model. Brav, Harvey, Graham, and Michaely (2005) noted that high transaction costs are incurred by firms when they access external capital due to limited access to capital. Such costs include floatation costs such as underwriting fees,

administrative costs, management time, legal expenses (Manos, 2003) and periodic interest payments related to debt financing (Rozeff, 1982). Thus, Rozeff (1982) stated that transaction costs of external financing increases as payout increases. Thus, firms which are more dependent on external financing would adopt lower payout ratios. A main factor that increase dependency on external financing is leverage as high leverage commits the firm to periodic debt servicing which must be met consistently (Rozeff, 1982). Thus, firms with high leverage maintain low dividend payout in order to minimize transaction costs associated with external financing. This suggests that dividend payment is inversely related to external financing. Further discussion on how this hypothesis relates to the agency theory is also given in sub-section 3.1.6.

3.1.5. The Signaling Theory (Information Content of Dividend)

Signaling theory was pioneered by Akerlof (1970) and generalized by Spencer (1973). Their work form the basis for models later developed on signaling theory of dividend (also referred to as the signaling hypothesis). The prominent signaling models were developed by Bhattacharya (1979), John and Williams (1985), and Miller and Rock (1985). The signaling theory of dividend proposed that dividend announcement relay information to investors regarding the firm's future prospects.

The MM theory assumes symmetric information and this suggests that all market participants have the same information about the firm. In contrast, information content of dividend which is revealed by the signaling hypothesis reveals that the privileged information which managers (as insiders) have about the firm is unknown to the investors. Although information is made available publicly, managers may possess more information than outside investors (Khang & King, 2003; Pandy, 2008). Investors

therefore get clue on such information when dividend announcements are made. Such in turn influences their investment decisions. This knowledge of the manager's behavior can serve as a basis for bidding the price of a firm's stock up in case of positive dividend announcements and beating it down when the announcement fails to meet investor's expectation. Therefore, as opposed to the assumption of MM theory, the problem of information asymmetry may arise in practical situation as those within the organization have more information than outsiders. This existence of asymmetric information therefore may signal the true value of the firm to investors. The sensitivity of dividend to future prospects of the firm will be high if the level of information asymmetry is high. Gunasekarage and Power (2006) stated that information signaling extends to managers disclosing information about their policy for financing investments to the market through dividend decisions. Therefore, a high dividend payout implies that the firm is being financed by way of equity or debt while a low dividend payout implies that the firm is being financed using retained earnings. Al-Malkawi (2007) reinforced this by observing that the motives of signaling nature include the need to indicate future prospects, to obtain external finance, to inhibit takeover and to adopt and act in accordance with a policy. Signaling of information which indicates strong future prospects for the company making the announcement can be used to influence share price.

Different models have been developed in order to explain dividend policy based on asymmetric information. Bhattacharya (1979) tested the information content of dividends by showing that dividends could be employed as a future cash flow sign. In the model, cash dividends serve as an indication of anticipated cash flow of the firm in an imperfect information condition. The author noted that the main signaling costs that

makes dividend to serve as signals evolve due to the fact that taxation is imposed on dividend at ordinary income tax rate while capital gains are subjected to lower tax rates. Therefore, the model is regarded as tax-based signaling cost structure premised on the possibility that signaling equilibria can be achieved. The model explains that cash flows generated in a period are used to finance dividends and when it is not enough to pay dividends, the firm should seek recourse to external financing since the dividend has been established. Therefore, Bhattacharya's model is premised on the assumption that firms pay dividends even when they are taxed. Bhattacharya's model has been criticized on the basis that it considers dividends and share repurchases as substitutes and on the grounds that it fails to explain dividend smoothing and the application of a single signal model. Lease, John, Kalay, Lowenstein, and Sarig (2000) faulted the model by stating that the model fails to explain why firms stick to a specific dividend level since there is no contractual obligation upon them to do so.

On the other hand, Miller and Rock (1985) suggests that managers have better information regarding the firm's current earnings and that announcement of dividend transmits this information to the market and based on this, they developed a signaling model to show that dividends could provide information concerning earnings. Unlike the Bhattacharya's model, Miller and Rock (1985) used a two period model which shows that cash flows generated in a particular period is used to pay dividends and to re-invest in new projects. In the subsequent year, the situation repeats. The model is premised on the belief that managers consider dividend announcements as a reflection of unannounced earnings when evaluating the firm. Therefore dividend announcements are used to convey information about future earnings. Miller and Rock's model was also criticized

due to the fact that it did not take into consideration situations where earnings are announced before dividend announcements thus giving shareholders information on earnings. Another signaling model was developed by John and Williams (1985). This model identified dividend under taxation and therefore attributed the positive association between dividend yield and firm's profitability to information effect and taxes.

These studies reveal that an increase in dividend is viewed by investors as a positive signal while a decrease is viewed as a negative signal. Generally speaking, announcement of high dividend signals sustainable future earnings to the investor as it is believed that managers will not increase dividend if they are not confident of the future performance. Elfakhani (1995) proposes that dividend signals is composed of three parts: the content favorableness (which may be good or bad); the sign of the dividend change (which may be positive, neutral or negative); the role of the dividend signal (which may be confirmatory, clarifying or unclear). It was argued further that investors should be more concerned about the content favorableness than the sign of the dividend change. There are costs associated with signaling information to the market (Al-Malkawi, 2007; Deeptee & Roshan, 2009; Miller & Rock, 1985). Al-Malkawi (2007) argued further that only firms with high quality can use dividends to convey signals to the market and low quality firms cannot imitate this due to the cost implication. Deeptee and Roshan (2009) also noted that firms have different ways of sending information to the market but most importantly, the firm must be able to sustain the cost of conveying the information. One of the costs of signaling explained by Miller and Rock (1985) is the need to pay high level of dividends which small firms cannot imitate. Dividend signal may also be

misleading as Easterbrook (1984) rightly observed that dividends do not distinguish between well-managed firms and others, thus signaling may be ambiguous.

3.1.6 Agency Theory of Dividends

Agency theory is a theory that is concerned with resolving problems that emerge from agency relationships. Two common problems are related to agency relationships: conflict of interest in the desires or goals of the principal and the agent on one hand, and on the other hand, the two parties may have different attributes towards risk resulting in inclination to take different actions. In the context of a firm, agency theory derives from the separation of ownership of the firm and its control. The shareholders are the principals while the company management (executives) is the agent who runs the company for the owners. Therefore, agency theory in this context observes the relationship or interaction between the shareholders (as owners of the company) and the management (as those responsible for managing the company). Jensen and Meckling (1976) in their pioneering work of agency theory of dividends showed that agency costs arise from the differing objectives of the managers and the shareholders.

Easterbrook (1984) and Jensen's (1986) models theorize that dividends play an important role in mitigating the agency issues between managers and the shareholders. Easterbrook (1984) postulated that small shareholders have no incentive to monitor managers. Therefore payment of dividends plays the monitoring role in this situation. Payment of dividend reduces the resources under the management's control thus increase the likelihood for the company to seek external funds from the capital market. Consequently, this will create opportunity for scrutiny of the company by investment banks, securities exchanges and capital suppliers (Hansen, Kumar & Shome, 1994).

Therefore, two predictions can be inferred from Easterbrook's model. Firstly, positive relationship is expected between dividends and the presence of large shareholders who can effectively monitor management as there will be no need for dividend to play the monitoring role. Secondly, the model predicts a positive correlation between dividend and debt level of the firm. This is based on the fact that external financing will be reduced when the firm pays less dividend.

Jensen's (1986) model indicates that by paying out dividends, free cash flow is reduced, thus agency conflicts are minimized. Free cash flow is described by Jensen (1986) as the cash flow remaining after investing in all positive NPV projects. Jensen (1986) also noted that companies with excess cash flow experience agency conflicts. This is based on the belief that managers with free cash flow are likely to spend on unprofitable projects or for their own personal needs to the detriment of the outside shareholder. Therefore, Jensen's free cash flow hypothesis predicts a positive relationship between dividends and cash flow due to the need to mitigate agency conflicts. Jensen (1986) also noted that in order to minimize agency costs, companies can reduce their free cash flow by increasing leverage which requires regular payment of interest. Thus, Jensen's (1986) theory also predicts a negative relationship between leverage and dividend. As indicated earlier, Easterbrook (1984)'s model indicates that dividends reduces agency costs but increases the transaction cost associated with raising external funds. This is because by paying out dividends, resources under management's control are reduced. Hence, companies are forced to seek external financing by going to the capital market. This creates opportunity for capital market monitoring (Easterbrook, 1984; Rozeff, 1982). Rozeff (1982) in his cost minimization model explained the tradeoff

between reducing transaction cost and increasing agency cost. The model showed that transaction cost that will be reduced through decrease in dividend payout will be accompanied by increase in agency cost. When dividend payout is reduced, there may be less need for external financing thus lowering transaction cost associated with such financing. However, this reduction in dividend payments increases the resources under management's control which may be invested into non-profitable projects or diverted for personal use, thus increasing agency costs. Based on this, it was argued further that the most favourable payout ratio is the level where the sum of both agency cost and transaction cost is minimized. Therefore, Rozeff (1982) in his transaction cost hypothesis indicates that a firm with high debt level will lower dividend payment in order to minimize transaction cost. Thus, a negative relationship is expected between debt level and dividend.

In summary, the conflicting interest between managers and shareholders create agency conflict which can be minimized by paying out free cash flow. This is because payment of dividend help to prevent the overinvestment issue that results from having free cash flow. However, such payment may lead to increase in transaction cost associated with raising external finance. Therefore, the dividend payout should be maintained at a level where both agency cost and transaction cost are minimized.

3.1.7. Life Cycle Theory of Dividends (Maturity Hypothesis)

Mueller (1972) propounded the life cycle theory of the firm. This theory which has been applied to payout by Fama and French (2001) and Grullon, Michaely, and Swaminathan (2002) was re-instated and gained more popularity from the study of DeAngelo *et al*. (2006). The life cycle theory of dividend explains that the corporate payout policy of a

firm varies over the different stages of its financial life cycle (DeAngelo *et al*., 2006; Fama & French, 2001; Grullon *et al*., 2002). The theory extends explanation of the free cash flow hypothesis of Jensen (1986). Based on the life cycle theory, availability of free cash flow for onward disbursement to shareholders as dividends depend on the stage a firm has attained in its financial life cycle. There are different indicators of the stage of a firm in its financial lifecycle. Fama and French (2001) stated higher profitability, larger size, and fewer investment opportunities are features of a firm that have attained the maturity stage of its lifecycle. Extending the explanation of Fama and French (2001), DeAngelo *et al*. (2006) documents that firms that rely more on internal funding rather than external financing are firms that have attained the maturity stage of their lifecycle. The authors indicate that firms with high retained earnings to total equity (proxy for lifecycle theory) are mature firms with sufficient profits that make them largely self-financing. However, high retained earnings to total equity may be as a result of low payout policy by the firm which suggests that the firm is in its growth stage. In line with this, further analysis conducted by this study shows that retained earnings to total equity may not be an appropriate measure of firm's maturity.

In line with the preceding, firms that have attained maturity stage have more profits to meet their fewer investment opportunities, therefore they tend to have more free cash flow than firms in their growth stage with more investment opportunities. Therefore, firms in their mature stage have tendency to pay more dividends than the growth firms. Dividend payers are mature firms characterized with more profitability, larger size and fewer investment opportunities **(**DeAngelo *et al*., 2006; Fama & French, 2001; Grullon *et al*., 2002). DeAngelo *et al*. (2006) also argued that a firm's stage in its financial life cycle

determines the optimal dividend policy. The underlying premise of the lifecycle theory is explained by Grullon *et al*. (2002). The authors argued that when a company transcends from the growth stage to the mature stage, then there is a decline in the rate of re-investment. This decline in the rate of re-investment will lead to holding more excess cash which can be disgorged as dividends. The authors referred to this transition which enables the firm to be able to pay more dividends as "Maturity Hypothesis". As investment opportunity set become smaller and growth rate reduces due to maturity, firm's ability to generate cash outweighs its available profitable investments. Consequently, it becomes optimal to pay out free cash flow as dividends.

3.1.8 Catering Theory of Dividends

This theory gave momentum to the behavioral arguments used to explain dividend decisions by Shefrin and Statman (1984). Shefrin and Statman (1984) explains investor's preference for dividends by putting up reasons why dividend and capital gains cannot be regarded as perfect substitutes. The authors contend that investor's preference for high or low dividend payout depends on their demographic attributes. Their behavioral argument indicates that some investors prefer dividends for self-control reasons and the wish to avoid regret. Investors may wish for immediate return on investment due to difficulty in self-restraint. Shefrin and Statman (1984) also stated that "consumption from dividends may be preferred to consumption from capital gains for people who are averse to dividend" (p. 268).

Catering theory was propounded by Baker and Wurgler (2004a). Contrary to Miller and Modigliani (1961) which holds that investors do not care whether they receive dividends or capital gains, Baker and Wurgler (2004a) asserts that investors have demand

for stocks that pay dividend and such demand changes with time. Baker and Wurgler (2004a) hypothesized that payment of dividend is influenced by investor's demand for dividend. According to the authors, managers cater for shareholder's demand and therefore pay dividends when investors expect dividend payment and withhold payment when investors do not desire dividend payment. This investor's demand reflects risk preferences or sentiments of investors which vary with time and which may make investors prefer dividends or capital gains depending on whether they are in the low or high sentiment periods. In order to maximize current share price, managers cater to investor sentiment when investors put a high valuation on dividend paying stocks. This value placed on dividend payers is referred to as the "dividend premium"[6] and therefore managers are more inclined to pay with a higher dividend premium and less inclined to pay with a lower dividend premium (Baker & Wurgler, 2004a; 2004b).

3.2 EMPIRICAL EVIDENCE

This section discusses prior empirical evidence related to this study. These include: studies that provide evidence on dividend payment patterns across different countries; studies on factors that explain firm's payout decisions; studies on dividend payment during financial crisis and existing studies on dividend policy in Nigeria.

3.2.1. Evidence of Dividend Payment Patterns

As indicated above, Lintner (1956) contends that managers are usually unwilling to change dividends. Lintner's model demonstrated further that present year earnings and prior year dividends have effect on dividend pattern of a firm. Recent empirical studies

[6] Dividend premium is obtained from the difference between the average market to book of dividend payers and non dividend payers (Baker & Wurgler, 2004a).

have provided evidence of declining dividend payout by firms. The most widely cited study in this area is the research conducted by Fama and French (2001) where the 'disappearing dividend' phenomenon was depicted. The authors indicated that dividends are disappearing because the numbers of dividends payers were reducing. Using data covering NYSE, AMEX and NASDAQ firms in the US stock market, the study documented a significant decline in firm's propensity to distribute dividend between 1978 and 1999. The findings show that the proportion of listed firms that distributed dividends fell to 20.8% in 1999 from 66.5% that was recorded in 1978. This phenomenon was referred to as 'disappearing dividends' by the authors. Fama and French (2001) found that firms have become less likely to pay dividends despite controlling for changes in the firm characteristics such as size, growth opportunities and profitability that are related to dividend payment of dividend payers. It was found that up to 20% of firms that were still projected to pay dividends did not pay. The characteristics of a dividend payer as given by Fama and French (2001) include: larger size, more profitability and lower investment opportunities. Based on their findings, Fama and French (2001) concludes that decline in the number of dividend payers is partly due to the changing characteristics of firms and that in spite of these characteristics, firms have become less likely to pay dividends.

Baker and Wurgler (2004b) provide new explanation to Fama and French's (2001) results by re-examining the same sample over an extended period, 1963 to 2000. In line with the conclusion of Fama and French (2001), Baker and Wurgler (2004b) found that firms now have tendency to pay less dividends. Therefore, their findings reinforce the "disappearing dividends" of Fama and French (2001). Baker and Wurgler (2004b) documented that stock market incentive to pay dividend is high when there is a positive

dividend premium and the incentive is low when the dividend premium is negative. In other words, firms are more likely to distribute dividends when investors attach a high value to dividend paying stocks and less likely to pay when the value placed on dividend paying stocks is low. Thus, it was concluded that catering theory (firm's response to investor's demand for dividend) is the most significant explanation for changes in the propensity to pay during the sample period as the four historical trends observed during this period nearly matches with four broad fluctuations in catering incentives.

By extending the sample period of Baker and Wurgler (2004b) to year 2004, Hoberg and Prabhala (2009) offered an alternative explanation for the decline in dividends by investigating whether risk can serve as explanation for the disappearing dividends. Consistent with Baker and Wurgler (2004b), and Fama and French (2001), their study confirmed that the propensity to pay dividends declined from 1978. The finding also indicates that firms with higher profitability, lower market-to-book ratio and lower asset growth rate have higher likelihood to pay dividends. Despite the inclusion of variables observed by Fama and French (2001), the results show that risk accounts for 40% of disappearing dividends. The study also tested the catering explanation using the same measure of Baker and Wurgler (2004b). Contrary to the position of Baker and Wurgler (2004b), the findings of Hoberg and Prabhala (2009) provide little support that the phenomenon of disappearing dividend can be attributed to the catering incentive. The authors argued that "catering explanation" is only significant when risk is not controlled for but becomes insignificant when the risk factor is accounted for. Therefore, risk is an essential factor that explains dividend pattern of companies (Hoberg & Prabhala, 2009).

DeAngelo, DeAngelo, and Skinner (2004) further clarify the nature of the dividend disappearance documented by Fama and French (2001). They showed that although number of dividend payers reduced by 50%, total dividend payout by industrial firms has in fact increased between 1978 and 2000. They pointed out that dividends have become more concentrated among a few players where 81.8% of dividends are distributed by the first 100 dividend paying firms. The authors conclude that dividend patterns are changing but not disappearing. They argued that the number dividend paying firms that have reduced consist mainly of those firms that distribute small dividends. Therefore, impact of nonpayment by such firms is not felt on the 'dividend supply'. The finding shows that the dividend payout by the large firms continued to increase and it was argued further that this increase even nullified the effect of non-payment by the small firms. DeAngelo *et al*. (2004) also provide strong evidence for Lintner's model as findings revealed that dividend increases come from earnings increase; therefore, dividend concentration also follows earnings concentration. Unlike the previous studies which have excluded financial and utility firms due to their unique regulatory structure, DeAngelo et el. (2004) demonstrates that the number of dividend payers in these firms have increased by 9.5% over the period studied. This implies that reduced propensity to pay dividends is limited to industrial firms.

Grullon, Paye, Underwood, and Weston (2011) confirmed the findings of DeAngelo *et al*. (2004) by showing that net cash disbursements for 4009 firms sampled in the US between 1973 and 2006 have increased overtime. Their study found no evidence in support of the reported decline in firms' propensity to pay out dividends. Similar to the results of DeAngelo *et al*. (2004) and Grullon *et al*. (2011), Julio and

Ikenberry (2004) observed a reversal of the downward trend in the new millennium and conclude that dividends are reappearing. The authors argued that the Bush dividend tax cut gave rise to more dividend initiations and many firms that have entered into the maturity stage of their life cycle started to pay more dividends. Julio and Ikenberry (2004) further observed that reduction in cash dividends during the 1990's coincides with considerable increase in share repurchase. It was concluded that firms substituted dividends for stock repurchases. This finding was also confirmed by Chahyadi and Salas (2012) who found that after controlling for repurchase activity, propensity to pay in 1998 increased from what it was in 1978.

The studies discussed to this point have focused on the US market. Following Fama and French's (2001) study, researchers have tried to investigate the dividend patterns in other markets. Similar to DeAngelo *et al.*'s (2004) dividend concentration findings for the US firms, Ap Gwilym, Seaton, and Thomas (2004) reported an increase in total real dividends of industrial firms in the UK between 1979 and 2000 despite the fact that number of dividend payers reduced significantly over this period. The results shows that by year 2000, dividend payers have reduced by 40% of what obtains in 1979 but real dividends increased by 136.5% during the same period. They found that most of the former payers were acquired; therefore the dividend paid by them did not disappear but have appeared in larger combined entities. Their findings indicate that the large payers that have continued to increase their dividend payment make up for the effect of some firms that ceased to pay dividends. In line with DeAngelo *et al*. (2004), their findings also provide evidence of dividend concentration amongst large industrial payers in the UK.

Ferris, Sen, and Yui (2006) examined the dividend patterns for the UK and Japanese between 1990 and 2001 with the aim of comparing the results with that of the US. Their findings contradict the reported decline in firm's propensity to pay dividends documented in earlier studies (Baker & Wurgler, 2004b; Fama & French, 2001; Hoberg & Prabhala, 2009). Their results show that the two markets recorded increase in aggregate dividends with 6.0% and 8.2% respectively but such increase is still incomparable to what obtains in the US documented by DeAngelo *et al*. (2004). Their findings which concurs with Ap Gwilym *et al*. (2004) and DeAngelo *et al*. (2004) also provided support for dividend concentration in the UK as it was revealed that 88.3% of the dividends paid in the UK come from the top 100 UK dividend payers. This result is comparable to 81.8% reported by DeAngelo *et al*. (2004) for the US companies. Contrarily, the study did not find such evidence for the Japanese market. However, it was reported for the Japanese market that average dividend was declining in size. The authors therefore concluded that fewer firms are distributing more dividends but this is not applicable to every part of the world.

Vieira and Raposo (2007) analyzed the propensity to pay dividends in three European markets between 1999 and 2002. They also found that the number of dividend paying firms reduced in the European markets. In a similar vein, Eije and Megginson (2007) who examined fifteen countries that were part of the European Union prior to May 2004 reported that dividend payers among the European firms reduced from 91% to 62% between 1989 and 2003 though real dividends paid increased during the same period.

Relatively few studies have also been conducted to observe the dividend patterns in emerging markets. Reddy and Rath (2005) provide evidence of declining propensity to

pay dividend among firms in India where proportion of dividend payers reduced from 57% in 1991 to 32% in 2001. The authors argued that this is as a result of the unwillingness to pay and the desire to explore growth opportunities. In Indonesia, Lestari (2012) documented a significant decline in the proportion of dividend paying firms from 88% in 1995 to 13% in 2006. In Thailand, the numbers declined from 84.2% in 1990 to 46.4% in 2002 (Ronapat & Evans, 2005). Kirkulak and Kurt (2010) examined the dividend pattern of publicly owned firms listed on the Istanbul Stock Exchange between 1991 and 2006. They found a decline in dividend payers from 51.28% in 1991 to 35.64% in 2006. The decline was accompanied by a decrease in the amount of dividend paid. Kirkulak and Kurt (2010) also found that dividend concentration among Turkish firms is not as high as it is in developed countries and the concentration decreased over the years studied, with the largest ten payers accounting for 78.71% of total payout in 1991 which declined to 66.77% in 2006.

The dividends disappearing and concentration phenomena is further verified by a cross-country study by Fatemi and Bildik (2012) that analyzed the dividend payout of 17,000 firms across 33 countries between 1985 and 2006. The authors concluded that these are global phenomena and are not unique to the developed markets. They document a decline in the percentage of dividend payers from 87% to 53% over the 22 years study period. Concurrently, 66% of aggregate dividends paid by firms during this period were from the ten largest dividend payers. Their findings revealed concentration ratio of over 90% for countries which include Denmark, Austria, Netherland and China. However, concentration ratio of less than 50% was reported for Japan, Canada, India and Malaysia.

It is evident from the review that most studies conducted on firm's propensity to distribute dividends have focused on the US, UK, and few other developed markets. As mentioned earlier, the issue remains largely unexplored in emerging markets, particularly in the African region.

3.2.2 Foreign Ownership and Dividend Payout Decisions

The literature on ownership structure and dividend policy focuses on how different types of ownership can influence dividend decisions. Based on the dominance of foreign investors' shareholdings in the Nigerian market, this aspect of the study specifically relates to how foreign ownership affects the firm's dividend payout decisions. In explaining foreign ownership effects on dividend payout decisions, most of the available literature fails to differentiate between foreign institutional and foreign retail ownership possibly due to data constraints. However, it was observed that most of the studies have focused on foreign institutional ownership. This may be attributed to the fact that most foreign investors are institutional investors. Foreign ownership emanates from a high proportion of shareholdings by the foreign institutional investors. There are two major strands of arguments on how foreign ownership affects dividend policy. Some of the studies have examined this relationship within the agency theory framework while others have looked at it from the perspective of the clientele theory.

Foreign investors influence dividend policy through monitoring incentives which emanates from their substantial shareholdings and their adoption of global standards and practices (Jeon, Lee & Moffett, 2011). Based on the agency theory, dividend payment is regarded as a substitute to direct monitoring of firms by large shareholders targeted at reducing over-investment problem (Easterbrook, 1984; Jensen, 1986). Thus, on one hand,

the theory predicts that a negative relationship exists between dividend payments and the presence of effective monitors where direct monitoring is possible. This is because the presence of direct monitoring creates less need to press managers to pay dividends which may lead to capital market monitoring. The theory explains that on the other hand, where these monitors cannot directly monitor management actions, then they force firms to disgorge out cash to serve as substitute for direct monitoring. When the firm is forced to pay more dividends, it reduces available resources at the disposal of managers. This may lead them to seek external financing from the capital market, thus exposing them to capital market monitoring. In order to expose the management to capital market monitoring, there is a higher demand for dividend in the absence of direct monitoring. Therefore, the theory predicts that a positive relationship exists between dividend policy and effective monitors in the absence of direct monitoring.

In line with the preceding, empirical evidence have been provided that foreign investors who hold high ranks can serve as effective monitors; but in cases where they are unable to directly monitor the firm, dividend is then used as a monitoring device. Therefore these studies support the positive relationship between foreign investor's presence and dividend payments as predicted by the agency theory (Chai, 2010; Jeon *et al*., 2011; Manos, 2003; Ullah, Fida & Khan, 2012). These authors contend that as effective monitors, the substantial presence of foreign investors press firms to disgorge out more cash in form of dividend payments in a bid to reduce agency conflicts.

Agency conflict occurs between large majority shareholders and minority shareholders as the former have greater powers that can be used to influence dividend policies (Al Shubiri, Al Taleb, & Al Zoued, 2012; Bradford, Chen & Zhu, 2005; Elston *et*

al., 2011; Kowalewski *et al*., 2008; Ramli, 2010; Shah, Ullah & Hasnain, 2011). However, Bena and Hanouzek (2008) argued that the presence of strong minority shareholders can preclude expropriation by majority shareholders. Thus, the significant presence of foreign investors as minority shareholders prevents expropriation by the majority thus pushing up dividend payments. In a bid to prevent expropriation by the controlling shareholders, investors resort to the protection of minority shareholders which they enjoy. Therefore, investor protection is another avenue through which foreign investors affect dividend payout policies. The "outcome model" of the agency theory explained by La Porta, Lopez-de Silanes, Shleifer, and Vishny (2000) predicts a positive association between minority shareholders and dividend payout. Based on this view, foreign shareholders (as minority shareholders) can use their legal rights which are derived from shareholder's protection to force managers to pay dividends. In line with this, Ferreira *et al*. (2010) reported that in countries where there is high level of investor's protection, firms respond more to the dividend preference of foreign investors. On the other hand, Lam, Sami, and Zhou (2012) who also argued in line with preventing expropriation by controlling shareholders reported that foreign ownership have significant negative effect on dividend policy. It was argued that foreign investors influence dividend payout by reducing the tunneling effect which arises as a result of diversion of cash to controlling shareholders. Some firms may distribute more cash dividends in order to tunnel cash to the controlling shareholders even when it is not the best strategy to adopt. The presence of foreign investors deters the tunneling behavior of the controlling shareholders.

Foreign investors also influence dividend payout through their influence in the management of domestic firms (Jeon & Ryoo, 2013). The authors argued that foreign investors influence management of domestic firms by pressing for improvement in board independence. This is achieved by ensuring that the board is composed of more foreigners and non-insiders that are not associated with the controlling shareholders. Therefore, "increased board independence in response to pressure from foreign investors results in significant change in payout policy" (Jeon & Ryoo, 2013, p.52)**.** This is based on the fact that having more foreigners in the board as representatives of the foreign investors will prevent the board from making dividend policies in favour of the controlling shareholders. On the contrary, Kim *et al*. (2010) argued that foreign investors can also serve as controlling shareholders and thus influence dividend payout policies through their controlling interest. Their findings revealed that foreign investors with more than 5% of the company's share can have significant and positive impact on corporate dividends. It was revealed further that the more shares the foreign institutional investors have over the previous year, the stronger their impact on corporate dividend policy. In line with the agency cost argument, Ferreira *et al*. (2010) also noted that the presence of foreign investors may lead to higher payout due to weaker governance and higher information asymmetry. These emanates from the geographic distance between the foreign investor and the investment base which leads to more uncertainty as to how the firm employ its funds. Thus, the foreign investors may press the firm for higher payouts. However, they did not find any evidence in support of this argument.

Based on the clientele theory, foreign ownership may be positively or negatively related to dividend policy depending on the dividend preference of foreign investors. The

tax-induced clientele advanced by Brennan (1970) and Elton and Gruber (1970) predicts a negative (positive) relationship between investors who are tax disadvantaged (advantaged) and dividend payments. Tax disadvantage on dividends leads to a lower preference for dividend paying stocks. In line with this, Ferreira *et al*. (2010) documents that foreign ownership influence dividend policy through foreign institutional investors. These investors press the firm to retain and re-invest earnings rather than payout due to tax disadvantage and high cost of repatriating or re-investing the dividend income. Therefore, their presence drive down dividend payment as firms may shape payout policies to meet their dividend preferences. Foreign ownership is therefore significantly and negatively related to dividend payments (Ferreira *et al*., 2010; Lam *et al*., 2012). Contrary to the aforementioned, Kowalewski *et al*. (2008) and Thanatawee (2013) found no evidence that foreign ownership had an impact on dividend payout policies.

Few studies have offered explanations on the dividend preferences of foreign versus domestic investors and how these differing preferences can affect corporate policies. Foreign investors are less informed about the market than domestic investors. Thus, due to the information asymmetry, they are more likely to favour dividend distribution than the domestic investors (Ferreira *et al*., 2010; Jeon & Ryoo, 2013). Ferreira *et al*. (2010) also postulated that weaker governance on the part of the foreign investors relative to their domestic counterparts may lead to the latter having preference for more payout. However, their empirical findings found no evidence to support neither the weaker governance nor the information asymmetry argument as indicated earlier. The argument on information disadvantage of foreign investors compared to domestic investors is inconclusive as some other studies report that foreign investors who have

global investment experience and advanced technology are in a better position to appraise the performance of domestic firms (Seaholes, 2000; Bena & Hanouzek, 2008).

Cook and Jeon (2006) also reported in line with the agency theory that foreign investors are more active monitors. They reduce agency problems which lead to more payout. However, their findings indicate that among the dividend paying firms, foreign investors prefer the low-dividend paying firms. Contrarily, their findings indicate that domestic institutional investors do not desire dividends and they do not play any important role in a firm's payout policy.

On the other hand, Ferreira *et al*. (2010) noted in line with clientele theory that unlike foreign investors, domestic investors are more likely to desire higher payout as they are not affected by withholding taxes and dividend repatriation costs incurred by foreign investors. In line with the findings of Ferreira *et al*. (2010), Henry (2011) reported that domestic investors have significant preference for higher dividends as they enjoy greater tax franking benefits while foreign investors have less preference for dividend payment as they benefit less from the receipt of franked dividends. Similarly, other studies have also shown that domestic owned companies pay higher dividends than foreign owned companies as the former have higher preference for dividend paying stocks (Kowaleski *et al*., 2008; Rantapuska, 2008; Thanatawee, 2013). Contrary to the position of Cook and Jeon (2006), Thanatawee's (2013) findings indicate that as domestic institutional investor's emerge as the major investment group, they play a vital role in shaping the firm's payout policy.

3.2.3 Catering Effects and Dividend Policy

Empirical findings on catering theory are mixed. Catering theory does not explain firm's dividend paying behavior as managers do not consider investor's demand before initiating dividends (Baker, Saadi, Dutta, & Gandhi, 2007; Tsuji, 2010). Contrary to the prediction of catering theory, Handary, Lukviarman, and Ferianto (2008) also found negative association between dividend premium and stock returns. Some other studies found little evidence in support of catering theory (Eije & Megginson, 2007; Turner, Ye & Zhan, 2011). Turner *et al*. (2011) found that dividend premium explains very little of the changes in dividend initiation rate over the period observed while its effect on rate of dividend continuation is negligible. Similarly, Eije and Megginson (2007) also found little support for the catering theory among European firms. A considerable fluctuation was reported in the catering variable coefficient as it was found to be positively significant in only one sub-period and insignificant in other periods. In offering explanation to the disappearing dividend phenomenon, some empirical studies have also found no evidence for the catering theory in explaining the rise in non-payment of dividends. Catering explanation is only significant when risk is not controlled for but becomes insignificant when the risk factor is accounted for (Hoberg & Prabhala, 2009; Kuo, Philip, & Zhang, 2013). Catering theory predicts prevalence of omission around negative changes in the dividend premium (Denis & Osobov, 2008) but contrary to this, their study which sampled different countries found little support for the theory outside the US as it was revealed that dividend omissions were prevalent in those years in which dividend premium is most positive.

Contrary to the abovementioned, other studies found strong support for the theory. Li and Lie (2006) supported the catering theory but noted two fundamental drawbacks in the theory as initially proposed. Firstly, the theory as offered by Baker and Wurgler (2004a) only explains dividend initiation and omission; therefore it does not address increase or decrease in dividend payments. Secondly, investors who put a high premium on dividends are expected to respond positively when dividends are initiated but Baker and Wurgler (2004a) did not find any significant relationship between dividend premium and announcement returns. Li and Lie (2006) noted that lack of empirical evidence to show that a relationship exists between market reaction and the dividend premium might cause the catering theory to be questionable. Therefore, Li and Lie (2006) advanced the significance of the theory to comprise dividend increases and decreases. Apart from confirming that firm's decision to change dividend levels and the amount of dividend changes is influenced by the dividend premium, their study also reinforced the applicability of the theory by establishing that a relationship exists between dividend premium and announcement returns. Negative relationship was found between announcement returns for dividend decreases and dividend premium while positive relationship was found between announcement returns for dividend increases and dividend premium. Therefore, manager's consideration of dividend premium is compensated by increase in market valuation of the firm. In support of the catering theory, Armitage (2012) reported that large payouts were driven by persistent demand for dividends from the shareholders. Similarly, in a survey research which examines the perception of managers of dividend paying firms on the Karachi Stock Exchange,

Haleem, Rehman, and Javid (2011) indicates that 65% of the respondents agreed to the fact that shareholder's preferences are considered in formulating dividend policies.

He *et al*. (2012) found that in a booming market, managers have both the catering incentives as well as the ability to pay but during market crashes, the catering incentive[7] drops along with the payout ability. This position is similar to the findings of Neves and Torre (2006) where it was reported that catering incentives were stronger for firms with higher levels of free cash flow. Their study documents that companies in the Euro zone cater to their investor's sentiment and such incentive was found only in firms with liquid assets. Bulan, Subramanian, and Tanlu (2007) also indicates that maturity of a firm drives catering incentives as they found that mature firms are more likely to initiate dividends when the dividend premium is high.

Ferris, Jayaranam, and Sabherwal (2009) argued that the presence of catering effect is not limited to the US. They found that companies in common law nations cater to meet investor's demand for dividend while their civil law counterparts do not. This was attributed to the fact that shareholders located in common law countries enjoy more rights and protection. Therefore, legal protection is a major determinant of manager's willingness to align their dividend policies with investor's preferences.

All the previous studies have employed the proxy of Baker and Wurgler (2004) in testing the implication of the catering theory. However, other studies employed different approach in testing the implication of the catering theory (Rashid, Nor & Ibrahim, 2013; Savickas & Zhao, 2012). In support of the catering theory, Rashid *et al*. (2013) found that

[7] The premium placed on dividend payment which may affect the valuation of firm drives the firm's desire to respond to investor's demand for dividends. This desire is the catering incentive.

market value proxied by Tobin's Q significantly influences dividend payment. Thus, the authors conclude that dividend payment in Malaysia is significantly influenced by the market. Similarly, Savickas and Zhao (2012) employed another proxy which was referred to as sentiment sensitivity[8]. The authors defined sentiment sensitivity as a firm's exposure to market sentiment. In line with the catering theory, it was argued that sentiment sensitivity is an important determinant of the level of dividends.

It is evident from the preceding that most studies that have been conducted to offer explanation on declining dividend patterns and on the catering explanation for dividend policy have focused on the US and few other developed markets. Very little has been done in emerging market, particularly the African region in this regard. Therefore, the present study intends to fill the gap of lack of study in this area in African markets using Nigerian stock market.

3.2.4 Life Cycle Explanation and Dividend Policy

Fama and French (2001) initially explained the attributes which can be used to identify that a firm is in the maturity stage of its financial life cycle. However, the life cycle explanation for dividend was advanced by DeAngelo *et al*. (2006) where another proxy was given to test the implication of the theory.

[8] "Sentiment sensitivity of individual stock returns is measured by the slope co-efficient in the regression of stock returns on market sentiment index changes" (Savickas & Zhao, 2012; p.2).

3.2.4.1 Fama and French's Characteristics of a Dividend payer and Dividend Policy.

Fama and French (2001) spelt out the characteristics of a dividend payer to include higher profitability, larger size and lower investment opportunities. Empirical evidence has been provided that firms that earn higher profits have better ability to distribute dividends due to better ability to meet dividend obligations from internal funds while those with lower profitability may be less inclined to pay due to the cost of raising external finance to meet up with dividend payments. Profitability is reported to be positively related to dividends (Al-Malkawi, 2007; Al-Malkawi, Twairesh & Harery, 2013; Amidu & Abor, 2006; Bebczuk, 2004; Bradford, Mark & Qun, 2013; Ehsan, Tabassum, Akram & Nazir, 2013; Huda & Farah, 2011; Imran, 2011; Jasim & Hameeda, 2011; Kargar & Ahmadi, 2013; Khan *et al*., 2013; Moradi, Salehi & Honarmand, 2010). Contrarily, Maladjian and El Khoury (2014) reported negative relationship between profitability and dividend payout. The authors reported that this is due to the fact that most firms plough back for growth as they earn more.

Size is also reported to have a positive and significant relationship with dividends (Al-Malkawi, 2007; Al-Malkawi *et al*., 2013; Arshad, Akram, & Amjad, 2013; Bebczuk, 2004; Bradford *et al*., 2013; Imran, 2011; Jasim & Hameeda, 2011; Kargar & Ahmadi, 2013; Mansuurinia, Emangholipour, Rekabdarlolaei, Hozoori, 2013; Mehta, 2012). Al-Malkawi (2007) reported that large firms have an edge above small firms in terms of their ability to access capital markets. Thus, they can raise funds at lower cost and do not need to depend heavily on internal funding. This increases their dividend payout ability. From another perspective, Redding (1997) argued that large companies pay dividends because

majority of their shareholders are large investors (usually institutional) who prefer dividends due to tax reasons. Contrarily, Ehsan *et al*. (2013) found negative and significant relationship between size and dividend payouts and argued that size may not be a good measure of payout decisions in Pakistan. Other studies found insignificant relationship between dividend policy and size of the firm (Azeem, Akbar & Usman, 2011; Arif & Akbar, 2013). Investment opportunity is also statistically significant in explaining dividend policy as indicated by prior studies. The fact that dividend and investment opportunity are competing uses of limited internal funds justifies negative relationship between the two. Thus, investment reduces the funds available for dividend payments. Firms in the growth stage with more investment opportunities have lower tendency to pay dividends. Therefore, negative relationship exists between investment and dividend payout decisions (Al-Malkawi, 2007; Arshad *et al*., 2013; Bebczuk, 2004; Bradford *et al*., 2013). Similarly, Benito and Young (2003) found that higher investment opportunities are linked to increased likelihood to omit or cut dividends. Their findings in the UK market indicate that increase in dividend omissions was attributable to rise in small companies with more investment opportunities.

Chang and Lee (1982) contend that differing features of firms may lead to different behavior with respect to investment and dividend decisions. Their findings revealed that it is only the payout decisions of low growth firms that are adversely affected by investment decisions. The findings revealed positive relationship between investment decision and dividend decision for high growth firms. Hanif (2014) also reported that dividend and investment depend on each other as finding indicates the existence of long term relationship between the two variables. However earlier studies

casts doubt on the relationship between investment and dividend payout decisions. D'Souza and Saxena (1999), and Fama (1974) conclude that dividend decisions and investment decisions are independent of each other and as such one is not affected by the other. In the same vein, Chay and Suh (2005) also found little evidence to show that investment opportunities are related to dividend payment.

3.2.4.2 Earned Versus Contributed Capital and Dividend Policy

Apart from the characteristics of the firm such as size, profitability and investment opportunities advanced by Fama and French (2001) that are used to identify a firm's stage in its financial life cycle, DeAngelo *et al*. (2006) also suggested that the implication of the life cycle theory can be tested by relating dividend payment of the firm to its combination of earned and contributed capital using retained earnings as a proportion of total equity (RE/TE) and retained earnings as a proportion of total assets (RE/TA). This ratio explains the extent to which the firm depends on internally sourced funds over the external capital. The authors explained that when equity is earned rather than contributed (high RE/TE or RE/TA), then firms are likely to pay dividends. Contributed capital is the capital contributed by investors when firms seek external financing from the capital market. Conversely, when most equity is contributed as opposed to being earned, there is zero probability of paying dividends as the firms are left with negligible or negative retained earnings. "The only part of shareholder's equity that affect dividend is retained earnings indicating that the earned capital not the contributed is the main determinant of dividend" (El-Ansary & Gomaa, 2012, p 72). DeAngelo *et al*. (2006) also reported that a possible explanation for the increase in non-payers is the rise in the number of firms with less earned equity as it was observed that the non-dividend payers during the period

observed were young firms that rely more on equity (or contributed capital) for early growth while those that were paying are mature firms that rely on self-financing. A significant relation exists between dividend omissions and RE/TE as it was found that the proportion of publicly held industrial firms that paid dividends falls near to zero when RE/TE is low. Decrease in dividend payouts and in the proportion of dividend payers have been matched with a rise in the number of small companies with more growth opportunities by different empirical studies (Benito & Young, 2003; Chayadi & Salas, 2012; Denis & Osobov, 2008; Julio & Ikenberry, 2004), thus a larger percentage of internally generated funds were channeled to funding these investments.

The proxy for testing the implication of the life cycle theory suggested by DeAngelo *et al*. (2006) was reinforced by Khani and Dehghani (2011) who stated that RE/TA indicates whether the firm possess the ability to generate its financial needs internally or depend on external sources to do so. They noted that the source of funds impacts on the dividend decisions. Khani and Dehghani (2011) explained further that firms with high RE/TA are considered as mature firms because they have more retained earnings and better ability to distribute dividends. Conversely, firms with low RE/TA are considered as young firms and are likely to omit dividends. At the initial stage of their life cycle, companies are faced with competition and have to spend more money on research and development to win more market share, advertisement campaigns and product innovations. Therefore, they do not have much to distribute as dividends, rather they focus on expansion of the firm (Afza & Mirza, 2011).

Therefore, by adopting the measures of DeAngelo *et al*. (2006), many empirical studies conclude that the stage of a firm in its life cycle is an important factor that can

explain its choice to pay or not to pay dividends. Firms with high RE/TE or RE/TA are usually mature firms and have better ability to pay while firms in their growth stage are likely to omit dividends (Bradford *et al*., 2013; Coulton & Ruddock, 2011; El-Ansary & Gomaa, 2012; Khani & Dehghani, 2011; Perretti, Allen & Weeks, 2013; Shin, Kwon & Kim, 2010; Thanatawee, 2011). Using both RE/TE and RE/TA in testing the implication of the life cycle theory of dividends, Hassani and Dizaji (2013) found that only RE/TA positively influence dividend payout while no relationship was found between RE/TE and dividend payout. Contrary to the findings which provide support for the life cycle theory, Ishikawa (2011) found that growing firms in Japan pay dividends more than mature firms and that the market appreciate increased dividend payment from growing firms than from mature firms. Therefore, the study provides no support for the life cycle theory and argued that the theory has not been accepted by Japanese firms.

In explaining the non-payment of dividends, life cycle theory indicates that a change in the dividend payout policy of a firm is seen as a significant change in the life cycle of the firm. Thus, dividend omission is a major transformation in the life cycle of a firm (Bulan & Subramanian, 2008). When a non-payer of dividend who omits to improve its financial situation recovers, it is expected that such a firm will resume payment of dividends but this may not hold true when such firm enters into a new growth phase. Although the financial condition of the firm has improved, but it ploughs back for investment rather than paying out dividends. Fama and French (2001) found that reduction in the number of dividend payers is as a result of increase in the number of firms with the attribute of young fast growing firms which include lower profitability, higher growth opportunities, and smaller size.

3.2.5 Other Firm Characteristics and Dividend Policy

Besides the characteristics of a dividend payer spelt out by Fama and French (2001), there are other factors considered as traditional determinants of dividend as they have been used to explain payout policy over time. These include past dividend, leverage and cash flow.

3.2.5.1 Dividend Smoothing (Past dividend & earnings)

Lintner (1956) documents that earnings and previous dividends are the most important determinants of dividend payout decisions. Empirical studies have provided further evidence on the importance of these variables. Earnings are positively and significantly related to dividends (Ameer, 2007). Chemmanur, He, Hu, and Liu (2010) contend that firms are reluctant to reduce dividend levels even when there is insufficient internal funds to finance good investment opportunities. They documented that past dividend is positively and significantly related to current dividend policy. This finding was confirmed by Bradford *et al*. (2013), Imran (2011), Jasim and Hameeda (2011), and Omar and Rizuan (2014). Similarly, Eriotis and Vasiliou (2011) supported the relationship by showing that firms that pay dividend in the previous year are usually unwilling to change dividend levels. The relationship between past dividend and current dividend has been used to explain the concept of dividend smoothing by Lintner (1956). Thus, dividend smoothing involves maintaining a relatively constant rate of dividend from one period to another. Studies have shown that there are costs associated with dividend smoothing as some managers forego profitable investments or even seek external financing in order to maintain stable dividend levels (Brav *et al*., 2005; Zurigat & Gharaibeh, 2011). Therefore, dividend smoothing is mostly common among firms that

are not constrained financially (Leary & Michaely, 2011). Thus, the main conclusion in Lintner's model is that existing rate of dividend is the yardstick for setting future dividend levels (Bodla, Pal & Sura, 2007). However, Dzidic (2014) found no evidence to support dividend smoothing behaviour in Bosnia market.

3.2.5.2 Cash Flows

Cash flow is another determinant of dividend. On one hand, prior studies have confirmed the free cash flow hypothesis by showing that failure to pay out free cash flow as dividends results in its diversion or misuse (Chetty & Saez, 2007; La Porta *et al*., 2000). Thus, dividend payout increases with higher levels of free cash flow. From another perspective, Adelegan (2003) argued that cash flow is superior to earnings in explaining dividends due to two reasons: the possibility of manipulating the accruals component of earnings; the fact that cash flow is a better proxy for liquidity which is expected to be a good predictor of firm's dividend policy. Therefore, cash flow is reported to be positively related to dividends (Adelegan, 2003; Ahmed, 2014; Amidu & Abor, 2006; John & Muthusamy, 2010). Brav *et al*. (2005) documented that dividend payers consider maintaining dividend level only if investment and liquidity requirements have been fulfilled. In line with this, Karami (2013) found that the more liquid a company is, the higher the likelihood of paying dividends and increasing dividend levels, thus positive relationship exists between dividend payout and liquidity. Similarly, Chay and Suh (2005) reported that companies experiencing cash flow uncertainty have tendency to distribute lower dividends as they usually fear depletion of cash resources in the future. In the same vein, Benito and Young (2003) found that low level of cash flows are correlated with higher likelihood to omit or cut dividends. From another perspective, higher free cash

flow indicates more financial flexibility and firms that are financially flexible have better ability to pay dividends (Bancel & Mitto, 2011; Bulan & Subramanian, 2008). Contrarily, Bradford *et al*. (2013) contends that free cash flow may reflect future investment opportunities. Hence, Bradford *et al*. (2013) and Imran (2011) reported a negative relationship between dividends and cash flow as it was found that companies plough back into the business rather than pay dividends as cash flow increases. In the same vein, John and Muthusamy (2010) documented a negative relationship between liquidity and dividend payout decision. However, other studies found cash flow to be insignificant in explaining dividend policy (Kagar & Ahmadi, 2013; Mehta, 2012).

3.2.5.3 Leverage

Leverage has also been found to affect dividend policies. Rozeff (1982) contends that high levered firms maintain low levels of dividend payments in order to reduce transaction costs associated with external financing. Thus, studies have shown that firms that have high financial leverage maintain low dividend payments because they need to preserve adequate cash flow to meet financial commitments (Al-Malkawi, 2007; Al-Malkawi *et al*., 2013; Arshad *et al*., 2013; Asif, Rasool, & Kamal, 2011; Bradford *et al*., 2013; Ehsan *et al*., 2013; Huda & Abdullah, 2013; John & Muthusamy, 2010; Karami, 2013; Kargar & Ahmadi, 2013; Mansuurinia *et al*., 2013; Ogbulu & Arewa, 2010; Vo & Nguyen, 2014). Al-Malkawi (2007) pointed out that debt covenants that restrict the payment of dividends could also explain the negative relationship between leverage and dividend payment. In line with the above findings, Benito and Young (2003) reported that firms with higher income gearing and leverage are more likely to engage in dividend cuts and omissions. From another perspective, some studies document that firms achieve

financial flexibility by maintaining low leverage (Daniel, Denis & Naveen, 2008; DeAngelo & DeAngelo, 2007). Therefore, in order to attain financial flexibility, firms keep their leverage low by omitting dividends (Bulan & Subramanian, 2008; Arslan-Ayaydin, Florackis, & Ozkan, 2014). Contrarily, Khan *et al*. (2013) and Mehta (2012) found leverage to be insignificant in influencing dividend payout.

3.2.6 Firm's Dividend Behavior during Financial Crisis

Literature indicates that financial policies of firms including dividend policies have been affected by financial crisis across different markets; and firms adjust their policies in response to the crisis. Although it is widely held in the literature that dividend cuts could send negative signals to investors, Reddemann, Basse, and Johann-Matthias (2010) contends that dividend cut is an appropriate act to ensure financial stability in troubled times. The authors observed that during the 2008 and 2009 global financial crisis, firms in the European insurance industry adjusted their dividend policies through dividend cuts in order to strengthen liquidity and preserve their capital base. Similarly, Bancel and Mittoo (2011) reported in a survey of French firms that one of the ways in which managers preserved their financial flexibility during the global financial crisis was through dividend cuts.

DeAngelo and DeAngelo (1990) reported similar findings in an earlier study on NYSE firms during financial distress experienced between 1980 and 1985. The authors noted that managers prefer to cut rather than omit dividends during period of financial distress. In the same vein, Hauser (2013) stated that the year 2009 was an awful year for investors who desire dividend income in the US as the propensity to cut dividends increased within 2008 and 2009 due to low cash ratios which resulted from the financial

crisis. Abreu and Gulamhussen (2013) also reported that the dividend payout of bank holding companies decreased significantly during the financial crisis. In another study conducted on countries in the Central Eastern European (CEE) Region during the 2008 and 2009 financial crisis, Bistrova and Lace (2012) also reported that 23% of the total number of dividend payers ceased payments during this crisis period. Case, Hardin, and Wu (2012) also argued that the need to prevent going concern risk is a major reason why Real Estate Investment Trusts (REITs) in the US adjust their dividend policies during liquidity crisis. Their findings indicate that REITs with low market to book ratios and higher market leverage were more susceptible to the risk of going concern during crisis; therefore such firms adjusted their dividends by cutting, suspending or paying elective stocks during the crisis.

Bebczuk's (2004) findings differs slightly from the aforesaid as results indicates that firms in Argentina paid higher dividends at the start of the crisis then subsequently cut dividends. The author noted that the initial increase in dividend payments at the commencement of the crisis is to allow shareholders shield themselves from expected devaluation by transforming their domestic wealth into dollars. Floyd *et al*. (2013) reported that industrial and financial firms in North America adjusted their dividend policies in different ways in response to financial crisis. The industrial sector modestly reduced their dividends with a barely noticeable drop between 2008 and 2009. On the other hand, financial firms cut dividends sharply during the same period.

Prior empirical evidence also indicates that more dividend omissions were recorded during crisis. Benito and Young (2003) observed payout pattern of UK firms between 1974 and1999. Their findings revealed that the number of dividend omitting

firms increased over the sample period, particularly during years of recession. Similarly, Ronapat and Evans (2005) also found that the Asian economic crisis that occurred within the period studied caused many firms to experience financial distress and this led to decrease in the number of firms that paid dividends. In the same vein, Kirkulak and Kurt (2010) found that a major reason attributed to the reduction in dividend payers in the Istanbul market is the year 2001 financial crisis which impacted negatively on the market.

Contrary to the preceding findings, other evidences have shown that firms increase dividend payments during financial crisis. Kuo *et al*. (2013) stated that the global financial crisis impacted positively on the dividend payment by UK firms as a significant upward trend was recorded during the period. The authors attributed this to the desire of firms to signal sound financial health to sustain increased investor's confidence. Similarly, Acharya, Gujral, and Shin (2009) found that sampled banks in the US, UK and Europe continued to pay dividends throughout crisis despite recording huge losses during this period. The authors argued that such payment drained the bank's capital. Some other studies found no evidence to show that firms adjust their dividends during financial crisis. Mollah (2011) found no significant difference in dividend payout behavior on Dhaka Stock Exchange preceding, during and following the Asian financial crisis of 1997 and 1998. Similarly, Sierpinska and Mlodkowski (2010) who observed the prolonged crisis in Japan between 1991 and 2008 reported that Japanese firms do not decrease dividends during recession. Based on the foregoing, it is evident that empirical evidences on dividend payment during crisis are inconclusive. This necessitates further research in this area.

3.2.7 Prior Studies on Dividend Policy in Nigeria

Existing studies on dividend policy in Nigeria mainly focus on the information content or wealth effects of dividend announcement using event study methodology. These studies have shown that dividends convey valuable information about firm's future prospects and that prices do react to dividend announcements (Adelegan, 2009; Campbell & Ohuocha, 2011; Okoyeuzu, 2011; Okpara, 2010). For instance, Adelegan (2009) showed that for dividend paying firms, cumulative abnormal returns are significant and positive for 30 days from the announcement but significant and negative for dividend omitting firms.

Salawu, Asaolu, and Yinusa (2012) documented that firm's performance is significantly influenced by dividend policy which is taken by listed firms in Nigeria with the view of increasing corporate performance measured by return on assets (profitability). Their findings revealed positive relationship between firm performance and dividend payout. Closely related to this study are studies that examine the determinants of firms' payout policy using amount of dividend payout as measure of payout policy (Abdullah & Yohanna, 2013; Adelegan, 2003; Adesola & Okwong, 2009; Musa, 2009; Nnadi & Akpomi, 2008; Ogbulu & Arewa, 2010; Okpara, 2010; Samuel & Iyanda, 2010). Firm characteristics such as profitability, size, cash flow and leverage are used as the explanatory variables. Positive and significant relationship was reported between cash flow and dividend changes (Adelegan, 2003; Musa, 2009). Thus, increase in cash flow will lead to a positive change in dividend. Similarly, Musa (2009) found earnings to have positive significant effect on dividend changes. Contrarily, other studies reported that earnings have significant negative effect on dividend payout suggesting that as earnings increases, firms retain more for growth than payout more dividends (Adesola & Okwong,

2009; Okpara, 2010). Past dividend has also been reported to have significant relationship with dividend on the Nigerian Stock Exchange. Musa (2009) reported a negative relationship between dividend changes and previous dividend. Similarly, Adesola and Okwong (2009) and Okpara (2010) reported that prior dividends positively impact on dividend payout ratio. Corporate tax is reported to have positive and significant relationship with dividend policy of financial institutions in Nigeria (Nnnadi & Akpomi, 2008; Samuel & Iyanda, 2010). The impact of leverage on dividend payout has also been examined on the Nigerian stock market. Ogbulu and Arewa (2010) found an inverse long run and unidirectional relationship between leverage and dividend. Contrarily, Abdullah and Yohanna (2013) reported positive and significant relationship between leverage and dividend policy. They argued that sampled firms are majorly financed by external sources and such debt financing assist them to earn more profits which leads to higher dividend payments. Factors found to be insignificant in explaining dividends in the Nigerian market include investment opportunities (Adesola & Okwong, 2009; Musa, 2009) and size (Adesola & Okwong, 2009). From the review of literature on dividend policy in Nigeria, it is evident that studies have focused on certain firm characteristics (profitability, size, cash flow, leverage) in explaining dividend policy on the Nigerian Stock Exchange and no attention has been paid to other factors (clientele effects, catering and life cycle explanations) already established in developed markets. Thus, this study fills the gap by considering factors which include clientele effect, catering theory and life cycle theory in explaining dividend payout. In addition, the previous studies on dividend policy in Nigeria have concentrated on the amount of dividends paid, whereas this study follows the current trend in other markets by concentrating on the propensity to pay dividends.

3.3 Summary of Chapter

This chapter discussed the underlying theories related to the study. In line with the issues to be investigated in the study, the chapter presented empirical evidence on the decline in dividend payments. Prior studies on how foreign ownership can impact on firm's dividend policy were also reviewed. The chapter then proceeds to discussing other factors which have been documented in the literature to serve as explanation for dividend payout policies. Empirical evidence was provided on firm's dividend policy during financial crisis and the prior studies on dividend policy in Nigeria were also highlighted. Based on the review of literature (a summary of these literature is provided in Table 3.1), it is evident that considerable efforts have been made by prior researches to provide explanations on dividend behavior of firms. However, there are inconclusive evidences among different researchers from different countries. Some studies document reduced propensity to pay dividends due to decrease in dividend payers. On the other hand, other studies have argued that though the number of payers is reducing, aggregate dividend paid is increasing. Based on the foregoing, this study is primarily motivated by certain gaps which have been noted. There is an apparent dearth of literature on firm's propensity to pay or not to pay dividends in emerging market. Similarly, studies on how foreign ownership influence dividend payout decisions remains generally scant in the literature. In addition, other explanations (including catering and life cycle) on the propensity to pay have been offered in developed market and needs to be explored in emerging markets as well. There is also a dearth of literature on how firms adjust their dividend policies in response to financial crisis. To the best of the researcher's knowledge, these issues remain

unexplored in the Nigerian market. Therefore, the study seeks to extend literature on dividend policy by using the Nigerian data to fill the observed gaps.

Table 3.1
Literature Review Summary Table

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Dividend Payment Patterns				
Fama & French (2001)	Examined the pattern of dividend payment and the characteristics of dividend payers	US firms including NYSE, AMEX and NASDAQ firms between 1978 and 1999.	Descriptive Analysis and Logit regression	There is decline in propensity to pay dividends as the number of dividend payers fell from 66.5% to 20.8% over sample period. Therefore, dividends are disappearing. Found that characteristics of a dividend payer include: larger size; higher profitability and lower investment opportunities. Reported that the decline in number of dividend payers is due to rise in number of firms with attributes of a young and growing firm (lower profitability; smaller size; and higher growth opportunities).
Baker & Wurgler (2004)	Tested further the decline in dividends reported by Fama & French(2001)	US firms including NYSE, AMEX and NASDAQ firms between 1963 and 2000.	Descriptive Analysis and Logit regression	Confirmed the decline in the propensity to pay dividends. Found that catering theory (firm's response to investor's demand for dividend) is the most significant explanation for firm's propensity to pay dividends.
Hoberg & Prabhala (2009)	Examined the disappearing dividends puzzle	NYSE, AMEX and NASDAQ firms between 1963-2004	Descriptive Analysis and Logistic regression	Confirmed the decline in the propensity to pay dividends. Found that risk accounts for 40% of disappearing dividends. Found that in explaining the declining dividends, catering have zero explanatory power once risk is controlled for, therefore inconsistent with catering theory.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
DeAngelo, DeAngelo & Skinner (2004)	Examined the disappearing dividends puzzle	NYSE, AMEX and NASDAQ firms between 1978 and 2000	Descriptive Analysis	Found that dividend patterns are changing but not disappearing. Although number of dividend payers have reduced by 50% but aggregate dividends paid increased over the sample period. Provide evidence of dividend concentration as 81.8% of dividends are distributed by the first 100 dividend payers. Majority of the firms do not contribute to dividend payment.
Grullon, Paye, Underwood & Weston (2011)	Examined the decline in propensity to pay dividends documented by earlier studies	NYSE, AMEX and NASDAQ firms between 1973 and 2006	Descriptive Analysis	Found that net payout yields increased over sample period. No evidence to support decline in propensity to pay dividends
Julio & Ikenberry (2004)	Examined the changes in dividend patterns	US firms between 1984 and 2004	Descriptive Analysis and Logistic regression	Found that dividends are reappearing as the Bush tax cut of 2003 gave rise to more dividend initiations. Found that decline of dividends in the 1990's was due to the fact that firms substituted dividends for stock repurchases.
Chahyadi & Salas (2012)	Measured the changes in the propensity to pay dividends	US firms between 1978 and 1998	Descriptive Analysis and Oaxaca decomposition methodology	Confirmed that dividends are reappearing as the propensity to pay increased over the sample period. Also found that firms are now repurchasing stocks rather than paying dividends.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Ap Gwilym, Seaton & Thomas (2004)	Examined the disappearing dividend phenomenon	UK firms between 1979 and 2000	Descriptive Analysis	Aggregate real dividends increased by 136.5% over sample period despite significant reduction in the number of dividend payers. Dividend paid by the large firms over compensated for the effect of firms that cease to pay.
Benito & Young (2003)	Observed how changing characteristics of dividend payers influence dividend omissions and dividend cuts	2963 UK firms between 1974 and 1999	Descriptive Analysis	Number of firms that omitted dividend increased over the period studied. Increase in dividend omissions was due to rise in small companies with more investment opportunities.
Ferris, Sen & Yui (2006)	Examined aggregate dividend patterns for two markets with the aim of comparing with that of US.	Firms in UK and Japanese markets	Descriptive Analysis	The two markets recorded increases in aggregate dividends but the increase is incomparable to that of US. Provide evidence of dividend concentration in UK market as 88.3% of the dividends were from the top 100 UK dividend payers.
Vieira & Raposo (2007)	Analyzed the propensity to pay dividends in three European markets	Firms in Portugal, France and UK between 1999 and 2002.	Descriptive Analysis	Number of dividend payers reduced in the markets studied except the French market. Therefore there is no decline in the propensity to pay in the French market.
Eije & Megginson (2007)	Examined dividend patterns for fifteen nations	Firms in Fifteen European nations between 1989 and 2003	Descriptive Analysis and panel Logistic regression	European firms paying dividends reduced from 91% to 62% over sample period. Reported that company characteristics that influence propensity to pay in the US also explain European payout decisions.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Reddy & Rath (2005)	Examined dividend pattern in an emerging market setting	Indian firms between 1991 and 2001	Descriptive Analysis and Regression	Number of dividend paying firms reduced from 57% to 32% over the period studied.
Lestari (2012)	Examined dividend patterns	Firms in Indonesia between 1995 and 2006	Descriptive Analysis	Percentage of dividend paying firms reduced from 88% to 13% over sample period.
Ronapat & Evans (2005)	Observed dividend patterns	Firms listed on Thailand Stock Exchange between 1990 and 2002	Descriptive Analysis and Logit Regression	Reported decrease in the number of dividend payers from 84.2% to 46.4% over sample period. Findings support the fact that the decline is due to changing characteristics of firms. It was also found that the Asian economic crisis led to a rise in the number of non-payers.
Kirkulak & Kurt (2010)	Examined dividend payment decisions of publicly owned firms	Firms listed on the Istanbul Stock Exchange between 1991 to 2006	Descriptive Analysis and Logit regression	Reported decline in the amount of dividends paid as well as in the number of dividend payers. Dividend payers decreased from 51.28% to 35.64% over sample period. Financial crisis impacted negatively on the market and therefore affected dividend patterns. Dividend concentration is not as high in the Turkish market as it is in developed markets.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Fatemi & Bildik (2012)	Examined pattern of dividend payment across different countries	17,000 firms across 33 different countries between 1985 and 2006	Descriptive Analysis and Logit regression	Dividends are disappearing globally as proportion of dividend payers decreased from 87% to 53% over sample period. There is presence of dividend concentration at the international level as it was found that 66% of aggregate payout came from the ten largest dividend payers.
Foreign Ownership and Dividend Payout				
Jeon, Lee, Moffett (2011)	Examined the relationship dividend payout decisions and between foreign ownership	Firms listed on the Korean Stock Exchange. Study period between 1994 and 2004	Three stage least square and propensity score matching	Through their substantial shareholdings, foreign investors lead firms to paying more dividends. Therefore, positive and significant relationship between foreign ownership and dividend payout decisions.
Chai (2010)	Examined relationship between dividends and foreign ownership	Firms on Korean Stock Exchange. (1998 - 2003).	Probit Regression	Dividend payout increases as shareholdings of foreigners increases. Positive and significant relationship.
Ullah, Fida, Khan (2012)	Examined the determinants of corporate dividend policy in the context of agency relations	70 Firms listed on the Karachi Stock Exchange between 2003 and 2010	Stepwise multiple regression	Positive relationship between foreign share ownership and dividend payout.
Bena & Hanouzek (2008)	Compared dividend paid across varying ownership structures	Firms listed in the Prague Stock Exchange Study period (1996-2003)	Linear probability regression and OLS	Found that the significant presence of foreign minority shareholders prevents the majority shareholders from extracting rent by pushing up dividend payments.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
				Thus significant and positive relationship between foreign minority shareholders and dividend payout.
Lam, Sami, Zhan (2012)	Examined whether ownership type influences dividend policy	Publicly traded firms in China. Study period between 2001 and 2006	OLS & Tobit regression-Foreign	Foreign investors reduce tunneling effect which is used to divert cash to controlling shareholders in form of dividends. Therefore, foreign ownership have negative influence on cash dividends.
Jeon & Ryoo (2013)	Investigated the mechanism through which foreign investors influence corporate policy	Industrial firms on the Korean exchange between 1998 and 2006	Logit and Probit regression	Foreign investors push for increase in board independence thus resulting in a significant change in payout.
Kim, Sul, Kang (2010)	Examined the impact of foreign institutional investors on dividend policy	97 Firms listed on the Korean Stock Exchange between 2001 and 2007	Panel Tobit regression	Found that foreign institutional investors with over 5% of the company shares can significantly influence dividend policy. Therefore positive relationship between this category of foreign investors and dividend payment.
Ferreira, Massa & Matos (2010)	Investigated the relationship between foreign institutional shareholders and dividend payout	Sampled firms across 37 countries between 2000 and 2007	Probit regression	Found negative relationship between foreign institutional ownership and likelihood that a firm pays dividend as well as the amount of dividend payments.
Dahlquist & Robertsson (2001)	Characterized foreign ownership using firm attributes	Sampled Swedish firms listed from 1991 to 1997	Pooled regression	Foreign ownership is negatively related to dividend yield
Manos (2003)	Examined how varying ownership types influence dividend policies	882 firms listed on the Mumbai Stock Exchange	OLS regression	Foreign ownership has significant positive relationship with dividend payout ratio.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Jain & Chu (2013)	Compared the cross-sectional variation in dividend payout policies	2,975 firms across 32 countries	OLS regression	Firms with headquarter in countries where there is higher foreign ownership have a generous dividend payout policy. Foreign portfolio investment is significantly and positively related to dividend yield. FPI has significant impact on dividend initiations. Increase in foreign investors increase the probability that firms will pay dividends.
Kowalweski (2008)	Examined the determinants of dividend policy	110 non-financial Firms in Poland between 1998 and 2004.	Pooled OLS, Probit and Tobit	No evidence to show that foreign ownership impact on dividend payout policies.
Thanatawee (2013)	Examined the relationship between ownership structure and dividend policy	287 Thailand firms between 2002 and 2010	Logit and Tobit Regression	Foreign ownership has no significant influence on a firm's decision to pay dividends.
Catering Effects and Dividend Payout				
Tsuji (2010)	-Examined whether catering theory explain dividend initiation and continuation	Japanese Electrical firms	OLS	Contradicts the catering theory. Dividend premium is not related to dividend initiation and continuation. No evidence of catering
Baker, Saadi, Dutta, Gandhi (2007)	- To determine the perception of dividends by managers	291 firms listed on Toronto Stock Exchange	Survey-questionnaires	Inconsistent with catering. Managers did not express support for catering explanations in their dividend decisions
Turner, Ye & Zhan (2011)	Examined dividend policy in an early capital market	681 companies London Stock Exchange from 1825 to 1870	Regression	Dividend premium explains very little of the changes in dividend initiation rate over the period observed while its effect on dividend continuation is negligible. Therefore, little evidence for catering theory.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Eije & Megginson (2007)	Examined dividend policy of companies in the European Union	3,400 listed companies in the EU from 1989 to2003	Logistic Regression	Catering variable's coefficient was found to be positively significant in only one sub-period and insignificant in other periods. Therefore, little evidence for catering.
Li & Lie (2006)	Examined whether catering theory could be extended to increase & decrease in dividends	Firms with data on CRSP between 1963 and 2000.	Logistic regression and event study	Concurs with catering. Firm's decision to change dividend and the amount of change is influenced by the dividend premium. Market reaction to dividend changes is influenced by the dividend premium. Negative relationship was found between announcement returns for dividend decrease and dividend premium while positive relationship was found between announcement returns for dividend increases and dividend premium.
Ferris, Jayaranam, Sabherwal (2009)	Examined the effect of catering on global dividend practices	23 countries between 1995 and 2004	Logistic regression	In accordance with catering. Firms in common law countries cater to meet investor's demand for dividends while those in civil law countries do not. Legal protection is a major determinant of the catering incentives. Catering incentives depend on market condition. High in a booming market but drops along with payout ability during market crashes.
Neves & Torre (2006)	Examined whether investor's sentiments exert influence on dividend policy	Companies in the Eurozone	Generalized method of moments (GMM)	Consistent with catering. Companies in the Euro zone cater to their investor's sentiments.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
				Companies with higher levels of free cash flow cater more to investor's demand.
Jiang, Kim & Yang (2013)	Used catering behavior to test dividend substitution hypothesis	Firms with data on compustat and CRSP from 1963 to2010.	Multinomial logistic regression	Consistent with catering. Dividend initiations are primarily driven by catering considerations. Dividend premium positively affects dividend option but negatively affects repurchase option.
Lee (2010)	Investigates the influence of retail minority shareholder in determining dividend policies	63 companies in Australia between 2004 and 2008	Pooled Tobit regression	Consistent with catering. Retail investor's preference is positively related to the dividend premium. Managers do not only cater for large shareholders but they cater for minority shareholders as well.
Denis & Osobov	Examined the international evidence on the determinants of dividend policy	Sampled six countries (US, Canada, UK, Germany, France, Japan)	Logistic regression	Found little support for catering theory as dividend omissions were most prevalent in years in which the dividend premium is most positive.
Rashid, Nor & Ibrahim (2013)	Examined key determinants of corporate performance.	361 companies listed in Malaysia between 2002-2007	Panel Data Analysis	Found that dividend per share influence corporate value Found that this is because market performance has significant influence on dividend per share and dividend size. Market influences dividend payment positively or negatively.
Savickas & Zhao (2012)	Examined whether market sentiment explains dividend decisions	Stocks listed on NYSE, AMEX and NASDAQ between 1974 and 2006	Logit and Probit Regression	Consistent with catering theory. Found that sentiment sensitivity ((SS) which is defined as firm's exposure to market sentiment) is negatively related to firm's propensity to pay dividends.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Armitage (2012)	Investigated the reason behind the large regular dividend payouts	UK water companies over twenty years		Found that the large payouts were driven by persistent demand for dividends on the part of the investors.
Handary, Lukviarman & Ferianto (2008)	Tested catering theory by examining association between market reaction around dividend announcements and investors' demand for dividends.	337 non-financial firms listed on Jakarta Stock Exchange, Indonesia	Event study and Pearson correlation Analysis	Contrary to catering theory, found negative association between dividend premium and stock returns.
Bulan, Subramanian & Tanlu (2007)	Examined the timing of dividend initiations in the life cycle of a firm.	Dividend initiation data of NYSE, AMEX and NASDAQ firms between1963 and 2001	Cox Proportional hazards regression	Found that dividend initiations are explained by a combination of the maturity hypothesis and the catering theory. Findings indicate that mature firms are more likely to initiate dividends when the dividend premium is high.
Haleem, Rehman & Javid (2011)	Examined the perception of managers on factors that affect their dividend policies	40 manufacturing firms listed on the Karachi Stock Exchange	Survey-questionnaire	Found strong support for catering as 65% of the respondents accepted that shareholders' preferences are put into consideration in formulating dividend policies.
Fama and French's Characteristics of Dividend Payers (Size; Profitability; Investment Opportunity)				
Al-Malkawi (2007)	Examined the determinants of corporate dividend policy	All publicly traded Firms on Amman Stock Exchange during 1989 to 2000	Probit Estimation	Profitability and size were found to be significant and positively related to dividend payment.
Amidu & Abor (2006)	Examined the determinants of corporate dividend policy	22 firms on Ghana Stock Exchange between 1998 and 2003	OLS	Profitability was found to be significant and positively related to dividend payment.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Bebczuk (2004)	Examined the determinants of corporate dividend policy	Listed firms in Argentina between 1996 and 2002	Tobit Estimation	Profitability and size were found to be significant and positively related to dividend payment.
Bradford, Mark & Qun (2013)	Examined how organizational structure influence corporate payout policies	Firms on Compustat between 1986 and 2011	Tobit Regression	Profitability was found to be significant and positively related to cash dividend yield.
Huda & Farah (2011)	Examined factors determining dividend policy	Bangladeshi Banks (2003 to 2010)	OLS	Profitability was found to be significant and positively related to dividend payment.
Imran (2011)	Examined factors determining dividend payout decisions	36 firms listed on Karachi Stock Exchange	Panel OLS, Fixed effect and Random effect regression	Profitability and size were found to be significant and positively related to dividend payment.
Jasim & Hameeda (2011)	Examined factors that determine cash dividend payment	56 Saudi listed firms between 1990 and 2006	Logit Regression	Profitability and size were found to be significant and positively related to dividend payment.
Kargar &Ahmadi (2013)	Examined relationship between agency costs and dividend policy.	Firms listed on Tehran Stock Exchange between 2006 and 2010	OLS	Profitability was found to be significant and positively related to dividend payment
Khan *et al*. (2013)	Examined impact of profitability and leverage on dividend payout policy	34 firms listed on Karachi Stock Exchange between 2003 and 2010	OLS	Profitability was found to be significant and positively related to dividend payment
Moradi, Salehi & Honarmand (2010)	Examined the effects of firm characteristics on dividend policy	All listed companies in Tehran Stock Exchange between 2000 and 2008	Multiple Regression	Profitability was found to be significant and positively related to dividend payment

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Mehta (2012)	Examined factors determining dividend payout decisions	All firms (excluding Banks) listed on Abu Dhabi Stock Exchange between 2005 and 2009	Correlation Analysis and Multiple Regression	Profitability and size were found to be significant and positively related to dividend payment.
Al-Malkawi, Twairesh & Harery (2013)	Examined the determinants of the likelihood to pay dividends	69 non-financial firms on Saudi Stock Exchange between 2005 and 2011	Random Effect Logit Regression	Profitability and size were found to be significant and positively related to dividend payment.
Ehsan, Tabassum & Akram (2013)	Examined determinants of dividend payouts	100 non-financial firms listed on Karachi Stock Exchange	OLS	Profitability was found to be significant and positively related to dividend payment. Size was found to be significant but negatively related to dividend payment.
Maladjian & El Khoury (2014)	Examined the determinants of dividend payout policy	Lebanese banks listed on Beirut Stock Exchange between 2005 and 2011	OLS and Dynamic Panel Regression	Found negative relationship between dividend payout and profitability.
Arshad, Akram & Amjad (2013)	Examined the relationship between ownership structure and dividend policy	Non-financial firms listed on Karachi Stock Exchange between 2007 and 2011	Correlation Analysis	Found positive association between size and dividend decision/amount of dividend paid
Mansuurinia, Emamgholipour, Rekabdarkolaei, & Hozoori, (2013)	Examined effect of board size and board independence on dividend policy	140 companies between 2006 and 2010 on Tehran Stock Exchange	Panel Regression Analysis	Size is reported to have positive and significant relationship with dividend per share.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Redding (1997)	Investigated the correlation between firm size and dividend payout	US corporations between 1992 and 1993	Probit Analysis	Size is reported to have positive and significant relationship with dividends
Bradford, Chen & Zhu (2013)	Examined how corporate pyramid structure affect dividend policy	Publicly listed companies in China between 1999 and 2010	OLS	Size is positively and significantly related to dividend payout ratio and dividend yield. Growth opportunities is negatively and significantly related to dividend payout ratio
Azeem, Akbar & Usman (2011)	Investigated dividend payments in comparison with firm size	98 firms in the Karachi Stock Exchange between 2000 and 2008	Descriptive Statistics	Found insignificant relationship between dividend payout and firm size
Arif & Akbar (2013)	Evaluated the determinants of dividend policy	174 non financial firms listed on Karachi Stock Exchange	Panel regression	Found insignificant relationship between dividend payout ratio and firm size. Found insignificant relationship between dividend payout ratio and opportunities
Chang & Lee (1982)	Investigated the interactions of investment and dividend decisions	256 US firms listed on NYSE between 1960 and 1976	Generalized Least Square Regression	Effect of investment decisions on dividend payout decisions depend on whether the firm is a high growth or low growth firm. Positive and significant relationship was found between investment and dividend decisions for high growth firms.
Hanif (2014)	Examined the relationship between investment and earnings	Firms listed on Karachi Stock Exchange between 2000 and 2011	Johansen and Juselius Cointegration	Found long term relationship between investment and dividend.
Fama (1974)	Examined the extent to which dividend and investment decisions are interrelated	298 US Industrial firms reported in Compustat between 1946 and 1968	2 Stage Least Square Regression (2SLS)	Dividend decisions and investment decisions are independent of each other.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
D'Souza & Saxena (1999)	Examined the effect of investment opportunities on a firm's dividend policy	349 firms across the world between 1995 and 1997	Multiple Regression Analysis	Reported an insignificant relationship between dividend policy and investment opportunities
Earned Versus Contributed Capital and Dividend Payout				
DeAngelo, DeAngelo & Stulz (2006)	Tested the implication of the life cycle theory by investigating whether the extent to which a firm is self-reliant in its financing or	NYSE, NASDAQ & AMEX firms between 1973 and 2002	Logit Regression	Reported a highly significant and positive relationship between the decision to pay dividends and the earned/contributed capital mix (measured by retained earnings to total assets/equity)
	reliant on external capital can affect its probability to pay dividends			Decline in number of dividend payers is due to rise in number of firms with less earned equity
El-Ansary & Gomaa (2012)	Tested the implication of the life cycle theory in explaining dividend payout decisions	100 companies in the Egyptian stock market during the period 2005 and 2010	Panel logistic Regression	Provide evidence for the life cycle theory in explaining dividend policy. Reported that earned capital (and not contributed) is a main determinant of dividend payout decisions
Khani & Dehghani (2011)	Tested the implication of the life cycle theory in explaining dividend payout decisions	115 firms listed on Tehran Stock Exchange between 2001 and 2009	Logit Regression	Provide support for the life cycle theory of dividend. Found positive and significant relationship between earned equity and the likelihood that a firm pays dividend
Perretti, Allen & Weeks (2013)	Examined the determinants of decision to pay out dividends	American Depository firms on Compustat between 1990 and 2009	Logistic Regression	Earned capital to contributed capital explain dividend payout of ADR firms

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Shin, Kwon & Kim (2010)	Examined the relationship between dividend policy and earned equity	Firms listed on Korean Stock Exchange between 1986 and 2009	Logit Regression	Provide support for life cycle theory. Found earned equity to be positively and significantly related to the probability of paying dividend
Thanatawee (2011)	Examined dividend policies of firms	287 Thai firms between 2002 and 2008	OLS	Provide support for the life cycle theory of dividend. Found positive and significant relationship between earned equity and dividend payout.
Bradford, Mark & Qun (2013)	Examined how organizational structure influence corporate payout policies	Firms on Compustat between 1986 and 2011	Tobit Regression	Retained earnings to total equity was found to be significant and positively related to cash dividend yield
Hassani & Dizaji (2013)	Investigated the effect of firm's life cycle on its dividend policy	152 companies listed on Tehran Stock Exchange	Panel Regression (Fixed and Random Effect)	Retained earnings to total assets was found to be significant and positively related to dividend per share Found no relationship between retained earnings to total equity and dividend per share
Afza & Mirza (2011)	Analyzed the impact of firm's age in dividend policy	120 companies listed on Karachi Stock Exchange	OLS	Consistent with maturity hypothesis as age was found to be positively and significantly related to dividend payment
Ishikawa (2011)	Examined the characteristics of dividend payout policies	Japanese firms over the period 2002 to 2008	Logit Regression	Inconsistent with life cycle theory as growing firms were found to pay more dividends than mature firms
Al-Malkawi, Twairesh & Harery (2013)	Examined the determinants of the likelihood to pay dividends	69 non financial firms on Saudi Stock Exchange between 2005 and 2011	Random Effect Logit Regression	Age was found to be significant and positively related to the likelihood to pay dividend.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Other Firm Characteristics and Dividend Payout				
Ameer (2007)	Investigated the impact of product market competition on dividend policies	Listed Banks in Malaysia between 1995 and 2005	Ordered Probit Model	Earnings is a key determinant of dividend payout policies. It was found to be significantly related to decision to increase dividends.
Chemmanur, He, Hu & Liu (2010)	Examined corporate dividend policies in Hong Kong and US	Non financial firms listed on the Stock Exchange of Hong Kong, NYSE, ASE and NASDAQ firms.	Logit Regression	Lagged dividend yield significantly affect dividend changes in Hong Kong and in the US. Dividend smoothing in Hong Kong is significantly less than those in the US.
Jasim & Hameeda (2011)	Examined factors that determine cash dividend payment	56 Saudi listed firms between 1990 and 2006	Logit Regression	Lagged dividend was found to be significant and positively related to dividend payment.
Omar & Rizuan (2014)	Examined dividend smoothing behaviour	Firms listed in the Malaysian market from 1998 to 2012	OLS	Lagged dividend was found to be significant and positively related to dividend payment
Imran (2011)	Examined factors determining dividend payout decisions	36 firms listed on Karachi Stock Exchange	Panel OLS, Fixed effect and Random effect regression	Lagged dividend was found to be positively related to dividend payment. Cash flow was found to be negatively related to dividend payment
Dzidic (2014)	Examined dividend policy of firms	Listed firms in Bosnia and Herzegovina between 2007 and 2012	Descriptive Analysis	Found no evidence in support of dividend smoothing as previous dividend does not affect current payout.
Ahmed (2014)	Examined factors that explain dividend decision	30 banks listed in UAE market	Correlation Analysis	Bank's liquidity measured by net cash flow have significant positive relationship with cash dividends

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Amidu & Abor (2006)	Examined the determinants of corporate dividend policy	22 firms listed on Ghana Stock Exchange between 1998 and 2003	OLS	Cash flow was found to be positively and significantly related to dividend payment.
Eriotis & Vasiliou (2011)	Explored corporate dividend policy	144 Greek companies listed on the Athens Stock Exchange during 1996 and 2001	Generalized least square regression	Decision to change dividend in the current year is negatively related to dividend paid in the previous year.
John & Muthusamy (2010)	Examined corporate dividend policy	Top ten paper firms listed on Bombay Stock Exchange	OLS	Cash flow is positively related to dividend payment Liquidity is negatively related to dividend payout
Chay & Suh (2005)	Analyzed the importance of cash flow in dividend payout policy	Worldwide firm level data		Cash flow is a determinant of the amount of dividend paid and the probability to pay. Cash flow uncertainty is negatively related to dividend payment
Kargar &Ahmadi (2013)	Examined relationship between agency costs and dividend policy.	Firms listed on Tehran Stock Exchange between 2006 and 2010	OLS	Cash flow is insignificant in explaining dividend payout policies.
Brav, Graham, Harvey & Michaely (2005)	Investigated the factors that drive dividend decisions	384 financial executives in the US	Survey method	Earnings is a core determinant of dividend initiation. Dividend payers maintain dividend levels only if investment and liquidity requirements are fulfilled
Mehta (2012)	Examined factors determining dividend payout decisions	Firms listed on Abu Dhabi Stock Exchange between 2005 and 2009	Correlation Analysis and Multiple Regression	Liquidity was found to be insignificant in explaining dividend payout policies. Leverage is also insignificant in explaining dividend payout policies

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Khan *et al*. (2013)	Examined impact of profitability and leverage on dividend payout policy	34 firms listed on Karachi Stock Exchange between 2003 and 2010	OLS	Leverage is insignificant in explaining dividend payout policies
Rozeff (1982)	Examined the cross sectional variation in dividend payout ratios	1000 domestic firms in the US	Multiple Regression Analysis	High levered firms maintain low dividend payment, thus negative and significant relationship was found
Al-Malkawi (2008)	Examined the determinants of corporate dividend policy	All publicly traded Firms on Amman Stock Exchange 1989 to 2000	Probit Estimation	Leverage was found to be significant and negatively related to dividend payment.
Asif, Rasool & Kamal (2011)	Examined the relationship between dividend and financial leverage	403 firms on Karachi Stock Exchange (2002-2008)	OLS	Financial leverage was reported to have negative impact on dividend payout
Bradford, Mark & Qun (2013)	Examined how organizational structure influence corporate payout policies	Firms on Compustat between 1986 and 2011	Tobit Regression	Leverage was found to be significant and negatively related to cash dividend yield
Al-Malkawi, Twairesh & Harery (2013)	Examined the determinants of the likelihood to pay dividends	69 non financial firms on Saudi Stock Exchange between 2005 and 2011	Random Effect Logit Regression	Leverage was found to be significant and negatively related to dividend payment.
Bradford, Chen & Zhu (2013)	Examined how corporate pyramid structure affect dividend policy	Publicly listed companies in China between 1999 and 2010	OLS	Leverage is negatively and significantly related to dividend payout ratio and dividend yield. Previous year's dividend policy is positively related to current year's dividend policy using dividend payout ratio and dividend yield as dividend measures.

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
				Free cash flow is insignificant in explaining dividend yield. However, it is negatively and significantly related to dividend payout ratio.
Ehsan, Tabassum & Akram (2013)	Examined determinants of dividend payouts	100 non financial firms listed on Karachi Stock Exchange	OLS	Leverage was found to be significant and negatively related to dividend payout.
Huda & Abdullah (2013)	Examined effect of ownership structure on dividend policy	21 firms listed on Chittagong Stock Exchange	Hierarchical Multiple Regression	Leverage was found to be significant and negatively related to dividend per share.
Kargar &Ahmadi (2013)	Examined relationship between agency costs and dividend policy.	Firms listed on Tehran Stock Exchange between 2006 and 2010	OLS	Leverage was found to be significant and negatively related to dividend payout.
Mansuurinia, Emamgholipour, Rekabdarkolaei, & Hozoori, (2013)	Examined effect of board size and board independence on dividend policy	140 companies between 2006 and 2010 on Tehran Stock Exchange	Panel Regression Analysis	Leverage was found to be significant and negatively related to dividend per share.
Vo & Nguyen (2014)	Examined the relationship between leverage and dividend policy	81 listed firms on HCM City Stock Exchange between 2007 and 2012	3 Stage Least Squares Estimation	Found negative relationship between leverage and dividend payout.
Arshad, Akram & Amjad (2013)	Examined the relationship between ownership structure and dividend policy	Non financial firms on Karachi Stock Exchange between 2007 and 2011	Correlation Analysis	Found positive association between leverage and dividend decision/amount of dividend paid

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Firm's Dividend Behaviour During Financial Crisis				
Reddemann, Basse & Johann-Matthias (2010)	Analyzed issues related with dividend policy	German and European Insurance companies between 1999 and 2008	Granger causality and Vector error correction model	Firms adjust their dividend policies during financial crisis to strengthen their liquidity and preserve their capital base
Bancel & Mittoo (2011)	Investigated how managers maintain their financial flexibility during financial crisis	CFO's of 8,000 French firms in 2009	Questionnaire survey and Interview	One of the ways in which managers preserve their financial flexibility during crisis is through dividend cuts.
DeAngelo & DeAngelo (1990)	Studied dividend policies of firms during financial crisis	80 NYSE firms between 1980 and 1985	Descriptive Statistics	Almost all managers aggressively reduced dividends during the crisis. Manager's reluctance during crisis is to dividend omission and not cuts.
Hauser (2013)	Investigated whether corporate dividend change during crisis	US Industrial firms between 2006 and 2009	Logistic Regression	Propensity to cut dividends increased due to low cash ratio resulting from the crisis
Abreu & Gulamhussen (2013)	Studied Bank's dividend payout before and during crisis	462 US Bank holding companies before and during financial crisis of 2007 -2009	Descriptive Analysis	Dividend payout of bank holding companies decreased significantly during the financial crisis.
Bistrova & Lace (2012)	Examined the stability and sustainability of dividends in emerging markets	117 firms in the Central and Eastern European region	Descriptive Analysis	Dividend payouts declined during the crisis as 23% of payers ceased payment during crisis.
Case, Hardin & Wu (2012)	Examined dividend polices during crisis	REITS between 2007 and 2009	Multinomial logistic regression	REITS with low market to book ratio and higher market leverage adjust dividends by cutting, suspending or paying elective stocks during the crisis

Table 3.1 (Continued)

AUTHOR& YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Bebczuk (2004)	Examined the determinants of corporate dividend policy	Listed firms in Argentina between 1996 and 2002	Descriptive Analysis and Tobit Estimation	Firms in Argentina pay higher dividends at the start of the crisis then subsequently cut dividends
Floyd, Li & Skinner (2013)	Provided evidence on dividend payout of firms	US firms between 1980 and 2011	Descriptive Analysis	Industrial firms reduce their dividends modestly during crisis while financial firms cut dividends sharply
Kuo, Philip & Zhang (2013)	Examined disappearing dividend phenomenon	UK firms between 1989 and 2009	Descriptive Analysis and Logistic regression	Global financial crisis impacted positively on dividend payout. Significant upward trend in dividend payout was reported during crisis
Acharya, Gujral & Shin (2009)	Examined dividends and bank capital during crisis	21 large banks in the US, UK and Europe	Descriptive Analysis	The sampled banks paid dividends throughout crisis. Payment of dividend during crisis drained the bank's capital
Mollah (2011)	Investigated dividend policy before and after crisis	153 firms listed on Dhaka Stock Exchange between 1988 and 1997 & 1999 and 2003.	OLS	There is no significant difference in dividend payout of the sampled firms before, during and after crisis.
Sierpinska & Mlodkowski (2010)	Examined dividend payout during crisis	Companies listed on Tokyo Stock Exchange	Descriptive Analysis and Augmented Dickey Fuller test	Japanese firms do not decrease dividends during recession.
Prior Studies on Dividend Policy in Nigeria				
Adelegan (2009)	Investigated the market reaction to dividend announcement	Dividend announcements between 1991 and 1999	Event study	Share prices react to dividend announcements. Positive and significant cumulative excess returns were earned around dividend announcement dates

Table 3.1 (Continued)

AUTHOR & YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Campbell & Ohuocha (2011)	Examined whether dividend announcement have effect on market value of firms	132 dividend announcements from 73 listed companies between 2002 and 2006	Event study	Significant positive abnormal returns are earned on announcement date for companies with actively traded stocks. Companies with less actively traded stocks earn significant negative abnormal returns
Okoyeuzu (2011)	Observed dividend policies of quoted firms	60 firms between 1996 and 2005	Event study	Corporate dividend signals important information to investors about firm's performance
Salawu, Asaolu &Yinusa (2012)	Investigated the effects of financial policy on corporate performance	70 firms between 1990 and 2006	Pooled OLS, Fixed effect and Generalized method of moment panel model	Dividend policy is positively related to firm's performance
Adelegan (2003)	Tested information content of cashflow in explaining dividend policy	63 quoted firms between 1984 and 1997	OLS	Found positive and significant relationship between cash flows and dividend policy
Adesola & Okwong (2009)	Observed dividend policies of firms	27 firms between 1996 and 2006	OLS	Negative and significant relationship was found between earnings and dividend payout Positive and significant relationship was found between prior dividends and dividend payout ratio. Size and investment opportunities were found to be insignificant in explaining dividend policy
Okpara (2010)	Investigated the relationship between dividend policy and asymmetric information	Listed firms	Unit root test	Positive relationship exists between dividend policy and asymmetric information. Negative and significant relationship was found between earnings and dividend payout. Positive and significant relationship was found between prior dividends and dividend payout ratio.

Table 3.1 (Continued)

AUTHOR & YEAR	OBJECTIVE	SAMPLE	METHOD	FINDINGS
Musa (2009)	Investigated dividend policies	53 quoted firms	Parsimonious Multiple Regression	Prior dividend is negatively related to dividend changes. Investment opportunity is insignificant in explaining dividend policy
Nnadi & Akpomi (2008)	Examined impact of corporate tax on dividend policy.	Banks listed on the NSE	Multiple Regression Analysis	Tax has positive and significant relationship with dividend policy of financial institutions.
Ogbulu & Arewa (2010)	Examined the relationship between dividend per share and leverage	Listed firms between 1984 and 2010	Co-integration Technique	Inverse long run and unidirectional relationship was found between leverage and dividends
Abdullahi & Yohanna (2013)	Investigated the relationship between leverage and dividend policy	Five manufacturing firms between 2007 and 2011	Pooled OLS	Positive and significant relationship between leverage and dividend payout ratio. Positive and significant relationship between profitability and dividend payout ratio.

CHAPTER FOUR

METHODOLOGY

4.0 Introduction

This chapter centers on the methods adopted in order to answer the research questions. As highlighted earlier, the study examines the propensity to pay dividends on the Nigerian Stock Exchange. The effect of foreign ownership alongside other explanations have been examined on the propensity "to pay" or "not to pay" dividends. Furthermore, the study investigates how Nigerian firms adjusted their dividend policies in response to the 2008 global financial crisis and explanatory factors for alternative payout choices with particular reference to changes resulting from the crisis. The quantitative research design was employed. This is considered appropriate as the study involve examining relationships among variables by testing of specific hypotheses. Creswell (1994) suggested the use of quantitative approach when the phenomena is to be explained by collecting quantitative data and analyzing the data using mathematical based methods. The chapter includes discussion on the research framework, hypotheses to be tested, measurement of variables, population of the study and sample, source of data and the method of data analysis. The research design is depicted in Figure 4.1.

As depicted in Figure 4.1, the research is premised on the dividend relevance theories. The steps involved in answering the research questions raised include: observing dividend pattern between years 2003 to 2012; estimating binomial regression to explain the choice to pay or not to pay dividends; estimating multinomial logistic regression to explain four mutually exclusive payout choices. Thereafter, explanations are offered on

whether the results obtained are in line with expectation and the implication of the results on relevant theories are discussed.

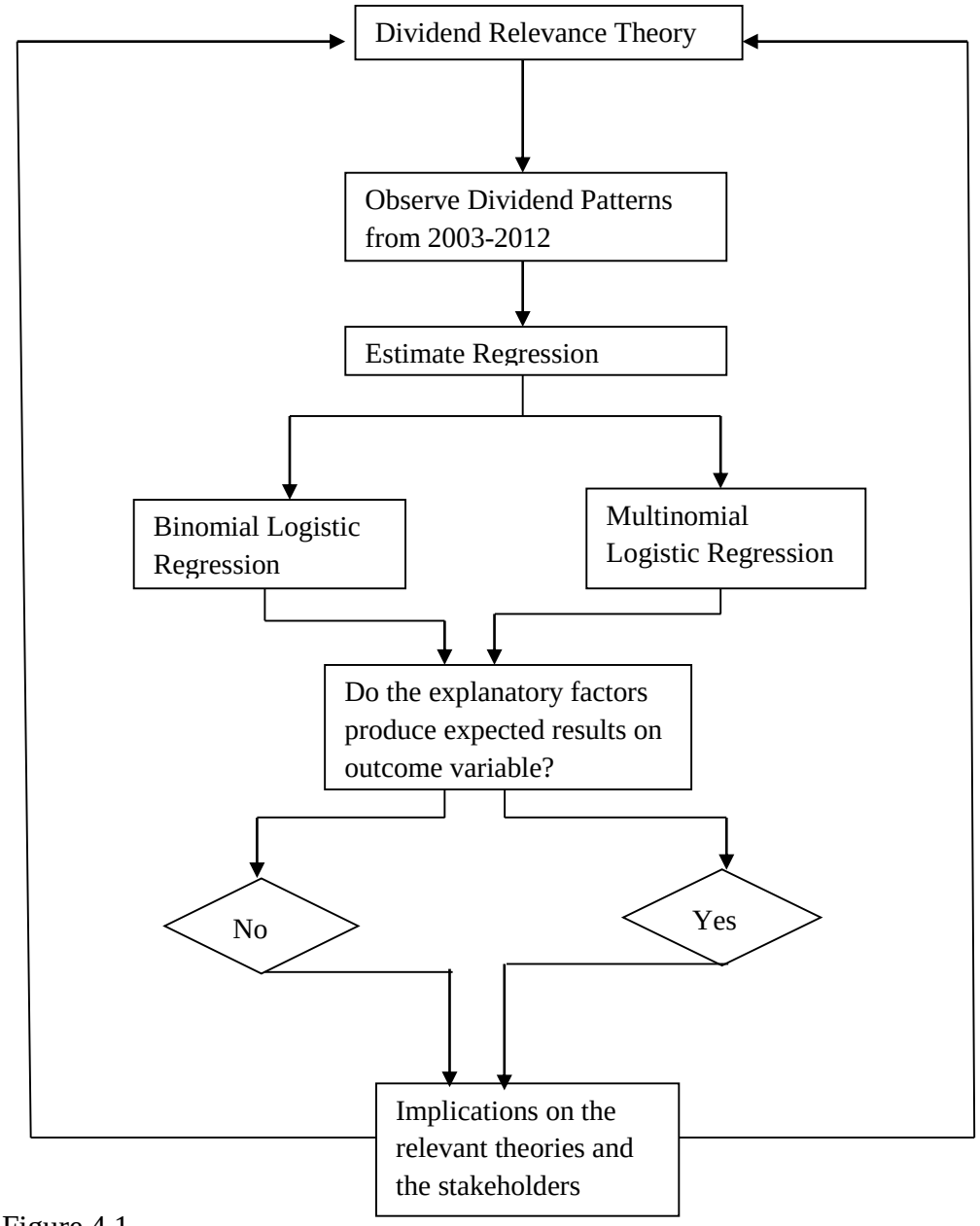

Figure 4.1
Schematic Description of the Steps Involved in Examining the Propensity to Pay Dividends on the Nigerian Stock Exchange

4.1 Research Framework

The research framework for the study is presented in Figure 4.2 and Figure 4.3 for the binomial and multinomial models respectively. As depicted in Figure 4.2, the dependent variable in the binomial model consists of two payout options: decision to pay or not to pay dividend (DIV). If the firm pays dividend, then DIV=1, otherwise DIV= 0.

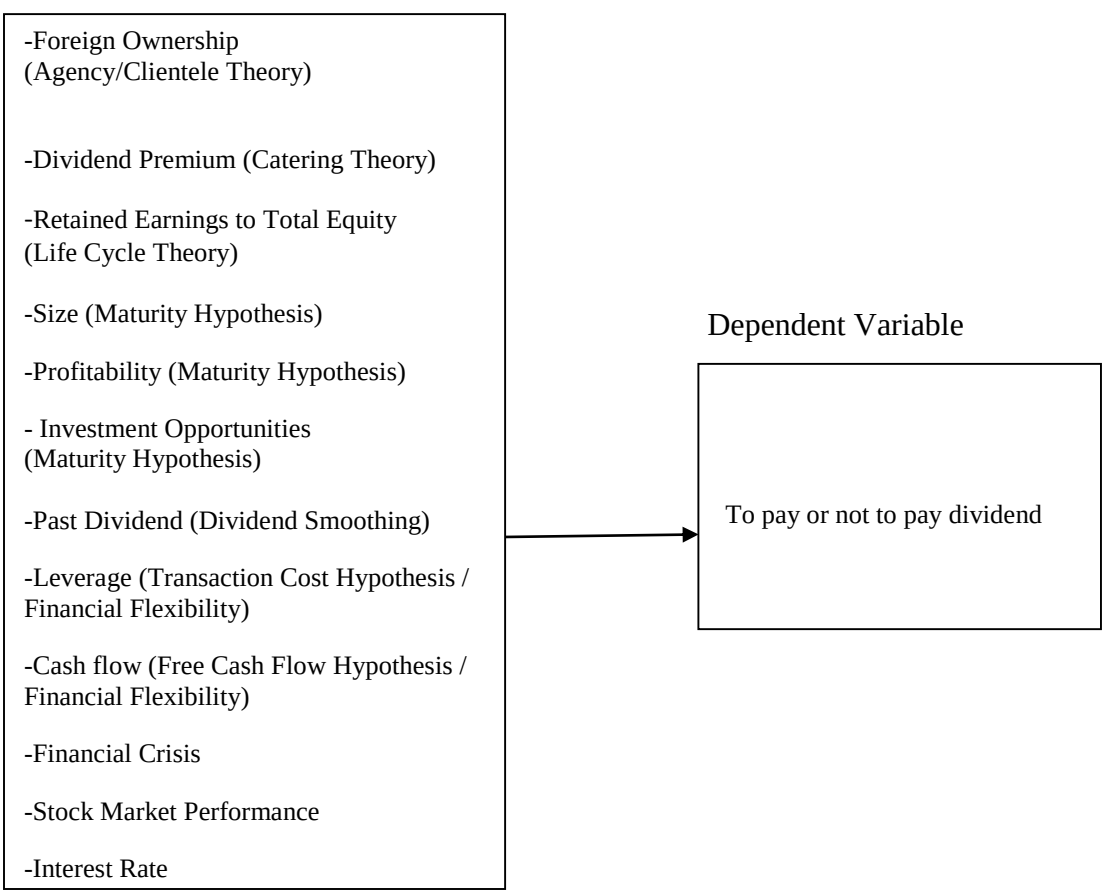

Figure 4.2
Research Framework (Binomial Model)

There are nine explanatory variables used in the regression models which include foreign ownership (FOREIGN) defined as the proportion of foreign investors' shareholdings to total shares outstanding. This is in line with the definition given by prior studies (Jeon *et al*., 2011; Jeon & Ryoo, 2012; Lam et *al*., 2012). Foreign ownership is

included in the model because it remains underexplored in the dividend literature and the continuous rise in foreign investor's shareholdings in the Nigerian market makes it necessary to be included. Dividend premium calculated as the log difference between the average market-to-book ratio of the payers and the non-payers is used as the proxy for catering hypothesis (Baker & Wurgler, 2004a, b). Higher ratio of the dividend premium indicates that capital market attaches a higher valuation to dividend paying companies. Retained earnings to total equity (RE/TE) on the other hand are used as a proxy for life cycle hypothesis. Higher RE/TE indicates that firms rely more on their retained capital as opposed to contributed capital and has attained maturity stage of its financial life cycle (DeAngelo *et al*., 2006). Catering and lifecycle theories are new theories which have majorly been tested in developed markets but have not received attention in the African setting. As a result, proxies of the two theories are included in the model to examine whether they influence payout decisions in the Nigerian market. Fama and French (2001) stated that dividend payers are mature firms with larger size, higher profitability and fewer investment opportunities. Therefore, these variables (SIZE, ROA, INV) are also incorporated into the model. Size is defined as log of total assets; whereas profitability is defined as return on assets (ROA) and investment opportunity is defined as the market to book ratio measured by the market price per share to the book value per share.

Past dividend is dividend paid in the previous year and it is included in the model to control for firms' dividend smoothing behavior as postulated by Lintner (1956). Cash flow is defined as the net operating cash flow (obtained directly from the statement of cash flow) and it is to control for the free cash flow hypothesis. Leverage is defined as total debt to total assets to capture the transaction cost hypothesis. All other variables

highlighted above are firm characteristics which have been tested overtime and regarded as traditional determinants of dividend policy. They are included in the model to ensure that the model is correctly specified. In addition to these firm characteristics, the study also controlled for macro level variables such as financial crisis represented by dummy variable which takes the value of 1 for the crisis years and 0 for other years, stock market performance measured by annual appreciation in the All Share Index, and interest rate which is the annual lending rate.

Figure 4.3 shows that the dependent variable (DIV) in the multinomial model consists of four payout choices. DIV takes a value of 1 if the firm cuts dividend, a value of 2 if the firm increases dividend, a value of 3 if the firm maintains dividend, and 4 if the firm omits dividend. The description of the independent variables is as given for the binomial model. However, the framework for the multinomial model does not include crisis as the model is estimated for different sub-periods.

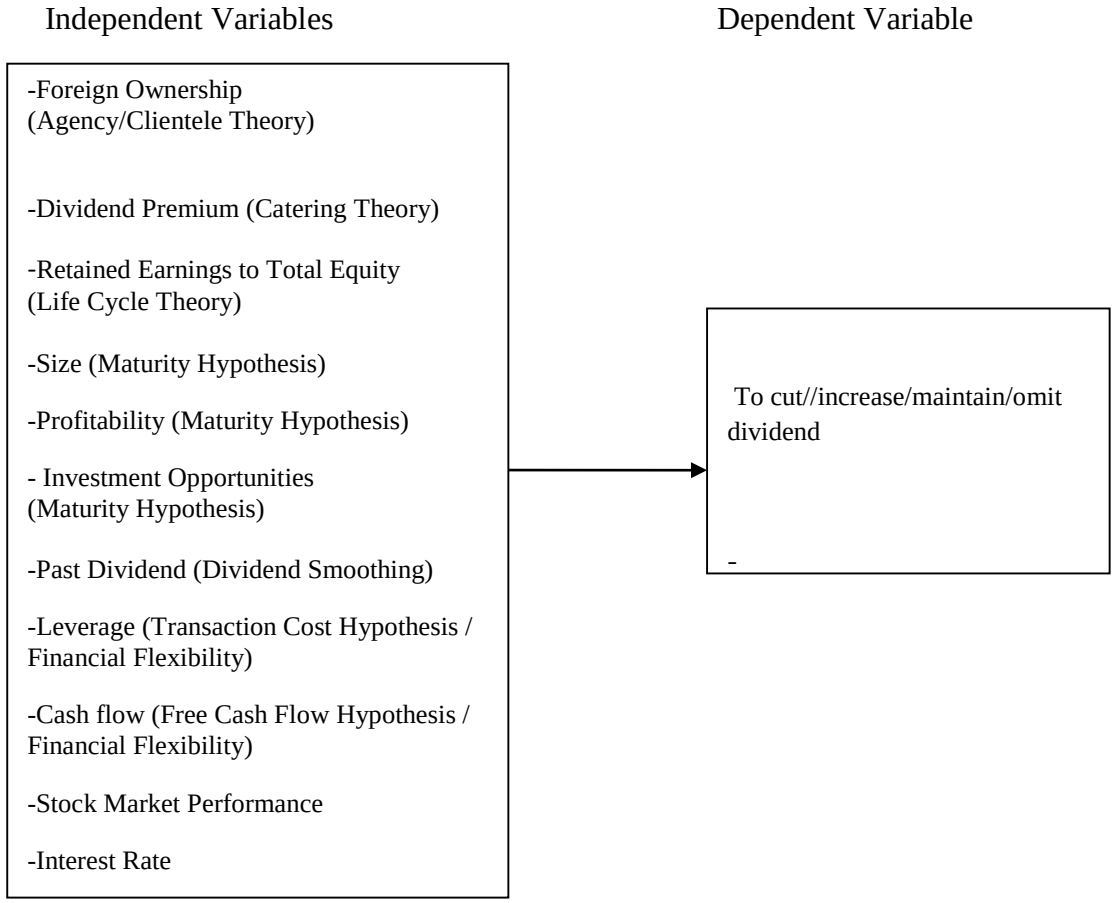

Figure 4.3
Research Framework (Multinomial Model)

Summary of the variables and measurements is depicted in Table 4.1.

Table 4.1
Summary of Variables and Measurement

Variables	**Measurement**	**Sources**
Div payout option (Div)	Dummy variables with values of 0 and 1 (logit model). 0= Firm does not pay dividend 1= Firm pays dividend	Baker & Wurgler (2004b); Fama & French (2001); Fatemi & Bildik (2009); Julio & Ikenberry (2004) Kuo *et al*. (2013)
	Dummy variables with values of 1,2,3,4 (MNL model) 1= Firm cut dividend 2= Firm increase dividend 3= Firm maintain dividend 4= Firm omit dividend	Andres *et al*. (2013); Case *et al*. (2012).

Table 4.1 (Continued)

Variables	Measurement	Sources
Foreign Ownership (FOREIGN)	Ratio of foreign investors' shareholdings to the total shares outstanding.	Jeon *et al*. (2011); Jeon & Ryoo (2013); Lam *et al*. (2012).
Dividend Premium (PREMIUM)	Log difference between the average market-to-book ratio of the payers and the non-payer	Baker & Wurgler (2004a, b); Eije & Megginson (2007); Hoberg & Prabhala (2009); Li & Lie (2006).
Retained Earnings to Total Equity (RE/TE)	Retained earnings divided by total equity	DeAngelo *et al*. (2006); El Ansary & Gomaa (2012); Khani & Dehghani (2011).
Size	Natural log of total assets	Chai (2010); Gedajlovic, Yoshikawa & Hashimoto (2004); Kim *et al*. (2010); Lam *et al*. (2012).
Profitability (ROA)	Net earnings divided by total assets	Chai (2010); Grullon *et al*. (2011); Jeon & Ryoo (2013); Lam *et al*. (2012).
Investment Opportunity (INV)	Market to book ratio (Market Price per share/book value per share)	Baker & Wurgler (2004a)
Past Dividend (PYDPS)	Previous year dividend	Eriotis & Vasiliou (2011); Imran (2011); Lintner (1956).
Leverage (LEV)	Total debts to total assets	Afza & Mirza (2011); Lee (2010). Ronapat & Evans (2005); Thanatawee (2011).
Cash Flow (CF)	Net cash flow from operating activities (operating income+ depreciation - taxes +/- changes in working capital).	Amidu & Abor (2006); Gill *et al*. (2010); Imran (2011).
Crisis (DCR)	Dummy Variable which takes the value of 1 for crisis period (2008 & 2009), and takes the value of 0 for other years	Hauser (2013).
Stock Market Performance (ASI)	Annual appreciation of the Nigeria's All Share Index.	Ooi, Ong & Li (2010)

Table 4.1 (Continued)

Variables	Measurement	Sources
Interest Rate (INT)	Annual rate at which the Central Bank lends to other banks.	Khan, Meher & Kashif (2013)

4.2 Data Source

Data for the study was obtained from secondary sources. Firm level data were collected from the annual reports of the companies. The annual reports and accounts were obtained from the Nigerian Stock Exchange as the listed firms are required to submit their financial statements to the stock exchange at the end of every fiscal year. Data on market indices was obtained from the factbook of the Nigerian Stock Exchange while data on macroeconomic variable was obtained from Datastream.

4.3 Population and Data Collection

The population of the study consists of all firms that are listed on the Nigerian Stock Exchange over the 2003 to 2012 period. There were 194 firms listed on the Nigerian stock exchange as at end of 2012 (NSE, 2012)**.** Firms which are acquired, merged, or delisted are to remain up to the time of delisting to reduce survivorship bias. However, the study excludes firms in the financial sector as such firms are usually subjected to certain requirements and restrictions in order to ensure confidence and stability in the financial system. Such regulatory issues may distort results (Ap Gwilym *et al*., 2004). The final sample comprises 1,048 firm-year observations from a total of 126 listed firms.

4.4 Hypotheses Development

The hypotheses tested have been formulated based on the research problems and objectives. Given the research framework in Figure 4.2 and Figure 4.3, hypotheses have been formulated on how foreign ownership and other factors can affect a firm's propensity "to pay" or "not to pay" on one hand, and on the other hand on how the explanatory variables affect a firm's propensity to cut, increase, or maintain dividend relative to the propensity to omit dividend. This derives from the need for a reference category in the multinomial model. This is discussed in more details in the next chapter. However, no hypothesis is formulated for the control variables.

4.4.1 Factors Affecting Firm's Propensity "To Pay" or "Not to Pay"

In order to achieve the second and third objectives of the study, the study raises hypotheses on how the explanatory factors specified in the framework affect the choice to pay or not to pay dividends.

4.4.1.1 Foreign Ownership and the Propensity "To Pay" or "Not to Pay" Dividends

As indicated in the literature review, there are two competing theories (agency and clientele theories) that can explain the relationship between foreign ownership and the firm's propensity to pay dividends. In line with the agency theory, the study expects foreign investors to have preference for dividends based on two arguments. As indicated earlier in the write-up, foreign investors on the Nigerian Stock Exchange are mainly institutional investors (NSE Factbook). Consequently, there exists geographic distance between these investors and their investment base. Firstly, the study argues that foreign investors are less informed about the market than the domestic investors. Secondly, the study argues that foreign investors are not able to exert direct monitoring on the firms due

to the geographic distance. Therefore, based on the information asymmetry and lack of direct monitoring, it is expected that foreign investors will press the firms to disgorge out cash as dividends as they are not informed on how the firm utilize its funds. Thus, foreign ownership is expected to have a positive influence on propensity to pay dividends. Foreign ownership has been reported to be positively and significantly related to dividend payment by prior studies (Al Nawaiseh, 2013; Baba, 2009; Bokpin, 2011; Chai, 2010; Gedajlovic, Yoshikawa & Hashimoto, 2004; Jain & Chu, 2013; Jeon *et al*., 2011; Lee, Liu, Roll & Subrahmanyam, 2006; Ullah *et al*., 2012; Warrad, Abed, Khrisat & Al-Sheik, 2012). Based on the foregoing, the study hypothesizes that:

H_1: Firm's propensity to pay dividend is positively related to foreign ownership.

Contrarily, a negative relationship may be expected based on the clientele theory. The study raises two arguments in line with the clientele theory. Firstly, as noted earlier, dividend clientele may be formed due to tax and transaction costs related reasons. Foreign investors incur transaction costs with respect to dividend repatriation and re-investment. Such costs lead to lower preference for dividend paying stock. Based on the tax-induced clientele theory of dividends, the study postulates that foreign investors will have less preference for dividend based on the following arguments. The differential tax treatment of dividend and capital gains as dividend income is subjected to 10% withholding tax while capital gains on stocks and shares have been exempted from capital gains tax since 1998 (Capital Gains Tax Act, Sec 26). All else equal, it is expected that the foreign investors in the Nigerian market will prefer low yield stocks due to the unfavourable tax regime on dividend as compared to capital gains. Particularly, the study argues that foreign investors will have less preference for dividends relative to domestic

investors. This is due to the fact that domestic institutional investors enjoy tax exemption on their dividend income [Sec 63(2) of Companies Income Tax Act]. Based on the tax-induced clientele effect, it is expected that tax-exempt investors will have more preference for dividends relative to their counterparts who suffer the tax. Hotchkiss and Lawrence (2007) found that tax exempt investors invest more in high yield firms. Similarly, Henry (2011) reported that due to their tax exempt status, domestic investors have tax based preference for receipt of dividend relative to capital gains. The study argues further that unlike foreign investors, domestic retail investors are mainly individuals with financial constraints as compared to the foreign investors. In line with this, prior studies have shown that individual investors have preference for dividends (Dong, Robinson, & Veld, 2005; Jain, 2007). As such, these domestic retail investors may desire immediate returns on their investment regardless of the tax. Brav *et al*. (2005) reported in their survey that retail investors have higher preference for dividend paying stocks regardless of the tax implication.

Secondly, the study argues in line with recent findings that document institutional investor clientele have less preference for dividend paying stocks (Brav *et al*., 2005; Grinstein & Michaely, 2005; Hankins, Flannery & Nimalendran, 2008). Foreign investors on the NSE are predominantly institutional investors. Based on the arguments raised above, the study assumes that foreign investors have less preference for dividend paying stock and a negative relationship is expected in this regard. Some prior studies reported negative relationship between foreign ownership and dividend policy (Dahlquist & Robertsson, 2011; Ferreira *et al*., 2010; Lam *et al*., 2012; Smith & Eije, 2009). Based on the arguments put forward, the study hypothesizes that:

H_2: Firm's propensity to pay dividend is negatively related to foreign ownership.

4.4.1.2 Catering Effect and the Propensity "To Pay" or "Not to Pay" Dividends

Managers may cater to meet investor's time-variant demand for dividend (Baker & Wurgler, 2004a). Dividend payment is usually compensated by increase in market valuation of the firm's stock by investors who desire dividends. Therefore, dividend premium is the premium (reward/value) which investors place on dividend paying stocks. In line with the catering theory, firms pay dividends when the dividend premium is high and do not pay when the premium is low (Baker & Wurgler, 2004b). The literature indicates mixed findings on whether catering can explain dividend payments. Studies have found dividend premium to be positively and significantly related to measures of dividend payout policies (Ferris *et al*., 2009; Jiang, Kim, & Yang, 2013; Lee, 2010; Neves & Torre, 2006). Contrarily, other studies reported negative relationship between catering and dividend policy (Denis & Osobov, 2008). There are also studies that find no significant relationship between dividend premium and firm's dividend policies (Tsuji, 2010; Turner *et al*., 2011). Based on the foregoing, firm's propensity to pay dividends may be low when the investors do not value dividend paying stocks. Going by the findings of Ferris *et al*. (2009) that common law countries do cater for investor's demand for dividends. The study assumes listed firms in Nigeria do cater for investor's demand. Therefore, for catering to serve as an explanation for propensity to pay dividends in Nigeria, we hypothesize that propensity to pay is high when the dividend premium is high. Thus it is hypothesized that

H_3: Firm's propensity to pay dividends is positively related to the dividend premium.

4.4.1.3 Life Cycle Explanation and the Propensity "To Pay" or "Not to Pay" Dividends

The life cycle theory explains that the dividend policy of firms depend on the stage of the firm in its financial life cycle. DeAngelo *et al*. (2006) suggested that the extent to which a firm relies on internally financing or external capital indicates the stage of that firm in its financial life cycle. Firms that rely more on earned capital (mature firms) are likely to pay more dividends since they rely on internally generated financing as opposed to external financing. Some studies have reported positive relationship between RE/TE (life cycle proxy) and the propensity to pay dividends (Coulton & Ruddock, 2011; Shin *et al*., 2010; Thanatawee, 2011). Ishikawa (2011) found no evidence for this theory. Thus, empirical evidence is also inconclusive. The study also draws on the literature of DeAngelo *et al*. (2006) to test for the implication of life cycle theory. This is done by examining the relationship between RE/TE and the propensity to pay dividends as it is believed that firms with low RE/TE are the likely candidates for dividend omission. This leads to the following hypothesis:

H_4: Firm's propensity to pay dividends is positively related to RE/TE.

Similarly, Fama and French (2001) noted in line with maturity hypothesis that dividend payers are firms that have attained the maturity stage of their life cycle with higher profitability, larger size, and fewer investment opportunities. Other studies also confirm that profitability and size have positive and significant relationship with dividend payout (Al Malkawi *et al*., 2013; Bebczuk, 2004; Imran, 2011; Jasim & Hameeda, 2011; Mehta, 2012). On the other hand Ehsan *et al*. (2013) found negative and significant relationship between size and dividend payout while Maladjian and El Khoury (2014)

also found significant negative relationship between profitability and dividend payout. Bradford *et al*. (2013) also reported negative and significant relationship between investment opportunities and dividend payout. On the other hand, other studies reported that investment decisions do not affect dividend decisions (Fama, 1974; D'Souza & Saxena, 1999). Thus, there are mixed findings with respect to these attributes. However, in line with the notion of Fama and French (2001) which many studies have also confirmed, this study assumes that firms with higher profitability, larger size and fewer investment opportunities have higher likelihood to pay dividend. Therefore, the following hypotheses are formulated.

H_5: Firm's propensity to pay dividends is positively related to profitability.

H_6: Firm's propensity to pay dividends is positively related to size.

H_7: Firm's propensity to pay dividends is negatively related to investment opportunities.

4.4.1.4 Other Firm Characteristics and the Propensity "To Pay" or "Not to Pay" Dividends

Other firm characteristics that have been established as predictors of dividend payout by prior studies have also been included in the model. These include leverage, cash flow, and past dividend. Based on Lintner's (1956) dividend smoothing hypothesis, previous dividend is regarded as a primary determinant of current dividend decision and firms that pay dividend in the previous year may seek to establish stability of dividend. Therefore a positive relationship is expected between past dividend and propensity to pay. Similarly, in line with the transaction cost hypothesis, Rozeff (1982) contends that highly levered

firms will maintain lower dividend levels in order to reduce the transaction costs of raising external finance. Thus, we expect a negative relationship between leverage and propensity to pay dividend. In consistence with the free cash flow hypothesis, firms with more free cash flow are expected to pay out more dividends to reduce agency costs. From another perspective, firms with higher cash flow are also expected to have better ability to meet dividend payments, thus cash flow should be positively related to propensity to pay. Based on this, we raise the following hypotheses.

H_8: Firm's propensity to pay dividends is negatively related to leverage.

H_9: Firm's propensity to pay dividends is positively related to cash flow.

H_{10}: Firm's propensity to pay dividends is positively related to past dividend.

4.4.2 Factors Affecting Firm's Propensity to Cut/Increase/Maintain/Omit Dividends for Different Crisis Sub-samples.

It is indicated in the literature that firms may adjust their dividend policies through dividend cuts during crisis in order to preserve financial flexibility (Bancel & Mitto, 2011; Bistrova & Lace, 2012; Reddemann *et al*., 2010). Other firms may use the crisis period as opportunity to omit dividends while some other firms increase their payments during the period to indicate sound financial condition (Acharya *et al*., 2009; Kuo *et al*., 2013). Based on this, it is assumed that firms might have adjusted their dividend in response to the financial crisis either by cutting, increasing or omitting dividend payments. In spite of this, some firms would have maintained their dividend levels. While previous studies have shown that firms adjust their dividend polices during crisis, available literature does not specify factors that influence the dividend payout choices during crisis. Therefore, the

study examines whether the same explanatory variables explain the alternative payout choices for the different sub-samples with the aim of observing the changes that occurred during the crisis period.

The Nigerian stock market witnessed huge withdrawal of funds by many foreign investors during the crisis period (Proshare News, 2013). However, the foreign investors still had majority shareholdings as compared to domestic investors during this period. Thus, it is necessary to observe whether the role of foreign ownership in explaining the alternative payout choices changed during crisis or not. It is assumed that the effect of foreign ownership on dividend payout decisions may be altered during crisis as dividend preference of foreign investors may change in such period. Thus, foreign ownership may lose its explanatory power (if any) on payout decisions as a result of the crisis.

Thus the following hypotheses are raised:

H_{11}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is positively/negatively related to foreign ownership in the non-crisis period.

H_{11b}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is not related to foreign ownership during crisis.

Similarly, firms may be willing to cater for investor's demand for dividend payment. However, the ability to respond to this demand may be impeded during crisis. He *et al*. (2012) reported that catering incentives drop along with payout ability during market crashes. Therefore, in order to establish whether the role of catering theory in

explaining the alternate dividend payout choices changed during financial crisis or not, it is hypothesized that:

H_{12}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is positively related to dividend premium in the non-crisis period.

H_{12b}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is not related to dividend premium during crisis.

The life cycle theory may also explain how firms adjust their dividend payout in response to the crisis. DeAngelo *et al*. (2006) noted that mature firms are more likely to pay dividends. However, these firms may not have sufficient retained earnings to rely on during crisis as profitability levels are reduced. Thus, it is important to establish whether or not the role of life cycle theory in explaining the different payout choices changed during financial crisis. Therefore, it is hypothesized that:

H_{13}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is positively related to RE/TE in the non-crisis period.

H_{13b}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is not related to RE/TE during crisis.

Similarly, the characteristics of a dividend payer (higher profitability; larger size; fewer investment opportunities) as specified by Fama and French (2001) may be affected during financial crisis. The financial performance of many firms in Nigeria was

negatively affected by the crisis due to increased cost of production (Akingunola & Sangosanya, 2011; Ayeni, 2012; Olaniyi & Olabisi, 2011). While large and profitable firms are not totally insulated from the crisis, they may have better ability to keep paying regular dividend during the crisis period. In other words, size and profitability may play a stronger role with respect to dividend payout during the crisis. With respect to growth opportunities, firms may not see the prospects in investing during financial crisis. Thus, growth opportunities may have no influence on payout decisions in such period. Therefore, to ascertain whether the role of these characteristics in explaining the payout choices changed during crisis or not, the following hypotheses are formulated.

H_{14}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is positively related to profitability in the non-crisis period.

H_{14b}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is positively related to profitability during crisis.

H_{15}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is positively related to size in the non-crisis period.

H_{15b}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is positively related to size during crisis.

H_{16}: Firm's propensity to pay dividend through these options (cut, increase maintain) relative to the propensity to omit is negatively related to investment opportunities in the non-crisis period.

H_{16b}: Firm's propensity to pay dividend through these options (cut, increase maintain) relative to the propensity to omit is not related to investment opportunities during crisis.

Finally, the effects of other firm characteristics are also examined to determine whether they explain the payout choices and whether their role changed during financial crisis. As mentioned earlier, firms faced decline in cash flow levels during the crisis. More so, the uncertainty of cash flow during crisis may stimulate firm's desire to preserve financial flexibility. Thus, it is expected that firms with lower levels of cash flow may have more tendency to omit dividends during crisis while those with higher levels of cash flow may have more ability to distribute dividend through any of the other payout choices. Similarly, the need to preserve financial flexibility may cause highly levered firms to be more constrained during the crisis period. Thus, it is expected that the tendency to omit dividends rather than adopt the other payout choices will be higher for highly levered firms during the crisis. With respect to past dividend, the study assumes that some firms may abandon the trend of maintaining stable dividend due to constrained financial ability. Based on the foregoing, the following hypotheses are raised:

H_{17}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is positively related to cash flow in the non-crisis period.

H_{17b}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is positively related to cash flow during crisis.

H_{18}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is negatively related to leverage in the non-crisis period.

H_{18b}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is negatively related to leverage during crisis.

H_{19}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is positively related to past dividend in the non-crisis period.

H_{19b}: Firm's propensity to pay dividend through these options (cut, increase, maintain) relative to the propensity to omit is not related to past dividend during crisis.

4.5 Descriptive Analysis

Descriptive analysis is employed to address the first and fourth research questions before extending to the multivariate analysis. In order to explain the propensity to pay dividends over the study period, the study tracks both the total number of payers and aggregate amount of dividend paid during 2003 to 2012. Inspection of these aggregate time series data would allow us to observe the dividend pattern and to establish whether or not the disappearing dividend and dividend concentration phenomena are happening in Nigeria.

Next, the study seeks to investigate how firms adjust their dividend policies during financial crisis. The study puts forward four possible options of how the firms can adjust their dividend policies (cut dividend, increase dividend, maintain dividend, omit dividend). Explanations are then offered on the number of cuts, increases, no change in dividend level and omissions during the period. The study also offers additional explanation using measures of central tendencies such as the mean and standard deviation. The mean is used to show average values exhibited by the variables over the years. Standard deviation is also used to show the variations in the variables among the sampled firms.

4.6 Regression Models

The regression models estimated have been specified in line with the objectives of the study. Two different models are employed in this study: binomial logit model to capture the objectives which relates to two discrete choices; and multinomial logit model to capture the objective which has more than two choices. The models are discussed in details in the following sub-sections.

4.6.1 Binomial Logit Model

The term "logistic regression" is drawn from the logit transformation used with the outcome variable (Hair, Black, Babin, & Anderson, 2010). Binomial logistic regression is employed in answering the second and third research questions which relates to the decision to pay or not to pay. In line with the approach of prior studies, the study employs logit model to offer further explanations on whether foreign ownership and other factors can explain the propensity to pay dividends in the Nigerian stock market. Leech, Barrett, and Morgan (2005) noted that logit model can be used when the model contains both

continuous and dummy variables. In this case, the dependent variable is the decision to pay or not to pay dividends which takes the value of 1 and 0 respectively.

Schwab (2010) observed that logit model is a non-linear model and therefore the assumptions related to the distribution of independent variables such as linearity, normality and homoscedasticity are not required to be satisfied to execute the models. However, logistic regression has its own assumptions which must be satisfied. Firstly, there is need to ensure that the true conditional probabilities serves as logistic function of the independent variable. This first assumption relates to left hand side of the equation and it entails ensuring that the logit function is the correct function to use based on the dependent variable of the study. The dependent variable is the discrete choice to pay or not to pay, thus logit function is appropriate as the link function to link the dependent variables to the independent variables. Secondly, it must be ensured that the independent variables are measured without error. Thirdly, the observations must be independent and lastly, the independent variables should not be linear combinations of each other. In order to ensure that all the other assumptions are satisfied, model fit tests, model specification tests, and multicollinearity tests are conducted in a latter chapter before estimating the logit regression.

Given that all the required assumptions are met, the logit model presents a model for the probability of an event in which the predicted probabilities are constrained to lie between 0 and 1. This probability of an event does not relate to set of predictors in a linear function as obtained in OLS (Lottes, Adler & Demoris, 1996). Thus, the probability of an event (p) is expressed as:

$$p = \frac{\exp[\alpha+\beta_1 x_1+\beta_2 x_{2+}\ldots\beta_k x_k]}{[1+\exp(\alpha+\beta_1 x_1+\beta_2 x_2+\cdots\beta_k x_k)]} \quad (1)$$

Using log transformation, equation 1 can be represented in a simpler form as follows:

$$p = ln\frac{p}{(1-p)} \quad (2)$$

Thus, the logistic model predicts the natural log of odds of y from x as depicted in equation 3:

$$ln\frac{p}{(1-p)} = \log(odds) = logit = \alpha + \beta_1 x_1 \quad (3)$$

where p= probability of an event occurring

α= the y intercept

β= slope parameter

x_1= vector of independent variable

If the simple logit model is extended to multiple predictors, then the following equation is obtained.

$$\ln\frac{p}{(1-p)} = \alpha + \beta_1 x_1 + \beta_2 x_2 + \ldots \beta_k x_k \quad (4)$$

Thus, the binary logit regression models for this study are as follows:

Model 1:

$$ln\frac{DIV}{(1-DIV)} = \alpha_0 + \beta_1 FOREIGN_{it} + \beta_2 PREMIUM_{it} + \beta_3 RETE_{it} \quad (5)$$

Model 2:

$$ln\frac{DIV}{(1-DIV)} = \alpha_0 + \beta_1 FOREIGN_{it} + \beta_2 PREMIUM_{it} + \beta_3 RETE_{it} + \beta_4 SIZE_{it} + \beta_5 ROA_{it} + \beta_6 INV_{it} + \beta_7 PYDPS_{it} + \beta_8 LEV_{it} + \beta_9 CF_{it} \quad (6)$$

Model 3:

$$ln\frac{DIV}{(1-DIV)} = \alpha_0 + \beta_1 FOREIGN_{it} + \beta_2 PREMIUM_{it} + \beta_3 RE/TE_{it} + \beta_4 SIZE_{it} + \beta_5 ROA_{it} + \beta_6 INV_{it} + \beta_7 PYDPS_{it} + \beta_8 LEV_{it} + \beta_9 CF_{it} + \beta_{10} DCR_{it} + \beta_{11} ASI_{it} + \beta_{12} INT_{it} \quad (7)$$

Model 1 which is represented by equation 5 estimates the effect of foreign ownership, dividend premium and retained earnings to total equity on the firm's decision to pay dividends. This is followed by model 2 represented by equation 6 which includes other firm characteristics such as size, profitability, investment opportunity, past dividend, leverage and cash flow while the study control for macroeconomic factors such as crisis, stock market performance, and interest rate in equation 7 which is model 3.

The variables are explained as follows:

1) Propensity to pay dividends (DIV): This variable represents the discrete choice to pay or not to pay dividends. When a firm (i) pays dividend at time t, the variable takes the value of 1, otherwise it takes the value of 0.

2) Foreign Ownership (FOREIGN): This variable represents the ratio of foreign investor's shareholdings to the total shares outstanding.

3) Dividend Premium (PREMIUM): This variable is the proxy for the catering theory. It is computed as the log difference between the average market-to-book ratio of the dividend payers and the non-payers.

4) Retained Earnings to Total Equity (RE/TE): This variable is the proxy for life cycle theory. It is computed by dividing the retained earnings by the total equity.

5) Size (SIZE): This variable represents the size of the firm. It is represented by the natural log of total assets of the firm.

6) Profitability (ROA): This variable is a measure of the firm's profitability. It is obtained by dividing net earnings by total assets.

7) Investment Opportunity (INV): This variable represents the investment opportunity of the firm. It is measured using the market-to-book ratio.

8) Past Dividend (PYDPS): This variable represents the dividend paid by the firm in the previous year.

9) Leverage: This variable explains the debt level of the firm. It is represented as total debt to total assets.

10) Cash flow (CF): This variable represents the Cash flow of the firm. It is taken as the net cash flow from operating activities.

11) Crisis (DCR): This variable represents the financial crisis period. It is a dummy variable which takes the value of 1 for year 2008 and 2009 and the value of 0 for other years.

12) All Share Index (ASI): This variable represents the performance of the Nigerian stock market. It is taken as the annual percentage of appreciation or depreciation in All share index.

13) Interest Rate (INT): This variable is an indicator of the economic situation. It is taken as the annual rate at which the Central Bank lends to other banks.

4.6.2 Panel Data Test

Panel regression is employed for the binomial logit model above as the data was obtained from different companies across different time period. Thus, the general panel data regression model is:

$$y_{it} = \beta_1 + \beta_2 x_{2it} + \beta_3 x_{3it} + \mu_{it} \quad (14)$$

where: i = *i*th cross-sectional unit

t = *t*th time period

However, pooling of such data as shown in the equation above may lead to bias from unobserved individual heterogeneity of firms. Pooled regression assumes that there are no differences in the attributes of individual unit within the sample. In some situations, the procedure is to conduct preliminary tests on the equality of the coefficients to determine whether to pool or not to pool. However, the use of pooled coefficients has been criticized by some authors who argue that the homogeneity of slope coefficients in the pooled regression is an unrealistic assumption as in reality, there exists differences in the attributes of individual firms with respect to panel data (Andres, Golsh & Schmidt, 2013; Maddala, Trost, Li & Joutz, 1997). Therefore, the use of pooled coefficients may lead to unwarranted conclusions (Podesta, 2002). Other panel data regression models can be employed to deal with such bias (Holm, Jaeger & Pederson, 2008). Thus, the study employs these models to take into account the unobserved individual heterogeneity of firms. Gujarati (2004) noted that two common panel data approaches used include: fixed

effect model and random effect model. Fixed effect model recognizes that each cross section has individual characteristics that are correlated with the regressors. The differences in the individual characteristics of each cross-section is represented by having a subscript *i* on the intercept (β_1) as shown in equation 15.

$$y_{it} = \beta_{1i} + \beta_2 x_{2it} + \beta_3 x_{3it} + \mu_{it} \quad (15)$$

This subscript *i* indicates that the intercept differs across the firms but not across time. Therefore, the fixed effect model control for these time in-variant individual characteristics. Gujarati (2004) referred to this time invariant as the fixed effect. Therefore, in the fixed effect model, the intercept vary but the slope coefficients remain constant across firms.

Unlike the fixed effect model, random effect assumes that the individual specific effects are uncorrelated with the regressors. Random effect also includes time invariant observations. Random effect model does not treat the intercept as fixed like it is in the fixed effect model. The intercept is treated as a random variable with a mean value of β_1. The subscript which is used to show the difference in the intercept is not included; rather, the difference in the intercept value for each firm will be reflected in the error term ε_i**.** Therefore, β_1 is the mean value of all cross-sectional intercepts and the error component is used to indicate deviation of any individual intercept from the mean value. This is depicted in equation 16.

$$y_{it} = \beta_1 + \beta_2 x_{2it} + \beta_3 x_{3it} + \varepsilon_i + \mu_{it} \quad (16)$$

where

ε_i = random error term for a cross-section

μ_{it} = combined time series and cross-section error component

Finally, the Hausman test is conducted in choosing between the fixed effect model and the random effect model. This test ensures that the more efficient model which also gives consistent result is chosen. Adkins, Campbell, Chmelarova, and Hill (2008) noted that the idea behind Hausman's test is that random effect and the fixed effect estimates are consistent if the individual characteristics are uncorrelated with the explanatory variables. However, if they are correlated, the random effect estimates is inconsistent while the fixed effect estimate is consistent. In order to run this test, the estimated results of the fixed effect are saved and then compared with the results of the random effect. The null hypothesis tested by Hausman test states that the coefficients estimated by the random effect and fixed effect are consistent. If Hausman test is insignificant, then it is safer to use random effect estimates but if it significant, then fixed effect should be used.

4.6.3 Multinomial Logistic Regression Model

Multinomial logistic regression is used when the dependent variable has more than two categorical outcomes. This model is also used to address the fifth research question which has more than two discrete choices. The multinomial model relates the explanatory variables to the discrete choice to cut, increase, maintain, or omit dividend. Just like the binary logit model, the multinomial model also does not require the assumption of normality, linearity or homoscedasticity. The most important assumption of the multinomial model is the independence of irrelevant alternatives assumption (IIA assumption). This assumption requires that the addition or removal of alternative outcome categories does not affect the odds among the remaining outcome. A test of the

IIA assumption is provided in the next chapter. Another important assumption of the multinomial model is the number of cases to variable assumption for which a large sample size is required. Multinomial logit model uses maximum likelihood estimation method thus it requires large number of observations. The minimum number of cases per independent variable as suggested by Hosmer and Lemeshow (2000) is 10 to 1.

The basic concept of multinomial logistic regression (MNL) was generalized from binary logistic regression. Long (1997) referred to the multinomial logit model as a simple extension of the binary logit model. Thus, the multinomial logistic regression model can be stated as set of independent binary models. Given "m" possible outcomes, the multinomial regression estimates m-1 independent binary logistic regression. In addition, estimates for the parameter in multinomial logistic regression can be identified compared to a baseline category. Therefore, assuming "y" is the dependent variable with "m" levels; and given that the "m^{th}" level is the reference category, the multinomial logistic model (MNL) is specified as shown follows:

$$logit\ p(y = j) = ln\frac{p(y=j)}{p(y=m)} \tag{8}$$

Where j (each outcome) =1, 2, ..., m-1.

Therefore, given that the outcome level "j" is numbered across 1 to m, and given that "m" is the base outcome, then we have m-1 estimates as shown in equation 9 to 11:

$$ln\frac{pr(y=1)}{pr(y=m)} = \beta_1 x_i \tag{9}$$

$$ln\frac{pr(y=2)}{pr(y=m)} = \beta_2 x_2 \tag{10}$$

...

$$ln\frac{pr(y=m-1)}{pr(y=m)} = \beta_{m-1}x_{m-1} \quad (11)$$

Therefore, in general terms, the model can be stated as

$$ln\frac{pr(y=j)}{pr(y=m)} = \alpha_0 + \beta_1 x_1 + \beta_2 x_2 + \cdots \beta_k x_k, \quad j = 1,2, \ldots m-1 \quad (12)$$

Based on this specification, the general multinomial logit model analyzed in the study is as given in the following equation.

$$ln\frac{pr(DIV=j)}{pr(DIV=m)} = \alpha_0 + \beta_1 FOREIGN_{it} + \beta_2 PREMIUM_{it} + \beta_3 \frac{RE}{TE}_{it} + \beta_4 SIZE_{it} +$$

$$\beta_5 ROA_{it} + \beta_6 INV_{it} + \beta_7 PYDPS_{it} + \beta_8 LEV_{it} + \beta_9 CF_{it} + \beta_{10} ASI_{it} +$$

$$\beta_{11} INT_{it}, \quad j = 1,2,3 \quad (13)$$

where:

DIV= dependent variable with four outcome levels numbered as: 1= cut dividend; 2=increase dividend, 3= maintain dividend, and 4= omit dividend.

j= different outcome levels: 1, 2, and 3.

m= base outcome (outcome level 4).

The explanatory variables are as defined in the binomial logit model. Equation 13 estimates the effect of foreign ownership, dividend premium, retained earnings to total equity and other firm characteristics on the different payout options. The multinomial model above is estimated for three different sub samples which include pre-crisis, crisis, and post crisis. This is because the study is interested in determining those factors that affect the alternative payout choices during financial crisis. This will also indicate whether the explanatory role of the predictors change during crisis or not.

4.7 Summary of Chapter

The chapter discusses the research methods used in the study. The research framework was discussed and the components were explained. Based on the literature review, the chapter described how the variables have been measured. The chapter also explained data type and the source of data. In the latter part of the chapter, hypotheses were formulated based on the research objectives. The chapter concluded by discussing the different types of analysis carried out to test the hypotheses and proffer answers to the research questions. Descriptive analysis and regression models employed were discussed.

CHAPTER FIVE

ANALYSIS OF RESULTS AND DISCUSSION

5.0 Introduction

The results of the analyses conducted are presented and discussed in details in this chapter. The chapter starts with descriptive analyses to proffer answers to the first and fourth research questions. The chapter proceeds to presenting and discussing descriptive statistics of the variables in the framework. This is followed by the results of the diagnostic tests, presentation of regression results and detailed discussion of the results obtained in comparison to the results of prior studies and the implication of findings on theories. The chapter concluded with a brief summary of what is contained therein.

5.1 Analysis of Dividend Payout by Sector

The total number of firms listed on the Nigerian Stock Exchange as at end of 2012 was 194. However, data was obtained for 126 companies based on data availability. This figure includes 38 companies that were listed after year 2003 and 8 companies delisted before the end of year 2012. The inclusion of these firms is to reduce survivorship bias as mentioned earlier in chapter four. The breakdown is presented in Table 5.1. The table shows that the consumer goods sector has the highest contribution towards dividend payout in the Nigerian stock market (45.9%) followed by oil and gas sector (22.1%), industrial goods (12.1%) and conglomerates (10.3%). The agricultural sector and natural resources have the least contribution to the total payouts at 1.0% and 0.5% respectively. The reason for their low contribution to dividend payout by is not surprising considering the number of companies listed in the sectors.

Table 5.1
Analysis of Dividend Payout by Sector over Study Period

Sector	**Total Dividend (USD' Million)**	**Number of firms**	**Dividend per firm (USD' Million)**
Natural Resources	24.2 (0.5%)	6	4.03
Agriculture	43.4 (1.0%)	5	8.68
ICT	50.2 (1.1%)	9	5.58
Construction & Real Estate	78.1 (1.7%)	9	8.7
Healthcare	115.5 (2.5%)	10	11.6
Services	127.4 (2.8%)	20	6.37
Conglomerates	469.8 (10.3%)	6	78.3
Industrial Goods	552.4 (12.1%)	25	22.10
Oil and Gas	1,009.0 (22.1%)	11	91.73
Consumer Goods	2,095.5 (45.9%)	25	83.8
Total	4,565.5 (100%)	126	

The last column in Table 5.1 shows the average dividend paid per firm for each of the sectors. The oil and gas sector records the highest mean figure (USD91.73M) followed by the consumer goods (USD83.8M), conglomerates (USD78.3M), and industrial goods sector (USD22.10M) respectively. The sectors with the least mean figures include natural resources (USD4.03M), ICT (USD5.58M) and services (USD6.37M). Thus, the natural resources sector has the least contribution in terms of total payout and in terms of average contribution.

5.2 Descriptive Analysis of Dividend Patterns

This section explains dividend pattern in the Nigerian market for the period 2003 to 2012. The section covers discussion on disappearing dividends, dividend concentration and dividend payout choices over the study period.

5.2.1 Disappearing Dividends

In order to investigate the disappearing dividends phenomenon**,** the patterns of dividend payment in nominal and real terms are presented in Table 5.2. Variations in price level may lead to some changes in nominal dividends in successive years. However, the amount of variations caused due to price level changes is not reflected in the nominal values. Thus real values are included to indicate the changes in nominal values attributable to price movements. Nominal dividends increased between 2003 and 2010 except in year 2009 that a decline was recorded. Particularly, a sharp increase in nominal dividend occurred in year 2008 (early stage of crisis) with 80% increase above what was recorded in the previous year. However, the figure dropped significantly by 32% in 2009 (peak of the crisis). The amount declined further from 2010 to 2012. The total amount of dividend increased considerably over the period with about 82% increase in total payouts. The payout reached its peak in year 2010 with USD786.3 and rose from USD228.8 million in 2003 to USD416.7 million in 2012. However, the real dividend and mean dividend figures followed a different pattern when comparing the last year to the initial year. Real dividend fell in 2004, but continued to increase up till 2008. A considerable drop in the real dividend values was reported in 2009 with 39% decline. The value rose again in 2010 and then declined from 2010 to 2012. The mean dividend value followed a similar pattern to the real dividend. The mean real dividend payout declined from year

2003 to 2005 and then increased from 2006 to 2008. Like the real dividend payouts, the mean real dividends also declined by 43% in 2009, rose in 2010 and then declined again in the last two years. Although nominal dividends rose by 82% over the period of study, real dividend and mean real dividend declined by 33% and 48% respectively. The considerable decline in the real figures can be attributed to rising inflation rate (proxied by CPI) in the country with increase of 172 % in the consumer price index (CPI) between year 2003 and 2012.

Consistent with the earlier findings of Fama and French (2001), findings confirm that there is a noticeable shift in the payout patterns of firms as evidenced by the fluctuations in the dividend patterns over the years. Similar to Fama and French's (2001) findings, there is a downward trend in dividend payment on the Nigerian Stock Exchange. Table 5.2 shows that aggregate dividend payment have increased over the period of study but taking a look at the annual pictures suggests otherwise. Results shows that as at the end of the study period, nominal dividends increased from what it was at the beginning but real dividends fell. However, year to year analysis indicates the nominal dividends which recorded steady improvement in the earlier years and which attained its peak in 2010 had a sharp decline in the latter years. Thus, there is decline in dividend payment on the Nigerian Stock Exchange in latter years.

Table 5.2
Summary Statistics of Dividend Payments on the NSE (2003-2012)

Year	No. of firms	Proportion of dividend payers (%)	Total nominal dividends (USD' Million	Total real dividends (USD' Million)[9]	Real Dividend per firm (USD' Million)[10]
2003	92	57	228.8	228.8	2.5
2004	92	60	241.7	210.3	2.3
2005	92	55	299.0	220.7	2.3
2006	95	54	334.2	227.9	2.4
2007	100	52	406.6	263.1	2.6
2008	110	65	733.6	425.5	3.9
2009	117	43	498.8	259.4	2.2
2010	119	42	786.3	359.3	3.0
2011	118	38	619.7	255.3	2.2
2012	118	33	416.7	152.9	1.3

The study also provides evidence that percentage of dividend payers declined significantly over the period. The second column of Table 5.2 shows the number of listed firms for which data was obtained in each year. Based on this, the percentage of dividend payers was computed. As shown in the table, the percentage rose in 2004 and 2008 but recorded a constant drop for other years. 57% of the firms paid dividend in 2003 but this percentage fell to 33% as at 2012. The finding of the study which indicates that the number of dividends payers is declining concurs with earlier findings in developed markets such as Ap Gwilym *et al*. (2004), DeAngelo *et al*. (2004), Fama and French

[9] Real dividend is computed using the following formula: Real dividend = Nominal dividend*discount factor. Therefore, real dividends were obtained by discounting current values to the base year (2003) rate using annual CPI figures obtained from Central Bank of Nigeria's website (See Appendix)

[10] Mean Real Dividend was obtained by dividing the real dividend by the number of dividend paying firms

(2001), and Vieira and Raposo (2007). Similarly, this finding matches earlier findings from emerging markets such as Kirkulak and Kurt (2010), Lestari (2012), Reddy and Rath (2005), and Ronapat and Evans (2005). However, the decline is not as dramatic as the one documented in the US as Fama and French (2001) reported that only 20.18% of the firms paid dividends in the final year. The proportion of dividend payers declined from 57% in 2003 to 33% in 2012 in the Nigerian market. In investigating further the disappearing dividends phenomenon, Figure 5.1 provides a comparison of trend in the proportion of dividend payers in the Nigerian market and in the US and the UK market over a 10-year period. The 10-year period covered is not the same for the three different countries. This is because the pattern was obtained from different studies (including the current study) which covered different years. However, the figure provides an insight for the purpose of comparing dividend patterns in the three countries.

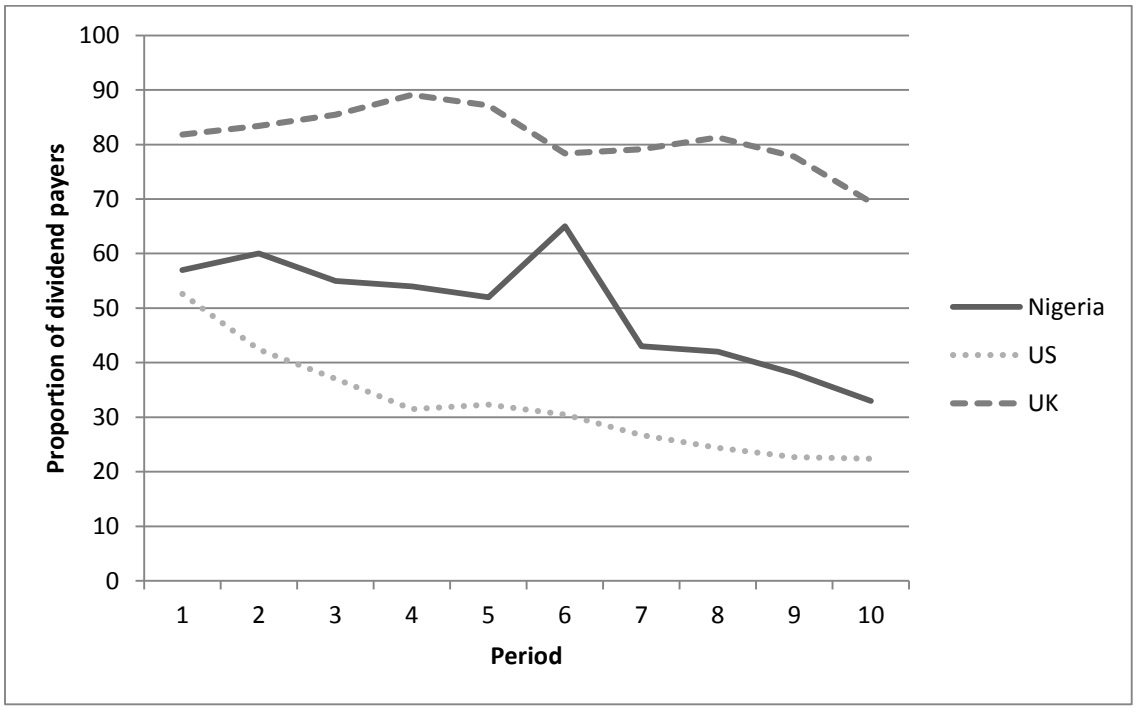

Figure 5.1
Trend of Dividend Payers in Nigeria, the US and the UK

The figure shows that for the three different countries, the proportion of payers declined below what was recorded in the initial year. Although the decline in the Nigerian market is shown to be steeper than that of the UK market, it is not as sharp as that of the US market. Reasons for declining trend in the Nigerian market is likely due to a declining trend in earnings which is different from that documented for developed markets. This is discussed further in the subsequent sub-section (5.8.1). Fama and French (2001) document rise in the number of companies with attributes of a young and growing firm (lower profitability; smaller size; and higher growth opportunities) as a reason for the decline in the US market. Ap Gwilym *et al*. (2004) document that the number of dividend payers reduced in the UK market as most of the former payers were acquired to form larger combined entities.

5.2.2 Dividend Concentration

The study analyzed whether dividend concentration reported by prior studies such as DeAngelo *et al*. (2004), Ferris *et al*. (2006), and Kirkulak and Kurt (2010) exists in the Nigerian market. To achieve this, total payouts by the largest ten dividend payers is expressed as a fraction of aggregate amount of dividends in each year as shown in Table 5.3. The table indicates that the largest ten dividend payers account for the bulk portion of the total dividend payout as reflected by very high concentration ratio over the years. The ratio which fluctuated in the earlier years had a noticeable drop in year 2009.

Table 5.3
Proportion of Dividend Payout by the Largest Ten Dividend Payers

Year	Nominal Dividend by Top Ten (USD' Million)	Nominal Dividend for year (USD' Million)	Real Dividend by Top Ten (USD'	Real Dividend for year (USD' Million)	Proportion of Top Ten Payout to Total (%)
2003	121.3	228.8	121.3	228.8	53.00
2004	126.4	241.7	110.0	210.3	52.28
2005	163.9	299.0	121.0	220.7	54.80
2006	180.9	334.2	123.4	227.9	54.14
2007	216.7	406.6	140.2	263.1	53.30
2008	404.4	733.6	234.6	425.5	55.12
2009	238.1	498.8	123.8	259.4	47.73
2010	447.9	786.3	204.7	359.3	56.97
2011	360.3	619.7	148.4	255.3	58.14
2012	250.6	416.7	91.97	152.9	60.13

The decrease in dividend concentration ratio in year 2009 is reflected in the nominal dividends paid by the top ten which reduced by 41% in that 2009 whereas the total nominal dividends reduced by 32% in the same year. This may be attributed to the peak of the crisis in that year. This is possibly due to the fact that the top dividend payers also perceived the need to preserve cash due to the uncertainty associated with the crisis. The concentration ratio then increased from year 2010 to 2012. In year 2003, the largest ten dividend payers distributed 53% of total payout amounting to USD121.27 million. The proportion of total payout distributed by the largest ten payers in 2012 increased to 60.13% amounting to USD250.57 million. Above all, the dividend concentration ratio which stood at 53% in 2003 rose to 60.13% by the end of 2012. This can be attributed to

the decline in the proportion of payers over the years. Thus, as more companies cease payment of dividend, the majority of the remaining payers reduce their dividends while the high quality firms maintain the bulk of the dividend payout.

Table 5.4
Dividend Ranking of Firms and Concentration Ratios

Dividend Ranking of Payers	**Percentage of Total Dividend**		**Cumulative Percentage of Total Dividend**		**Real Dividends (USD' Million)**	
	2003	**2012**	**2003**	**2012**	**2003**	**2012**
Top 10	53.00	60.13	53.00	60.13	121.27	92.71
11-20	32.00	29.08	85.00	89.21	73.22	44.84
21-30	10.19	8.40	95.19	97.61	23.32	12.95
31-40	3.21	2.39[11]	98.40	100	7.34	3.68
41-50	1.22		99.62		2.79	
51-60	0.38[12]		100		0.87	

To provide further explanation on dividend concentration, the study adopts the approach of DeAngelo *et al*. (2004) by ranking the dividend paying firms in group of ten as shown in Table 5.4. The second and third column reports the percentage of dividend paid by each rank in the initial year and the final year. While the proportion of dividends paid by the largest ten increased over the period with 53% and 60.13% reported in 2003 and 2012 respectively, the proportion of dividends paid by the other ranks decreased over the period. Thus, the table indicates that concentration ratio declines with the ranking for both years. The last two columns also shows that the real dividends paid declined with the rank for both years. The rise in the concentration ratio for the top 10 and decline in the ratio for other ranks can be attributed to the same reason highlighted above. As the

[11] Total number of dividend payers in 2012 is 39.
[12] Total number of dividend payers in 2003 is 53

number of firms paying dividends reduces, the high quality firms maintain the bulk of the payout. Particularly, this is also attributable to the fact that though dividend payout is reducing across the ranks, the rate of reduction for the largest ten is not as high as it is for the other ranks.

Results of the study indicates that just a few number of firms account for the bulk of dividend supply on the Nigerian Stock Exchange as evidenced by the high dividend concentration ratio over the period studied. This finding supports the earlier findings of Ap Gwilym *et al*. (2004), DeAngelo *et al*. (2004), and Eije and Megginson (2007). However, in support of the view of Kirkulak and Kurt (2010), it is evident that the concentration ratio is not as high as it is in the developed markets. For example in the last year examined, DeAngelo *et al*. (2004) reported that 81.8% of the dividend paid is concentrated among the top 100 out of 926 dividend payers. Similarly, Fatemi and Bildik (2012) reported over 90% concentration ratio for developed markets which include Denmark, Austria and Netherlands. Findings indicate that 60.13% of the dividend paid in the Nigerian market is concentrated among the top ten out of just 39 dividend payers in year 2012. The figures suggest that the magnitude of dividend concentration is relatively low as compared to that of developed markets. In addition, although the concentration ratio increased between 2003 and 2012, however, there were reductions in the ratio during the period. This is different from Ap Gwilym *et al*. (2004) and Ferris *et al*. (2006) who reported an upward trend in dividend concentration ratio in the UK between 1979 to 2000 and 1990 to 2001 respectively. Similar to the prior studies, findings of the study indicates that the proportion of payments by the largest payers (top ten in this case) increased over the study period while those of other ranks declined.

5.2.3 Dividend Payout Choices

The previous sub-section observed dividend patterns in aggregate values over the entire sample period. In this sub-section, the study is interested in the pattern of different payout choices. Decomposing into four possible payout choices will also assist to gain insight into whether and how firms listed on the Nigerian Stock Exchange adjust their dividend policies in response to the crisis. Table 5.5 depicts the proportion of firms that cut, increase, maintain or omit dividends over the study period while Table 5.6 shows the magnitude of change for the different payout choices. Table 5.6 relates specifically to the crisis period. However, information for year 2007 is reflected in order to explain the changes that occurred in 2008. Following the approach of Andres, Betzer, Bongard, Haesner, and Theissen (2013), dividend increasing (decreasing) events are defined as changes in dividend that constitute more than 5% increase (decrease) in dividend per share. Dividend maintaining events constitute dividend changes of equal or less than 5%. Non-payment in a particular period is regarded as dividend omission.

Table 5.5 shows that the proportion of firms that cut their dividends declined from 2003 to 2007 (except in year 2005). The percentage which had declined from 21.7% in 2003 to 5% in 2007 increased during the crisis with 14.5% and 17.9% of firms cutting dividends in 2008 and 2009 respectively. The percentage declined again from year 2010 onwards. The magnitude of dividend cuts in Table 5.6 indicates that during crisis, proportion of firms that cut dividends increased considerably above what it was in the immediate year preceding the crisis. However, the magnitude is higher in year 2009 with 258% increase in firms cutting dividends over what was obtained in the year preceding the crisis.

Table 5.5
Dividend Payout Choices on the Nigerian Stock Exchange (in Percentage)

Year	Cut dividend	Increase dividend	Maintain dividend	Omit dividend
2003	21.7	28.3	7.6	42.4
2004	14.1	34.8	12.0	39.1
2005	15.2	27.2	13.0	44.6
2006	13.7	28.4	12.6	45.3
2007	5.0	31.0	16.0	48.0
2008	14.5	41.8	9.2	34.5
2009	17.9	18.8	6.0	57.3
2010	12.6	21.0	7.6	58.8
2011	11.8	15.3	11.0	61.9
2012	11.8	15.3	6.0	66.9
Average	13.8	26.2	10.1	49.9

Table 5.6
Magnitude of Changes in Dividend Payment during Crisis

Year	% of cuts	Magnitude of change	% of incr	Magnitude of change	% of maint.	Magnitude of change	% of omission	Magnitude of change
2007	5.0	-	31.0	-	16.0	-	48	-
2008	14.5	+ 190%	41.8	+35%	9.2	-43%	34.5	-28%
2009	17.9	+ 258%	18.8	-39%	6.0	-63%	57.3	+19%

Note: The magnitude of change is obtained by comparing current percentage to year 2007. Year 2007 which is the immediate year preceding crisis is taken as base for this purpose.

Table 5.5 also shows that the proportion of firms that increased dividends rose from 28.3% in year 2003 to 41.8% in year 2008. The figure recorded in year 2008 revealed that more firms increased dividends despite the financial crisis. However, the proportion subsequently declined to 18.8% in 2009. In year 2010, the percentage increased again but fell in 2011 and 2012. Table 5.6 shows the magnitude of change with 35% increase in the number of firms that increased dividends in 2008 but 39% decrease

in 2009. This also reveals that the reduction in dividend increases during crisis was only experienced in year 2009. The proportion of firms that maintained dividends increased from 7.6% in year 2003 to 16.0% in year 2007. The percentage however reduced in both years of crisis to 9.2% in 2008 and reduced further to 6.0% in 2009. This also indicates that some firms still maintained their dividend level regardless of the crisis. The proportion of firms that maintained their dividend increased again in year 2010 and 2011 but fell in 2012. Table 5.6 reveals a higher magnitude of changes in dividend levels in year 2009. This is because the number of firms that maintained dividends declined by 63% in year 2009. This is greater than the decline in the number of firms maintaining dividends in 2008 which is 43%. The percentage of firms that omitted dividend increased over the years from 42.4% in 2003 to 48% in 2007. Table 5.5 shows initial reduction and subsequent rise in dividend omitting firms during crisis with 34.5% and 57.3% in 2008 and 2009 respectively. Proportion of dividend omitting firms increased from year 2009 onwards. Table 5.6 shows the magnitude of change with 28% decrease in the proportion of dividend omitting firms reported in 2008 and 19% increase in dividend omitting firms reported in 2009. This indicate reluctance of firms to omit dividends at the beginning of the crisis period possibly due to their willingness to indicate financial soundness despite the crisis.

Overall, the decrease in dividend cuts between years 2003 to 2007 can be explained by the corresponding rise in dividend increases on one hand. This is possibly due to the rise in earnings (as shown in Table 5.20). On the other hand, it can also be linked to the rise in dividend omissions during this period. Thus, some of the companies reducing dividend levels opt for dividend increases while others cease to pay dividends.

The pattern of payout choices in the years of crisis (2008 & 2009) indicates initial desire to signal sound financial health at the beginning of the crisis. However, figures obtained in 2009 shows that this could not be sustained (this is discussed in details in sub-section 5.8.2). Unlike in the earlier years, the reduction in dividend cuts in the latter years (2010-2012) cannot be explained by dividend increases as there was reduction in dividend increases during the period. However, the period matches corresponding rise in dividend omissions which may also attributable to decline in earnings. Therefore, the study infers that dividend reducing firms started to omit entirely in the latter years.

5.2.4 Dividend Pattern and Payout Choices during Crisis

The study provides evidence that the negative impact of the financial crisis was majorly felt at the peak of the crisis, year 2009. Dividend payment was considerably affected at the peak of the crisis as aggregate dividends in nominal and real terms increased in year 2008 but fell sharply in year 2009. The payout rebounded immediately after the crisis possibly due to the willingness of firms to signal recovery. However, this recovery did not last as the nominal dividend fell again until the final year indicating that the aftermath of the crisis is still felt in the market. Findings of the study provides partial support for earlier studies where downward trend in dividend payments during crisis was also reported (Bistrova & Lace, 2012; Floyd *et al*., 2013). However, the effect of the crisis on the Nigerian Stock Exchange was majorly felt at the peak in year 2009. Therefore, findings strongly supports the earlier findings of Bebczuk (2004) where it was reported that Argentina firms paid higher dividends at the start of the crisis, then subsequently cut dividends.

Findings on dividend payout choices indicate that on average, 50% of firms did not pay dividend during the sample period. Findings also indicate that on the average, there were more dividend increases than dividend cuts among the payers. The decline in the number of firms that maintained dividends from 16% in 2007 to 6.0% in 2009 and the rise of firms that cut dividend from 5% to 17.9% indicate that firms adjusted their dividend policies in response to the crisis. Results revealed further that this adjustment basically took the form of increase in dividend cuts. This can be explained by the uncertainty associated with financial crisis which creates the need to preserve funds. This finding concurs with prior findings where it was also revealed that firms cut dividends during financial crisis to preserve their liquidity (Bancel & Mitto, 2011; Bristova & Lace, 2012; DeAngelo & DeAngelo, 1990; Hauser, 2013; Reddemann *et al*., 2010). Although the percentage of firms that omitted dividends was high in both years, however, there was reduction in dividend omissions at the beginning of the crisis. In addition, the magnitude of dividend cuts is the highest as proportion of firms that cut dividends increased significantly in both years of crisis above what it was before crisis. This finding supports the notion of DeAngelo and DeAngelo (1990) where it was found that managers would rather cut dividends than omit entirely during financial crisis. The high proportion of dividend omitting firms has been maintained from the initial year and therefore cannot be totally attributed to the crisis. However, the considerable increase in dividend omission between 2009 and 2012 could be an aftermath of the crisis. This is because many firms in the Nigerian market suffered depletion of cash flow as a result of the crisis (Oladipupo, 2010). Regardless of the crisis, more firms increased dividends at the beginning of the crisis (2008). However, this could not be sustained possibly due to the severe impact of

the crisis in year 2009 as the percentage of firms that increased dividends declined in that year. Similarly, in consistency with dividend smoothing hypothesis where firms seek to maintain stable dividends, some firms still maintained their dividend levels during the crisis. As noted earlier, findings suggest that there was no considerable improvement after crisis. Although dividend cuts declined and more firms increased dividend payments at the immediate post crisis period, however, the number of dividend omitting firms continued to increase. Similarly, nominal dividends paid shows downward trend in the latter years. As indicated earlier, this shows that the market is yet to recover from the effect of the crisis.

5.3 Descriptive Statistics of Variables

Table 5.7 presents the descriptive statistics of the variables in the regression models. This shows the average indicators of the variable, the standard deviation, the minimum and the maximum values. The sample covers 126 firms over a ten year period. This yields a dataset consisting of an unbalanced panel data totaling 1,048 observations after deletion of observations with missing values and outliers.

Table 5.7
Variable Definition and Descriptive Statistics

Variables	**Definition**	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
Payer (0,1)	Dummy variable which takes value of 1 if firms pay dividend and 0 otherwise.	1048	0.510	0.500	0	1
Dividend/Total Assets	Dividend paid scaled by total assets	1048	0.030	0.092	0	2.011
Foreign Ownership	Ratio of foreign investors shareholdings to total shareholdings	1048	0.542	0.227	0	0.92
Dividend Premium	Log difference between the average market to book ratio of payers and non payers	1048	0.498	0.268	0.18	1.08
Retained Earnings to Total Equity	Retained Earnings divided by Total Equity	1048	0.416	1.227	-4.162	4.56
Size	Natural log of total assets	1047	21.867	1.943	16.896	27.236
Profitability	Net earnings divided by total assets	1048	0.106	0.631	-2.618	4.87
Growth Opportunity	Market to book ratio (market price per share/book value per share)	1048	1.920	1.462	-4.379	5.938
Leverage	Total debts to total assets	1048	0.496	0.438	-2.488	4.294
Cash flow	Net cash flow from operating activities	1048	0.199	0.904	-2.421	3.537
Past dividend	Previous year dividend per share	1048	0.582	1.645	0	12.93[13]
Crisis(0,1)	Dummy variable which takes the value of 1 for year 2008 and 2009, and takes the value of 0 for other years	1048	0.216	0.411	0	1
Stock Market Performance	Annual percentage of appreciation/depreciation in All share index	1048	0.129	0.335	-0.37	0.71
Interest Rate	Annual interest rate	1048	17.481	1.444	15.48	20.71

Note: Dividend/Total Assets is used to replace the dependent variable (payer 0, 1) as robustness check in the binomial model.

[13]The maximum value of past dividend is equivalent to USD0.08/share using the exchange rate of USD1= ₦160.90 as at end of 2012.

An average of 51% of the firms paid dividends over the entire sample period. The table also shows that on the average, foreign investors own 54% of shares in the Nigerian market. The maximum value of foreign ownership reveals that there exist as much as 92% shareholdings by foreign investors in the market while the minimum value of 0 indicates that some firms are wholly owned by the domestic investors. The standard deviation of 22.7% also indicates that there is considerable variation in terms of ownership structure of Nigerian firms. The mean value of foreign ownership is high relative to what is reported in other emerging markets. Bokpin (2011) reported 27.97% for Ghana market within year 2002 and 2007 studied; Kim *et al*. (2010) reported 31.39% for Korea market within 2001 and 2007 and Vo (2010) reported 14.80% for Vietnam market within 2007 and 2009.

The table also indicates that the mean value of dividend premium (PREM) over the period is 0.50. The mean value for retained earnings to total equity is 42%. This implies that on the average, 42% of the equity of firms listed on the NSE is composed of retained earnings while the remaining is contributed capital. This is comparable to 44.42% reported by Thanatawee (2013) for Thailand market. The size of firms listed in the market as measured by the natural log of total assets has a mean value of 21.87 (USD109 million). The mean value of profitability (ROA) also indicates that on the average, firms generate 10.6 % return on total assets. This measure of profitability ranges from negative minimum value of -262% to a maximum value of 487%. This indicates a high disparity in performance among firms in the sample. Prior studies have reported this wide difference in firm's performance in the market. Based on their descriptive statistics, Salawu *et al*. (2012) reported that there exists "great disparity between firms in performance" (pg 178).

The negative minimum value also indicates that some firms recorded losses over the period. The average investment opportunities (INV) measured by the market to book ratio is 1.92. Market to book ratio of less than one indicates lack of valuable investment opportunities (Chung, Wright & Charoenwong, 1998). Thus, the mean value indicates availability of valuable investment opportunities amongst firms listed in the market. Mean value of cash flow is 0.19. The mean value for leverage (LEV) shows that 49.6% of total assets are financed by debts indicating that many of the firms are highly levered. Aivazian, Booth, and Cleary (2003) reported 41% for the US market in an earlier study. On the average, firms pay ₦0.58 (USD0.0036) per share in year t-1. The minimum value of past dividend paid (pydps) indicates that some firms do not declare any dividend while the maximum value is ₦12.93 (USD0.08) per share[14]. Turning to the macro variables, the descriptive statistics indicate that 21% of the total observations are from the crisis period. Average stock market performance of 12.9% represents the All-Share Index appreciation over the past one year. The average rate of interest in Nigeria is 17% over the period observed.

5.4 Diagnostic Tests for Binomial Logistic Regression.

This section presents the diagnostic tests conducted to ensure that the assumptions of the model are met. The diagnostic tests presented include the multicollinearity test; the model fit test and model specification test.

[14] The maximum value of past dividend which is ₦12.93 is equivalent to USD0.08/share using the exchange rate of USD1=₦160.90 as at end of 2012.

Table 5.8

Pairwise Correlation Coefficients among Variables[15]

	Payer	Div/ ta	foreign	prem	Rete	size	Roa	Inv	lev	cf	pydps	dcr	ASI	INT
Payer	1.00													
Div/ta	0.32***	1.00												
foreign	-0.04	-0.01	1.00											
prem	0.03	-0.02	-0.03	1.00										
rete	-0.17*	-0.09	0.02	0.01	1.00									
size	0.25*	0.08***	0.07**	0.05	0.08	1.00								
roa	0.14***	0.18*	0.10	0.01	0.23	0.13***	1.00							
inv	-0.06	0.06	-0.04	-0.01	0.08*	-0.01	-0.12	1.00						
lev	-0.05	-0.06	-0.01	-0.07	-0.01	-0.04***	-0.07	-0.01	1.00					
cf	0.13***	0.07*	0.03	-0.01	0.08	0.35***	0.53***	-0.02	-0.01	1.00				
pydps	0.26***	0.25***	-0.01	0.03	-0.09	0.36***	0.06**	-0.03	-0.08**	0.19***	1.00			
dcr	0.06*	-0.02	-0.03	0.36***	-0.02	-0.07	-0.01	-0.04	0.07	-0.01	0.04	1.00		
ASI	0.01	0.01	0.05**	0.03	0.01	-0.20	0.06**	0.07	-0.02	-0.03	0.01	-0.04	1.00	
INT	0.10**	0.03	-0.02	-0.21	0.02	-0.10	-0.05	-0.08*	0.01	-0.06	-0.03	-0.19	-0.42	1.00

*significant at p<0.10, **significant at p<0.05, ***significant at p<0.01

[15] There is need for caution in interpreting correlation coefficients. These coefficients may not reflect true relationships as they do not control for other factors.

5.4.1 Multicollinearity Analysis

It is necessary to examine the correlation between the independent variables used in the analysis. Thus, Table 5.8 presents pairwise correlation coefficients among the explanatory variables to detect whether any of them is highly correlated. The highest correlation coefficients are between ROA and CF (0.53); and ASI and INT (0.42). However, these coefficients are below the benchmark of 0.7 given by Bryman and Cramer (1997) and unlikely to lead to multicollinearity. The existence or nonexistence of possible multicollinearity is confirmed further by diagnostic tests. The study uses variance inflation factors (VIF) to test for multicollinearity.

Table 5.9
VIF for Binomial Logit Model

Variable	**VIF**	**Tolerance Value**
Interest Rate	1.42	0.704
Size	1.34	0.745
Stock Market Performance	1.33	0.750
Profitability	1.32	0.756
Retained Earnings to Total Equity	1.31	0.764
Past Dividend	1.28	0.779
Crisis	1.20	0.835
Dividend Premium	1.19	0.844
Cash flow	1.10	0.909
Investment Opportunity	1.05	0.956
Foreign Ownership	1.04	0.961
Leverage	1.02	0.977

Note: Mean VIF is 1.22

According to Hair *et al*. (2010), VIF values above 10 (which correspond to tolerance value below 0.10) indicate multicollinearity problem. The VIF values are presented in the Table 5.9. The VIF values indicate absence of multicollinearity problem as the values fall below 10 for all the independent variables.

5.4.2 Test for Model Fit

The results of model fit tests are reported in Table 5.10. The model's overall goodness of fit is tested using the likelihood ratio x^2. The model's likelihood ratio x^2 statistic of 78.76 is statistically significant at 1% indicating goodness of fit of the whole model. Just like the likelihood ratio x^2, the Wald test also tests the hypothesis that all parameters are simultaneously equal to zero. Table 5.10 shows that the Wald chi-square test statistic of 61.60 is significant at 1% significance level (p-value = 0.0000), thus we reject the hypothesis that all parameters are simultaneously equal to zero. This indicates that at least one of the coefficients in the model has an impact on the dependent variable.

Table 5.10
Tests for Goodness of Fit (Binomial Model)

Tests	**Results**
Likelihood Ratio x^2	p-value=0.0000
Wald chi-square test	p-value=0.0000
Hosmer-Lemeshow	p-value=0.1982
Percentage of Correct Prediction	PCP= 69.08%

The Pseudo R^2 is another measure of fit. However, Hosmer and Lemeshow (2000) argued against reporting Pseudo R^2 as it is not comparable to the R^2 in ordinary least square (OLS). Thus, further evidence on model fit is provided using Hosmer-Lemeshow test which also indicates how well the model fits the data. Hosmer and Lemeshow (2000) recommended partitioning observations into ten equal sized groups according to their

predicted probabilities. Based on this, an insignificant chi-square indicates adequate fit of the model while a significant chi-square suggests that the model does not adequately fit the data. As shown in Table 5.10, the Hosmer-Lemeshow x^2 is insignificant (p-value= 0.1982), thus we fail to reject the hypothesis that no difference exists between the observed and the model predicted values. Therefore, the estimates of the model fit the data at an acceptable level. The last goodness of fit measure computed is the percentage of correct predictions (PCP). The PCP which is obtained from a classification table shows the predictive power of the model by assessing the model's ability in classifying outcomes of the dependent variable. Thus, the PCP shows the extent to which the actual outcome corresponds to the predictions made. As indicated in the table, the percentage of cases correctly predicted is 69.08%. This is considered high as Pampel (2000) suggests between 50% and 100% correctly predicted cases as a measure of predictive accuracy.

5.4.3 Test for Model Specification

Apart from the goodness of fit tests, model specification check is also important as misleading inferences may result from inappropriate model specification. Therefore, in order to avoid bias and inconsistent results, Table 5.11 presents the result of the link test which is the general model specification for non-linear regression models. The test is based on the notion that if a regression is properly specified, then any additional independent variable should be insignificant except by chance.

Table 5.11
Model Specification Test (Linktest)

Test	**Result**
Linktest	
_hat	p-value= 0.000
_hatsq	p-value= 0.166

Linktest shows two variables as indicated in Table 5.11. _hat represents the predicted value from the model, thus it is expected to be significant. On the other hand, _hatsq represents the predictor to rebuild the model. Therefore, to pass the linktest, it is expected that _hatsq should be insignificant (Pregibon, 1980). The tables show that the model is correctly specified as _hatsq is insignificant.

5.5 Diagnostic Tests for Multinomial Logistic Regression.

5.5.1 Multicollinearity Analysis

The VIF values for the multinomial model remain as it is in the binomial as the explanatory variables do not change. Again, based on the rule of thumb given by Hair *et al*. (2010) which states that VIF values above 10 (which correspond to tolerance value below 0.10) indicate multicollinearity problem. The VIF values fall below 10, thus the model has no problem of multicollinearity.

5.5.2 Test for Model Fit

The results of model fit tests are reported in Table 5.12.

Table 5.12
Tests for Goodness of Fit (Multinomial Model)

Tests	**Results**
Likelihood Ratio x^2	p-value=0.0000
Wald chi-square test	p-value= 0.0000
Percentage of Correct Prediction	PCP= 53.4%

The model's likelihood ratio x^2 statistic of 265.04 is statistically significant at 1% indicating goodness of fit of the model. This suggests that the model as a whole is statistically significant. Table 5.12 shows that the Wald chi-square test statistic of 133.70 is also significant at 1% significance level ($p>chi^2 = 0.0000$), thus we reject the

hypothesis that all parameters are simultaneously equal to zero. This indicates that at least one of the coefficients in the model has an impact on the dependent variable. As indicated in Table 5.12, the percentage of cases correctly predicted is 53.4%. Although, the percentage is not very high compared to what was obtained in the initial model but it considered modest as it also falls within 50% and 100% suggested by Pampel (2000) for predictive accuracy.

5.5.3 Test for Model Specification

The independent irrelevant alternative test is often used to test model specification for the multinomial model. The test is based on the notion that the choice probability of any two alternatives is not affected by the other alternatives. Hausman-Mcfadden specification test has been used to see if the model meets the IIA assumption. The null hypothesis tested here states that the odds between a pair of alternatives are independent of the remaining alternatives. Based on this, the test compares estimate coefficients of the full model to that of a restricted model in which one of the alternatives is omitted. A significant test is evidence against H_0. Table 5.13 presents the results of the IIA assumption test.

Table 5.13
Hausman Tests of IIA Assumption

Test	**Result**
Outcome Omitted	
1 (Cut dividend)	p-value= 1.000
2 (Increase dividend)	p-value= 1.000
3 (Maintain dividend)	p-value = 1.000
4 (Omit dividend)	p-value= 0.179

The statistical evidence provided in Table 5.13 indicates no significant tests amongst the alternatives. Thus, all evidence found for the four cases are for H_0 and we

therefore fail to reject the null hypothesis. Therefore, the four outcomes of the dependent variable are distinct and this justifies the use of the multinomial model.

5.6 Panel Logistic Regression Analysis

The study adopts panel analysis for the binomial model in order to control for time and fixed effect. Thus, the binomial model was estimated using both fixed effect and random effect analysis. However, Hausman test conducted has x^2 statistic of 125.50 and it is significant at ($p>chi^2 = 0.0000$) indicating that the fixed effect estimates are preferred to random effect estimates. Thus, the results are discussed based on the fixed effect estimates which are presented in Table 5.14. The reported coefficient estimates indicate the influence of the explanatory variables on the decision to pay dividends.

Model 1 is the base model to measure the relationship of variables that have not been examined in the Nigerian market and firm's payout policy measured by a dummy that takes the value of 1 if a firm pays dividend and 0 if otherwise. These variables include foreign ownership, dividend premium (proxy for catering theory) and retained earnings to total equity (proxy for life cycle theory). In model 2, the study incorporates firm characteristics which have been used to explain Nigerian firm's dividend policy. In model 3, the study extends the model to include macroeconomic variables. Model 4 re-estimate the full model using random effect methodology. One of the drawbacks of using fixed effect is that all time-invariant observations are dropped from the model. Unlike in the linear regression where fixed effect drop independent variables that are time-invariant, the fixed effect logit model drop observations for firms that show no variation in the dependent variable overtime. Thus, full model results using random effect methodology are also presented.

Table 5.14
Determinants of Dividend Payout Decisions (Fixed Effect Logistic Regression)

	Model 1	**Model 2**	**Model 3**	**Model 4 (Random Effect)**
Intercept				-23.16***
				(-4.84)
Foreign Ownership	-1.06)**	-1.15**	-1.36***	-1.05**
	(-2.36)	(-2.47)	(-2.81)	(-2.30)
Dividend Premium	0.31	0.21	0.45	0.43
	(1.03)	(0.69)	(1.30)	(1.24)
Retained Earnings to Total Equity	-0.03	-0.09*	-0.10**	-0.11***
	(-0.81)	(-1.87)	(-2.13)	(-2.59)
Size		0.01	0.02	0.03
		(0.72)	(1.06)	(1.58)
Profitability		0.44*	0.50**	0.56***
		(1.88)	(2.07)	(2.56)
Growth Opportunities		-0.11**	-0.08	-0.03
		(-2.40)	(-1.58)	(-0.91)
Cash flow		0.67**	1.92***	0.39**
		(2.51)	(3.61)	(1.97)
Leverage		-0.48*	-0.40	-0.34
		(-1.70)	(-1.34)	(-1.21)
Past Dividend		0.33**	0.33**	0.58***
		(2.43)	(2.38)	(4.03)
Crisis			0.47**	0.51**
			(2.05)	(2.22)
Stock Market Perf.			1.49***	1.40***
			(3.87)	(3.68)
Interest Rate			0.51***	0.51***
			(6.41)	(6.53)
LR X^2	8.43**	31.61***	78.76***	74.34***
No of Obs	698	698	698	1048

*significant at p<0.10, **significant at p<0.05, ***significant at p<0.01. z-stat are in parentheses;
DV= Payer (0, 1)

The results presented in Table 5.14 shows that some variables are consistently significant for all the models in which they appear. The coefficient of foreign ownership is significantly negative in all the models. Thus, the higher the level of foreign ownership,

the lower the likelihood to pay dividends. This finding provides strong evidence in support of clientele theory of dividends. The finding on foreign ownership effect suggests that firms are less likely to pay dividend when foreign ownership is high. Based on the notion that institutional investor clienteles have less preference for dividend paying stocks, finding on foreign ownership is consistent with the claim that foreign investors in the Nigerian market do not desire dividends as they are predominantly institutional investors. The finding is also attributable to the fact that foreign investors possibly suffer the dividend tax and transaction costs related to dividend re-investment more than the domestic investors. The finding is also consistent with the notion that foreign investors have less preference for dividends due to transaction costs involved in repatriation and re-investment of dividend income. This is consistent with the conclusion of Ferreira *et al*. (2010) that foreign institutional investors dislike dividend distribution while domestic investors desire dividends. The finding is in accordance with prior studies that also reported negative and significant relationship between foreign ownership and dividend policy (Dahlquist & Robertsson, 2001; Ferreira *et al*., 2010; Lam *et al*., 2012). Thus, foreign ownership effect on payout decisions in the Nigerian market suggests that firms tilt their dividend policies in line with the preferences of foreign investors. This is not surprising as the Nigerian market is foreign driven as indicated earlier in the write up. On the other hand, the finding contradicts other studies where positive and significant relationship was reported (Bena & Hanouzek, 2008; Chai, 2010; Jain & Chu, 2013; Jeon *et al*., 2011; Kim *et al*., 2010; Ullah *et al*., 2012). However, apart from the study of Ferreira *et al*. (2010), all other evidence focused on foreign ownership effects on the amount of dividend paid as opposed to the decision to pay or not to pay.

On the other hand, finding on foreign ownership does not support the notion that firms are pressed to disgorge out more cash due to high level of foreign ownership. Thus, the finding does not lend support to agency theory which predicts positive relationship between foreign ownership and decision to pay dividends. Finding of the study is inconsistent with the argument that foreign investors desire dividends due to lack of direct monitoring or information disadvantage. Thus, the study argues that foreign investors on the NSE may not be informationally disadvantaged as empirical evidence on whether foreign investors have information advantage is inconclusive. This is verified by Seaholes (2000) who reported that foreign investors who possess global investment experience with well-developed technology are in a stronger position to evaluate domestic firms. Thus, foreign investors in the Nigerian market may not need dividend to play the monitoring role.

In accordance with expected prediction, the coefficients of profitability are also significantly positive for the different specifications. This implies that the higher the profitability, the higher the likelihood to pay dividend. This finding supports the position of Fama and French (2001) that higher profitability is one of the features of a dividend payer. The finding is also in agreement with prior studies which also revealed that profitable firms have higher likelihood to pay dividends (Al-Malkawi, 2007; Al-Malkawi *et al*., 2013; Bebczuk, 2004; Bradford *et al*., 2013; Jasim & Hameeda, 2011). The finding is not surprising bearing in mind the regulation on dividend payment in Nigeria which stipulates that companies can only pay dividends out of distributable profits. The coefficients of cash flow are also significantly positive for the different specifications. This implies that the higher the cash flow, the higher the likelihood to pay dividend. This

finding provides evidence in support of the free cash flow hypothesis (Jensen, 1986) in explaining decision to pay or not to pay dividends in the Nigerian market and it indicates that firms with higher free cash flow disgorge out more to portray that the free cash flow is not channeled into unprofitable investments. This is in line with the notion that free cash flow should be paid out to minimize agency conflicts (Jensen, 1986). Findings also indicate that firms with sizeable cash flow on the Nigerian Stock Exchange are more liquid and thus have higher ability to disgorge out more cash in form of dividend payments compared to their counterparts. This finding concurs with prior studies where positive relationship between cash flow and dividend payment was reported (Amidu & Abor, 2006; Chay & Suh, 2005; John & Muthusamy, 2010). However, the finding contradicts the results of Imran (2011) where negative relationship was reported and Kargar and Ahmadi (2013) where insignificant result was obtained. Finding on cash flow also reflects the dividend legislation in the Nigerian market which indicates that a company is not allowed to distribute dividends if such payment will impede its ability to discharge its liabilities when due. As such, companies experiencing cash flow constraints will have difficulty in paying dividends and they cannot augment their position by borrowing to pay.

Similarly, the coefficient of past dividend is significant in the different models. Therefore, past dividend impact positively on current decision to pay dividends. The findings of the study indicate strong support for dividend smoothing hypothesis of Lintner (1956) which explains that dividends are sticky. As such, current decision to pay dividends is largely influenced by past dividend paid in the Nigerian market. This also

matches the results of earlier studies (Chemmanur *et al*., 2010; Bradford *et al*., 2013; Eriotis & Vasiliou, 2011; Imran, 2011; Jasim & Hameeda, 2011).

Apart from model 1, the coefficient of retained earnings to total equity is also significantly negative in the other models. This indicates that the more firms rely on earned capital, the lower the likelihood to pay dividends. Findings which indicate negative relationship between retained earnings to total equity and decision to pay dividends contradicts the predictions of the life cycle theory. This finding does not lend support to earlier studies (Bradford *et al*., 2013; DeAngelo *et al*., 2006; El Ansary & Gomaa, 2012; Khani & Dehghani, 2011; Shin *et al*., 2010). However, the finding concurs with the finding of Ishikawa (2011). Findings on retained earnings to total equity suggests that as Nigerian firms rely more on earned capital, they plough back more funds for reinvestment purposes rather than distribute dividends. Love (2003) documents that less developed financial markets face more financing constraints. Thus, a plausible reason for the finding may be due to the fact that firms listed in the Nigerian market face more financial constraints and as such they place heavy reliance on earned capital to finance growth opportunities thus leading to lower likelihood to pay dividends. More so, such firms cannot borrow to augment their position and meet up with payment of dividend as this is prohibited in the Nigerian market. This is contrary to what obtains in developed markets where the life cycle theory has majorly been tested.

In model 2, apart from the variables discussed above, other variables which are significant include growth opportunities and leverage. Both variables are significant with negative coefficient. Thus, initial results on growth opportunities indicate that firms with more growth opportunities are less likely to pay dividends. This is consistent with the

notion of Fama and French (2001) that fewer investment opportunities is one of the features of a dividend payer. This also matches the finding of Bradford *et al*. (2013). However, it does not support the finding of Fama (1974) and D'Souza (1999) where investment decisions and dividend decisions were found to be unrelated. Similarly, initial finding on leverage indicates that firms with higher leverage are less likely to pay dividends. The initial finding reported on effect of leverage provides support for Rozeff's (1982) transaction cost hypothesis. The findings concur with the view of Rozeff (1982) that high levered firms maintain low dividend payment in order to reduce transaction cost associated with external financing. This may result from the need for high levered firms to hold back funds for debt servicing and the need to prevent obtaining additional external finance in order to minimize transaction cost associated with external financing, thus lowering the funds available for dividend distribution. This finding also matches the results of other studies (Al-Malkawi, 2008; Al-Malkawi *et al*., 2013; Bradford *et al*., 2013; Ehsan *et al*., 2013; Huda & Abdullah, 2013; Mansuurina *et al*., 2013) where negative and significant relationship was also documented between leverage and dividend payout. The finding however is in contrast to the findings of Mehta (2012) and Khan *et al*. (2013) where insignificant relationship was reported.

Variables which are insignificant in model 2 include dividend premium and size. Model 3 shows that the results obtained earlier for foreign ownership, retained earnings to total equity, profitability, cash flow and past dividend are robust to the inclusion of additional variables as the significance and signs of these variables remain unchanged. However, growth opportunities and leverage loses significance once the study account for crisis, stock market performance and interest rate. The insignificance of growth

opportunities in the further analysis matches the view of D'Souza and Saxena (1999) and Fama (1974) that dividend decisions and investment decisions are independent of each other. The insignificance of leverage in the expanded model also indicates that leverage can no longer explain decision "to pay" or "not to pay" when the other factors are taken into account. Thus, the study only provides partial support for the transaction cost hypothesis as the hypothesis is not supported in the expanded model. Insignificant result obtained for leverage in the expanded model matches the finding of Mehta (2012) and Khan *et al*. (2013).

The variables which were insignificant in model 2 (dividend premium & size) still remain insignificant in model 3. The three controlled variables (crisis, stock market performance, interest rate) which were controlled for in model 3 are significant with positive coefficient. The positive coefficient of financial crisis indicates higher likelihood to pay dividend during financial crisis. Contrary to expectation that financial crisis will impede the ability of firms to pay dividends, findings indicate that firms are more likely to pay dividends during financial crisis. A possible explanation for this is the desire of firms to create a positive impression of sound financial condition despite the crisis. This matches the earlier findings of Acharya *et al*. (2009) and Kuo *et al*. (2013) where it was reported that global financial crisis impacted positively on dividend payouts as firms pay more dividends to indicate sound financial health. However, the finding is inconsistent with prior studies that document negative impact of crisis on dividend payout (Bancel & Mitto, 2011; DeAngelo & DeAngelo 1990; Hauser, 2013). Similarly, positive coefficient of market performance indicates higher likelihood to pay dividend with improved market performance. Positive coefficient of interest rate also indicates higher likelihood to pay

dividend with higher interest rate. Contrary to expectation that firms may be constrained financially and may have lower tendency to distribute dividend when interest rate is high, findings indicate otherwise. This can be attributed to the fact increased cost of borrowing makes bond attractive to investors as compared to stocks. Therefore, companies pay higher dividends to attract potential investors and to retain the existing ones. This finding is in line with the findings of Khan, Meher, and Kashif (2013) where it was argued that firms pay higher dividends to attract capital when interest rate goes up.

As indicated in Table 5.14, dividend premium and firm size are insignificant for the different models. These variables do not play any significant role in explaining decision to pay or not to pay dividends on the Nigerian Stock Exchange. The insignificance of dividend premium indicates no support for catering theory in explaining the decision to pay or not to pay dividends on the Nigerian Stock Exchange. The finding contradicts the position of Baker and Wurgler (2004b) that dividend premium is the most significant explanation for dividend initiation and omission decisions. This finding also contradicts the finding of Jiang *et al*. (2013) that dividend initiations are primarily driven by catering incentives. This suggests that listed firms in the Nigerian market do not consider investor's demand for dividends when making decision on whether to pay dividends or not to pay. This finding also contradicts other studies that reported positive and significant relationship between dividend premium and dividend policy (Haleem *et al*., 2011; He *et al*., 2012; Jiang *et al*., 2013; Lee, 2010; Li & Lie, 2006; Neves & Torre, 2006). On the other hand, the result agrees with Tsuji (2010) and Baker *et al*. (2007) where it was documented that catering theory cannot explain decision to pay dividends. However, further analysis indicates that dividend premium is significant in explaining

decisions to change dividend levels as discussed in a latter sub-section (sub-section 5.7). Similarly, findings on size indicate that larger firms do not necessarily have higher likelihood to pay dividends than smaller firms in the Nigerian market. This finding also matches the findings of Arif and Akbar (2013) and Azeem *et al*. (2011). However, the finding contradicts the position of Fama and French (2001) that larger size is one of the characteristics of a dividend payer. The finding also contradicts other studies where positive and significant relationship was reported (Al-Malkawi, 2008; Al-Malkawi *et al*, 2013; Arshad *et al*., 2013; Bebczuk, 2004; Bradford *et al*., 2013; Redding, 1997). Thus, the study only provides evidence in support of two of the characteristics of a dividend payer specified by Fama and French (2001).

Random effect estimates for the expanded model is also shown in model 4 to indicate that results from the fixed effect estimates are not affected by the substantial drop in observations. The significant variables in the fixed effect estimates were also found to be significant in the random effect estimates.

5.6.1 Odds Ratio for Decision to Pay or Not to Pay Dividends

Logistic estimates are presented in terms of the logit coefficients or odds ratio. Besides obtaining the coefficients presented in Table 5.14, it is important to obtain the odds ratio. This is because odds ratio presents an easier alternative to interpreting the estimates. More so, odds ratio are considered to be more informative (Menard, 2002). This is because it tells how many times the likelihood of occurrence relative to non-occurrence will increase or decrease when the explanatory variable changes by one unit. Therefore, logistic regression analysis indicate how the odds change when a particular explanatory variable changes. Odds is the ratio of probability of an event occurring to the probability

of the event not occurring (Gujarati, 2004). An odds ratio greater than 1 corresponds to a positive logit coefficient while odds ratio of less than one corresponds to a negative logit coefficient. The odds ratio in this study is the ratio of probability of decision "to pay" to the probability of the decision "not to pay". Table 5.15 presents the odds ratio based on the expanded model of the fixed effect estimates.

Odds ratio for each explanatory variable is interpreted given that the other variables in the model are held constant. Based on this, the odds ratio presented in Table 5.15 indicates that if foreign ownership increases by one point, the odds of taking the decision "to pay" relative to "not to pay" is expected to decrease by 0.26 units. Similarly, if retained earnings to total equity increases by one point, then the odds of decision "to pay" relative to "not to pay" is expected to decrease by 0.91 units. On the other hand, if profitability increases by one point, the odds of decision "to pay" relative to "not to pay" is expected to increase by 1.65 units. Similarly, if cash flow increases by one point, the odds of decision "to pay" relative to "not to pay" is expected to increase by 3.56 units. An increase in past dividend by one point is also expected to result in increase in the odds of paying relative to not paying by 1.39 units. Similarly, an increase in the magnitude of crisis by one point is expected to increase the odds of paying relative to not paying by 1.61 units. An increase in stock market performance by one point is expected to increase the odds of paying relative to not paying by 4.44 units while that of interest rate is expected to lead to an increase by 1.67 units.

Table 5.15
Odds Ratio of Decision to "Pay" or "Not to Pay"

	Odds Ratio	**z-stat**
Foreign Ownership	0.26***	-2.81
Dividend Premium	1.57	1.30
Retained Earnings to Total Equity	0.91**	-2.13
Size	1.02	1.06
Profitability	1.65**	2.07
Growth Opportunities	0.92	-1.58
Cash flow	3.56**	1.88
Leverage	0.67	-1.34
Past Dividend	1.39**	2.38
Crisis	1.61**	2.05
Stock Market Performance	4.44***	3.87
Interest Rate	1.67***	6.41
No of Obs	698	

*significant at p<0.10; **significant at p<0.05; ***significant at p<0.01

5.6.2 Robustness Check for Panel Logistic Regression Model

It is necessary to assess the model for robustness of its key findings. Thus, it is expected that the main conclusions as derived from the signs and significance level of key variable(s) should hold even when the variables are subjected to different model specification. This sub-section examines whether the initial results are driven by the use of a dummy variable as proxy for dividend payout policy as opposed to the use of dividend scaled by total assets. Therefore, an alternative measure of dividend policy (dividend scaled by total assets) is employed for robustness check. Since this new dependent variable is not in discrete choice form, the study estimates panel linear regression as reported in Table 5.16.

Table 5.16
Determinants of Dividend Payout Decisions (Fixed Effect Regression)

	Model 1	**Model 2**	**Model 3**	**Model 4 (Random Effect)**
Intercept	0.73*** (4.47)	0.37** (1.96)	-4.61 (-1.54)	-4.88* (-1.67)
Foreign Ownership	-0.81*** (-2.66)	-0.69** (-2.28)	-0.70** (-2.30)	-0.39 (-1.44)
Dividend Premium	0.07 (0.61)	0.08 (0.40)	0.07 (0.30)	0.04 (0.20)
Retained Earnings to Total Equity	-0.05 (-0.63)	-0.01 (-0.86)	-0.02 (-0.79)	-0.01 (-0.37)
Size		0.05*** (3.93)	0.06*** (4.42)	0.07*** (7.32)
Profitability		0.04 (0.38)	0.07 (0.61)	0.02 (0.46)
Growth Opportunities		-0.01 (-0.87)	-0.04 (-0.76)	-0.06 (-1.17)
Cash flow		0.14 (1.13)	0.13 (1.03)	0.04 (0.53)
Leverage		-0.05 (-0.63)	-0.05 (-0.63)	-0.05 (-0.81)
Past Dividend		0.23*** (3.10)	0.23*** (3.12)	0.18*** (3.84)
Crisis			0.19 (1.32)	0.21 (1.42)
Stock Market Perf.			0.26 (1.07)	0.27 (1.13)
Interest Rate			0.13*** (2.72)	0.13*** (2.86)
No of Obs	1048	1048	1048	1048

*significant at p<0.10; **significant at p<0.05; ***significant at p<0.01. t-stat are in parentheses for model 1-3; z-stat are in parenthesis for random effect estimates; DV= Dividend/Total Assets. Note: The study also employed "dividend scaled by net income" as the dependent variable and found no considerable difference with the results obtained in this table (see appendix).

The main findings on foreign ownership effect on dividend payout policy remains unaltered as it is still significantly negative in all the fixed effect models. Thus, the finding is robust to the use of alternative measure of dividend payout policy. Comparing results obtained in Table 5.16 to 5.14 indicates that fewer variables which include foreign ownership, size, past dividend, and interest rate explain the amount of dividends paid. Contrarily, the insignificance of size in the non-linear model as shown in Table 5.14 shows that firm size cannot explain the initial decision on whether or not to pay dividends. However, it is relevant in explaining how much to pay. The results obtained from the logit estimates and those obtained in the linear regression are both useful to shareholders in making investment decisions. However, both have different implications. Investors who desire dividend paying firms but are not particularly concerned about high yield firms can focus on the factors affecting the decision to pay. On the other hand, factors affecting the amount of dividends paid will be more informative to investors who have preference for high-yield firms.

5.7 Multinomial Logistic Regression Analysis

The results for the multinomial logistic regression are presented in Table 5.17. The table shows the estimates for three different sub samples: pre-crisis (2003); crisis (2008-2009); and post-crisis period (2010-2012). The total number of observations is 1,048 consisting of 471 observations in the pre-crisis period; 227 observations in the crisis period; and 350 observations in the post crisis period. In this section, the estimates in Table 5.17 are explained and detailed comparisons of results over the different sub-periods are also discussed. It is concerned about how the predictors of these payout choices have changed across the different sub-periods in line with the notion that firms might have altered their

dividend policies through different payout options in response to the crisis. The findings provide evidence which indicates changes in dividend policy during the crisis as the explanatory role of some variables changed over the different sub-periods.

The coefficients indicate the influence of each explanatory variable on the different payout choices in relation to the base outcome. Thus, the coefficient estimates compare the likelihood of different payout options [cutting dividends (1), increasing dividends (2), maintaining dividends (3)] to the likelihood of omitting dividends (4). Outcome level 4 (decision to omit dividend) is chosen as the base outcome not only because it is the outcome with the highest category which the software chooses automatically, but also because it is regarded as the most extreme way by which the firms can adjust their dividend. In addition, apart from the choice to "omit dividend", all other options (cut; increase; maintain) are under the choice to pay.

Table 5.17
Multinomial Logit Model for Dividend Payout Decisions

Explanatory Variables	**Base Outcome=Omit Dividend (4)**								
	Pre Crisis (2003-2007)			**Crisis (2008-2009)**			**Post Crisis (2010-2012)**		
	(1) cut	2 (increase)	3 (maintain)	(1) cut	2 (increase)	3 (maintain)	(1) cut	2 (increase)	3 (maintain)
Constant	-2.12***	-1.32***	-1.98***	-0.50	-1.19**	-2.15**	-1.56**	2.20	-2.41
Foreign Ownership	-0.96**	-1.03**	-0.80	-1.40	-0.09	-0.30	-1.49*	-1.20**	-0.59
Dividend Premium	1.80	0.16	0.53	0.51	0.98***	0.31	0.65	2.25***	0.80
Retained Earnings to Total Equity	-0.21**	-0.28***	-0.27***	0.32	0.31	0.40	-0.33	-0.12	-0.06
Size	0.04	0.10***	0.06*	0.03	0.04	0.01	0.01	0.01	0.02
Profitability	1.25*	1.83***	1.72***	1.97*	2.05*	3.34**	0.43*	0.68**	0.45*
Growth Opportunities	-0.04	-0.03	-0.02	-0.01	-0.01	-0.01	-0.04	-0.03	-0.01
Leverage	-0.12	-0.22	-0.36	-0.69**	-0.18**	-0.39	-0.11**	-0.35*	-0.25
Cash flow	1.48	0.14	1.30	1.17**	1.01**	1.12	0.40**	0.39**	0.28
Past Dividend	2.33***	1.93***	1.96***	0.67**	0.61**	0.34**	0.51***	0.38**	0.39**
Stock Market Perf.	1.20	1.43	0.12	ND	ND	ND	2.52	2.33	3.14*
Interest Rate	1.02	0.63	0.22	ND	ND	ND	ND	ND	ND

Table 5.17 (Continued) [16]

	Pre Crisis (2003-2007)			Crisis (2008-2009)			Post Crisis (2010-2012)		
	(1) cut	2 (increase)	3 (maintain)	(1) cut	2 (increase)	3 (maintain)	(1) cut	2 (increase)	3 (maintain)
LR X^2			163.9***			61.7***			67.9***
No. of Observations	471	471	471	227	227	227	350	350	350

*significant at p<0.10; **significant at p<0.05; ***significant at p<0.01.

Note: ND is used to represent coefficients not defined as the variables were dropped from the estimates for the respective sub-samples.

[16]The study also estimates the multinomial logit model using 10% threshold and found no significant difference in the results obtained.

Pre-crisis period: The predictors of alternative payout choices in the pre-crisis period as indicated in the multinomial results shows that the coefficient of retained earnings to total equity, profitability, and past dividend are significant for all the different payout options relative to the decision to omit dividends. Retained earnings to total equity, a proxy to firm maturity, is significant with negative coefficient under the different categories. This indicates that mature firms are less likely to cut, increase or maintain dividends, than to omit. The negative co-efficient contradicts the prediction of the life cycle theory of dividends as tested by DeAngelo *et al*. (2006). Findings on retained earnings to total equity which show firms that place more reliance on earned capital prefer to omit than to pay through the other choices suggests that these firms plough back fund into investment opportunities before the period of crisis. This finding also contradicts earlier studies which documents higher preference to pay with higher retained earnings to total equity (Bradford *et al*., 2013; El Ansary & Gomaa, 2012; Khani & Dehghani, 2011; Shin *et al*., 2010). However, the finding is consistent with Ishikawa (2011).

Results obtained in the pre-crisis period shows further that the coefficients of profitability and past dividend are significantly positive under the different categories. This implies that profitable firms prefer to take any of these options (cut, increase, maintain dividends) than to omit dividends. This is in line with Fama and French's (2001) characteristics of a dividend payer. The finding is also in support of other studies that document positive relationship between dividend policy and profitability (Al-Malkawi, 2007; Al-Malkawi *et al*., 2013; Bebczuk, 2004; Bradford *et al*., 2013; Jasim & Hameeda, 2011). Findings on profitability is not surprising due to dividend legislation in the Nigerian market which stipulates that dividend shall only be payable to shareholders out

of distributable profits of the company. Similarly, findings on past dividend indicate firms that pay more in the previous year prefer to cut, increase or maintain dividends than to omit dividends. This finding provides support for Lintner's (1956) dividend smoothing hypothesis and implies that past dividend is a reference point for current dividend decision on the Nigerian Stock Exchange. It is also consistent with findings documented by other studies (Chemmanur *et al*., 2010; Bradford *et al*., 2013; Eriotis & Vasiliou, 2011; Imran, 2011; Jasim & Hameeda, 2011).

The pre-crisis period estimates indicates further that foreign ownership is only significant with respect to two categories: decision to cut dividends relative to omit; and decision to increase dividends relative to omit. The negative coefficient of foreign ownership shows that firms with higher level of foreign ownership prefer to omit than pay through dividend cuts or dividend increases. This also implies that they prefer not to receive any dividend than receiving reduced dividends. The finding is in accordance with prior studies where it was reported that higher foreign ownership leads to lower preference to pay dividends (Dahlquist & Robertsson, 2001; Ferreira *et al*., 2010; Lam *et al*., 2012). Contrarily, it is not in agreement with other studies that document positive and significant relationship between foreign ownership and dividend policy (Bena & Hanouzek, 2008; Chai, 2010; Jain & Chu, 2013; Jeon *et al*., 2011; Kim *et al*., 2010; Ullah *et al*., 2012). The result which can be explained by the tax induced clientele theory is attributable to the less preference for dividend paying stocks by the foreign investors due to tax and transaction costs related reasons. This is also explained by the fact that as institutional shareholders, they have less preference for dividend paying stocks. This finding also suggests that listed firms in the Nigerian market shape their dividend payout

policies to suit the preference of foreign investors in the pre-crisis period. However, foreign ownership is not significant in explaining the decision to maintain dividends relative to the decision to omit dividends.

Similarly, pre-crisis results show that size is significant with respect to two outcome categories: decision to increase relative to omit dividends; and decision to maintain relative to omit dividend. The positive coefficient of size under these two outcomes indicates that bigger firms prefer to increase or maintain their dividend levels than omit dividends in the pre-crisis. This is in line with Fama and French's (2001) characteristics of a dividend payer. This also concurs with prior studies that document increase in dividend payout with larger firm size (Al-Malkawi, 2008; Al-Malkawi *et al*, 2013; Arshad *et al*., 2013; Bebczuk, 2004; Bradford *et al*., 2013; Redding, 1997). Unlike in the binomial results, the results here do not support the studies which document insignificant relationship between size and dividend policy (Arif & Akbar, 2013; Azeem *et al*., 2011). However, size was found to be insignificant in explaining the decision to cut relative to omit. Variables which are insignificant for the different outcomes in the pre-crisis period include dividend premium, growth opportunities, leverage, and cash flow. These variables cannot explain the alternate payout decisions in the pre-crisis period. The insignificance of dividend premium indicates lack of support for the catering theory in the pre-crisis period. Thus, the result is inconsistent with the position of Baker and Wurgler (2004) and other studies that found catering theory to be significant in explaining dividend payout (Haleem *et al*., 2011; He *et al*., 2012; Jiang *et al*., 2013; Lee, 2010; Li & Lie, 2006; Neves & Torre, 2006). However, it agrees with the findings of Baker *et al*. (2007) and Tsuji (2010) where catering theory was found to be insignificant

in explaining dividend decisions. Findings which shows insignificant result for growth opportunities contradicts the notion of Fama and French (2001) and Bradford *et al*. (2013) that fewer investment opportunities is one of the features of a dividend payer. However, the finding concurs with Fama (1974) and D'Souza (1999) where investment decisions and dividend decisions were found to be unrelated. Similarly, the insignificance of leverage and cash flow indicates that the transaction cost hypothesis and the free cash flow theory (as stated in the agency theory) respectively are not supported in the pre-crisis period. Lack of support for leverage and cash flow also indicates that firms do not prioritize maintaining financial flexibility before the crisis. The insignificance of leverage matches the findings of Mehta (2012) and Khan *et al*. (2013). It however conflicts the findings of other studies that found leverage to be significant in explaining dividend decisions (Al-Malkawi, 2008; Al-Malkawi *et al*., 2013; Bradford *et al*., 2013; Ehsan *et al*., 2013; Huda & Abdullah, 2013; Mansuurina *et al*., 2013). Similarly, the insignificance of cash flow contradicts studies that found it to be significant in explaining dividend payout (Amidu & Abor, 2006; Chay & Suh, 2005; John & Muthusamy, 2010). However, it matches the finding reported by Kargar and Ahmadi (2013) where insignificant result was also obtained.

Crisis period: Profitability and past dividend retained their positive and significant coefficients in the crisis period. However, findings indicate that the explanatory role of past dividend weakened. Thus, firm's ability to maintain stable dividends is reduced during the crisis. The study indicates considerable changes in dividend policy during the crisis as the role of some explanatory factors changed during this period. These changes are reflected by some factors which were insignificant in the pre-crisis but became

significant during the crisis. These include dividend premium, leverage and cash flow. Thus, three different theories (catering theory, transaction cost hypothesis and free cash flow hypothesis) which could not explain the payout choices in the pre-crisis period became relevant during crisis.

Leverage and cash flow which were not significant in the pre-crisis period became significant under two outcome categories in the crisis period: cut relative to omit; increase relative to omit. Leverage is significant with negative coefficient and this implies that the higher the leverage during crisis, the higher the tendency to omit dividends than to pay through dividend cuts or dividend increases. However, leverage is insignificant with respect to the decision to maintain relative to the decision to omit dividend. Finding on leverage indicates that in order to minimize transaction cost associated with external financing, high levered firms will prefer not to pay at all than to pay through increases or even reductions in dividend during financial crisis. This is in support of the transaction cost hypothesis. This finding also suggests that firms become more conscious of their debt level during crisis.

On the other hand, cash flow is significant with positive coefficient and this implies that the higher the cash flow of firms during crisis, the higher the likelihood for them to pay through dividend cuts or dividend increases than the likelihood to omit dividend, which is consistent with the free cash flow hypothesis. A contributing factor to this finding is the dividend legislation on the Nigerian Stock Exchange which prohibits companies facing cash flow constraints from paying dividends. The period of crisis was characterized by future cash flow uncertainty while some firms suffered depletion of cash flow during the period. Thus, companies with higher cash flow will have better ability to

meet up with dividend payments during this period. Another plausible explanation for results obtained on cash flow during crisis is that companies seek to boost investor's confidence which may be eroded during crisis. As a result, companies with more free cash flow will tend to distribute dividends than omit to indicate that free funds are not channeled into unprofitable investments. This is in order to reduce agency costs of free cash flow. Results obtained for leverage and cash flow which shows that highly levered firms and firms with lower cash flows will prefer to omit than to pay through increases or reductions is an indication of firm's need to preserve funds during the crisis. Thus, financial flexibility becomes a priority during crisis.

Similarly, dividend premium which was not significant in the pre-crisis period became significant with positive coefficient during crisis. Dividend premium is significant only with respect to the decision to increase dividend relative to the decision to omit dividend. Thus, the higher the dividend premium during crisis, the higher the likelihood of firms to increase dividend payment rather than omitting. Result which shows that firms cater to meet investors demand for dividend by increasing dividend rather than omitting when the dividend premium is high during crisis supports the catering theory. This suggests that listed firms in the Nigerian market become more mindful of investor's demand and recognize that dividends are particularly important to investors during crisis, thus respond to their demand for dividends. Relevance of dividend premium during crisis contradicts the findings of He *et al*. (2012) where it was reported that catering incentives drop with payout ability during financial crisis.

Changes in dividend policy during crisis is further evidenced by changes in the predictive role of some variables (foreign ownership; retained earnings to total equity;

size) during the crisis. These variables were significant before the crisis but became insignificant during crisis. Foreign ownership which ceases to be significant in the period of crisis indicates that firms are not concerned about shaping dividend policies to suit the preference of foreign investors during crisis. Finding on foreign ownership during crisis also indicate that the tax-induced clientele theory became irrelevant during crisis. Retained earnings to total equity which also became insignificant during crisis implies that unlike in the pre-crisis period, firms that rely on earned capital no longer see the prospects of investing in the face of crisis. Similarly, finding which indicates that size become irrelevant during crisis implies that firm size does not necessarily indicate payout ability in times of crisis. As obtained in the pre-crisis period, findings indicate that growth opportunities remain insignificant even during crisis. Therefore, the study provides evidence that amongst the characteristics of dividend payer specified by Fama and French (2001), only profitability is relevant in explaining the payout choices during crisis.

Despite the changes in dividend policies during crisis highlighted above, findings indicate that the explanatory role of profitability is unaffected by the crisis. This suggests profitability is a strong predictor of payout decisions. This reinforces the findings from the binomial results which indicate that profitability is an important feature of a dividend payer. Although the explanatory role of past dividend is weakened during the crisis, its significance over the sub-periods indicate that it is a reference point for current dividend decisions. Decline in the ability of firms to maintain stable dividend is reflected in the reduced level of significance during crisis. This is also reflected in the reduced marginal impact reported in sub-section 5.7.2 (Table 5.18).

Post-crisis period: As obtained in the pre-crisis period and during crisis, profitability and past dividend remain significant with positive coefficient under the three outcomes in the post-crisis period. Thus, in the post crisis period, firms with higher profitability and past dividend will have higher tendency to pay through cuts, increases or maintain than to omit dividends. Finding on profitability in the post-crisis period is in support of studies which document that higher profitability positively influences dividend payout (Al-Malkawi, 2007; Al-Malkawi *et al*., 2013; Bebczuk, 2004; Bradford *et al*., 2013; Jasim & Hameeda, 2011). Similarly, findings on past dividend also support past studies that shows that past dividend positively influence current dividend decisions (Chemmanur *et al*., 2010; Bradford *et al*., 2013; Eriotis & Vasiliou, 2011; Imran, 2011; Jasim & Hameeda, 2011). Three variables were found to be significant under two outcome categories: cut relative to omit; and increase relative to omit. These variables include foreign ownership, leverage and cash flow. Foreign ownership which lost significance during the crisis period became significant again in the post crisis period with negative coefficient. Thus, just like in the pre-crisis period, firms with higher level of foreign ownership are more likely to omit dividends than pay through dividend cuts or increases in the post crisis period. The finding is consistent with prior studies that also reported negative influence of foreign ownership on dividend payout (Dahlquist & Robertsson, 2001; Ferreira *et al*., 2010; Lam *et al*., 2012). On the other hand, it is in contrast to studies which reported that foreign ownership have positive influence on dividend payout (Bena & Hanouzek, 2008; Chai, 2010; Jain & Chu, 2013; Jeon *et al*., 2011; Kim *et al*., 2010; Ullah *et al*., 2012).

Leverage and cash flow which were significant only during crisis remained significant in the post crisis period with the same signs obtained earlier. The negative coefficient of

leverage indicates that firms with higher leverage in the post crisis period have higher tendency to omit than pay through dividend cuts or dividend increases. The result of leverage in the post crisis period is in line with prior studies that found leverage to be negatively significant in explaining dividend decisions (Al-Malkawi, 2008; Al-Malkawi *et al*., 2013; Bradford *et al*., 2013; Ehsan *et al*., 2013; Huda & Abdullah, 2013; Mansuurina *et al*., 2013). However, it contradicts the findings of Mehta (2012) and Khan *et al*. (2013) where leverage is reported to be insignificant in explaining dividend decisions. On the other hand, the positive coefficient of cash flow indicates that firms with higher cash flow in the post crisis period have higher tendency to pay through dividend cuts or dividend increases than to omit dividends. This matches the findings of studies that found positive and significant relationship between cash flow and dividend payout (Amidu & Abor, 2006; Chay & Suh, 2005; John & Muthusamy, 2010). However, it conflicts the finding reported by Kargar and Ahmadi (2013) where insignificant result was obtained.

Similarly, dividend premium which was only significant during crisis remained significant in the post crisis period. Dividend premium is significant with positive coefficient indicating that the higher the dividend premium in the post crisis period, the higher the likelihood to increase dividend than omit dividend. This is in agreement with studies that also document positive and significant effect of dividend premium on dividend policy (Haleem *et al*., 2011; He *et al*., 2012; Jiang *et al*., 2013; Lee, 2010; Li & Lie, 2006; Neves & Torre, 2006). However, it is inconsistent with the findings of other studies that found catering theory to be insignificant in explaining dividend decisions (Baker *et al*., 2007; Tsuji, 2010). Variables found to be insignificant in the post crisis

period include retained earnings to total equity; size; and growth opportunities. The insignificant result obtained for retained earnings to total equity in the post crisis period contradicts studies that found the variable to be significant in explaining dividend policy (Bradford *et al*., 2013; DeAngelo *et al*., 2006; El Ansary & Gomaa, 2012; Khani & Dehghani, 2011; Shin *et al*., 2010). Insignificant result obtained for size matches the findings of Arif and Akbar (2013) and Azeem *et al*. (2011). However, it is inconsistent with the results of studies that report significant relationship between firm size and dividends (Al-Malkawi, 2008; Al-Malkawi *et al*, 2013; Arshad *et al*., 2013; Bebczuk, 2004; Bradford *et al*., 2013; Redding, 1997). Findings which shows insignificant result for growth opportunities is contrary to the position of Fama and French (2001) and Bradford *et al*. (2013) where it is shown that firm's investment opportunities is significant in explaining dividend decisions. However, the finding concurs with Fama (1974) and D'Souza (1999) where investment decisions and dividend decisions were found to be unrelated.

Based on the above, the study provides evidence of strong resemblance in dividend payout polices of the crisis period and the post crisis period. All theories that explained dividend payout during crisis remained relevant in the post crisis period. In addition to that, tax-induced clientele theory regained its importance in the post crisis period. Besides foreign ownership which became significant again in the post crisis period, all the other variables remained as they were during the crisis. Thus, all predictors of the alternative payout decisions during crisis remained significant in the post crisis period for their respective categories. This implies that the effect of the crisis might have

extended till the post crisis period. This is also reflected in the trend of the market capitalization which is yet to rebound to its pre-crisis level as at the end of year 2012.

5.7.1 Plausible Explanation for Shift in Dividend Policy during Crisis

Some studies indicate that firms cut dividends during crisis to preserve financial flexibility while other studies reported increase in dividend payment in order to signal sound financial health during the crisis. In this study, the combined evidence from descriptive analysis and regression estimates indicates presence of signaling motive at the early stage of the crisis. This is indicated by the increase in dividend payout in year 2008 and positive coefficient obtained for crisis in the binomial results. However, findings show that this signaling motive could not be sustained.

The study provides evidence which points to the fact that the need to preserve financial flexibility eventually prevailed over signaling motive. Evidence in this regard is drawn from both the descriptive analysis and multinomial regression results. Following the increase in year 2008, a sharp decline in dividend payment occurred at the peak of the crisis (year 2009). Similarly, dividend reductions recorded highest magnitude of change during the crisis compared to the other payout options. Dividend cuts increased by 258% between year 2007 and 2009. Similarly, findings indicate that the predictors of alternative payout choices are altered during the crisis in a manner consistent with the desire to preserve financial flexibility. Size which lost significance during the crisis indicates that bigger firms may not necessarily prefer to pay through the different options as obtained in the pre-crisis period. Thus, such firms may have a different motive which may be the need to preserve funds to handle financial uncertainties in the future. Similarly, using leverage and cash flow as indicators of financial flexibility, Bancel and Mitto (2009)

reported that firms with higher financial flexibility suffer less impact from the crisis. Thus, findings of this study which shows that leverage and cash flow only turned out to be significant during crisis reflects the importance of financial flexibility in such period. More so, Miller and Rock (1985) stated that a major cost of signaling is the need to continue to pay high level of dividends which small firms cannot imitate. On the other hand, prior studies have shown that one of the ways of achieving financial flexibility during crisis is through dividend reductions. Signaling cost which involves maintaining dividend payments at high levels may be difficult to sustain during crisis due to the need to preserve financial flexibility. Thus, firms listed on the Nigerian Stock Exchange might have cut down dividends in year 2009 due to inability to sustain signaling cost. Based on the foregoing, the study infers that changes in dividend policy during financial crisis indicate the inability of firms to sustain dividend payment due to the need to preserve financial flexibility.

5.7.2 Marginal Effects for Payout Decisions (Multinomial Logistic Regression)

The marginal effects presented in Table 5.18 are also complementary to the multinomial logit regression estimates as it relates the impact of each explanatory variable on the predicted outcome probabilities. For categorical variables with more than two discrete choices, the marginal effect reveals the difference in predicted probabilities for each comparison category relative to the base category (Cameron & Trivedi, 2009). Average marginal effect (AME) has been used for the purpose of this study. The average marginal effect is preferred to the marginal effect at means (MEM) as some authors have argued that the latter may not indicate a good reflection of the marginal effect at values other

than the mean. Table 5.18 presents the marginal effect on the different payout choices based on the expanded model.

Table 5.18 shows that foreign ownership records higher marginal impact on dividend payout decisions in the pre-crisis than in the post crisis period. This implies it exerts more influence on the payout choices before the crisis. With negative marginal impact reported, result indicates that if foreign ownership changes by 1% in the pre-crisis period, then the probability of cutting dividends relative to omitting dividend will decrease by 27%, ceteris paribus. This is much higher than 13% decrease as obtained in the post crisis period for the same category. Similarly, result shows that one unit change in foreign ownership in the pre-crisis period decreases the probability of increasing dividend relative to the probability of omitting dividend by 21%, ceteris paribus. This is also higher than 15% decrease obtained in the post crisis period for dividend increase relative to omit. Dividend premium which only became significant during crisis and in the post crisis period is shown to have higher marginal impact during the crisis. This implies that catering incentives by firms declined in the post crisis period. Thus, the firms responded more to investors demand for dividends during crisis than in the post crisis period. During the crisis, a unit change in dividend premium increase the probability of increasing dividend relative to the probability of omitting dividend by 46%, ceteris paribus. This is higher than 35% reported in the post-crisis period for the same outcome category.

Table 5.18
Marginal Effect for Dividend Payout Decisions (Multinomial Logit Model)

Explanatory Variables	**Dependent Variable:Base Outcome=Omit dividend(4)**								
	Pre Crisis(2003-2007)			**Crisis(2008-2009)**			**Post Crisis(2010-2012)**		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
	Cut	Increase	Maintain	Cut	Increase	Maintain	Cut	Increase	Maintain
Foreign Ownership	-0.27**	-0.21**	-0.19	-0.17	-0.13	-0.06	-0.13*	-0.15**	-0.03
Dividend Premium	0.01	0.11	0.01	0.46	0.46***	0.33	0.11	0.35***	0.09
Retained Earnings to Total Equity	-0.14**	-0.38***	-0.15***	0.17	0.03	0.02	-0.03	-0.01	-0.01
Size	0.07	0.15***	0.05*	0.02	0.01	0.01	0.01	0.01	0.01
Profitability	0.12*	0.26***	0.09***	0.17*	0.29*	0.12**	0.05*	0.01**	0.14*
Growth Opportunities	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Leverage	-0.03	-0.06	-0.06	-0.12**	-0.07**	-0.09	-0.11**	-0.08*	-0.06
Cash flow	0.13	0.10	0.14	0.16**	0.14**	0.13	0.14**	0.15**	0.16
Past Dividend	0.13***	0.20***	0.09***	0.08**	0.07**	0.08**	0.04***	0.05**	0.06**
No. of Observations	471	471	471	227	227	227	350	350	350

*significant at p<0.10; **significant at p<0.05; ***significant at p<0.01.

Retained earnings to total equity and size which were only significant in the pre-crisis period have their highest marginal impact with respect to the decision to increase dividend relative to the decision to omit. Thus, the two variables are more relevant with respect to dividend increase decisions. Results indicates that if retained earnings to total equity increases by 1 unit, then the probability of increasing dividends relative to omitting dividend will decrease by 38%, ceteris paribus. However, if it increases by 1 unit, the probability of cutting dividends (or maintaining dividends) relative to omitting dividend will decrease by 14% (15%), ceteris paribus. Similarly, a unit change in size will increase the probability of increasing dividend relative to the probability of omitting dividend by 15%, ceteris paribus while it will increase the probability of maintaining dividend relative to the probability of omitting dividend by 5%, ceteris paribus.

Profitability which is significant across all the sub-periods had its highest marginal impact during the crisis. This implies that profitability as a characteristic of a dividend payer holds more during the crisis than in the non-crisis periods. Results indicates that if profitability changes by 1 unit during the crisis, the probability of cutting dividends relative to omitting dividend will increase by 17%, ceteris paribus. On the other hand, the probability will increase by 12% and 5% in the pre-crisis and the post crisis period respectively. Similarly, if profitability changes by 1 unit during the crisis, the probability of increasing dividends relative to omitting dividend will increase by 29%, ceteris paribus while it will increase by 26% in the pre-crisis period, ceteris paribus. Leverage and cash flow were only significant during crisis and post-crisis period. However, the marginal impact of both variables did not change much when comparing these two periods. Thus, it can be inferred that the two variables are as relevant in the

post-crisis period as they were during the crisis. Leverage has negative marginal impact and results indicate that if leverage changes by 1 unit during crisis, the probability of cutting dividends relative to omitting dividend will decrease by 12%, ceteris paribus. However, it will decrease by 11% in the post crisis period. Similarly, a unit change in leverage during crisis decrease the probability of increasing dividend relative to the probability of omitting dividend by 7%, ceteris paribus. It will decrease by 8% in the post crisis period. Cash flow has positive marginal impact and result shows that if cash flow changes by 1 unit in the crisis period, then the probability of cutting dividends relative to omitting dividend will increase by 16%, ceteris paribus. However, it will increase by 14% in the post crisis period. Similarly, a unit change in cash flow in the crisis period will increase the probability of increasing dividends relative to omitting dividend by 14%, ceteris paribus. It will increase by 15% in the post crisis period.

Although past dividend is significant throughout, results however indicates decline in its marginal impact across the sub-periods. Therefore, it exerts less influence on the payout choices in the latter period. This implies decline in the perception of past dividends as a reference point for current dividend decisions in the market. For instance, a unit increase in past dividend in the pre-crisis period will increase the probability of increasing dividend relative to the probability of omitting dividend by 20% respectively, ceteris paribus. However, it will only lead to 5% increase in the post crisis period. The determinants of the alternative payout choices revealed in the multinomial estimates will inform investors on the factors influencing firm's payout decisions. However, the marginal effect discussed above provides further information in guiding investment decisions as it provides information on the degree of influence each variable exerts on the

payout decisions. Thus, it will serve as a guide on which of the variables to focus more on when making investment decisions.

5.7.3 Robustness Check for Multinomial Logistic Regression Model

The study employs another method to investigate whether the explanatory role of the predictors changed during the crisis period. This is done by creating a time dummy for the crisis period (*DCR*), interaction terms are then generated by multiplying *DCR* with each of the explanatory variables. Table 5.19 shows the interactive effect of financial crisis. However, the main effects are also shown as "main effects are needed (like constant term) to estimate predictive values". (Tarling, 2009, p.36).

Results of the interactive effect of crisis also confirm our findings in Table 5.17 that the explanatory roles of the variables were altered during the crisis. The coefficient of the interaction terms indicate very strong similarity with the results obtained for the sub-sample "during crisis" in Table 5.17. The interaction terms found significant for outcome category 1 and 3 matches what was obtained during crisis in Table 5.17. However, there is a slight difference under outcome category 2. Unlike in the sub-sample estimates where leverage was found significant, the interaction term of leverage with crisis is not significant under this outcome. This slight difference can be attributed to the inclusion of the main effects in the model and the inclusion of crisis as a separate independent variable leading to a slight variation in the model specification[17].

[17] In unreported results, it is established that having only the interaction terms in the model without the main effect yields the same significant variables with was obtained for the sub-sample "during crisis" for all the outcome categories.

Table 5.19
Interactive Effect of Financial Crisis (Multinomial Logistic Model)

Explanatory Variables	**Base Outcome=Omit Dividend (4)**		
	(1) Cut	**(2) Increase**	**(3) Maintain**
Constant	-1.69*	-2.63***	-4.32***
Foreign Ownership	-1.05**	-1.14**	-0.20
Dividend Premium	0.14	0.89*	4.62
Retained Earnings to Total Equity	-0.09	-0.13**	-0.14**
Size	0.01	0.03*	0.02
Profitability	0.61**	0.77***	0.88***
Growth Opportunities	-0.02	-0.01	0.01
Cash flow	0.48*	0.87**	0.29
Leverage	-0.17	-0.22	-0.01
Past Dividend	0.96***	0.74***	0.74***
Crisis	0.67**	0.55*	2.18
Foreign Ownership*Crisis	-0.76	-0.61	-0.61
Dividend Premium*Crisis	0.68	0.80***	0.22
Retained Earnings to Total Equity*Crisis	0.42	0.45	0.58
Size*Crisis	0.03	0.01	0.01
Profitability*Crisis	2.50**	3.34**	3.13**
Growth Opportunities*Crisis	-0.01	-0.01	-0.01
Cash flow*Crisis	1.19**	1.06**	0.72
Leverage*Crisis	-0.49**	-0.31	-0.29
Past Dividend*Crisis	0.67**	0.61	0.67**
No. of Observations	1048	1048	1048

*significant at p<0.10; **significant at p<0.05; ***significant at p<0.01.

5.8 Additional Analysis

Further analysis is conducted to offer more explanations on dividend pattern in the Nigerian market. Thus, the study examines whether the pattern observed in dividend payment can be explained by earnings pattern. An attempt is also made to give plausible explanation for the increase in dividend payout at the early stage of the crisis (year 2008). The section also discussed possible reasons for the results obtained on retained earnings to total equity which contradicts the life cycle theory.

5.8.1 Dividend Pattern and Earnings Pattern

The study investigates dividend pattern in the Nigerian market further by observing whether the dividend pattern on the NSE can be explained by the earnings pattern. Consistent with Lintner's (1956) model, Table 5.20 provides evidence to show that dividend pattern closely tracks earnings pattern. Both followed the same trend over the entire period (except year 2005). Both dividend and earnings increased between year 2003 and 2008 and declined in the latter years. Thus, reason for the declining trend reported in the Nigerian market seems to be different from that documented for developed markets. Rise in the number of firms with attributes of a young and growing firm (lower profitability; smaller size; and higher growth opportunities) account for the decline in the US market (Fama & French, 2001). Another reason for the decline in the US market is the fact that firms started to substitute dividends for stock repurchases (Chahyadi & Salas, 2012; Julio & Ikenberry, 2004) while dividend payers reduced in the UK market as most of the former payers were acquired to form larger combined entities (Ap Gwilym *et al*., 2004). Besides other contributing factors that can be inferred from regression results, evidence points to the fact that declining trend in dividend payment in

the Nigerian market are likely due to bad economic conditions. This inference is based on findings which revealed that dividend movement follow earnings movement. Findings indicate decline in earnings in latter years. Particularly, real earnings declined over the period of study resulting from rising consumer price index. Decline in dividends on the NSE can also be regarded as an aftermath of the crisis as the decline became prominent in post crisis years.

Table 5.20
Dividend and Earnings Pattern on the NSE (2003-2012)

Year	Nominal Dividends (USD' Million)	Nominal Earnings (USD' Million)	Real Dividend (USD' Million)	Real Earnings (USD' Million)
2003	228.8	706.5	228.8	706.5
2004	241.7	849.6	210.3	739.2
2005	299.0	784.7	220.7	579.9
2006	334.2	862.5	227.9	588.2
2007	406.6	1,475.0	263.1	954.4
2008	733.6	1,903.7	425.5	1,104.2
2009	498.8	1,463.2	259.4	760.9
2010	786.3	2,378.8	359.3	1,087.1
2011	619.7	2,247.3	255.3	925.9
2012	416.7	1,858.8	152.9	687.7

5.8.2 Possible Reasons for Increase in Payout in Year 2008

Contrary to expectation that decline in dividend will be recorded during the crisis period, findings indicate considerable rise in dividend payment and proportion of firms that increased dividends in year 2008. Thus, the study investigates further the reason for the rise in dividend in that year. The contributing factors for the rise in dividend in that year may be traced to some events that took place in the market during this period as highlighted earlier in chapter 2. These include introduction of e-dividend in year 2008 and introduction of reforms in the market particularly in the financial sector prior to 2008. However, little evidence points to the fact that e-dividend that was introduced in that year can have any influence on the payout. This is because the regulatory authorities revealed that only few shareholders signed the e-dividend mandate in that year. On the other hand, the reforms that took place prior to 2008 led to the stock market recording its highest performance early in year 2008. This might have contributed to more firms paying dividend and the increase in dividend payout in that year as it is expected that appreciation in market performance may affect corporate policies positively [18].

In offering further explanations to why dividends increased in year 2008, the study seeks to know whether the increase in dividend in that year can be explained by the fact that the payers are quality firms and they are trying to signal their quality. Thus, the study investigates whether the dividend payers are quality firms relative to the non payers. First, there is need to ascertain whether or not the two categories differ in terms of their earnings over the period of study. In order to achieve this, the study conducts mean difference test (independent sample t-test) to know whether there is significant difference

[18] Regression results show positive relationship between stock market performance and the decision of firms to pay dividends.

in the mean earnings for dividend payers and non dividend payers. Results presented in Table 5.21 (based on equal variances not assumed) indicates significant difference in earnings of the two groups with earnings of payers (m=0.317, sd=1.030) and non payers (m=0.0348, sd= 0.688) and the independent t-test result shows $t(939.9)= 5.251$, $p = 0.000$. The mean figures for the two groups indicate that the dividend payers are majorly those with higher earnings compared to the non-payers. In addition, Table 5.20 provides evidence of dividend moving along the same path with earnings. Thus, the study infers that rise in dividend in 2008 also derives from the rise in earnings around that period. Nominal earnings increased by 71% between year 2006 and 2007 while it increased by 29% between 2007 and 2008. Thus, besides increase in earnings recorded in year 2008, the study also infers that the considerable rise in earnings between year 2006 and 2007 possibly resulting from the stock market reforms also had a major impact on dividend payout in 2008.

Table 5.21
Mean Difference Test for Earnings of Dividend Payers and Non-Payers

	Payer		**Non-Payer**		**95% Confidence Interval for Mean Difference**		
	Mean	Sd	Mean	Sd		t	df
Earnings	0.317	1.030	0.0348	0.688	.389, .177	5.251*	939.937

*p<.05

The study seek explanation for the rise in payout in year 2008 further by investigating whether or not the increase in dividends could be attributed to the crisis, the study envisage that probably the bulk of the payout occurred before the effect of the crisis hit the market. However, the plot of monthly stock index in Figure 5.2 provides contrary

evidence to this fact as it shows that the market index started to decline at the early stage of year 2008. Thus, we can infer that increase in dividends in year 2008 which possibly started before the onset of crisis continued after the crisis had set in. Based on the preceding, the study infers that rise in dividend payment in year 2008 is also possibly due to quality firms trying to signal their quality type at the beginning of the crisis. This is in line with the notion that firms may want to signal financial soundness even in the face of distress (Kuo *et al*., 2013).

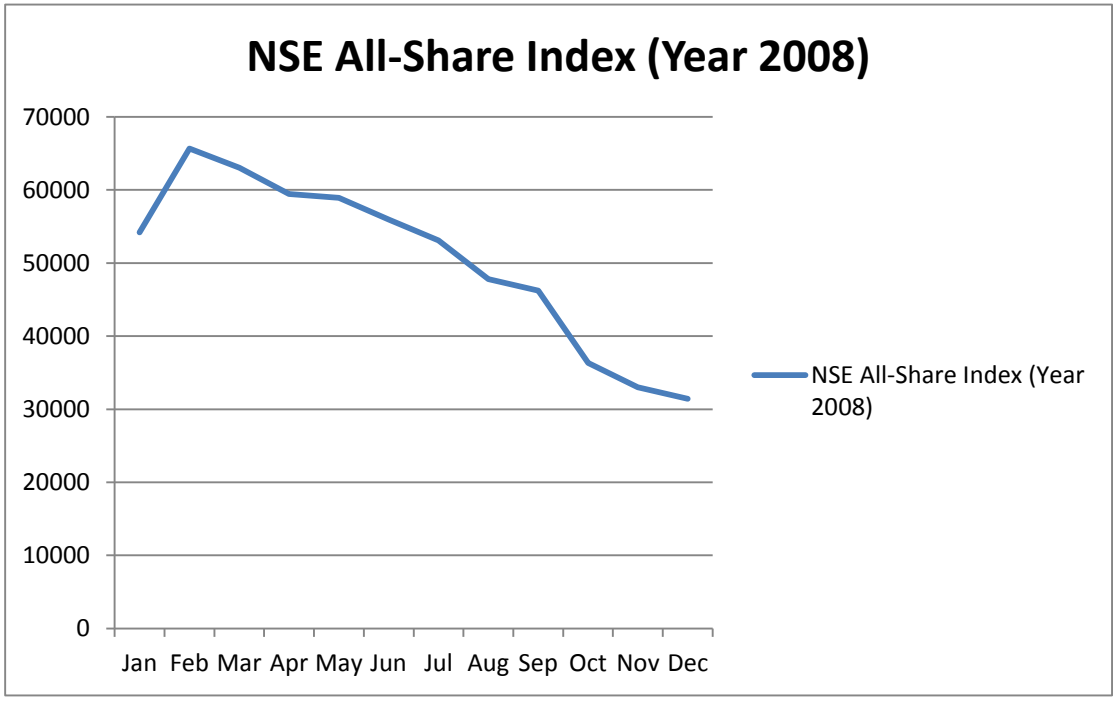

Figure 5.2
Monthly Stock Index for Year 2008 on the NSE

5.8.3 Possible Reasons for Inconsistency of Results on Retained Earnings to Total Equity with the Life cycle Prediction

Results obtained on retained earnings to total equity raises doubts as to whether the proxy is a good proxy for firm's maturity on the Nigeria Stock Exchange. The study investigates this further by looking at the correlation between retained earnings to total equity and

other maturity variables. As expected, the variable is positively correlated with other variables (larger size, more profitability) that are used to explain a firm's maturity. However, contrary to expectation, retained earnings to total equity (firms that rely more on earned capital) is positively correlated with investment opportunities. In investigating further whether the proxy could represent the firm's maturity in the Nigerian market, its effect on asset growth is also examined while other variables are controlled for in Table 5.22.

Table 5.22
Determinants of Asset growth (Fixed Effect Regression)

DV= Asset growth	
Retained Earnings to Total Equity	0.20 (0.40)
Size	-2.24*** (-2.91)
Profitability	-0.08 (-0.75)
Investment Opportunities	2.85*** (4.75)
F-stat	7.78***
No. of Obs	1048

It is expected that mature firms are low growth firms. However, contrary to expectation, retained earnings to total equity was found to be positively related with assets growth. This indicates that, retained earnings to total equity may not be a good proxy to firm's maturity in the Nigerian market. In addition, given the other attributes of a mature firm (larger size, more profitability, and fewer investment opportunities) as specified by Fama and French (2001), the study argues that on the NSE, mature firms

may not necessarily rely more on earned capital. This can also be linked to the earlier finding of Al-Malkawi (2007) which indicates that larger firms (an attribute of firm's maturity) have better ability to access capital market. Such firms can raise funds at lower cost and do not need to depend heavily on internal funding. Therefore, the study infers that retained earnings to total equity may not be a good proxy for firm's maturity in the Nigerian market.

5.9 Summary of Hypotheses Testing

Table 5.23 presents a tabular summary of the results of the hypotheses tested on the propensity to pay or not to pay dividends on the Nigerian Stock Exchange. As depicted in the table, findings of the study provide full support for four of the hypotheses raised while two of the hypotheses are partially supported. The partial support derives from the fact that the variables were found significant at an initial stage but became insignificant with the inclusion of control variables in the model. In the same vein, Table 5.24, 5.25, and 5.26 provide a summary of the hypotheses tested on the propensity to cut/increase/maintain dividend relative to the propensity to omit dividend in the pre-crisis, crisis, and post crisis period respectively.

Table 5.23

Summary of Hypothesis Testing on Propensity "To Pay" or "Not To Pay" Dividends on the Nigerian Stock Exchange

	Hypothesis	**Sign Obtained**	**Support For Hypothesis**
H_1:	Firm's propensity to pay dividend is positively related to foreign ownership	Significant(-ve)	Not supported
H_2:	Firm's propensity to pay dividend is negatively related to foreign ownership	**Significant(-ve)**	**Supported**
H_3:	Firm's propensity to pay dividend is positively related to dividend premium	Insignificant(+ve)	Not supported
H_4:	Firm's propensity to pay dividend is positively related to RE/TE	**Significant(-ve)**	Not supported
H_5:	Firm's propensity to pay dividend is positively related to profitability	**Significant(+ve)**	**Supported**
H_6:	Firm's propensity to pay dividend is positively related to size	Insignificant(+ve)	Not supported
H_7:	Firm's propensity to pay dividend is negatively related to investment opportunity	Insignificant(-ve)	**Partially supported**[19]
H_8:	Firm's propensity to pay dividend is positively related to cash flow	**Significant(+ve)**	**Supported**
H_9:	Firm's propensity to pay dividend is negatively related to leverage	Insignificant(-ve)	**Partially supported**[20]

[19] Investment opportunities was significantly negative before the inclusion of the control variables.
[20] Leverage was significantly negative before the inclusion of the control variables.

Table 5.23 (Continued)

	Hypothesis	Sign Obtained	Support For Hypothesis
H_{10}:	Firm's propensity to pay dividend is positively related to past dividend	**Significant(+ve)**	**Supported**

Table 5.24

Summary of Hypotheses on the Propensity to Cut/Increase/Maintain Dividend Relative to the Propensity to Omit Dividend on the Nigerian Stock Exchange (Pre-Crisis Period)

	Hypothesis	Expected Sign and Support For Hypothesis {Base Category= Omit Dividend (4)}		
		Cut(1)	Increase(2)	Maintain(3)
H_{11}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to foreign ownership	Significant(-ve) Not Supported	Significant(-ve) Not Supported	Insignificant(-ve) Not Supported
H_{11}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is negatively related to foreign ownership	**Significant(-ve)** **Supported**	**Significant(-ve)** **Supported**	Insignificant(-ve) Not Supported
H_{12}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to dividend premium	Insignificant(+ve) Not Supported	Insignificant(+ve) Not Supported	Insignificant(+ve) Not Supported
H_{13}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to RE/TE	Significant(-ve) Not Supported	Significant(-ve) Not Supported	Significant(-ve) Not Supported

Table 5.24 (Continued)

	Hypothesis	Expected Sign and Support For Hypothesis {Base Category= Omit Dividend (4)}		
		Cut(1)	Increase(2)	Maintain(3)
H_{14}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to profitability	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**
H_{15}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to size	Insignificant(+ve) Not Supported	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**
H_{16}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is negatively related to investment opportunities	Insignificant(-ve) Not Supported	Insignificant(-ve) Not Supported	Insignificant(-ve) Not Supported
H_{17}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to cash flow	Insignificant(+ve) Not Supported	Insignificant(+ve) Not Supported	Insignificant(+ve) Not Supported
H_{18}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is negatively related to leverage	Insignificant(-ve) Not Supported	Insignificant(-ve) Not Supported	Insignificant(+v.e) Not Supported
H_{19}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to past dividend	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**

Table 5.25

Summary of Hypotheses on the Propensity to Cut/Increase/Maintain Dividend Relative to the Propensity to Omit Dividend on the Nigerian Stock Exchange (Crisis Period)

	Hypothesis	**Expected Sign and Support For Hypothesis {Base Category= Omit Dividend (2)}**		
		Cut(1)	Increase(2)	Maintain(3)
H_{11b}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is not related to foreign ownership	**Insignificant(-ve)** **Supported**	**Insignificant(-ve)** **Supported**	**Insignificant(-ve)** **Supported**
H_{12b}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is not related to dividend premium	**Insignificant(+ve)** **Supported**	Significant(+ve) Not Supported	**Insignificant(+ve)** **Supported**
H_{1b3}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is not related to RE/TE	**Insignificant(+ve)** **Supported**	**Insignificant(+ve)** **Supported**	**Insignificant(+ve)** **Supported**
H_{14b}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to profitability	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**
H_{15b}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to size	Insignificant(+ve) Not Supported	Insignificant(+ve) Not Supported	Insignificant(+ve) Not Supported
H_{16b}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is not related to investment opportunities	**Insignificant(-ve)** **Supported**	**Insignificant(-ve)** **Supported**	**Insignificant(-ve)** **Supported**

Table 5.25 (Continued)

	Hypothesis	Expected Sign and Support For Hypothesis {Base Category= Omit Dividend (2)}		
		Cut(1)	Increase(2)	Maintain(3)
H_{17b}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to cash flow	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**	Insignificant(+ve) Not Supported
H_{18b}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is negatively related to leverage	**Significant(-ve)** **Supported**	**Significant(-ve)** **Supported**	Insignificant(-ve) Not Supported
H_{19b}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is not related to past dividend	Significant(+ve) Not Supported	Significant(+ve) Not Supported	Significant(+ve) Not Supported

Table 5.26

Summary of Hypotheses on the Propensity to Cut/Increase/Maintain Dividend Relative to the Propensity to Omit Dividend on the Nigerian Stock Exchange (Post Crisis Period)

	Hypothesis	Expected Sign and Support For Hypothesis {Base Category= Omit Dividend (4)}		
		Cut(1)	Increase(2)	Maintain(3)
H_{11a}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to foreign ownership	Significant(-ve) Not Supported	Significant(-ve) Not Supported	Insignificant(-ve) Not Supported
H_{11b}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is negatively related to foreign ownership	**Significant(-ve)** **Supported**	**Significant(-ve)** **Supported**	Insignificant(-ve) Not Supported

Table 5.26 (Continued)

	Hypothesis	Expected Sign and Support For Hypothesis {Base Category= Omit Dividend (2)}		
		Cut(1)	Increase(2)	Maintain(3)
H_{12}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to dividend premium	Insignificant(+ve) Not Supported	**Significant(+ve)** **Supported**	Insignificant(+ve) Not Supported
H_{13}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to RE/TE	Insignificant(-ve) Not Supported	Insignificant(-ve) Not Supported	Insignificant(-ve) Not Supported
H_{14}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to profitability	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**
H_{15}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to size	Insignificant(+ve) Not Supported	Insignificant(+ve) Not Supported	Insignificant(+ve) Not Supported
H_{16}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is negatively related to investment opportunities	Insignificant(-ve) Not Supported	Insignificant(-ve) Not Supported	Insignificant(-ve) Not Supported
H_{17}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to cash flow	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**	Insignificant(+ve) Not Supported
H_{18}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is negatively related to leverage	**Significant(-ve)** **Supported**	**Significant(-ve)** **Supported**	Insignificant(-ve) Not Supported

Table 5.26 (Continued)

	Hypothesis	Expected Sign and Support For Hypothesis {Base Category= Omit Dividend (2)}		
		Cut(1)	Increase(2)	Maintain(3)
H_{19}:	Firm's propensity to cut/increase/maintain dividend relative to the decision to omit is positively related to past dividend	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**	**Significant(+ve)** **Supported**

5.10 Summary of Chapter

The chapter provides the empirical results on the propensity to pay dividends among Nigerian listed firms. In order to address the research questions raised in this study, analysis of dividend patterns was conducted. Binomial panel logistic analysis as well as multinomial logistic regression was carried out. Overall, empirical result suggests that foreign ownership play a very important role in a firm's decision to pay dividends on the Nigerian Stock Exchange. This is confirmed from the robustness check where further evidence is provided that the significant explanatory role of foreign ownership is not limited to the decision to pay or not to pay. It also impacts on the amount of dividends paid. Findings also indicate that profitability and past dividend are very important determinants of dividend payout policies in the Nigerian market. This is confirmed from the consistent significance of the two variables in the binomial as well as the multinomial results. However, the explanatory role of past dividend is weakened during the crisis. Findings from the multinomial estimates indicate changes in dividend policy during the financial crisis as the explanatory roles of some variables were affected. However,

findings which revealed that the explanatory power of profitability was not affected by the crisis reinforce its importance in payout decisions on the Nigerian Stock Exchange. The significance of the dividend theories in this study implies that the Miller and Modigliani's dividend irrelevance theory is not valid. For instance, the significance of clientele theory implies that investors may not be able to create their homemade dividends as theorized in Miller and Modigliani's model. The significance of catering theory also implies that firm's response to investors demand for dividend is rewarded with a higher market valuation. Similarly, the significance of dividend smoothing hypothesis indicates that the market value firms that maintain stable dividends. Thus, the implication of these two theories also contradicts Miller and Modigliani's irrelevance theory which states that dividend has no effect on market value.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.0 Introduction

This chapter presents concluding thoughts on the study with respect to the propensity to pay dividends and what drives it on the Nigerian Stock Exchange. The chapter starts with recapitulation of findings. The chapter then proceeds to explain the contributions of the study and implications of the study to different stakeholders. The chapter concludes by discussing the limitations of the study and proffering suggestions for future research.

6.1 Recapitulation of Findings

This sub-section provides a summary of the findings in line with the research objectives formulated in chapter one. Based on 1048 firm year observations from 126 firms listed on the Nigerian Stock Exchange between year 2003 and 2012, the main findings of the study are summarized below the objectives as follows:

Objective one: To describe the pattern of dividend payment among listed firms in Nigeria during the period under study.

Findings revealed that nominal dividends increased in the final year above what was recorded in the initial year while real dividends decreased in the final year as compared to the initial year. However, findings indicate that nominal and real dividends which attained their peak in year 2010 recorded consistent decline in latter years. Thus, the study concludes that there is a change in the dividend patterns of listed firms in the Nigerian market from an upward trend in the earlier years to a downward trend in the latter years. The study fails to conclude that dividends are disappearing for two reasons:

nominal dividends in the final year exceed the amount paid out in the initial year; and downward trend in both nominal and real dividends only occurred in the latter years. Further investigation on the pattern of dividend leads the study to conclude that only few firms account for the bulk of dividends paid out on the Nigerian Stock Exchange.

Objective two: To investigate whether or not foreign ownership affect propensity "to pay" or "not to pay" dividends among listed firms in Nigeria.

Findings revealed that foreign ownership have significant negative impact on the decision to pay dividends on the Nigerian Stock Exchange. Thus, listed firms in Nigeria are less likely to pay dividends with higher level of foreign ownership. The study concludes that the increasing level of foreign ownership on the Nigerian Stock Exchange may be a major contributing factor to the declining trend in dividend payments in recent years. Thus, the study also conclude that the tax-induced clientele effect is relevant in explaining decision "to pay" or "not to pay" in the Nigerian market. The study also concludes that argument in line with the agency theory that firms are pressed to pay dividends to substitute for direct monitoring by foreign investors is not applicable in the Nigerian market

Objective three: To investigate other factors that can explain the propensity to "pay or "not to pay" dividends among listed firms in Nigeria.

Findings indicate that dividend premium has no effect on the decision "to pay" or "not to pay" dividends on the Nigerian Stock Exchange. Based on the findings, the study conclude that catering theory cannot explain the decision "to pay" or "not to pay" dividends on the Nigerian market. The study revealed that retained earnings to total

equity have significant negative effect on the decision to pay dividends by listed companies in Nigeria. Firms that rely more on earned capital as opposed to contributed capital have lower tendency to pay dividends. This finding however contradicts the predictions of the life cycle theory (proxied by RE/TE) where a positive relationship is expected. Therefore, the study concludes that life cycle theory cannot explain propensity "to pay" or "not to pay" dividends on the Nigerian Stock Exchange. Findings revealed that size is insignificant in explaining the decision "to pay" or "not to pay" dividends on the Nigerian Stock Exchange. The results obtained also indicate that profitability has significant positive impact on the decision to pay dividends while investment opportunities have a significant negative effect on the decision to pay dividends. However, investment loses its significance once other factors (crisis, stock market performance, interest rate) are controlled for. Based on these findings, the study concludes that among the characteristics of a dividend payer spelt out by Fama and French (2001), profitability is the most relevant in explaining the decision "to pay" or "not to pay" dividends on the Nigerian Stock Exchange.

Results show that cash flow is positively and significantly related to the decision to pay dividends on the Nigerian Stock Exchange. Based on this, the study concludes that the free cash flow hypothesis embedded in the agency theory is relevant in explaining the decision "to pay" or "not to pay" dividends in the Nigerian market. Findings on leverage shows that it has significant negative relationship with decision to pay dividends but loses its significance once other factors (crisis, stock market performance, interest rate) are taken into account. Thus, the study concludes that the debt level of a firm is relevant in the Nigerian market when making decisions on whether to pay or not to pay dividends.

The study revealed that past dividend has significant positive impact on the decision to pay dividends on the Nigerian Stock Exchange. Therefore, the study concludes that decision to pay dividend in the current year is largely influenced by dividend payment in the previous year, thus dividend smoothing hypothesis is relevant in explaining decision "to pay" or "not to pay" dividends on the Nigerian Stock Exchange.

Objective Four: To examine how Nigerian firms adjusted their dividend policies in response to the financial crisis of 2008.

Findings indicate that dividend payment increased at the beginning of the crisis both in nominal and real terms but fell in the second year of crisis. Further evidence which shows that proportion of firms that maintained their dividends declined in both years of crisis is a clear indication that firms adjusted their dividends in response to the crisis. The study revealed that proportion of firms that cut dividends increased in both years of crisis. This suggests a negative trend in dividend cuts during crisis. On the other hand, findings indicate dividend omissions and dividend increases took a positive direction at the beginning of the crisis with a decline in proportion of firms that omitted dividends and rise in the number of firms that increased dividends. However, both dividend omissions and dividend increases changed to a negative direction at the peak of the crisis with increase in the proportion of dividend omitting firms and decline in the proportion of firms increasing dividend levels. Based on this, the study concludes that listed firms in Nigeria adjusted their dividends in response to the financial crisis majorly through dividend cuts which recorded a negative trend in both years of crisis. Moreover, the magnitude of dividend cuts was the highest over the crisis period compared to other payout options.

Objective Five: To examine the factors that affect firm's propensity to cut/increase/maintain/omit across different sub-samples of crisis (pre-crisis; during crisis; and post crisis).

Findings indicate that foreign ownership have a significant negative impact on the decision to cut or increase dividends relative to the decision to omit dividends in the pre-crisis and post crisis period. This implies that firms with higher level of foreign ownership are more likely to omit than to pay through dividend cuts or dividend increases during these two periods. However, this is not applicable during the crisis period. Based on this, the study concludes that the crisis affected the role of foreign ownership in explaining the alternate payout choices. As for dividend premium, this study shows that the variable cannot explain the different payout choices in the pre-crisis period. However, during the crisis and in the post crisis period, dividend premium has significant positive influence on the decision to increase dividends relative to the decision to omit dividends. Thus, firms are more likely to increase than omit dividends when the dividend premium is high. Based on this, the study concludes that the catering theory is relevant in explaining decision on dividend increases relative to omission during the crisis and thereafter. In the pre-crisis period, findings show that retained earnings to total equity has significant negative effect on the decision to cut, increase, or maintain dividends relative to the decision to omit dividends. Thus, firms that rely more on earned capital are more likely to omit dividends than to pay through the other options (cut, increase, maintain) in the pre-crisis period. However, this is not applicable during crisis and in the post crisis period. Results obtained for the entire period however contradicts the life cycle theory of

dividends. Based on this, the study concludes that life cycle theory of dividend (proxied by RE/TE) cannot explain these payout choices across the different subsamples.

Findings indicate that across the different subsamples, profitability has significant positive effect on the decision to cut, increase or maintain dividends relative to the decision to omit dividends. Thus, firms with higher profitability prefer to pay through any of these options than to omit dividends. On the other hand, findings revealed that size is only significant in the pre-crisis period. Size has significant positive influence on the decision to increase or maintain dividends relative to the decision to omit dividends. Therefore, larger firms are more likely to increase than omit dividends in the pre-crisis period. However, this is not applicable during crisis and in the post crisis period. Results indicate that investment opportunities cannot explain the different payout choices on Nigerian Stock Exchange. Based on this, the study concludes that the role of profitability in predicting the payout choices is not altered by the crisis while the explanatory role of size is affected by the crisis.

The study shows that cash flow is insignificant in explaining the payout choices in the pre-crisis period. However, cash flow became significant during crisis and in the post crisis period. Result shows that cash flow has significant and positive relationship with the decision to cut or increase dividends relative to the decision to omit. This indicates that firms with larger cash flow will prefer to pay either through dividend cuts or increases than not paying at all. However, this is not applicable in the pre-crisis period. This matches the notion that firms will pay out free cash flow to reduce agency costs. Based on this, the study concludes that the free cash flow hypothesis rooted in the agency theory is relevant in explaining the payout choices during crisis and thereafter. For

leverage, it is insignificant in explaining the payout choices in the pre-crisis period. However, it became significant during crisis and in the post crisis period. Result shows that leverage has significant and negative relationship with the decision to cut or increase dividends relative to the decision to omit, indicating that firms with higher debt level will prefer to omit than to pay dividends through cuts or increases. Based on this, the study concludes that the transaction cost hypothesis is relevant in explaining the payout choices during crisis and thereafter.

The study also finds that across the different subsamples, past dividend has significant positive effect on the decision to cut, increase or maintain dividends relative to the decision to omit dividends. Firms with higher past dividend prefer to pay through any of these options than to omit dividends. The role of past dividend as a reference point for current dividend decisions is however weakened by the crisis. The study draws further conclusions from the combined evidence obtained. The study concludes that dividend decisions on the Nigerian Stock Exchange is reflective of the legal provisions on dividend payment which stipulates that dividends can only be paid out of distributable profits.

The study concludes that a shift in dividend policy of listed firms in Nigeria occurred during the financial crisis. The study also concludes that dividend policy changed during crisis in a manner consistent with the need to preserve financial flexibility as firms with higher leverage and lower cash flow have higher tendency to omit dividends during crisis. The study concludes further that some dividend policies become costly to maintain due to the crisis. Irrelevance of tax-induced clientele during crisis indicates that firms do not shape dividend policies to suit the preference of the foreign investors in such critical

period. The role of dividend smoothing which also weakened suggests that firm's ability to maintain stable dividends during crisis reduced. However, dividend policies that help preserve firms' cash flows such as transaction costs hypothesis become crucial during crisis period. Thus, firms become more concerned about maintaining adequate financial slack due to the uncertainty associated with the crisis. In addition, dividend policies that will increase firms' valuation is adopted during crisis. This is reflected in the catering theory which only became significant during the period.

6.2 Contributions of the Study

This section discusses the areas in which the present study contributes to the dividend literature. Besides considering factors that are underexplored, the study extends recent argument on dividend policy to an African market setting. The study also contributes in terms of the method employed. Thus, the contributions of the study are categorized under the following sub-headings:

6.2.1 Geographical Contribution and New Findings

Disappearing dividends phenomenon is a recent line of argument which is gaining prominence in the dividend literature. New explanations have also been offered on dividend payout policies. Catering theory offers behavioral explanation for dividend payout decisions while life cycle theory explains how dividend policy of the firm can be influenced by its stage in the financial life cycle. Studies on disappearing dividend phenomenon and tests of the implication of the catering and the life cycle theory have majorly focused on developed markets. Similarly, the scant evidence available on dividend payout during financial crisis has also concentrated on developed markets. These issues and how foreign ownership affects dividend payout remain largely

unexplored in the African region. Thus, the study contributes to existing literature by extending findings in these areas to another geographical territory. To the best of the researcher's knowledge, these issues remain unexplored in the Nigerian market.

This study extends the contributions of prior studies on dividend payout policies by providing new evidence on payout decisions of firms listed on the Nigerian Stock Exchange. The study proposed an unexplored explanation for decline in dividend payments and found that the increasing level of foreign ownership might have contributed significantly to the downward trend in dividend payments among listed firms on the Nigerian Stock Exchange. The study also found that catering theory cannot explain the initial decision to pay or not to pay dividends but the theory is very relevant in explaining decisions relating to dividend increases during crisis in the Nigerian market possibly due to the need to restore investor's confidence by using payment of dividends as a signal for sound financial condition. Unlike prior studies that found retained earnings to total equity significant with positive coefficient, the current study found it to be significant with negative coefficient. Thus, using retained earnings to total equity as proxy, the study found no evidence to support for the life cycle theory of dividend in the Nigerian market.

6.2.2 Methodological Contribution

Most studies that have examined what determines the firm's decision to pay or not to pay dividends have employed the use of pooled regression. However, this may lead to bias from unobserved heterogeneity. As indicated earlier, such bias can be dealt with using random effect or fixed effect regression (Holm *et al*., 2008). Thus, this study employs binary panel regression by estimating fixed and random effect models and using

Hausman test to determine the most efficient model. In addition, prior studies that have examined the disappearing dividend phenomenon have concentrated on just two discrete choices "to pay or not to pay". This study recognizes that the decision to pay may be further broken into dividend cuts, dividend increases or no change in dividend levels. Therefore, the study employed both binomial and multinomial logistic regression. Unlike most other studies in this area, this study verified further the validity of previous findings on propensity to pay dividends by providing more essential controls which include crisis, stock market performance and interest rate. Thus, the study controlled for factors that are not specific to the firms such as stock market performance and interest rate. Furthermore, although prior studies have observed firm's dividend payout pattern during financial crisis, however, factors affecting payout patterns during crisis period has received little or no attention. In order to address this, the study examined the explanatory factors for alternative payout choices over three different subsamples (pre-crisis; during crisis; and post crisis). This indicates the determinants of payout decisions during crisis. This also makes the present study different from prior studies in this area.

6.3 Implication for Policy and Practice

In addition to the theoretical implications discussed in the previous chapter, findings of the study also have implication for policy and practice. Findings on dividend pattern indicate that firms listed in the Nigerian market have started to maintain low dividend payout policy which suggests higher retention rate. Findings also indicate that the liberalization policy which imposes no restriction on foreign ownership except in the oil and gas sector have important implications on corporate policies. Findings suggest that firms shape their payout policies in line with the preference of foreign investors. As

indicated by the results, the foreign shareholders in the Nigerian market have low preference for dividend paying stocks. Although foreign ownership may foster growth of firms as they tend to channel funds into investment opportunities rather than payout dividends when foreign ownership is high, however, this may have negative influence on the desire of domestic investors for dividend payments. The role of domestic investors in the growth of the market should not be undermined as they are usually more stable than the foreign investors. This is due to the transient nature of foreign portfolio investment discussed earlier. Thus, the need arises for a policy that will strike a balance between attracting more foreign investors and protecting the interests of domestic investors. The study also indicates that dividend regulation in the Nigerian market affect firm's payout decisions. Results obtained on profitability and cash flow indicate that payout policies are reflective of relatively moderate compliance with dividend legislation in the market. Based on the regulation which specifies that firms can only pay dividends out of distributable profits, declining dividends reported in the market indicates that many firms listed in the market possibly do not have sufficient funds to rely on for financing dividend payment. Consequently, the growing reluctance of listed firms to pay dividends in the latter years might suggest that firm's ability to finance dividend with internal funding have become more transient in recent time. Findings of the study also indicate that firm's policies are structured towards mitigating going-concern risks during the crisis. This derives from the uncertainty associated with the crisis period which necessitates preserving financial flexibility. This is reflected in some dividend policies which became costly to maintain during the crisis and other dividend policies that help preserve cash flow which only became crucial during the crisis.

Managers will be better informed as findings indicate that dividend payout decision of firms is affected by both internal and external factors. Thus, it will be imprudent for managers to focus entirely on the firm characteristics when setting dividend policies. The determinants of dividend payout decisions as revealed by the study will serve as a guide to existing and potential investors in shaping their investment plans. The findings will help investors to understand that low dividend payments should not be misconstrued as bad performance of the firm as it might have resulted from higher level of foreign ownership. Similarly, the study will educate investors that dividend cuts during financial crisis may not be as a result of financial distress but it may be a measure adopted by the firm to preserve financial flexibility. Particularly, findings which indicate that dividend policy changed during crisis in a manner consistent with the need to preserve financial flexibility will make stakeholders to be aware that firm's financial viability and the need to mitigate going concern risks are important considerations in firm's payout policies during crisis. Given such awareness, firms will have no cause to fear negative investor's reaction as dividend reduction during crisis will be generally viewed as unavoidable to forestall future problems. Findings of this study will also provide useful information to regulatory authorities which will serve as future direction when setting rules that relates to dividend payout. In addition, the findings of the study will also serve as reference for future research which relates to dividend payout decisions.

6.4 Limitations of the Study

The study has certain limitations which readers should bear in mind. The study excluded financial firms due to the different regulatory structure and as such findings of the study may not be applicable to such firms. In addition, the study could not distinguish between

foreign institutional and foreign retail ownership due to data constraints. The study however takes comfort of the fact that foreign investors on the Nigerian Stock Exchange are predominantly institutional investors. Another limitation is that results of the study may be biased towards the largest dividend payers as findings indicate that they account for the bulk of dividends distributed in the market.

6.5 Suggestions for Future Research

In light of the findings of the study and the limitations noted, some areas which may be considered for future research are highlighted. Firstly, a similar study may be conducted on the financial sector to ascertain if the explanation for dividend payment behaviour differs in that sector or not. The area of study may be extended to other African or emerging markets to compare dividend payment behaviour among these countries. Similarly, a cross country study may be conducted between countries with high and low level of foreign ownership or between a fully and partially liberalized stock market. Future research can also examine whether foreign ownership will produce the same effect on dividend payout decisions for different tax regime. In addition, future studies can also investigate whether changes in dividend policy during crisis have any effect on the value of the firm. Another interesting area to explore for further research is to assess whether the unique behavior encountered during the present crisis period observed will reoccur if another crisis is experienced. As indicated in the earlier part of the write-up, there are diverse sectors in the Nigerian market. Although lifecycle stages are the same for all these sectors, every sector will however encounter the stages differently at a given point in time. Even firms within the same industry differ in their lifecycle stages. Therefore in testing further the implication of the lifecycle theory, subsequent studies can separate the

sample based on the lifecycle stage of the varying industries. Then, a comparison can be made between the explanatory factors for those in the growth stage and those in the maturity stage of their lifecycles.

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Appendix A: Predicted Probabilities for Binomial Logit Model

Predicted Probabilities for Binomial Logit Model

Variables	Predicted Probabilities
Foreign Ownership	0.206
Dividend Premium	0.611
Retained Earnings to Total Equity	0.476
Size	0.505
Profitability	0.623
Growth Opportunities	0.479
Cash flow	0.781
Leverage	0.401
Past Dividend	0.582
Crisis	0.617
Stock Market Performance	0.816
Interest Rate	0.625
No of Obs	698

Appendix B: Robustness Check for Binomial Logit Model (DV=Dividend / Net Income)

Determinants of Dividend Payout Decisions (Fixed Effects Logistic Regression) -DV= Dividend/Net Income

	Model 1	Model 2	Model 3	Model 4 (Random Effects)
Intercept	0.71*	0.75	0.52	-1.78
	(1.84)	(0.55)	(1.41)	(-1.13)
Foreign Ownership	-0.17***	-0.29*	-0.27*	-0.14
	(-2.67)	(-1.90)	(-1.68)	(-0.85)
Dividend Premium	0.08	0.16	0.27	0.05
	(0.46)	(0.38)	(0.21)	(0.07)
Retained Earnings to Total Equity	-0.01	-0.03	-0.03	-0.02
	(-0.08)	(-0.52)	(-0.44)	(-0.37)
Size		0.28**	0.29**	0.42***
		(2.07)	(2.16)	(5.37)
Profitability		0.18**	0.04	0.55
		(2.24)	(0.90)	(0.61)
Growth Opportunities		-0.04	-0.03	-0.01
		(-0.58)	(-0.44)	(-0.27)
Cash flow		0.73	0.64	0.83
		(0.54)	(0.48)	(0.35)
Leverage		-0.33	-0.40	-0.45
		(-0.25)	(-0.30)	(-0.20)
Past Dividend		0.28***	0.25***	0.20***
		(4.91)	(4.68)	(3.54)
Crisis			0.75	0.15
			(0.55)	(0.19)
Stock Market Perf.			0.58	0.48
			(0.23)	(1.14)
Interest Rate			0.28**	0.41***
			(2.09)	(5.11)
No of Obs	1048	1048	1048	1048

Appendix C: Robustness Check for Multinomial Logit Model (10% cut off for dividend payout choices)

Multinomial Logit Model for Dividend Payout Decisions

Explanatory Variables	Base Outcome=Omit Dividend (4)								
	Pre Crisis (2003-2007)			Crisis (2008-2009)			Post Crisis (2010-2012)		
	(1) cut	2 (increase)	3 (maintain)	(1) cut	2 (increase)	3 (maintain)	(1) cut	2 (increase)	3 (maintain)
Constant	-1.22**	-2.30***	0.17	-2.00**	-1.28**	-1.13*	-0.87	0.20	0.59**
Foreign Ownership	-2.74**	-2.59***	-0.70	-0.42	-0.73	-0.10	-0.80**	-0.22**	-0.82
Dividend Premium	0.61	0.64	0.95	0.56	0.59**	0.26	0.14	0.19	0.45
Retained Earnings to Total Equity	-1.02*	-0.76*	-0.30**	0.24	0.42	0.25	-0.11	-0.12	-0.04
Size	0.04*	0.07**	0.07*	0.04*	0.08*	0.01	0.03	0.08	0.05
Profitability	2.36***	1.41***	1.09***	1.04**	0.59**	0.62*	0.79**	2.34***	3.62***
Growth Opportunities	-0.01	-0.04	-0.06	-0.08	-0.01	-0.04	-0.07	-0.09	-0.01
Leverage	-0.05	-0.16	-0.15	-0.39**	-0.20**	-0.64	-0.74*	-0.69**	-0.37
Cash flow	0.12	0.21	0.27	0.14**	0.15**	0.55	0.16**	0.17**	0.34
Past Dividend	1.67**	2.53**	1.10***	0.93**	0.80**	0.73*	0.59**	0.69**	1.04**
No. of Observations	471	471	471	227	227	227	350	350	350

Appendix D: Relative Risk Ratio for Multinomial Logit Model

Relative Risk Ratio for Dividend Payout Decisions (MNL Model)

Explanatory Variables	Base Outcome=Omit Dividend (4)								
	Pre Crisis (2003-2007)			Crisis (2008-2009)			Post Crisis (2010-2012)		
	(1) cut	2 (increase)	3 (maintain)	(1) cut	2 (increase)	3 (maintain)	(1) cut	2 (increase)	3 (maintain)
Foreign Ownership	0.38**	0.36**	0.45	0.25	0.91	0.74	0.23*	0.30**	0.55
Dividend Premium	6.05	1.16	1.70	1.67	2.66***	1.36	1.92	9.51***	2.23
Retained Earnings to Total Equity	0.81**	0.75***	0.76***	1.38	1.36	1.49	0.72	0.89	0.94
Size	1.04	1.11***	1.06*	1.03	1.04	1.01	1.01	1.01	1.02
Profitability	3.48*	6.22***	5.60***	7.19*	7.75*	28.23**	1.54*	1.97**	1.56*
Growth Opportunities	0.96	0.97	0.98	0.99	0.99	0.99	0.96	0.97	0.99
Leverage	0.89	0.80	0.70	0.50**	0.84**	0.68	0.90**	0.71*	0.78
Cash flow	4.39	1.15	3.67	3.21**	2.74**	3.06	1.49**	1.47**	1.32
Past Dividend	10.29***	6.91***	7.10***	1.95**	1.84**	1.40**	1.67***	1.46**	1.48**
No. of Observations	471	471	471	227	227	227	350	350	350

APPENDIX E: Stata Output

.vif

Variable	VIF	1/VIF
INT	1.42	0.704045
size	1.34	0.744574
ASI	1.33	0.749638
roa	1.32	0.755623
rete	1.31	0.764307
pydps	1.28	0.779286
dcr	1.20	0.834542
prem	1.19	0.843719
cf	1.10	0.908559
inv	1.05	0.956102
foreign	1.04	0.960630
lev	1.02	0.977336
Mean VIF	1.22	

```
.test foreign prem rete size roa inv cf lev pydps dcr ASI INT

 ( 1)  [div1]foreign = 0
 ( 2)  [div1]prem = 0
 ( 3)  [div1]rete = 0
 ( 4)  [div1]size = 0
 ( 5)  [div1]roa = 0
 ( 6)  [div1]inv = 0
 ( 7)  [div1]cf = 0
 ( 8)  [div1]lev = 0
 ( 9)  [div1]pydps = 0
 (10)  [div1]dcr = 0
 (11)  [div1]ASI = 0
 (12)  [div1]INT = 0

           chi2( 12) =   61.60
         Prob > chi2 =    0.0000
```

```
. lstat

Logistic model for div1

              -------- True --------
Classified |         D            ~D  |      Total
-----------+--------------------------+-----------
     +     |       341           128  |        469
     -     |       196           383  |        579
-----------+--------------------------+-----------
   Total   |       537           511  |       1048
Classified + if predicted Pr(D) >= .5
True D defined as div1 != 0
--------------------------------------------------
Sensitivity                     Pr( +| D)   63.50%
Specificity                     Pr( -|~D)   74.95%
Positive predictive value       Pr( D| +)   72.71%
Negative predictive value       Pr(~D| -)   66.15%
--------------------------------------------------
False + rate for true ~D        Pr( +|~D)   25.05%
False - rate for true D         Pr( -| D)   36.50%
False + rate for classified +   Pr(~D| +)   27.29%
False - rate for classified -   Pr( D| -)   33.85%
--------------------------------------------------
Correctly classified                        69.08%
--------------------------------------------------


.lfit, group (10) table

Logistic model for div1, goodness-of-fit test

  (Table collapsed on quantiles of estimated probabilities)
  +--------------------------------------------------------+
  | Group |   Prob | Obs_1 | Exp_1 | Obs_0 | Exp_0 | Total |
  |-------+--------+-------+-------+-------+-------+-------|
  |     1 | 0.3447 |    18 |  18.5 |    60 |  59.5 |    78 |
  |     2 | 0.4746 |    29 |  31.6 |    48 |  45.4 |    77 |
  |     3 | 0.5639 |    32 |  41.0 |    46 |  37.0 |    78 |
  |     4 | 0.6394 |    52 |  46.2 |    25 |  30.8 |    77 |
  |     5 | 0.7113 |    59 |  52.3 |    18 |  24.7 |    77 |
  |-------+--------+-------+-------+-------+-------+-------|
  |     6 | 0.7605 |    60 |  57.1 |    18 |  20.9 |    78 |
  |     7 | 0.8071 |    58 |  60.4 |    19 |  16.6 |    77 |
  |     8 | 0.8604 |    66 |  64.9 |    12 |  13.1 |    78 |
  |     9 | 0.9257 |    68 |  68.4 |     9 |   8.6 |    77 |
  |    10 | 0.9995 |    73 |  74.5 |     4 |   2.5 |    77 |
  +--------------------------------------------------------+

       number of observations =       774


             number of groups  =        10
       Hosmer-Lemeshow chi2(12) =        11.06
                   Prob > chi2  =        0.1982
```

.linktest, nolog

```
Logistic regression                                     Number of obs   =       1048
                                                        LR chi2(2)      =     180.35
                                                        Prob > chi2     =     0.0000
Log likelihood = -403.17706                             Pseudo R2       =     0.1828

------------------------------------------------------------------------------
        div1 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        _hat |   1.099708   .1244374     8.84   0.000      .855815    1.343601
      _hatsq |  -.0682765   .0493394    -1.38   0.166      -.16498     .028427
       _cons |     .02412   .1018916     0.24   0.813    -.1755838    .2238238
------------------------------------------------------------------------------
Note: 2 failures and 0 successes completely determined.
```

.hausman fe

```
                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           .          Difference          S.E.
-------------+------------------------------------------------------------------
     foreign |   -1.146393    -.8370912       -.3093022        .1596861
        prem |    .2147274      .223794       -.0090666         .044536
        rete |   -.0904977    -.1007521        .0102544        .0226734
        size |   -.0086734     .0052244       -.0138978              .
         roa |    .4410051     .5051375       -.0641324        .1021098
         inv |   -.1145474    -.0447898       -.0697576        .0373752
          cf |   -.1527271     .1245194       -.2772465         .098621
         lev |   -.4801008    -.4140839       -.0660169        .1002876
       pydps |    .3281779     .6272101       -.2990321              .
         dcr |    .4749593     .5126144       -.0376551        .0216249
         ASI |    1.491473     1.399552        .0919213        .0636331
         INT |    .5104846     .5073258        .0031588        .0172361
------------------------------------------------------------------------------
                      b = consistent under Ho and Ha; obtained from xtlogit
          B = inconsistent under Ha, efficient under Ho; obtained from xtlogit

    Test:  Ho:  difference in coefficients not systematic

                  chi2(12) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                           =      125.50
                Prob>chi2 =      0.0000
                (V_b-V_B is not positive definite)
```

```
. mlogit  div2 foreign prem rete size roa inv lev earn pydps, baseoutcome(4)
nolog

Multinomial logistic regression                         Number of obs   =       1048
                                                        LR chi2(36)     =     265.04
                                                        Prob > chi2     =     0.0000
Log likelihood = -1148.3612                             Pseudo R2       =     0.1835
```

```
.test foreign prem rete size roa inv lev cf pydps dcr lnASI INT

 ( 1)  [1]foreign = 0
 ( 2)  [2]foreign = 0
 ( 3)  [3]foreign = 0
 ( 4)  [4]o.foreign = 0
 ( 5)  [1]prem = 0
 ( 6)  [2]prem = 0
 ( 7)  [3]prem = 0
 ( 8)  [4]o.prem = 0
 ( 9)  [1]rete = 0
 (10)  [2]rete = 0
 (11)  [3]rete = 0
 (12)  [4]o.rete = 0
 (13)  [1]size = 0
 (14)  [2]size = 0
 (15)  [3]size = 0
 (16)  [4]o.size = 0
 (17)  [1]roa = 0
 (18)  [2]roa = 0
 (19)  [3]roa = 0
 (20)  [4]o.roa = 0
 (21)  [1]inv = 0
 (22)  [2]inv = 0
 (23)  [3]inv = 0
 (24)  [4]o.inv = 0
 (25)  [1]lev = 0
 (26)  [2]lev = 0
 (27)  [3]lev = 0
 (28)  [4]o.lev = 0
 (29)  [1]cf = 0
 (30)  [2]cf = 0
 (31)  [3]cf = 0
 (32)  [4]o.cf = 0
 (33)  [1]pydps = 0
 (34)  [2]pydps = 0
 (35)  [3]pydps = 0
 (36)  [4]o.pydps = 0
 (37)  [1]dcr = 0
 (38)  [2]dcr = 0
 (39)  [3]dcr = 0
 (40)  [4]o.dcr = 0
 (41)  [1]lnASI = 0
 (42)  [2]lnASI = 0
 (43)  [3]lnASI = 0
 (44)  [4]o.lnASI = 0
 (45)  [1]INT = 0
 (46)  [2]INT = 0
 (47)  [3]INT = 0
 (48)  [4]o.INT = 0
       Constraint 4 dropped
       Constraint 8 dropped
       Constraint 12 dropped
       Constraint 16 dropped
       Constraint 20 dropped
       Constraint 24 dropped
       Constraint 28 dropped
       Constraint 32 dropped
       Constraint 36 dropped
       Constraint 40 dropped
       Constraint 44 dropped
       Constraint 48 dropped
```

```
          chi2( 36) =  133.70
        Prob > chi2 =    0.0000


. mlogtest, hausman base

**** Hausman tests of IIA assumption

 Ho: Odds(Outcome-J vs Outcome-K) are independent of other alternatives.
You used the old syntax of hausman. Click here to learn about the new syntax.

(storing estimation results as _HAUSMAN)

 Omitted |      chi2   df   P>chi2   evidence
---------+----------------------------------
       1 |   -34.357   11    1.000   for Ho
       2 |    -2.250   21    1.000   for Ho
       3 |   -26.803   11    1.000   for Ho
       4 |    26.758   21    0.179   for Ho
-------------------------------------------


.xtlogit div1 foreign prem rete size roa inv cf lev pydps dcr lnASI INT, fe
nolog
note: multiple positive outcomes within groups encountered.
note: 45 groups (350 obs) dropped because of all positive or
      all negative outcomes.

Conditional fixed-effects logistic regression   Number of obs      =       698
Group variable: coyid                           Number of groups   =        80

                                                Obs per group: min =         3
                                                               avg =       8.7
                                                               max =        10

                                                LR chi2(12)        =     78.76
Log likelihood  =  -270.0227                    Prob > chi2        =    0.0000

------------------------------------------------------------------------------
        div1 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     foreign |   -1.36403   .4848425    -2.81   0.005    -2.314304   -.4137564
        prem |   .4513266   .3459143     1.30   0.192    -.2266530    1.129306
        rete |  -.0960877    .045027    -2.13   0.033    -.1843389   -.0078364
        size |   .0191721    .018091     1.06   0.289    -.0162855    .0546297
         roa |   .4979303   .2402493     2.07   0.038     .0270503    .9688102
         inv |  -.0813608   .0515749    -1.58   0.115    -.1824458    .0197242
          cf |   1.922116   .5319074     3.61   0.000     .8795963    2.964635
         lev |  -.3993219   .2976997    -1.34   0.180    -.9828025    .1841587
       pydps |   .3292136   .1382878     2.38   0.017     .0581745    .6002527
         dcr |   .4749593   .2322179     2.05   0.041     .0198206     .930098
         ASI |   1.491473   .3852387     3.87   0.000     .7364193    2.246527
         INT |   .5104846   .0796239     6.41   0.000     .3544247    .6665446
------------------------------------------------------------------------------
```

```
. mlogit  div2 foreign prem rete size roa inv lev cf pydps dcr lnASI INT,
baseoutcome(4) nolog
note: dcr omitted because of collinearity

Multinomial logistic regression                 Number of obs   =        471
                                                LR chi2(33)     =     163.99
                                                Prob > chi2     =     0.0000
Log likelihood = -505.59979                     Pseudo R2       =     0.1395

------------------------------------------------------------------------------
        div2 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
     foreign |  -.9598517   .4359045    -2.20   0.028    -.3403815   -.0193219
        prem |   1.800433   1.288847     1.40   0.162    -.7256617    4.326528
        rete |   .2081151   .1040187    -2.00   0.045    -.4119881   -.0042422
        size |   .0491754   .0385003     1.28   0.202    -.0262838    .1246347
         roa |   1.245531   .4856797     2.56   0.010     .2936381    2.197468
         inv |  -.0362541   .0299266    -1.21   0.226    -.0949091    .0224013
         lev |  -.1218536   .4663069    -0.26   0.794    -1.035798    .7920911
          cf |   1.478874   1.233979     1.20   0.231    -.9396813    3.897429
       pydps |   2.323300   .5379901     4.32   0.000     1.268859    3.377741
         dcr |  (omitted)
       lnASI |   1.201389   2.079327     0.58   0.563    -2.874018    5.276795
         INT |   1.021683   .6495947     1.57   0.116    -.2514993    2.294865
       _cons |  -2.12246    .5922246    -3.58   0.000    -3.283198   -.9617206
-------------+----------------------------------------------------------------
2            |
     foreign |  -1.027167   .5099534    -2.01   0.044    -2.026657   -.0276768
        prem |   .1580242   .4247954     0.37   0.710    -.6745594    .9906078
        rete |  -.2834471   .0799161    -3.55   0.000    -.4400799   -.1268144
        size |   .1056871   .0320995     3.29   0.001     .0427732     .168600
         roa |   1.827946   .5649337     3.24   0.001     .7206962    2.935196
         inv |  -.0289711   .0401531    -0.72   0.471    -.1076696    .0497275
         lev |  -.2172323   .3076681    -0.71   0.480    -.8202505    .3857860
          cf |   .1389853   1.230246     0.11   0.910    -2.272253    2.550223
       pydps |   1.922116   .5319074     3.61   0.000     .8795963    2.964635
         dcr |  (omitted)
       lnASI |   1.433687   1.678932     0.85   0.393    -1.856958    4.724333
         INT |   .6255936   .5586066     1.12   0.263    -.4692552    1.720442
       _cons |  -1.329662   .4365841    -3.05   0.002    -2.185352   -.4739732
-------------+----------------------------------------------------------------
3            |
     foreign |  -.8013204   1.054332    -0.76   0.447    -2.867773    1.265133
        prem |   .5330449   .3852964     1.38   0.167    -.2221221    1.288212
        rete |  -.2794925   .0922635    -3.03   0.002    -.4603256   -.0986594
        size |   .0562233   .0344997     1.65   0.100    -.0124491    .1248955
         roa |   1.727307   .4072662     4.24   0.000     .9290802    2.525535
         inv |  -.0160233   .0223296    -0.72   0.473    -.0597884    .0277419
         lev |  -.3555516   .5499571    -0.65   0.518    -1.433448    .7223444
          cf |   1.303241   1.051000     1.24   0.215    -.8896678    3.956148
       pydps |   1.956804   .5368284     3.65   0.000     .9046402    3.008969
         dcr |  (omitted)
       lnASI |   .1235161   1.706481     0.07   0.942    -3.221125    3.468157
         INT |   .2184781   .5694115     0.38   0.701    -.8975479    1.334504
       _cons |  -1.986395   .5507986    -3.61   0.000    -3.065941   -.9068499
-------------+----------------------------------------------------------------
4            |  (base outcome)
------------------------------------------------------------------------------
```

```
. mlogit div2 foreign prem rete size roa inv lev cf pydps dcr lnASI INT,
baseoutcome(4) nolog
note: dcr omitted because of collinearity
note: lnASI omitted because of collinearity
note: INT omitted because of collinearity

Multinomial logistic regression                 Number of obs   =        227
                                                LR chi2(27)     =      61.68
                                                Prob > chi2     =     0.0002
Log likelihood = -250.43994                     Pseudo R2       =     0.1096

------------------------------------------------------------------------------
        div2 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
     foreign |  -1.400198   .9041851    -1.55   0.121    -3.172368    .3719722
        prem |   .5116516   .4826902     1.06   0.288    -.5889517    1.984255
        rete |   .3215808   .3060521     1.05   0.293    -.2782704    .9214320
        size |   .0255660   .0385400     0.66   0.507    -.0499709    .1011030
         roa |   1.973013   1.176292     1.68   0.093    -.3324775    4.278504
         inv |  -.0122157   .0151402    -0.81   0.420    -.0418898    .0174585
         lev |  -.6945435   .2826587    -2.46   0.014    -1.426943   -.1621440
          cf |   1.165572   .5375150     2.17   0.030     .1120617    2.219082
       pydps |   .6670694   .2660776     2.51   0.012     .1455669    1.188572
         dcr |  (omitted)
       lnASI |  (omitted)
         INT |  (omitted)
       _cons |  -.5006925   .5388110    -0.93   0.353    -1.556743    .5553576
-------------+----------------------------------------------------------------
2            |
     foreign |  -.0866569   .5141351    -0.17   0.866    -1.094343    .9210293
        prem |   .9836484   .2943094     3.34   0.001     .4068126    1.560484
        rete |   .3131569   .3882428     0.81   0.420    -.4477850    1.074099
        size |   .0421900   1.654475     0.03   0.980    -3.200522    3.284902
         roa |   2.047785   1.155761     1.77   0.076    -.2174653    4.313035
         inv |  -.0145449   .0194567    -0.75   0.455    -.0526794    .0235896
         lev |  -.1798517   .0819045    -2.20   0.028    -.3403815   -.0193219
          cf |   1.008735   .5256178     1.92   0.055    -.0214570    2.038927
       pydps |   .6121778   .2645738     2.31   0.021     .0936227    1.130733
         dcr |  (omitted)
       lnASI |  (omitted)
         INT |  (omitted)
       _cons |  -1.194665   .5355435    -2.23   0.026    -2.244311   -.1450190
-------------+----------------------------------------------------------------
3            |
     foreign |  -.2987241   1.295779    -0.23   0.818    -2.838404    2.240956
        prem |   .3052810   .7278424     0.42   0.675    -1.121264    1.731826
        rete |   .3960892   .4971630     0.80   0.426    -.5783323    1.370511
        size |   .0107394   .0519728     0.21   0.836    -.0911254    .1126042
         roa |   3.340264   1.639900     2.04   0.042     .1261195    6.554409
         inv |  -.0121535   .0192609    -0.63   0.528    -.0499042    .0255973
         lev |  -.3867692   .2600475    -1.49   0.137    -.8964530    .1229146
          cf |   1.121130   1.180137     0.95   0.340    -1.203289    3.485549
       pydps |   .3437630   .1370052     2.51   0.012     .3586282    2.902517
         dcr |  (omitted)
       lnASI |  (omitted)
         INT |  (omitted)
       _cons |  -2.147655   .8981539    -2.39   0.017    -3.908004   .3873057
-------------+----------------------------------------------------------------
4            |  (base outcome)
------------------------------------------------------------------------------

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```
. mlogit div2 foreign prem rete size roa inv lev cf pydps dcr lnASI INT,
baseoutcome(4) nolog
note: dcr omitted because of collinearity
note: INT omitted because of collinearity

Multinomial logistic regression                 Number of obs   =        350
                                                LR chi2(30)     =      67.96
                                                Prob > chi2     =     0.0001
Log likelihood =  -358.3364                     Pseudo R2       =     0.1166

------------------------------------------------------------------------------
        div2 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
     foreign |  -1.485665   .8646406    -1.72   0.086    -3.179329    .2099997
        prem |   .6466041   1.842286     0.35   0.726    -2.964210    4.257418
        rete |  -.3323927   .4564682    -0.73   0.467    -1.227054    .5622685
        size |   .0098489   .0191291     0.51   0.607    -.0276435    .0473412
         roa |   .4333334   .2439622     1.78   0.076    -.0448237    .9114904
         inv |  -.0353250   .0517432    -0.68   0.495    -.1367398    .0660898
         lev |  -.1107087   .0479931    -2.31   0.021    -.2047735   -.0166440
          cf |   .3968981   .2095336     1.89   0.058    -.0137803   -.8075765
       pydps |   .5136375   .1784822     2.88   0.004     .1638188    .8634561
         dcr |  (omitted)
       lnASI |   2.520342   1.895042     1.33   0.184    -1.193873    6.234557
         INT |  (omitted)
       _cons |  -1.564585   .6618150    -2.36   0.018    -12.35464   -1.136530
-------------+----------------------------------------------------------------
2            |
     foreign |  -1.204153   .5325560    -2.26   0.024    -4.512405   -.3159013
        prem |   2.254969   .5949786     3.79   0.000     1.140446    3.589491
        rete |  -.1208987   .2175959    -0.56   0.578    -.5473788    .3055815
        size |   .0098107   .0079748     1.23   0.219    -.0058196    .0254410
         roa |   .6844104   .2782156     2.46   0.014     .1254895    1.105331
         inv |  -.0281655   .0332848    -0.85   0.397    -.0934026    .0370716
         lev |  -.3461354   .2125665    -1.63   0.103    -.7627581    .0704872
          cf |   .3886108   .2036955     1.91   0.056    -.0106251    .7878466
       pydps |   .3793596   .1749668     2.17   0.030     .0364310    .7222881
         dcr |  (omitted)
       lnASI |    2.32565    1.57958     1.47   0.141     -.770269    5.421569
         INT |  (omitted)
       _cons |   2.203500   1.418627     1.55   0.120    -.5769577    4.983958
-------------+----------------------------------------------------------------
3            |
     foreign |  -.5982342   .7815044    -0.77   0.444    -2.129955    .9334863
        prem |   .8057663   .5755474     1.40   0.161    -.3594572    2.170990
        rete |  -.0580701   .2115937    -0.27   0.784    -.4727861    .3566459
        size |   .0154254   .0150153     1.03   0.304    -.0140041    .0448548
         roa |   .4518699   .2749837     1.65   0.100    -.0870882    .9908280
         inv |  -.0080547   .0425317    -0.19   0.850    -.0914153    .0753058
         lev |  -.2515509   .7031924    -0.36   0.721    -1.629783    1.126681
          cf |   .2857721   .2190376     1.30   0.192    -.1435338    .7150780
       pydps |   .3944885   .1610157     2.45   0.014     .0673783    .6015987
         dcr |  (omitted)
       lnASI |   3.137089   1.792079     1.75   0.080    -.3753222    6.649499
         INT |  (omitted)
       _cons |  -2.411016   1.931666    -1.25   0.212    -7.578946    1.678616
-------------+----------------------------------------------------------------
4            |  (base outcome)
------------------------------------------------------------------------------
```