CORPORATE OWNERSHIP, CAPITAL STRUCTURE AND FIRM PERFORMANCE IN NIGERIA, 1990 – 2015.

JOSEPH ORINYA OGEBE

B.Sc. (Econ) (ABU), MSc (Econ) Ibadan,

Matriculation Number: 159979

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CERTIFICATION

We certify that this work was carried out by Joseph Orinya OGEBE in the Department of Economics, Faculty of Economics and Management Sciences, University of Ibadan, Nigeria.

Adeolu O. Adewuyi,

Dip. Coop. Studies (Ibadan),

B.Sc. (Econ), M.Sc. (Econ), Ph.D. (Ibadan)

Chairman, Thesis Supervision Committee

Professor, Department of Economics

University of Ibadan, Nigeria

Babajide Fowowe

B.Sc. (Ilorin), M.Sc. (Leicester), Ph.D. (Kent)

Member, Thesis Supervision committee

Associate Professor, Department of Economics

University of Ibadan, Nigeria.

Mutiu A. Oyinlola

B.Sc. (OAU), M.Sc., Ph.D. (Ibadan)

Member, Thesis Supervision committee

Associate Professor, Department of Economics

University of Ibadan, Nigeria.

DEDICATION

I dedicate this thesis to God, the Almighty.

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ABSTRACT

Corporate Ownership (CO) and Capital Structure (CS) are used to mitigate agency cost and improve Firm Performance (FP). Some listed firms in Nigeria have high agency cost due to weak nature of corporate monitoring. Most studies on corporate governance only considered the direct effect of CS on FP and CO on FP, without considering the moderating role of CS in the relationship between CO and FP, at aggregate and sectoral levels. This study therefore investigated the direct effects of CS on FP, CO (foreign and domestic) on FP, as well as the moderating effects of CS in the relationship between CO and FP, at both aggregate and sectoral levels in Nigeria from 1990 to 2015.

The Modified Agency Cost Theory provided the framework. The theory captures CO and CS as elements used to mitigate agency cost and improve FP. A total of 70 firms with consistent data were selected out of 110 firms listed on the Nigerian Stock Exchange from 1990 to 2015. The CO was classified into Foreign Ownership (FO) and Domestic State Ownership (DSO). The FO and DSO were measured as the shares of foreign and domestic state shareholding. The estimation of the direct and moderating effects of CS in the relationship between FO and FP, as well as DSO and FP, were done in two stages. The first stage computed the economic measure of FP using the non-parametric Data Envelopment Analysis method. The second stage estimated a set of structural equations simultaneously, using the panel data instrumental variable regression technique. Diagnostic tests (Hausman and Hansen-Sargan tests) were used to select robust estimates. All estimates were validated at $\alpha \leq 0.05$.

The economic measure of FP averaged 30.70%. For aggregate analysis, a 1.00% increase in CS directly increased FP by 0.11%. Also, a 1.00% improvement in FO directly increased FP by 0.21%, but CS moderated this effect by the same percentage. A 1.00% increase in DSO directly reduced FP by 1.19%, while CS moderated this effect by 1.18%. The effects of FO and DSO on FP varied across sectors. On the one hand, a 1.00% increase in FO directly enhanced FP in consumer goods (0.47%), services (0.53%) and healthcare sector (1.94%). However, CS moderated the effect of FO on FP by 0.43% in consumer goods, 0.51% in services, and 1.91% in healthcare sector. On the other hand, a 1.00% improvement in DSO reduced FP by 2.30% in oil and gas and 1.39% in services sector, but CS moderated this effect by 2.28% and 1.38%, respectively. CS improved the positive impact of FO on FP and reduced the negative impact of DSO on FP.

Foreign and domestic state ownership had direct and moderating effects on firm performance in Nigeria from 1990 to 2015 due to higher capital structure. Hence, foreign and state shareholders should ensure effective corporate monitoring through higher capital structure to improve firm performance. Government should sustain its privatisation policy as this reduces inefficiencies and improves performance when higher capital structure is used.

Keywords: Ownership Structure, Capital Structure, Firm Performance, Panel Data, IV Regression.

Word count: 494

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LIST OF ABBREVIATIONS

2SLS	Two-stage least squares
3SLS	Three-stage least squares
ASeM	Alternative Securities Market
ASI	All-Share Index
BPE	Bureau for Public Enterprises
CO	Corporate Ownership
CSD	Cross Sectional Dependence
DEA	Data Envelopment Analysis
DSO	Domestic State Ownership
EFF	Firm Efficiency
ETF	Exchange Traded Funds
FGN	Federal Government of Nigeria
FO	Foreign Ownership
ICT	Information and Communications Technology
JV	Joint Ventures
LEV	Long-term leverage
LSE	Lagos Stock Exchange
NCP	National Council on Privatisation
OLS	Ordinary Least Squares
PLC	Public Limited Company
PSC	Production Sharing Contracts
ROA	Return on Equity
ROE	Return on Assets
SAP	Structural Adjustment Programme
SEC	Securities and Exchange Commission
SEM	Structural Equation Model
SLEV	Short-term leverage
SUR	Seemingly Unrelated Regression Estimation
TCPC	Technical Committee on Privatisation and Commercialization
TLEV	Total leverage

CHAPTER ONE
INTRODUCTION

1.1 Preamble

The separation of corporate ownership from control could give rise to the principal-agent cost problem. Agents (managers) are saddled with the responsibility of making decisions to promote the interest of their principals (shareholders); however, in reality, they often pursue their interests and not those of the shareholders. For instance, they may indulge in perquisite consumption or choose inputs that suit their preferences, which conflicts with the value-maximizing objective of shareholders (Berger and Bonaccorsi di Patti, 2006). The conflict of interest between corporate owners and agents often creates agency problem, which often influences decision making and firm performance. Theory suggests that internal corporate control mechanisms such as corporate ownership (Jensen and Meckling, 1976) and capital structure (Stulz, 1990) may help mitigate agency problem and improve firm value (or firm performance).

On the one hand, high capital structure[1] (or leverage ratio) is associated with high-interest payment which creates an incentive for managers to engage in optimal decisions, thus reducing agency cost[2] and increase firm value (Jensen, 1986). Also, the threat of liquidation which arises from higher capital structure may affect the manager's reputation, salaries, consumption of perquisites; thus, reducing agency cost and improving firm value (Grossman and Hart, 1982). On the other hand, corporate ownership structure may serve as an effective internal corporate control mechanism to reduce agency cost.

The effect of corporate monitoring on agency cost may vary by ownership type (foreign and state). High concentration of foreign ownership could increase effective monitoring on

[1] Capital structure also refers to leverage ratio. It is measured as the share of debt to total asset.

[2] Agency costs are corporate internal expenses incurred due to the contending interests of agents (management) and principals (shareholders).

management which may reduce the incentive of managers to expropriate shareholders wealth, hence reducing agency cost and improving firm value. Firms with high foreign concentration often employ higher leverage and may experience improved corporate monitoring. This could reduce agency cost and improve firm performance.

On the contrary, high concentration of state ownership could be associated with weak corporate monitoring, as they often have political links, engage in sub-optimal investment decisions and are undervalued by market participants (Shleifer, 1998). These may lead to higher agency cost and lower firm value.

1.2 Statement of the problem

Active monitoring is one of the major strategies used by corporate shareholders to minimize agency cost and improve firm value. Although the monitoring activities of shareholders could affect agency cost and directly influence firm value (performance), shareholders could also influence firm value indirectly through capital structure. Firms with substantial foreign ownership often have easy access to cheap foreign capital and grants, hence could be less levered. State-affiliated firms are politically connected and have easy access to more debt financing. The high leverage could serve as a monitoring mechanism to reduce agency cost and improve firm value. However, the high cost of leverage (interest rate) in most developing economies could increase operating expenses and undermine firm profitability.

According to Bloom, Majahan, Mackenzie and Roberts (2010), firms in most developing economies often experience some level of inefficiency. Firm inefficiency has been linked to agency cost which is often inevitable in most corporate businesses (Bolodeoku, 2007). In Nigeria, the growth of real output of firms slowed down by 3 percent in 2014 and contracted by about 4 percent in 2015. The decline in firm performance in Nigeria has been attributed to weak monitoring by shareholders (Adewuyi and Olowookere, 2008)

Capital structure is often used as a corporate instrument to monitor managerial behaviours, thereby reducing agency costs and improving firm value. However, the choice of an appropriate capital structure that maximizes firm value has been a fundamental problem faced

by corporate firms. This is because the high interest rate associated with leverage in most developing economies could expose firms to financial distress. Listed firms in Nigeria employ more debt financing. On average, debt constitutes about 68 percent of the total assets of firms. Leverage ratios are skewed across sectors, with firms in the Agriculture and Oil and Gas sectors employing more leverage than other sectors. The high leverage employed by firms in Nigeria could have different consequences on agency cost and firm value.

Large shareholders (corporate owners) could play a key role in mitigating agency cost problem given their ability to monitor managers and influence managerial decisions (Adewuyi and Olowookere, 2008). Despite the active monitoring role played by shareholders, both foreign ownership[3] and domestic state ownership[4] declined from 1990 to 2015. Foreign participation in the market declined from 38 percent in the early 1990s to 29 percent in 2015. State ownership waned from 4 percent in the early 1990s to less than 1 percent in 2015. The declining trend of corporate ownership could undermine the monitoring role played by shareholders, increase agency cost and reduce firm value.

From the above, the major questions of this study are:

a. What is the role of corporate ownership on firm performance?
b. Does capital structure affect firm performance in Nigeria?
c. Does corporate ownership indirectly affect firm performance?

The answer to the above questions will provide a clear understanding of the effects of corporate ownership and capital structure on agency cost and firm performance.

1.3 Objectives of the study

Broadly, this study investigated the effects of corporate ownership and capital structure on firm performance in Nigeria. Specifically, the study analysed:

a. the differences among firms in terms of corporate ownership structure, capital structure and firm performance in Nigeria.

[3] Foreign ownership refers to the share of foreign equity holdings in companies listed on the Nigerian Stock Exchange (NSE)

[4] Domestic state ownership refers to the share of states and federal government equity holdings in companies listed on the Nigerian Stock Exchange (NSE).

b. the direct effect of corporate ownership and capital structure on firm performance in Nigeria and.
c. the moderating effect (refers to indirect effect hereafter) of corporate ownership structure on firm performance.

1.4 Justification of the study

This study contributes to the existing theoretical, methodological and empirical literature in the areas of economics and finance. The direct theoretical linkage between corporate ownership and firm performance is widely known, but the indirect theoretical linkage is still underdeveloped. Studies have used the agency theory to analyse the direct impact of corporate ownership on capital structure (Anwar and Sun, 2015; Borisova, 2015; Bamiatzi *et al*. 2017), corporate ownership on firm performance (Du and Boateng, 2014; Bogart and Chaudhary, 2015; Wong and Hooy, 2018) and capital structure on firm performance (Olokoyo, 2013; Le and Phan, 2017; Ibhagui and Olokoyo, 2018), but only few studies have been able to establish the indirect impact of corporate ownership on firm performance (Le and O'Brien, 2010; Wahba, 2013; Chung *et al.*, 2018), though with a weak theoretical link. This study contributes theoretically by modifying the existing agency theory to capture how corporate ownership structure indirectly affects firm performance. To do this, the agency theory was modified by incorporating the heterogeneous nature of corporate ownership. This provided the theoretical link on the direct and indirect effects of corporate ownership (foreign and state) on firm performance.

Furthermore, most studies have ignored the two important methodological issues in the link between corporate ownership, capital structure and firm performance. First, studies have largely neglected the potential endogenous effect of corporate ownership on firm performance. The second is the reverse causal link between capital structure and firm performance. Although few studies have shown that failure to consider the endogenous relationship between corporate ownership and firm performance may yield biased regression estimates (Demsetz and Villalonga, 2001; Coles, *et. al*., 2012), this has been largely ignored in most studies. Also, studies have largely ignored the reverse causal link between firm performance and capital structure. Berger and Bonaccorsi di Patti (2006)

noted that failure to consider the reverse causal link between firm performance and capital structure may lead to simultaneity bias. Unlike previous studies, this study considered both the endogenous effect of corporate ownership (foreign and state) as well as the reverse causal link between capital structure and firm performance. This was done to have a reliable regression estimate. The reverse causal link between capital structure and firm performance was estimated using the 3SLS simultaneous equation method. This method does not only control for endogeneity in the relationship between corporate ownership and firm performance, but also allow the estimation of both the direct and indirect effects of corporate ownership on firm performance through capital structure.

In addition, this study employed a more robust method in estimating the indirect effect of corporate ownership on firm performance. Within the single-equation framework, few related studies have interacted corporate ownership and leverage indicators to determine the indirect effect of corporate ownership on firm performance (Le and O'Brien, 2010; Wahba, 2013; Chung *et al*., 2018). A major drawback of this approach is that the standard errors of the interacted term could be biased. A more acceptable procedure to ensure a robust standard error of the indirect effect coefficient is to use the bootstrapped standard errors and confidence intervals (Preacher and Hayes, 2008). To the best of my knowledge, no study has used this approach to compute the indirect effect of corporate ownership on firm performance through capital structure. This study contributes to the few studies on the corporate ownership structure, capital structure and performance by employing the Preacher and Hayes (2008) biased corrected standard error in estimating the indirect effect of corporate ownership on firm performance.

In terms of measuring firm performance, previous studies have largely considered the accounting and market value approaches, despite several criticisms (Ruan, *et al*., 2011; Shyu, 2012; Sun *et al*., 2015). In addition to the aforementioned measures, this study employed the productivity measure of firm performance (firm efficiency). This measure is based on how much output value is added to the firm by the management with which they have been entrusted. Also, the measure is of high interest to policymakers (Balsmeier and Delanote, 2015). Incorporating the productivity measure of firm performance contributes

to the existing methodological literature on capital structure, corporate ownership and firm performance.

Empirical studies on the indirect role of corporate ownership on firm performance via capital structure are scanty. Most studies focused on the link between capital structure on firm performance (Detthamrong *et al*., 2017; Olokoyo, 2013; Le and Phan, 2017; Ibhagui and Olokoyo, 2018; Ciftci *et al*., 2019), the direct effect of corporate ownership on capital structure (Anwar and Sun, 2015; Borisova, 2015; Bamiatzi *et al*., 2017), and the influence of corporate ownership structure on firm performance (Chen *et al*., 2014; Haider *et al*., 2017; Li *et al*., 2018; Ciftci *et al*., 2019). To the best of my knowledge, only three studies have examined the indirect role of corporate ownership on firm performance (Le and O'Brien, 2010; Wahba, 2013; Chung *et al*., 2018). Though, the three studies explored the indirect influence of state ownership on firm performance (Le and O'Brien, 2010); managerial ownership on firm performance (Wahba, 2013); institutional ownership on firm performance (Chung *et al*., 2018), there is no evidence on the indirect impact of foreign ownership on firm performance. This study, therefore, provides empirical evidence on both the direct and indirect impacts of foreign ownership on firm performance, and the direct and indirect impacts of state ownership on firm performance, through capital structure.

Besides, the few available studies are limited in terms of policy relevance because they mainly focused on aggregate analysis (on the entire stock market) and ignored economic policies that could affect the structure of corporate ownership. Nigeria has implemented two key policies (indigenisation and privatisation) that changed the structure of corporate ownership. This study considered the influence of these two policies and provided sectoral analyses on the direct and indirect impacts of corporate ownership on firm performance.

1.5 Scope of the study

This study focused on corporate ownership, capital structure and the performance of selected firms listed in the Nigerian Stock Exchange (NSE). The sample consists of 70 firms selected from a population of 110 firms consistently listed on NSE from 1990 to 2015. The firms and sample period were selected based on the availability of data on

relevant indicators. The start sample period corresponds with the establishment of the Companies and Allied Matters Act (1990), while the end period was truncated in 2015 as the annual reports of most companies were not published at the time of data collection. The selected firms cut across 10 major sectors based on the NSE's new classification. However, firms in the financial sector were excluded because they operate a slightly different financial accounting system[5]. Also, the ASeM sector was excluded due to the dearth of information on key variables, as the sector was launched in 2013.

1.6 Organisation of the study

The study covers five chapters. The first chapter introduces the core issues which includes: the problem statement, research objectives, justification of the study among others. A detailed background of the study and literature review are presented in the second chapter. The third chapter focuses on the theoretical framework and research methodology used in this study. Results and discussions are presented in chapter four, while the summary of the major findings, the conclusion, recommendations, contributions to knowledge and limitations of the study are presented in the fifth chapter.

[5] Financial firms report loans (debt) as assets, while non-financial firms report as liability.

CHAPTER TWO

STUDY BACKGROUND AND LITERATURE REVIEW

2.0 Introduction

This chapter consists of five sections. Section 2.1 presents the background to the study; Section 2.2 presents relevant theories that link corporate ownership and firm performance; and the theories that link capital structure and firm performance. The review of empirical literature is presented in Section 2.3 and relevant methodologies employed in previous studies were reviewed in Section 2.4.

2.1 Background

2.1.1 Overview of the Nigerian capital market

The development of the capital market in Nigeria started in 1946 when the British Colonial government floated the first security of N300,000 local loans with an interest rate of 3 percent. Although the security was successfully issued, there were fewer activities until the 15th of September 1960 when the Lagos Stock Exchange (LSE) was incorporated as a Private Liability Company (PLC).

Informal operations commenced in June 1961 inside the Central Bank building in Lagos, with four firms as market dealers: Inlaks, John Holt, C.T. Bowring, and ICON (Investment Company of Nigeria). Formal operations started in August 1961, with 19 securities listed for trading on the exchange. The securities were made up of 10 industrial loans and 6 Federal Government Bonds. The LSE was changed to the Nigerian Stock Exchange (NSE) in December 1977. Since then, more branches have been opened in Kaduna 1978, Port-Harcourt 1980, Kano 1989, Ibadan 1990, Onitsha 1990, Abuja 1999, Yola 2002 and some other major cities in the country. Although the NSE is privately owned, the Securities and Exchange Commission (SEC) provides regulatory oversight to maintain orderly and

equitable dealings in securities and protecting the market against insider trading abuses. The SEC is supervised by the Federal Ministry of Finance Budget and National Planning.

The All Share Index (ASI) and Market Capitalization are two major indicators that track the performance of all stocks listed on the NSE. Figure 2.1 shows that the ASI and Market Capitalization exhibited significant improvements over the last three decades. ASI increased from 127 index points in 1985 to peak at 57,990 index points in 2007, just before the global financial crisis. Following the global financial crisis in 2008/2009, the ASI moderated between 20,000 index points to 30,000 index points. After the crisis, the ASI picked up to close at 41,329 index points in 2013, but declined subsequently to 34,657 index points in 2014 and 28,642 index points in 2015.

The market capitalization, which measures the total market value of a company's outstanding shares of stock, grew steadily from N7 billion in 1985 to N286 billion in 1996, but declined by 7 percent to close at N263 billion in 1998. The market capitalization witnessed a steady growth from N300 billion in 1999 to N13,182 billion in 2007, after which it moderated between N7,000 and N10,000 billion and peaked at N19,077 billion in 2013. The market capitalization closed at N16,875 billion in 2014 and N17,003 billion in 2015.

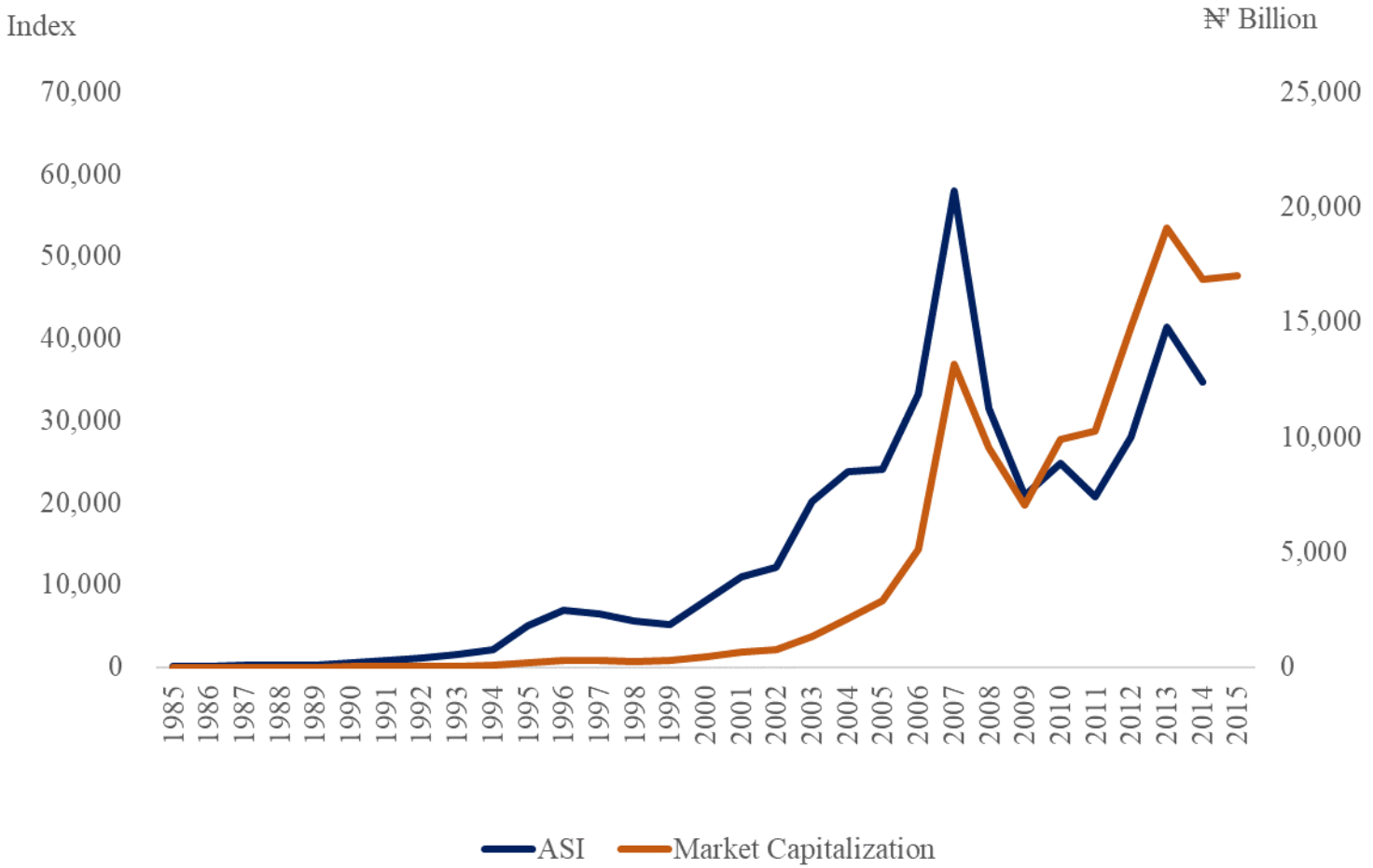

Figure 2.1: Trend of All Share Index (ASI) and equity market capitalization

Source: Author's computation with underlying data from CBN Bulletin (2017)

There are four major instruments traded in the NSE – Government Securities, Bonds/Debt, Exchange Traded Funds (ETF) and Equities. Figure 2.2 presents the distribution of government securities, bonds/debt, ETF and equities traded on the NSE from 1985 to 2015. From the figure, equities accounted for the highest contribution to total market capitalization in the last three decades. The share of equities in total market capitalization rose from 41 percent in 1985 to peak at 99 percent in 2000. However, it fell slowly from 98 percent recorded in 2001 to 71 percent in 2009 and 58 percent in 2015. Government securities accounted for a relatively large proportion of total market capitalization before the early 1990s. It declined slowly from 53 percent recorded in 1985 to 1 percent in 1996 through 1999. In 2002, the share of government securities in total market capitalization increased from 2 percent to 29 percent in 2009, and further to 41 percent in 2015. Other securities such as bonds/debt and ETFs represent a small proportion of total market capitalization.

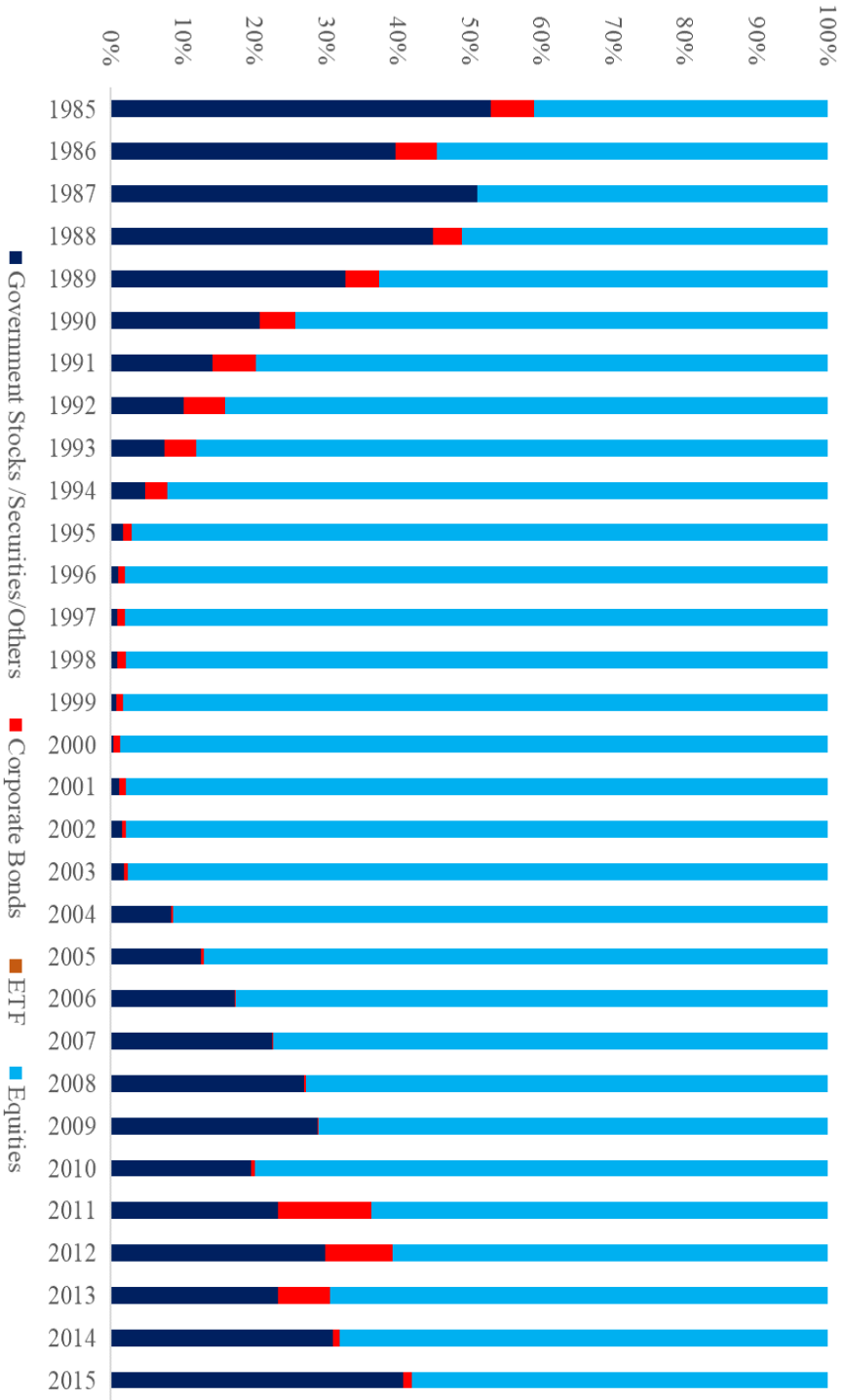

Figure 2.2: Distribution of market capitalization by major instruments traded in the NSE
Source: Author's computation with underlying data from CBN Bulletin (2017)

2.1.2 Overview of the Nigerian policy environment - indigenisation and privatisation policies in Nigeria

(i) Overview of indigenisation policy in Nigeria

The Nigerian government promulgated the Nigerian Enterprises Promotion (NEP) Decree of 1972 to reduce overdependence on foreign economies and allow Nigerians to participate actively in the industrial sector of the economy. The NEP Decree, also known as Indigenisation Decree, was aimed at creating an independent economy with increased opportunities for indigenous Nigerian businessmen; ensuring greater retention of profits accruing from the economic sector and encouraging further foreign investment in the sophisticated area of intermediate and capital goods production. The Decree promulgated two schedules to cover two categories of enterprises.

Schedule I contains the list of enterprises exclusively reserved for Nigerians. In the schedule, 22 enterprises were selected exclusively for Nigerians. Schedule II contains enterprise partially barred to foreign investors. In schedule II, foreign nationals were barred from participating under certain conditions (size and level of indigenous participation). The schedule outlined 33 other enterprises, out of which foreigners can own at most 40 percent and Nigerians at least 60 percent (Ogbuagu,1983)

Following the numerous criticisms of the NEP Decree and the change of government in 1975, the 1972 Decree was revised in 1977. The revised policy reviewed the equity share of indigenous Nigerians in the productive and commercial sectors. Specifically, it added schedule III which stipulated that Nigerians must have at least 40 percent participation in very large capital-intensive sectors.

Furthermore, the government promulgated the Nigerian Investment Promotion Commission (NIPC) Act of 1995 to monitor and promote the inflow of foreign investment activities in Nigeria. As opposed to the restriction of foreign participation in the NEP Decrees of 1972 and 1977, the NIPC 1995 Act permits 100 percent foreign ownership of firms in all sectors, except for the Oil and Gas sector where investment was limited to Joint Ventures (JV) agreement or Production Sharing Contracts (PSC). In addition, foreign

investors were also barred from investing in some sectors that were considered vital to national security such as firearms, ammunition and military as well as paramilitary apparel.

(ii) Overview of privatisation policy in Nigeria.

The history of privatisation in Nigeria can be traced back to 1986 when the Structural Adjustment Programme (SAP) was first introduced in the country. The privatisation programme in Nigeria can be classified into three broad phases.

Phase I (1988-1993): This characterizes the introduction of the privatisation programme in the country. It rests on the promulgation of the Privatisation and Commercialization Decree 25 of 1988. The Decree established the Technical Committee on Privatisation and Commercialization (TCPC) which provided the regulatory basis for the privatisation programme with a mandate of privatizing 111 public enterprises and commercializing 35 others. However, the committee submitted its report which revealed that only 88 out of the 111 enterprises were privatized. The first phase of privatisation and commercialization yielded some significant results as most enterprises were effectively privatized.

Phase II (1993 to 1999): Upon the completion of the TCTC in 1993, the Privatisation and Commercialization Decree of 1988 was repealed. In 1993, the government promulgated the Bureau for Public Enterprises (BPE), Decree No. 78. The BPE replaced the TCTC and this marked the second phase of privatisation and commercialization in Nigeria (1993 to 1999). However, the second phase of the privatisation programme was short-lived due to the structural imbalances in the distribution of shares between the North and South of Nigeria. It is not on record that the BPE, which replaced the TCTC concluded any transaction during the period.

Phase III (1999): The announcement of Public Enterprises (Privatisation and Commercialization) Decree No. 28 in 1999 marked the commencement of the third phase of privatisation and commercialization in Nigeria. In December 1999, President Olusegun Obasanjo further strengthened the program by institutionalizing the National Council on Privatisation (NCP). It may be noted that the third phase yielded tremendous results which improved productivity, employment and economic growth. Tables 2.1 presents the number of concluded transactions, current and upcoming transactions from 2000 to 2009 by sector and transaction strategy.

Table 2.1: Number of concluded transactions, current and upcoming transactions from 2000 – 2009.

	Concluded Transactions							Current transactions				Upcoming transactions	
	Asset sale	Concession	Core investor	Liquidation	Private placement	Share flotation	Total	Concession	Core investor	Liquidation	Total	No. of firms	Total upcoming
Agriculture	0	0	3(0)	0	0	0	3(0)	0	0	0	0	0	0
Industry	1(0)	17(100)	30(4.4)	10(0)	11(7.3)	1(0)	70(27.8)	0	9	0	9	0	0
Services	9(0)	26(96.2)	13(18.1)	1(0)	1(20)	4(0)	54(52)	0	0	1	2	6	6
Total	10(0)	43(97.6)	46(8.6)	11(0)	12(8.7)	5(0)	127(38.5)	1	9	1	11	6	6

Note: Average of post-privatisation of FGN Holding (percent) in parenthesis

Source: BPE Online Report, Author's Computation (2018)

2.1.3 Corporate ownership structure of listed firms in the NSE

This section presents the distribution of corporate ownership in Nigeria. In line with recent studies, corporate ownership in this study refers to the percentage of shareholding held by investors. Two major types of corporate ownership are considered- foreign ownership (FO) and domestic state ownership (DSO).

Figure 2.3 presents the distribution of corporate ownership of listed firms from 1990 to 2015. On average, foreign investors had about 33 percent of equity shares in Nigeria. Before the NIPC Decree of 1995, which restricted the degree of foreign participation in the economy, foreign participation in the NSE was relatively high as it averaged 34.7 percent. Despite the repeal of the NEP Act in 1995, foreign presence in the NSE declined to 30.3 percent in 1995. Foreign ownership hovered around 31 percent between 1996 and 2006, while in 2008 and 2009, it dipped marginally to 28 percent. The decline was attributed to the 2008 financial crisis. The 2008 financial crisis led to a gradual withdrawal of foreign portfolios from the NSE, this negatively affected trading[6] activities in 2008 and 2009. Foreign participation rebounded to around 30 percent between 2013-2015.

State ownership in the NSE has remained minimal over time, with significant declines in recent years. During the first phase of privatisation and commercialization (1988-1993), the share of state ownership in the market was about 3.5 percent. It may be noted that state participation in the market peaked at 4.0 percent in 1991, however, it gradually declined to 2.8 percent in 1993. The low state ownership during this period may be attributed to the privatisation and commercialization activities which saw about 88 government-owned enterprises out of the 111 enterprises privatized.

In the second phase of privatisation and commercialization (1994-1999), state ownership remained relatively constant at less than 3 percent, while on average, it was 2.5 percent of total equities in the NSE. The relatively constant amount of state participation in the NSE indicates that not much privatisation was done in the period. Moreover, in the third phase (1999), government ownership dropped significantly from 2.2 percent in 1999 to 0.4 percent in 2006 and 0.1 percent in 2014.

[6] The volume of stock traded drastically fell by about 47 percent in 2008 and 9.3 percent in 2009.

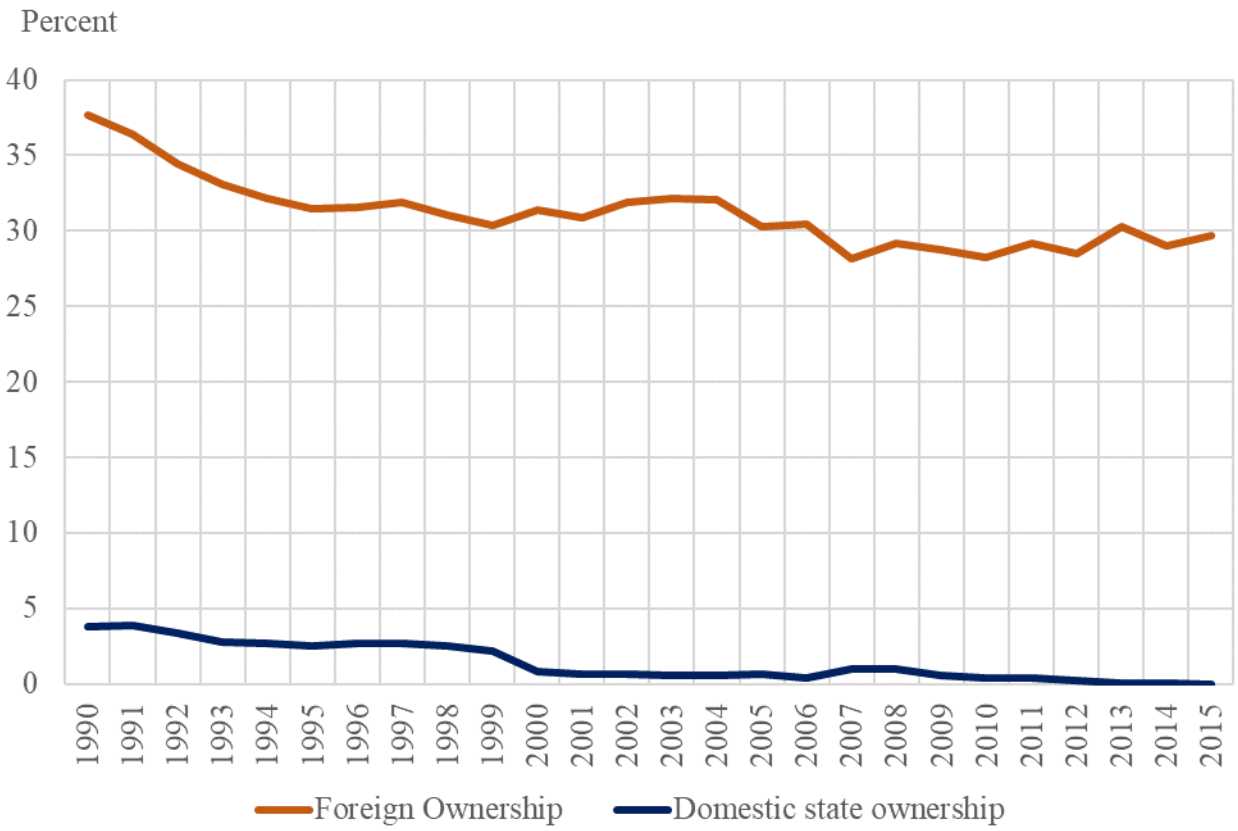

Figure 2.3: Distribution of corporate ownership (foreign and state) of listed firms in Nigeria

Source: Author's computation (2017)

The distribution of foreign ownership across sectors is presented in Figure 2.4a. From the figure, the trend of foreign ownership varies across sectors. Foreign ownership increased in three out of the ten sectors considered. Specifically, it rose over time in the Oil and Gas, Construction and Natural Resources sectors. The level of foreign ownership in few sectors such as Services, Healthcare, Industrial Goods, ICT, Agriculture and Conglomerate declined over time. This decline could be linked to the weak macroeconomic/trade policies implemented during the period.

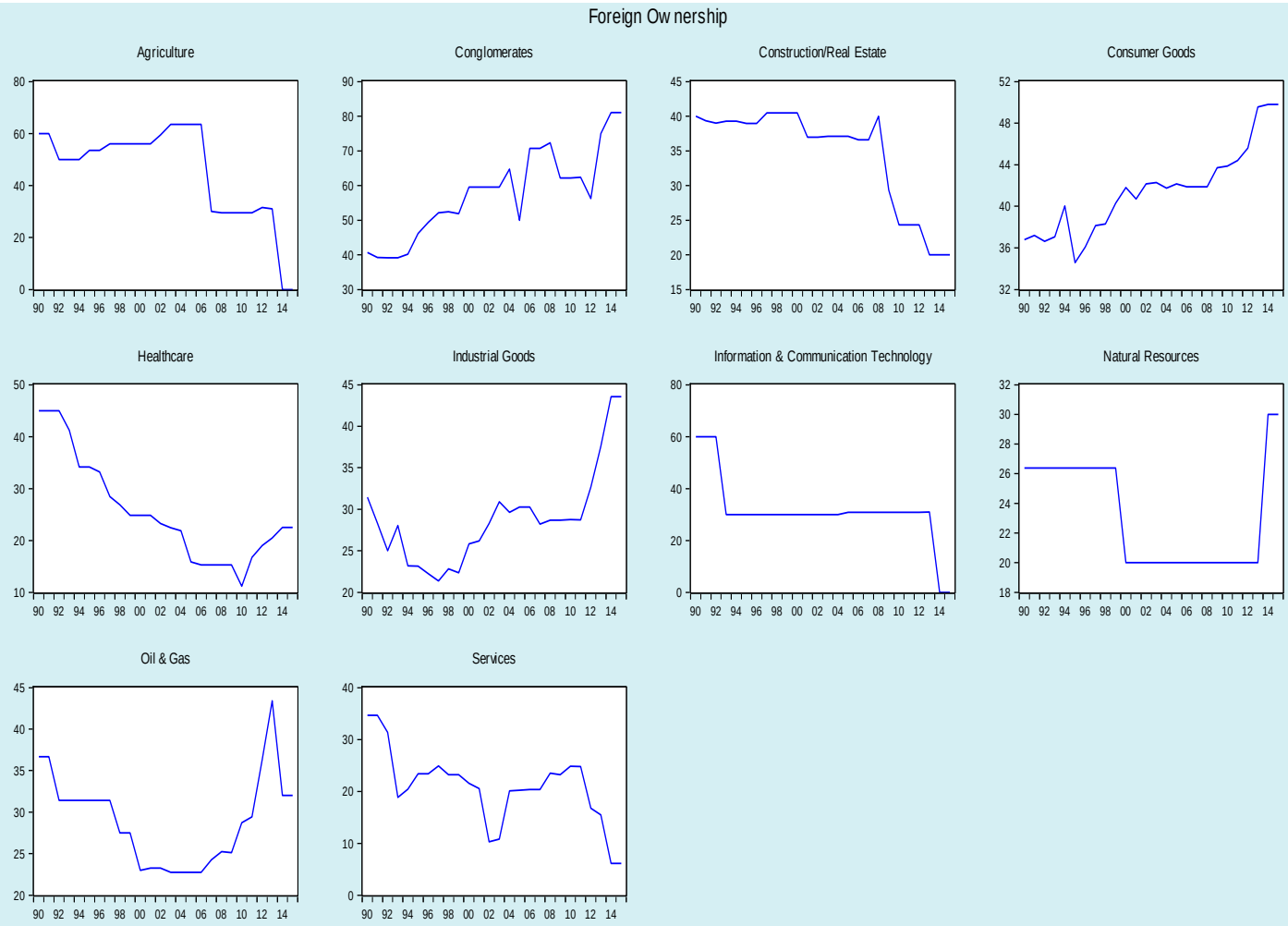

Figure 2.4a: Sectoral trend of average foreign ownership (percent) (1990-2015)

Source: Author's computation (2017)

As shown in Figure 2.4b, domestic state ownership remained low over time, with spontaneous increases observed in some periods. Domestic state ownership was less than 0.05 percent in the Healthcare, Conglomerate and Services sectors. Also, it was below 0.07 percent and 0.25 percent in the Industrial Goods and Oil and Gas sectors respectively. State ownership was minimal in most sectors (construction, Natural Resources and ICT, Agriculture and Consumer Goods).

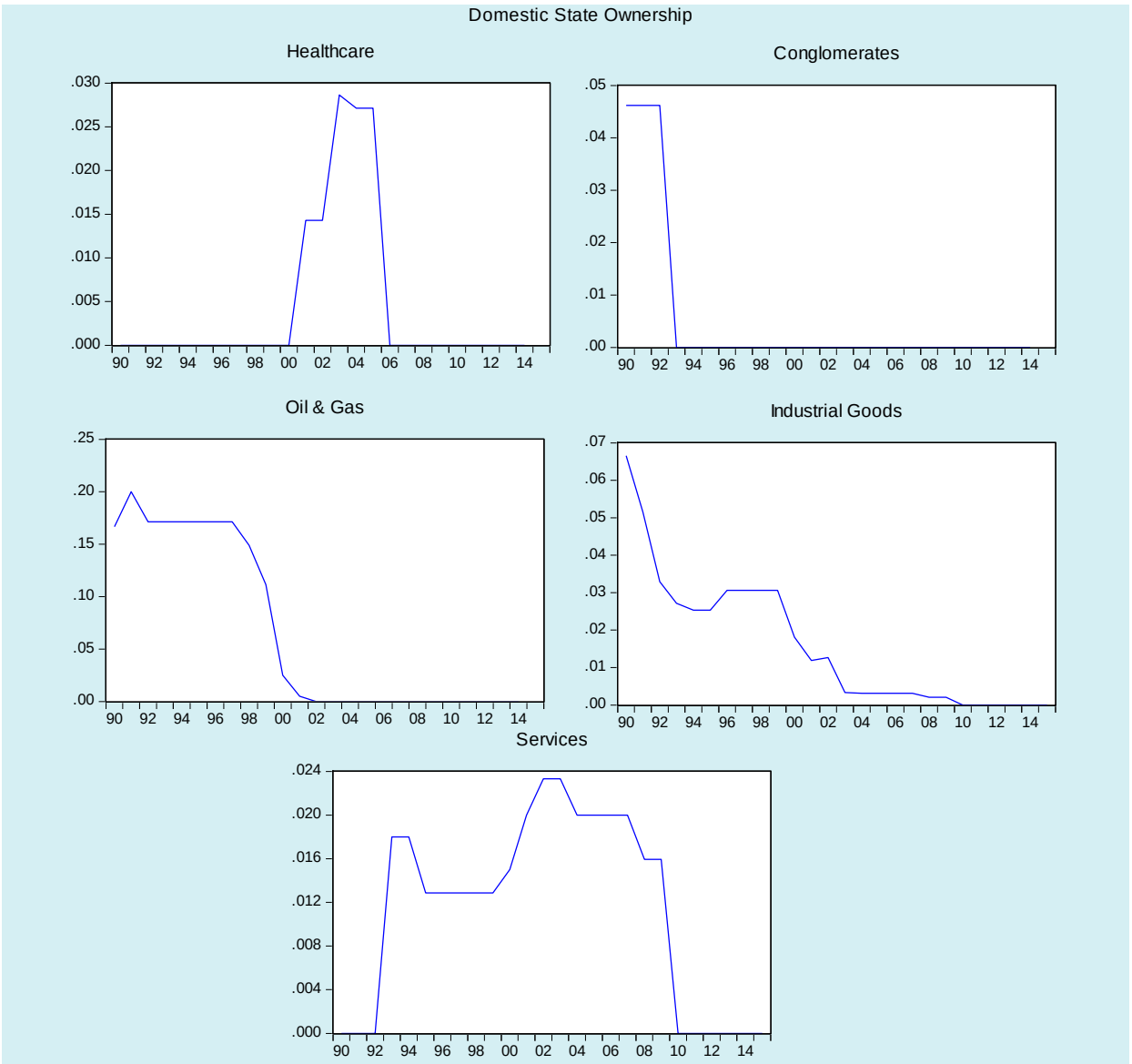

Figure 2.4b: Sectoral trend of average domestic state ownership (percent) (1990-2015)

Source: Author's computation (2017)

2.1.4 Capital structure of listed firms in NSE

The total value of capital during the sample period was N44.06 billion, out of which N22.12 billion (50.22 percent) was recorded as debt, while N21.93 billion (49.78 percent) constituted equity financing. Figure 2.5 presents the distribution of capital structure of listed firms from 1990 to 2015. From the figure, total leverage fluctuated over time with a significant decline during 2008/2009, largely due to the global financial crisis. On average, the total leverage accounted for 67 percent of total assets, this is consistent with the 63 percent reported in Ogino and Ukaegbu (2015). Short term leverage increased from 47 percent (78.2 percent of total leverage) in 1990 to 58 percent (89.9 percent of total leverage) in 1995, when foreign participation in the economy was reviewed upwards to 100 percent. After it peaked at 81 percent (86.7 percent of total leverage) in 2003, a gradual decline was observed as it dropped to 52 percent (75.8 percent of total leverage) in 2008 and 45 percent (71 percent of total leverage) in 2015. On average, the short-term leverage was 57 percent of the total asset (81.4 percent of total leverage). This is close to 64 percent reported by Ezeoha and Okafor (2010). Long-term leverage declined from 13 percent (21.8 percent of total leverage) in 1990 to 8 percent (9.6 percent of total leverage) in 2000 but increased over time with mild fluctuations. On average, it was 11.7 percent (18.6 percent of total leverage), which corresponds with 16 percent reported by Oino and Ukaegbu, (2015), suggesting that the listed firms in Nigeria were less levered in terms of long-term debt.

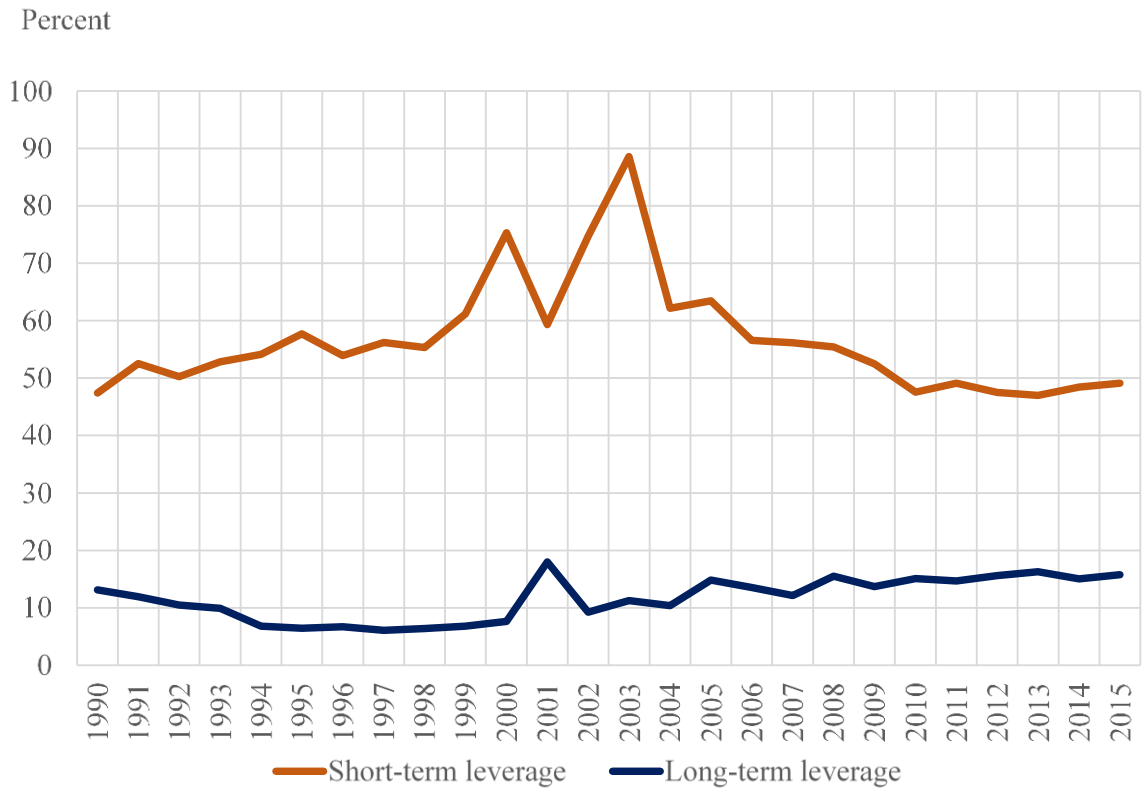

Figure 2.5: Aggregate capital structure of listed firms in Nigeria
Source: Author's computation.

As shown in Figure 2.6a, the short-term leverage ratio in most sectors fluctuated over the years. The industrial trend analysis reveals that short-term leverage in Agriculture, Construction, Conglomerates, Oil and Gas and Services, Industrial Goods, ICT and Natural Resources had a steep decline around 2008-2010 period. The decline in short-term leverage could be linked to the global financial crisis which affected financial liquidity in the market.

Figure 2.6a: Sectoral trend of average short-term leverage (1990-2015)

Source: Author's computation (2017)

Figure 2.6b shows the trend of long-term leverage of various sectors from 1990 to 2015. The figure shows that despite the mild fluctuations, long-term leverage in the Agriculture, ICT, Oil and Gas have remained relatively low over the years. Upward trends were observed in the health care, Consumer Goods, Services, Conglomerate, Industrial Goods and Natural Resources sectors. This suggests that firms in these sectors increased their leverage over time.

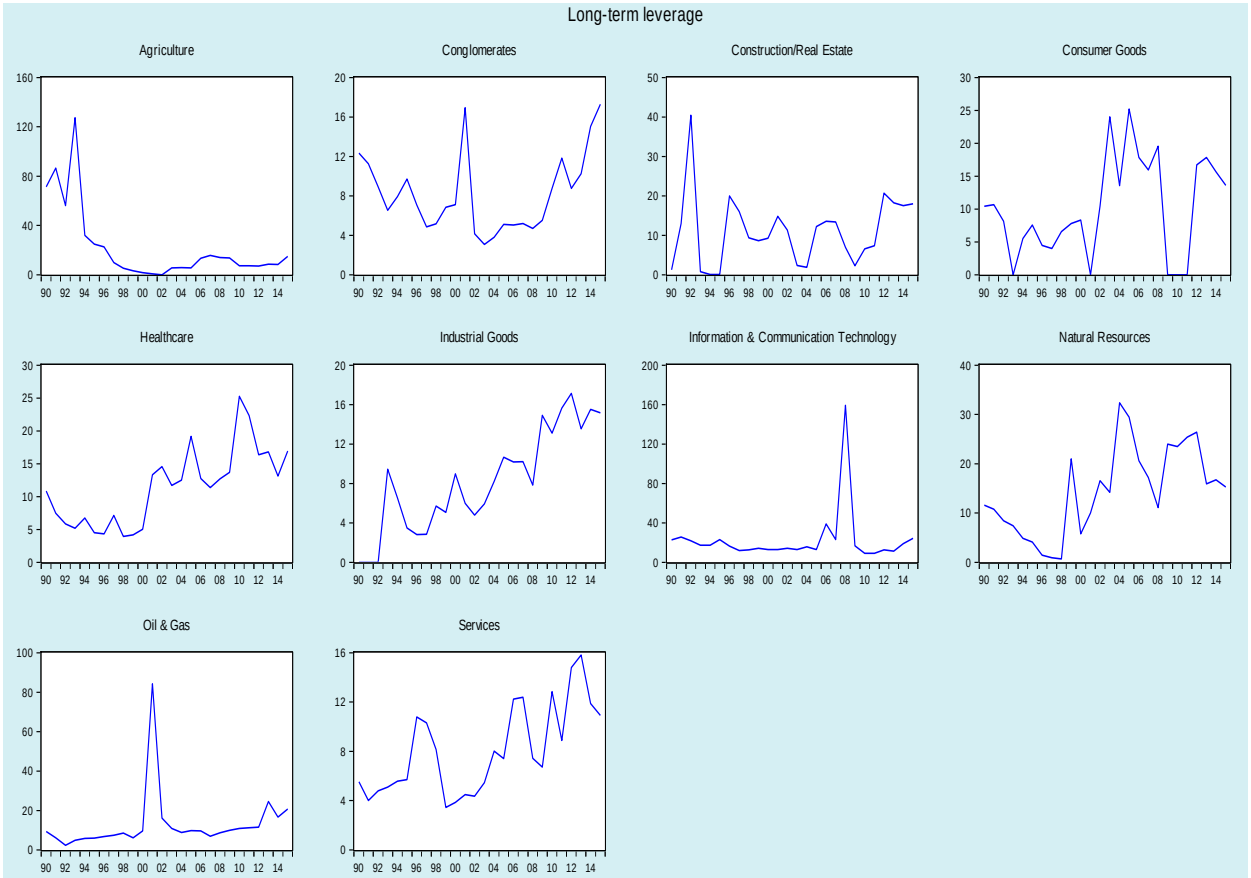

Figure 2.6b: Sectoral trend of average long-term leverage (1990-2015)

Source: Author's Computation (2017)

2.1.5 Performance of listed firms in NSE

This study considered three major indicators of firm performance. First is the accounting/financial measure proxied by ROA and ROE, while the others are market value measure proxied by Tobin's Q and productivity measure proxied by real output growth, growth in capital and labour productivity. These indicators are discussed below.

(i) Financial performance measures (ROA and ROE)

Figure 2.7 presents the distribution of ROA and ROE of selected listed firms from 1990 to 2015. As depicted in the figure, ROA and ROE maintained a similar trend, as they declined over time, amid mild fluctuations. ROA of listed firms grew from 8.9 percent to peak at 15.1 percent in 1994. However, it declined slowly from 14.5 percent in 1993 to 1.7 percent in 2015. On average, ROA was 6.6 percent, suggesting that firms' profit accounted for 6.6 percent of their total assets. This is close to 7.6 percent and 9.1 percent reported by Ganiyu (2015) and Ezeoha and Okafor (2010), but differs significantly from 16.1 percent reported by Oino and Ukaegbu, (2015). ROE rose from 16.0 percent in 1990 to 44.3 percent in 1994, where it peaked. In subsequent periods, it fell from 42.3 percent in 1995 to an all-time low of 1.3 percent in 2015. On average, ROE stood at 19.7 percent.

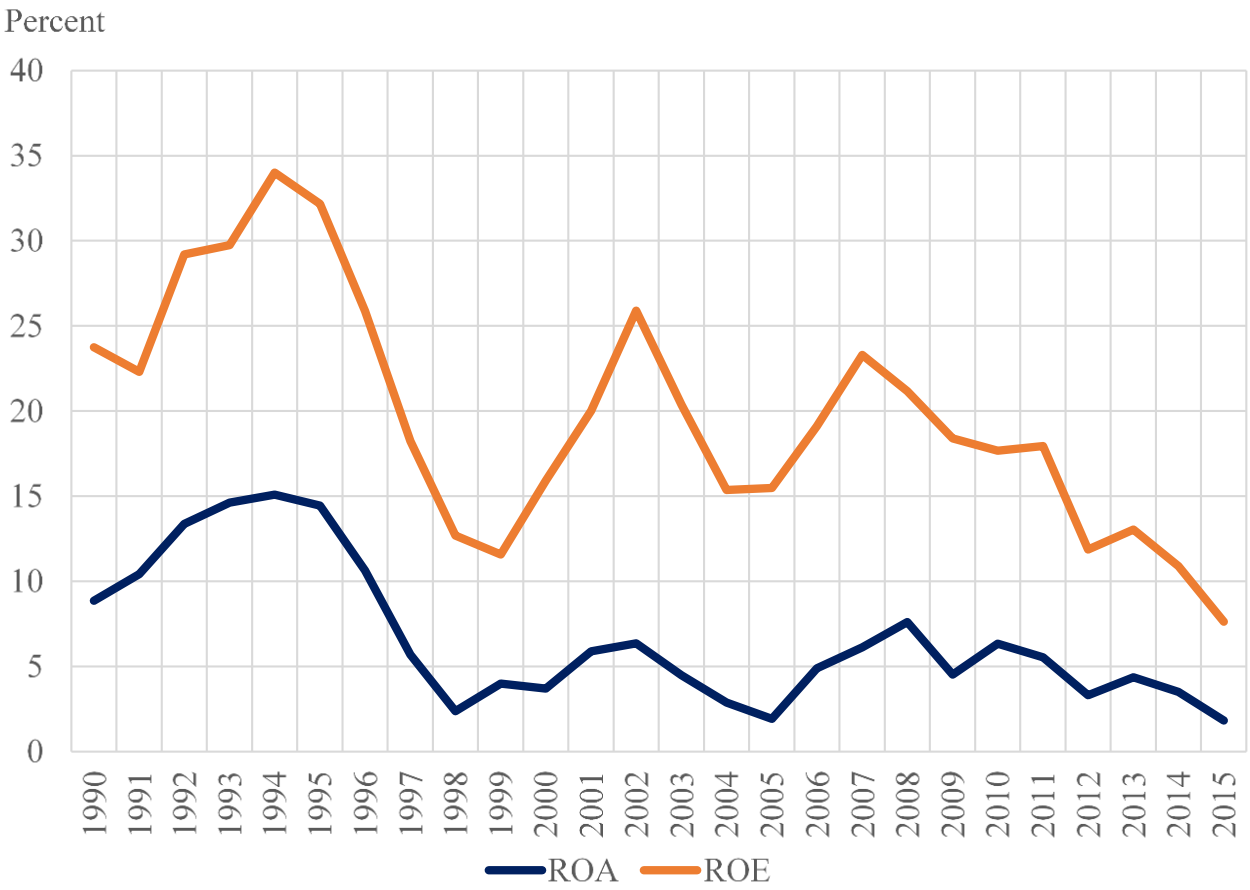

Figure 2.7: ROA and ROE of listed firms in Nigeria
Source: Author's computation.

Figure 2.8a presents the sectoral trend analysis of ROA from 1990 to 2015. ROA of firms in various sectors grew prior to 1995/1996, but a steady decline was observed from 1997 to 2015. For instance, in the Agricultural sector, ROA increased from 4.4 percent in 1991 to 13.8 percent in 1995, but, dipped to 6.1 percent in 2015. Other sectors such as Oil and Gas, Industrial Goods, Conglomerate, Consumer Goods, Healthcare, ICT, Natural Resources and Services had a similar trend.

Figure 2.8a: Sectoral trend of average ROA (1990-2015)

Source: Author's computation (2017)

The sectoral distribution of firm performance measured by ROE is presented in Figure 2.8b. As depicted in the figure, ROE fluctuated over the years, with a significant contraction in most sectors around 1998/2000. For instance, ROE contracted in the Construction and Natural Resources sectors in the period 1998. In 1999, it contracted in Conglomerate and Industrial Goods sectors while significant contractions were observed in the Agriculture, Healthcare, ICT and Natural Resources sectors in the period 2000. These periods correspond to the pre/post-election period in the country.

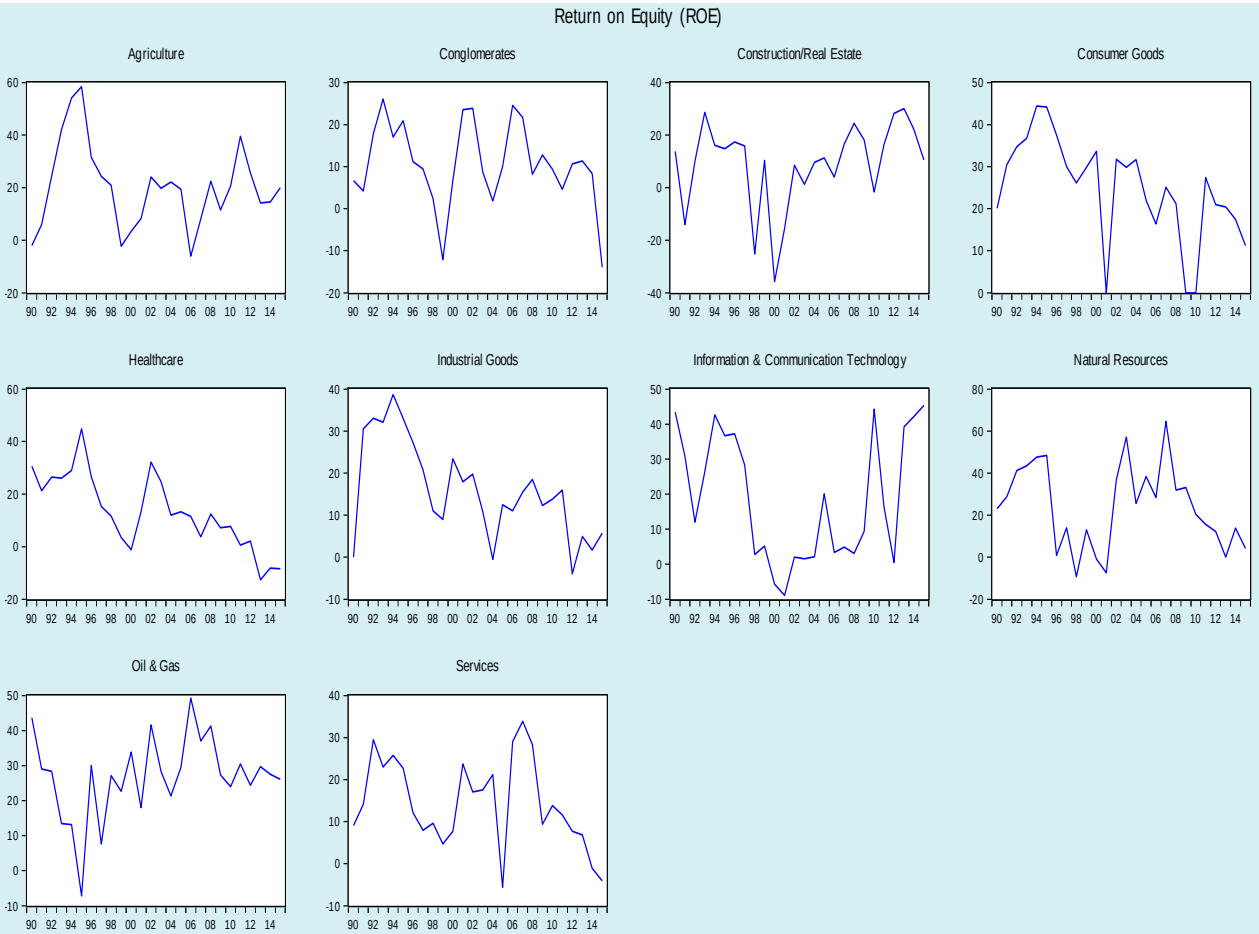

Figure 2.8b: Sectoral trend of average ROE (1990-2015)

Source: Author's computation (2017)

(ii) Market value measure of firm performance (Tobin's Q).

As depicted in Figure 2.9, Tobin's Q trended upwards prior to the period of 2008. Tobin's Q grew from 0.40 in 1990 to peak at 1.95 in 2007 and declined to 1.08 in 2009. The sharp decline corresponds to the global financial crisis period. Furthermore, Tobin's Q fell from 1.17 in 2010 to 0.85 in 2015. On average, Tobin's Q value is higher compared to the average reported by Driffield *et al*. (2007) for Indonesia (0.35), Korea (0.22), Malaysia (0.46) and Thailand (0.35), but, lower than the value reported by Wahba (2003) for Egypt (4.38).

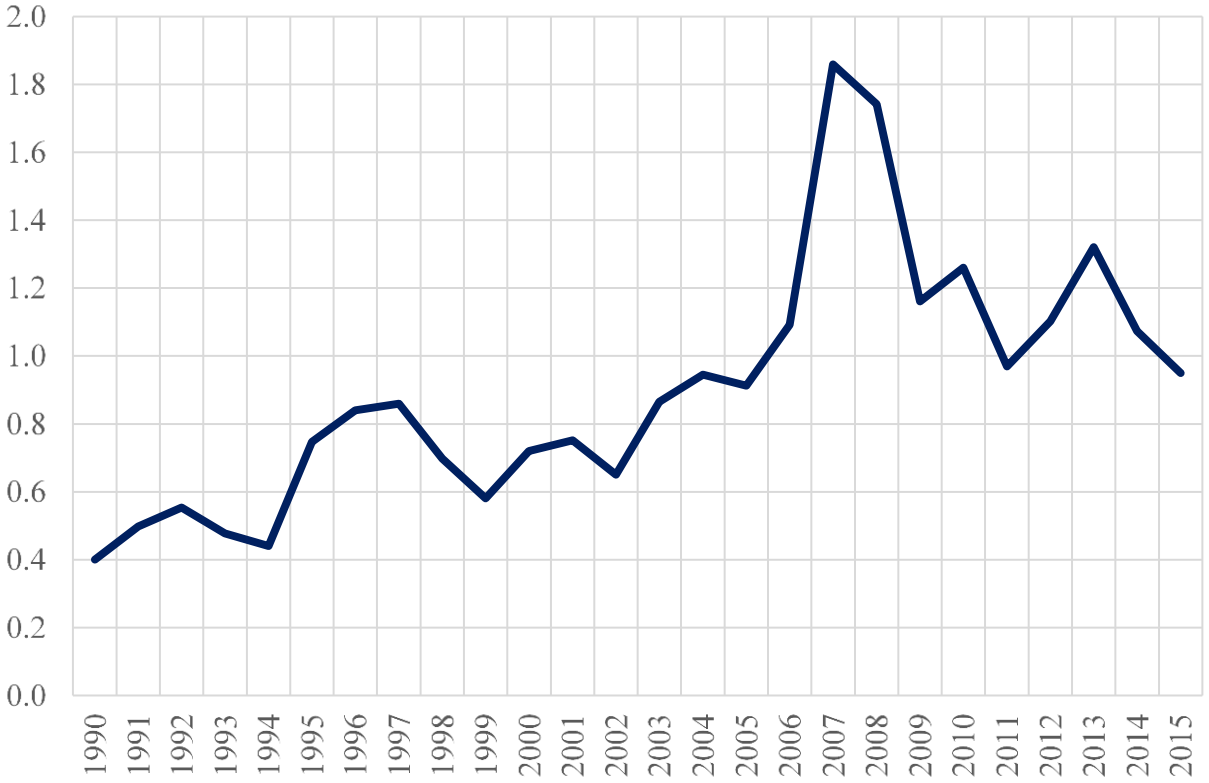

Figure 2.9: Aggregate Tobin's Q of listed firms in Nigeria
Source: Author's computation.

The sectoral trend distribution of Tobin's Q is presented in Figure 2.10. The trend reveals that most sectors experienced improved market value over the years. Tobin's Q increased in the Agriculture, Industrial Goods, Construction, Consumer Goods, Natural Resources and Services sectors despite the mild fluctuations. Tobin's Q declined in the ICT sector, while significant fluctuations were observed in Healthcare, Conglomerate and Oil and Gas sectors.

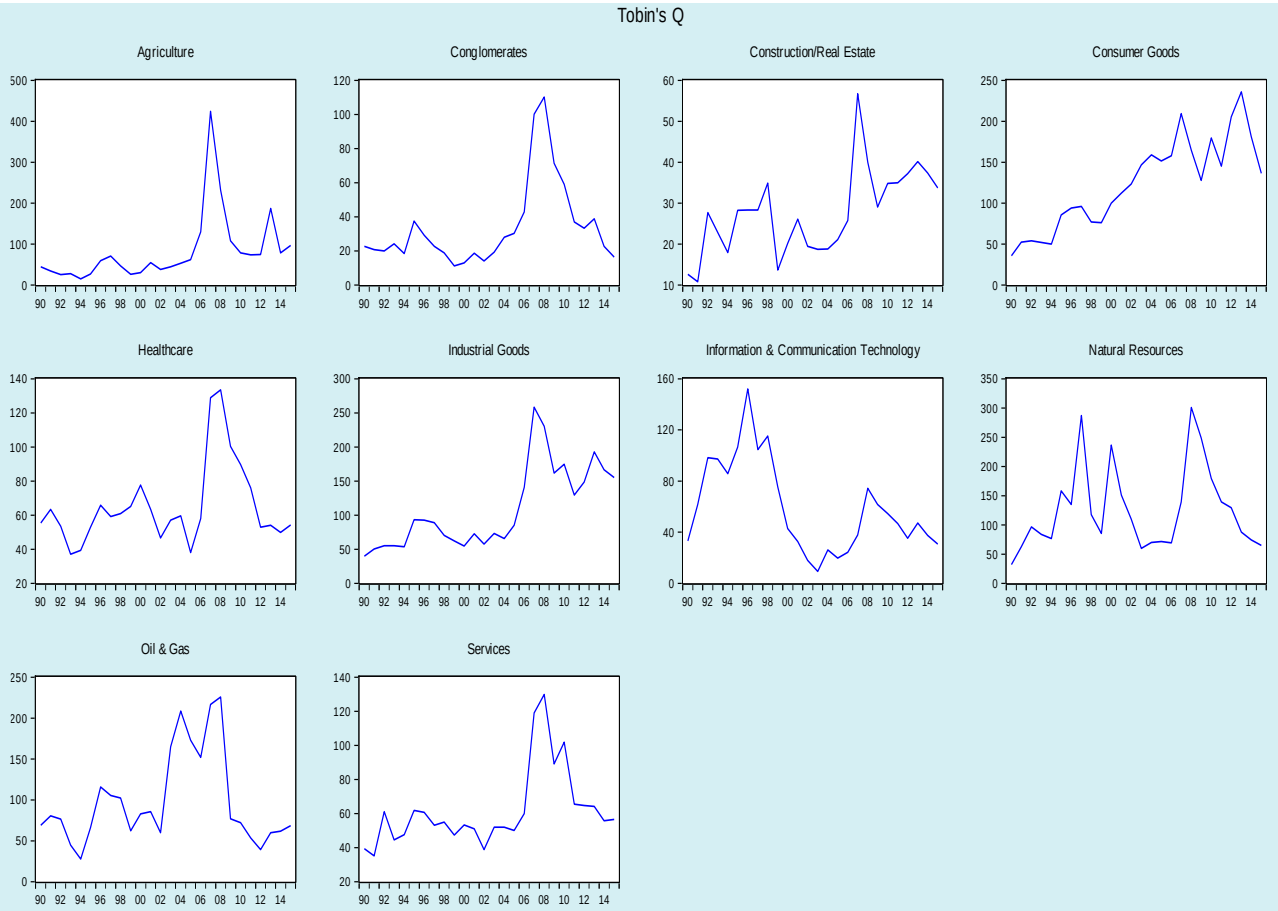

Figure 2.10: Sectoral trend of average Tobin's Q (1990-2015)

Source: Author's computation (2017)

(iii) Productivity measure of firm performance (real output growth):

Figure 2.11 shows the growth rate of real output. The trend analysis suggests that the growth of real output fluctuated over time, peaked at 36.7 percent in 2001. Real output growth ranged between 12.5 percent to 15.9 percent from 2002 to 2004. Subsequently, real output fluctuated around 3 percent to 27 percent between 2005 to 2013. In 2014, real output grew by 3.2 percent and contracted by 4.6 percent in 2015, much slower than 23.9 percent recorded in 2013.

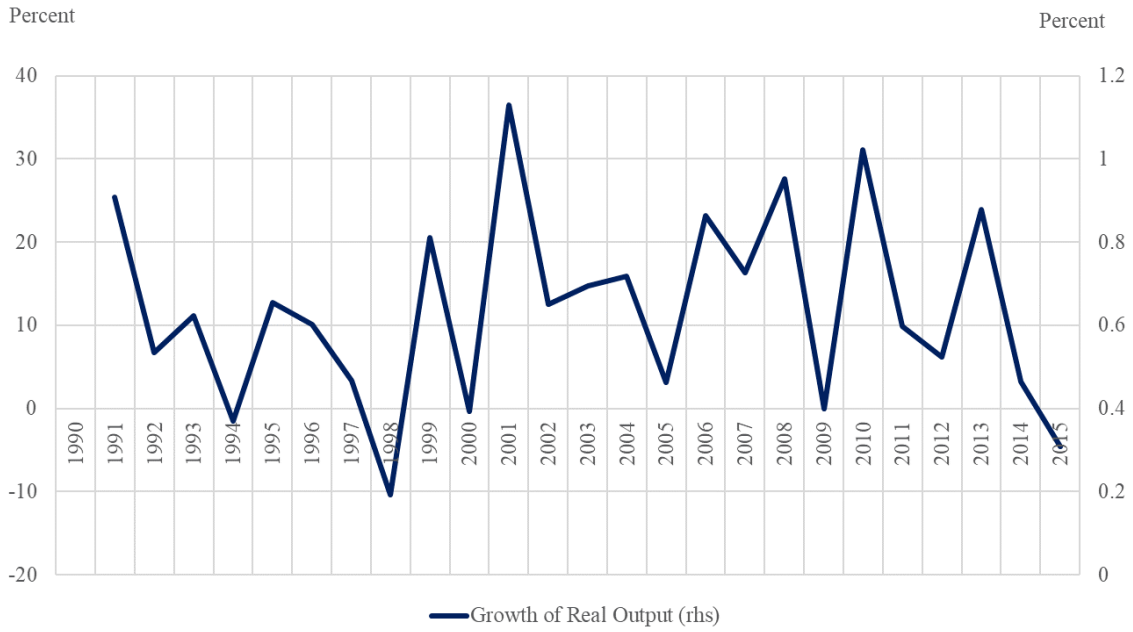

Figure 2.11: Firm productivity and growth of real output of listed firms in Nigeria

Author's computation

The trend analysis of real output growth across sectors is presented in Figure 2.12. In the agriculture sector, real output growth remained relatively stable between 1992 to 1994, peaked in 2006 and mild fluctuations between 2008 to 2015. On average, real output grew by 25 percent in the agriculture sector. The trend of other sectors remained unstable over time. On average, growth of real output in Conglomerate was 4.0 percent, Construction by 11.5 percent, Consumer Goods by 9.8 percent, Healthcare by 9.1 percent, Industrial Goods 15.0 percent, ICT by 10.7 percent, Natural Resources 12.3 percent, Oil and Gas by 16.5 percent and Services sectors by 10.2 percent.

Figure 2.12: Sectoral trend of growth of real output (1990-2015)

Source: Author's computation (2017)

2.1.6 Corporate ownership, capital structure and firm performance

(i) Stylized facts of ownership and capital structure

Figure 2.13 shows the association between foreign ownership and capital structure. The slope suggests that foreign ownership is positive with short-term leverage. This suggests that higher foreign ownership is associated with higher short-term leverage. It also indicates that firms with high foreign shareholdings may substitute short-term leverage for long-term leverage. Similarly, Figure 2.14 suggests that firms with high state ownership are associated with high short-term leverage and low long-term leverage.

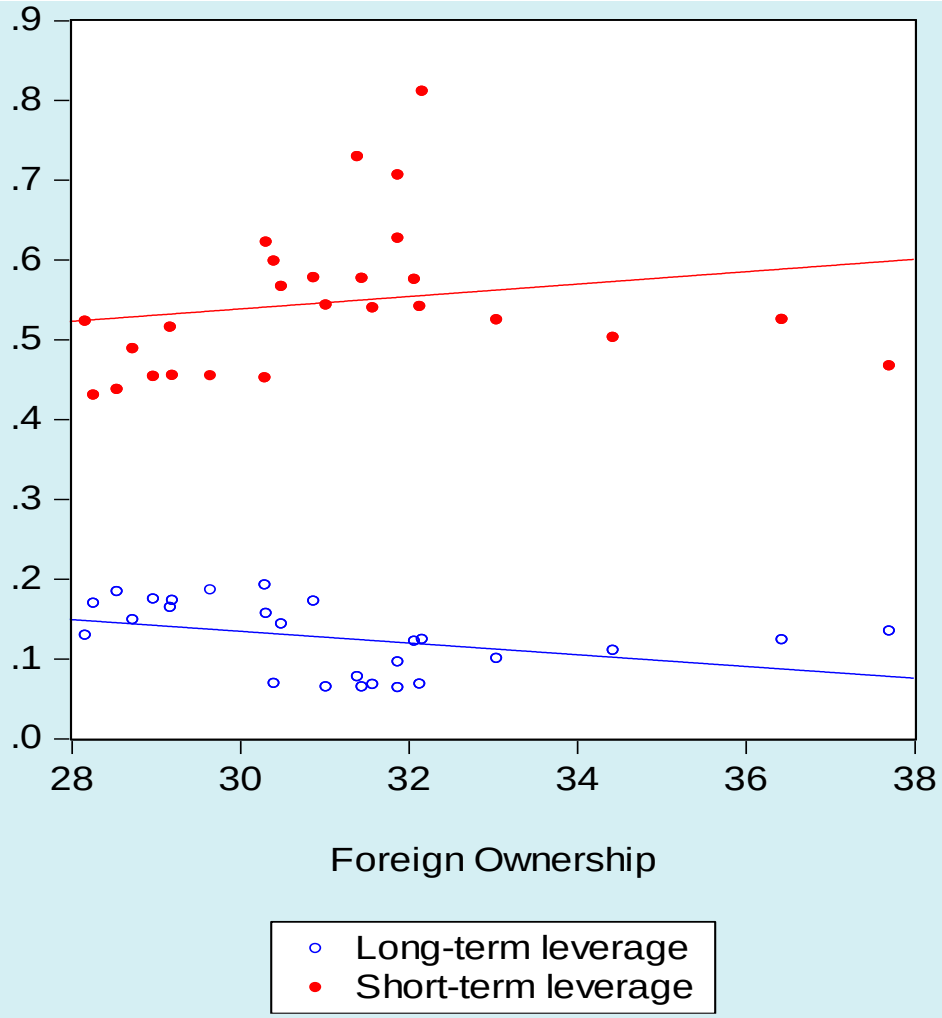

Figure 2.13: Foreign ownership and capital structure (short-term and long-term leverage) of listed firms

Source: Author's computation (2017)

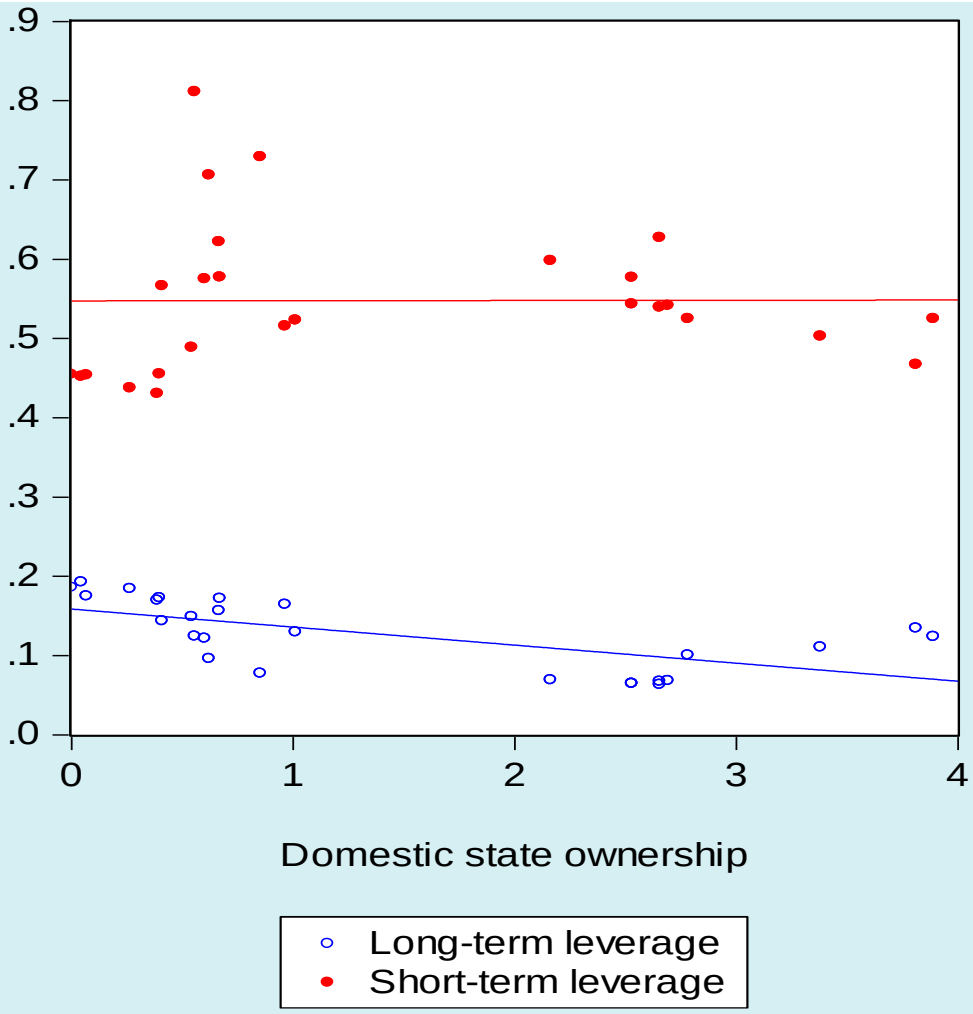

Figure 2.14: Domestic state ownership and capital structure (short-term and long-term leverage) of listed firms

Source: Author's computation (2017)

The pattern of the relationship between foreign ownership and capital structure varies across different sectors (see Figure 2.15a). For instance, high short-term leverage is associated with high degree of foreign ownership in the Agriculture, Conglomerate, Healthcare, Industrial Goods, ICT and Oil and Gas sectors. This may indicate that firms in these sectors may employ more short-term debt as they expand their foreign ownership base. Firms in the Construction, Natural Resources and Services sectors had a negative association between foreign ownership and short-term leverage.

Long-term leverage rises as the level of foreign ownership increases in most sectors. For instance, the positive slope coefficient between long-term leverage and foreign ownership in the Agriculture, Construction, Healthcare, ICT, Natural Resources and Services sectors suggests that firms with higher foreign ownership employed more long-term leverage in these sectors. Other sectors such as Conglomerate, Consumer Goods, Industrial Good and Oil and Gas had a negative slope coefficient.

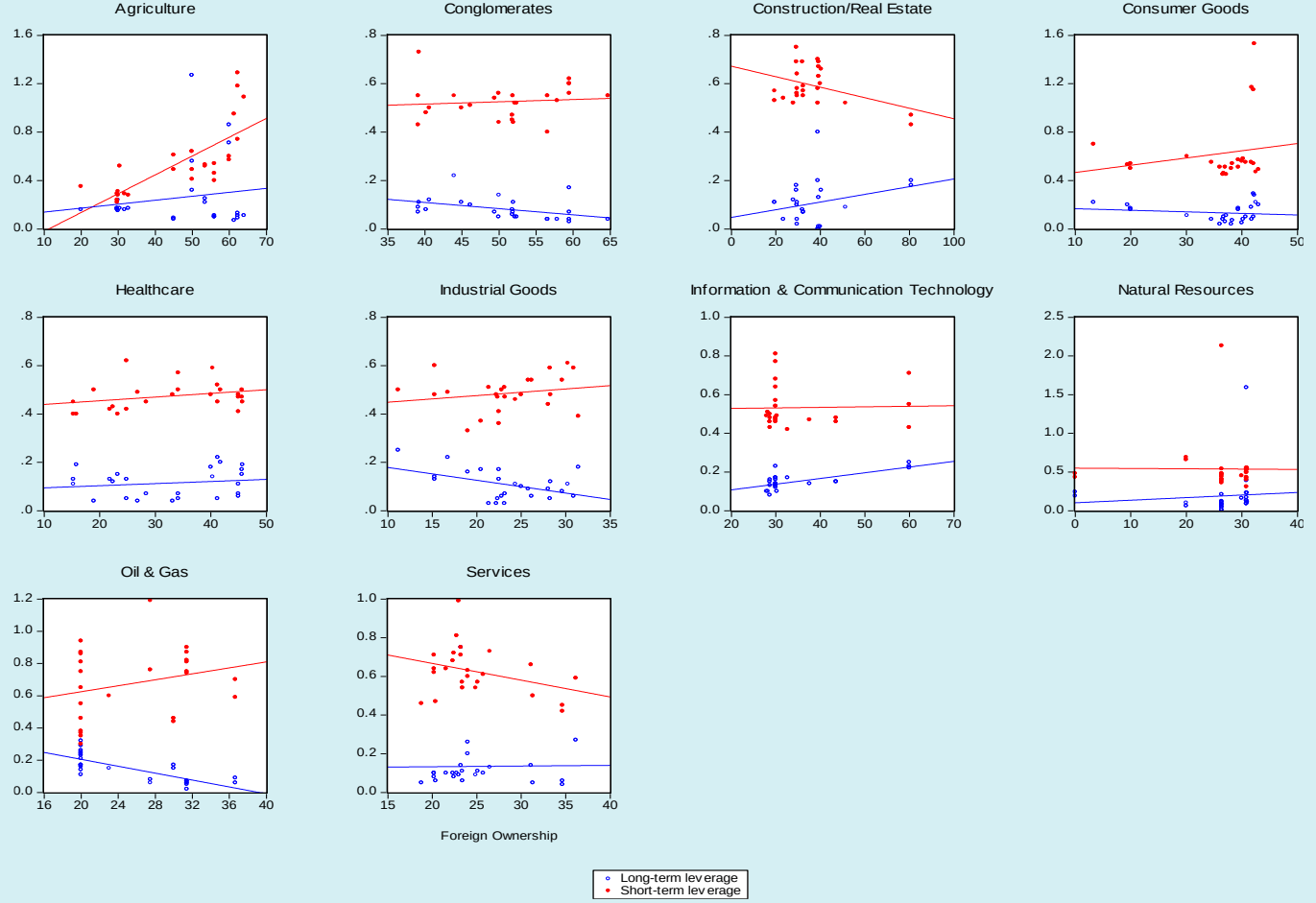

Figure 2.15a: Foreign ownership and capital structure (short-term and long-term leverage) across sectors

Source: Author's computation (2017)

Figure 2.15b presents the association between state ownership and leverage. At a higher level of state ownership, most firms reduce their short-term and long-term leverage ratios. For instance, firms in the Agriculture, Industrial Goods and Construction sectors reduced both short-term and long-term leverage ratios. Firms in the Conglomerate, Oil and Gas and Services sectors, tend to increase their short-term leverage as their degree of state ownership expands. In addition, firms in the Consumer Goods and Healthcare sectors employed more long-term leverage as their state ownership increases.

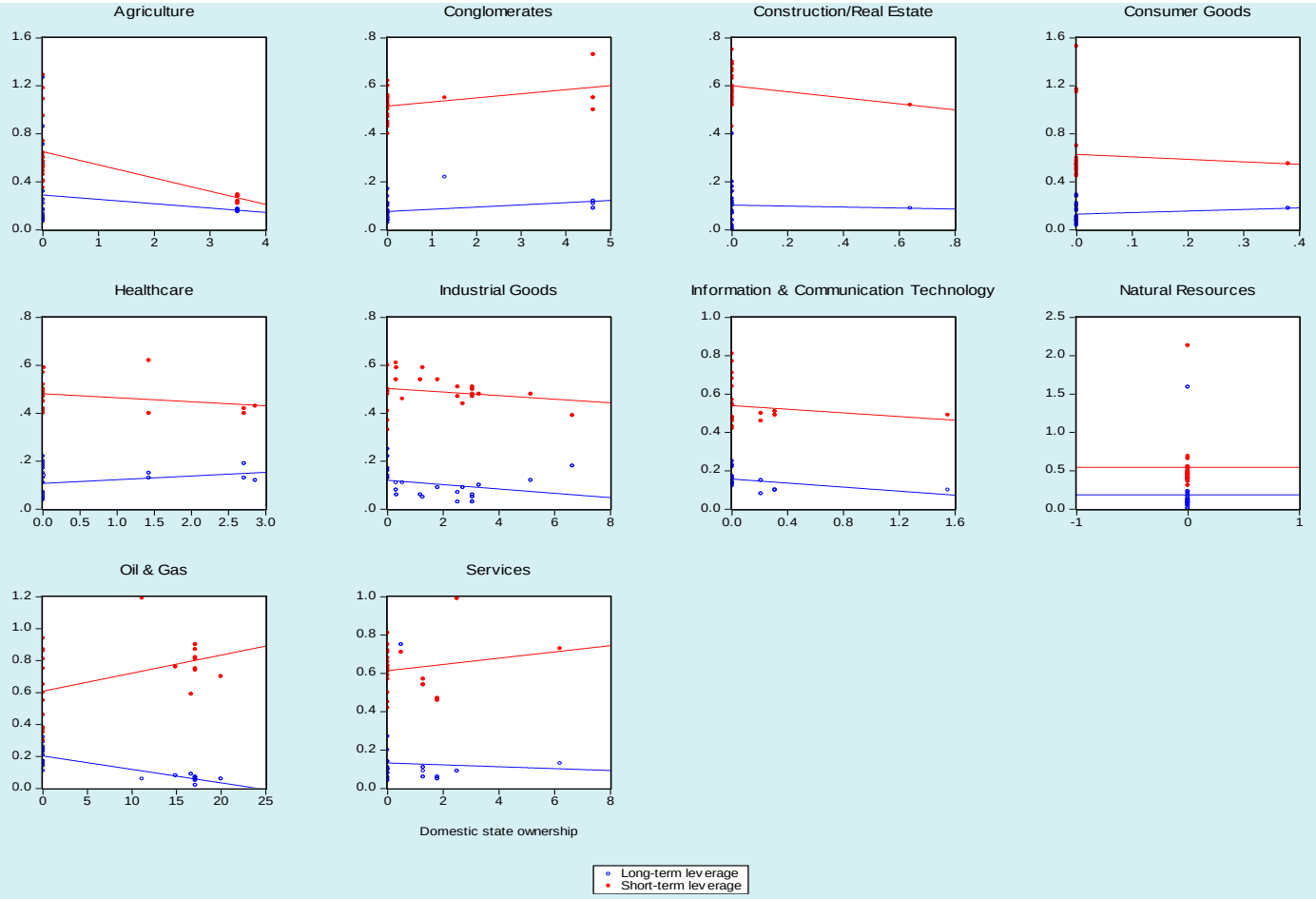

Figure 2.15b: State ownership and capital structure (short-term and long-term leverage) across sectors

Source: Author's computation (2017)

(ii) Stylized facts of corporate ownership and performance

Figure 2.16 shows the association between foreign ownership, while Figure 2.17 presents the association between state ownership and performance. As depicted in the figures, higher foreign and state ownership are associated with better ROA. Also, ROE increases at a higher level of foreign ownership, but declines at a higher level of state ownership. This suggests that financial performance varies by different types of corporate ownership. Lower foreign ownership is associated with improved growth in real output, while no exact relationship is observed when Tobin's Q was considered.

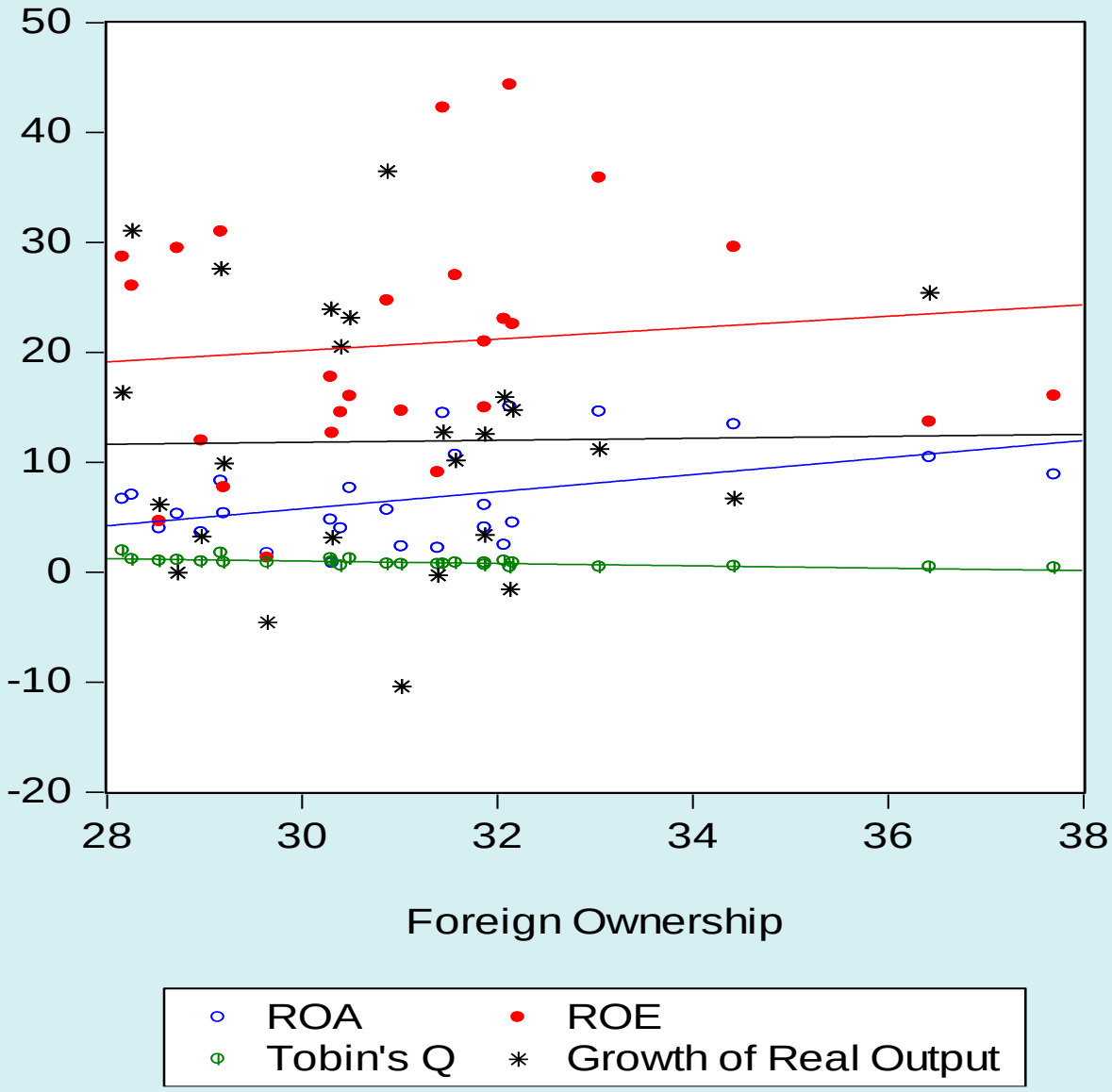

Figure 2.16: Foreign ownership and firm performance

Source: Author's computation (2017)

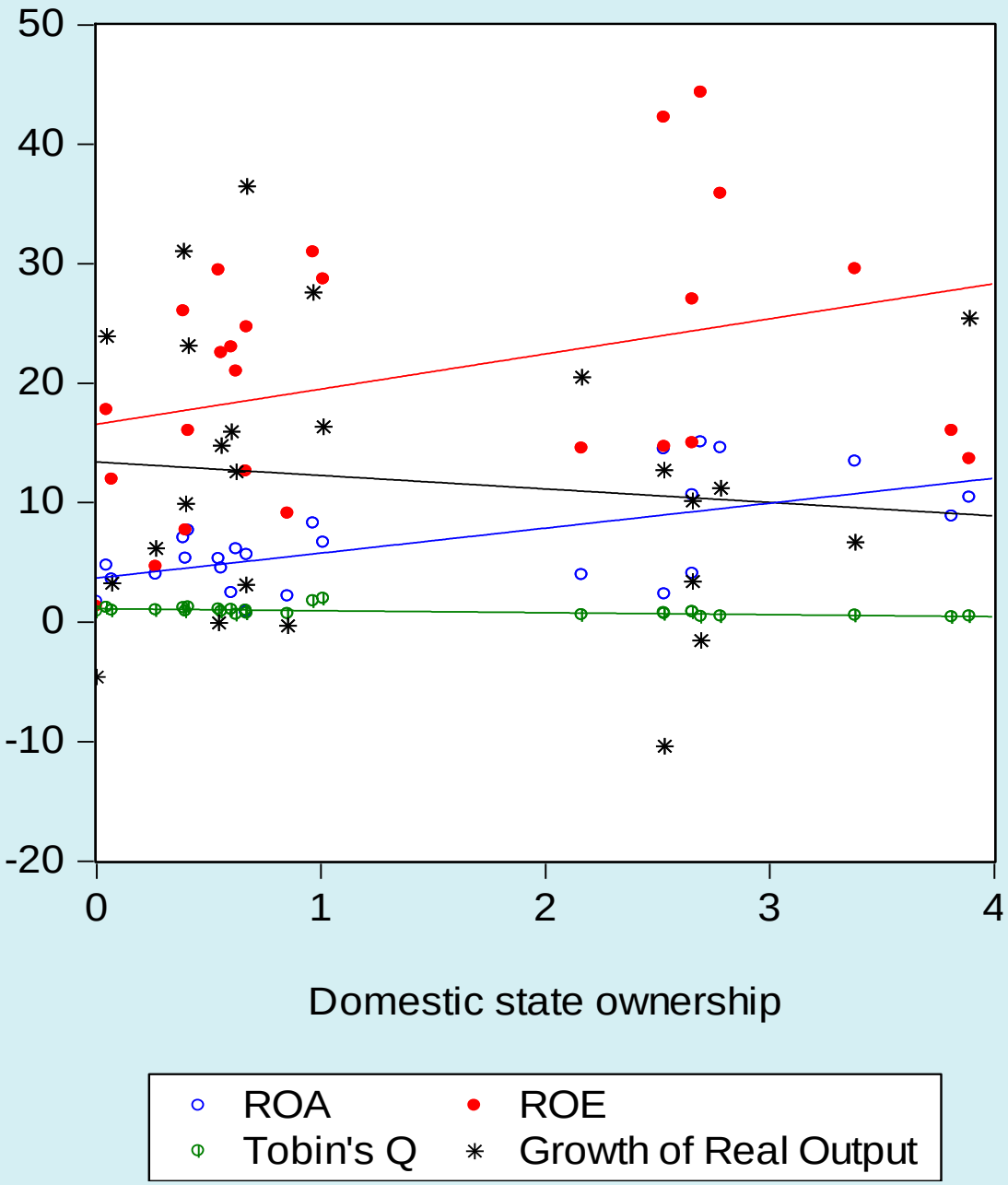

Figure 2.17: State ownership and firm performance

Source: Author's computation (2017)

Figure 2.18a presents the association between foreign ownership and firm performance. The plots show that the association between foreign ownership and firm performance varies across sectors. Higher foreign ownership is associated with improved ROA in most sectors. Specifically, ROA increases as foreign participation increases in the Construction, Consumer Goods, Healthcare, Industrial Goods, ICT, Natural Resource and Oil and Gas sectors, while a decline in ROA was observed in few sectors like Agriculture, Conglomerate and Services. This may suggest that foreign firms in most sectors are associated with improved performance. In addition, the result indicates that foreign firms in the Conglomerate, Healthcare, ICT, Oil and Gas, Consumer Goods and Natural Resources sectors are associated with higher ROE, while foreign firms in the Agriculture, Construction, Industrial Goods and Services sectors are associated with lower ROE. Considering the productivity measure of firm performance (growth in real output), the plots show that firms in the Agriculture, Conglomerate, Consumer Goods, Natural Resources and Services sectors had better performance as their level of foreign ownership increases, while firms in other sectors such as Construction, Healthcare, Industrial Goods, ICT and Oil and Gas are associated with lower performance as their level of foreign ownership increases. No exact pattern of relationship was noticed in the Consumer Goods sector.

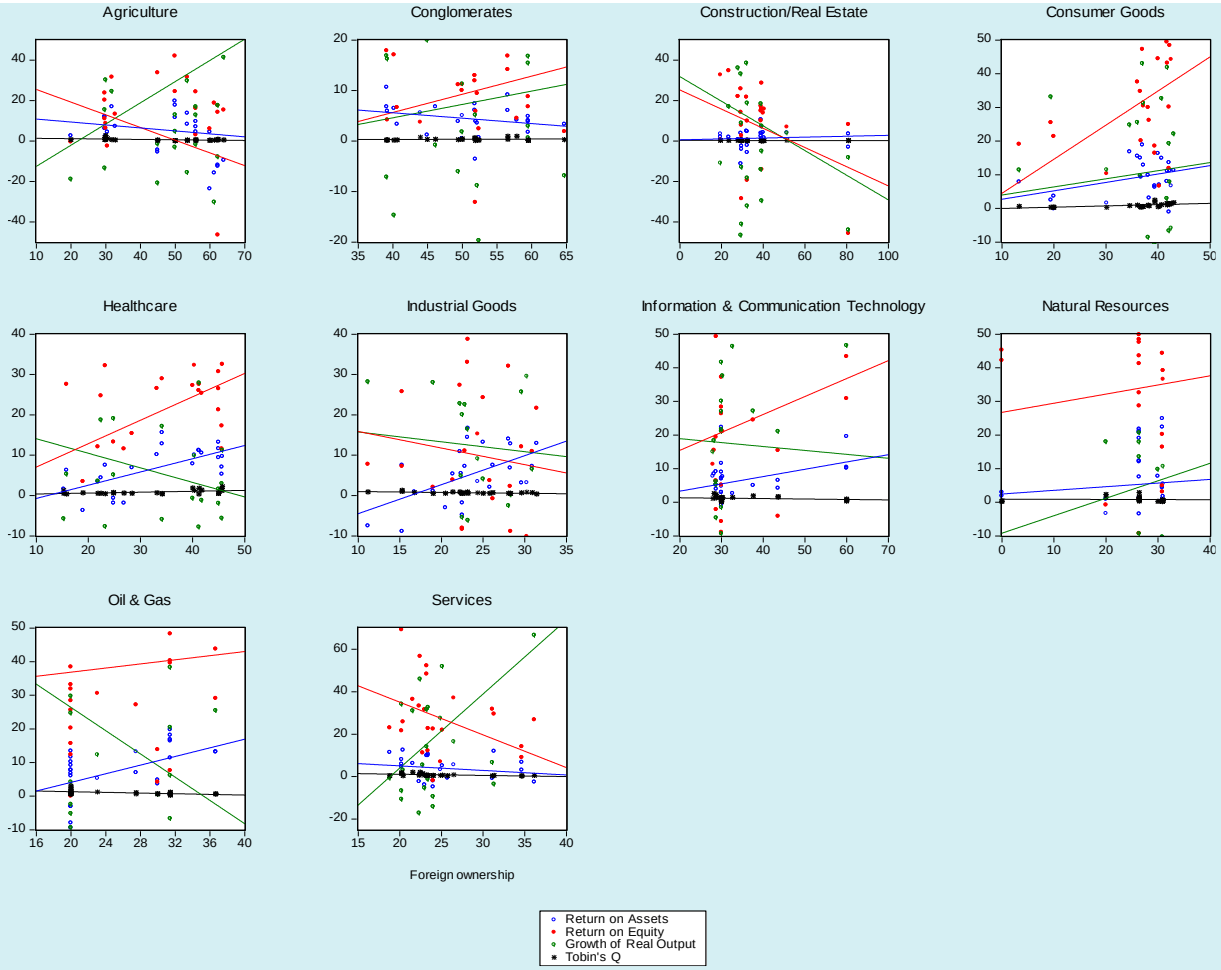

Figure 2.18a: Foreign ownership and capital structure (short-term and long-term leverage) across sectors

Source: Author's computation (2017)

As depicted in Figure 2.18b, the pattern of association between state ownership and performance varies across sectors. Firms with higher state ownership in the Agriculture, Conglomerate, Construction, Industrial Goods, ICT, Oil and Gas and Services sectors are associated with higher ROA. While firms in the Agriculture, Consumer Goods, Healthcare, Industrial Goods and Oil and Gas sectors recorded higher ROE as their level of state ownership increases. Others in the Construction, ICT and Services sectors recorded lower ROE, as their level of foreign ownership increases. Furthermore, higher state ownership is associated with positive real output growth in all sectors while Tobin's Q shows no unique pattern of association with the level of state ownership in all sectors.

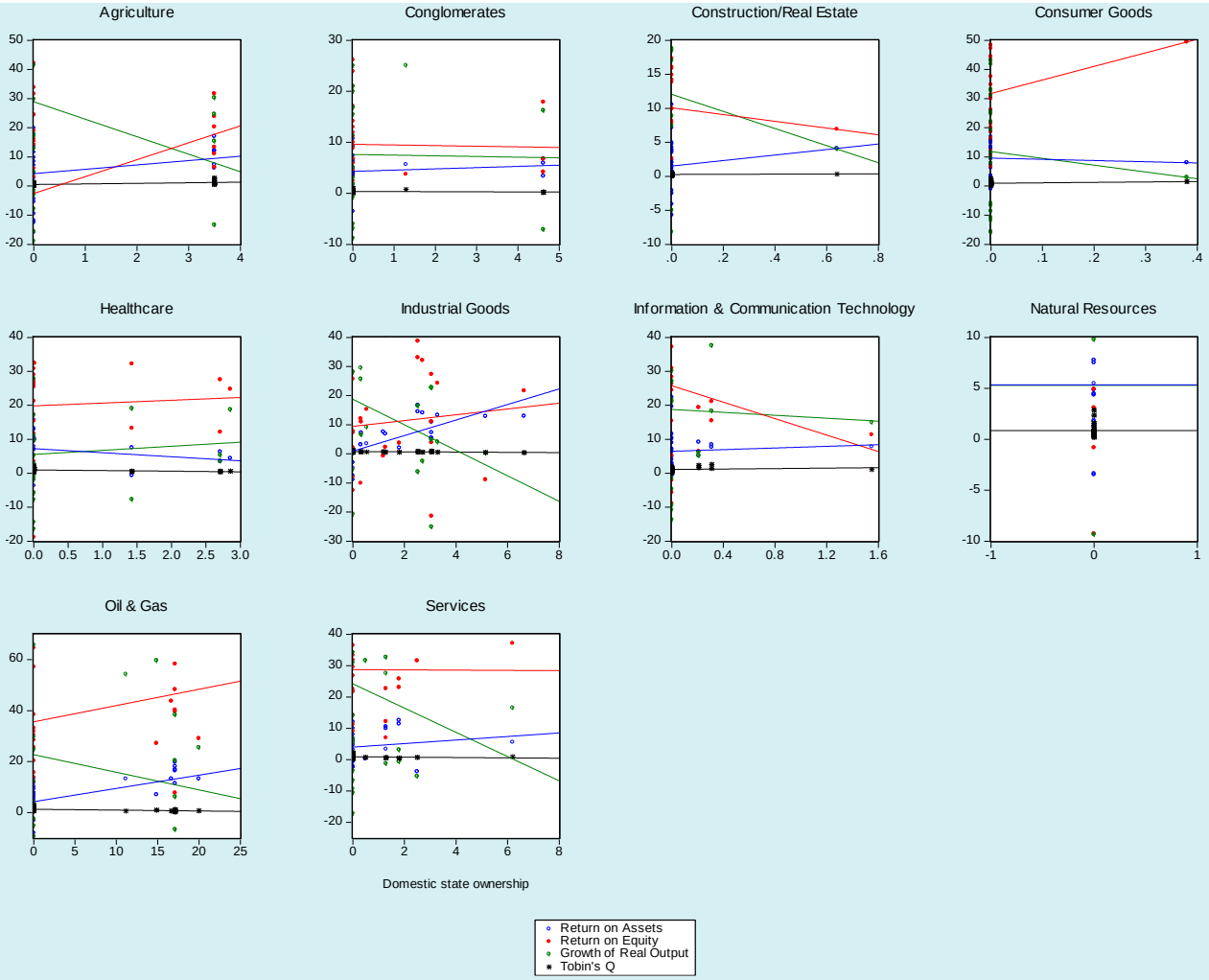

Figure 2.18b: Domestic state ownership and capital structure (short-term and long-term leverage) across sectors

Source: Author's computation (2017)

(iv) Stylized facts of capital structure and performance

Figures 2.19 and 2.20 present the association between capital structure and performance. As depicted in the figures, higher performance, measured by ROE is associated with higher short-term leverage, while the growth of real output is associated with higher long-term leverage. Other measures of performance are associated with lower short-term and long-term leverage ratios, while no unique pattern of relationship was observed when Tobin's Q was considered.

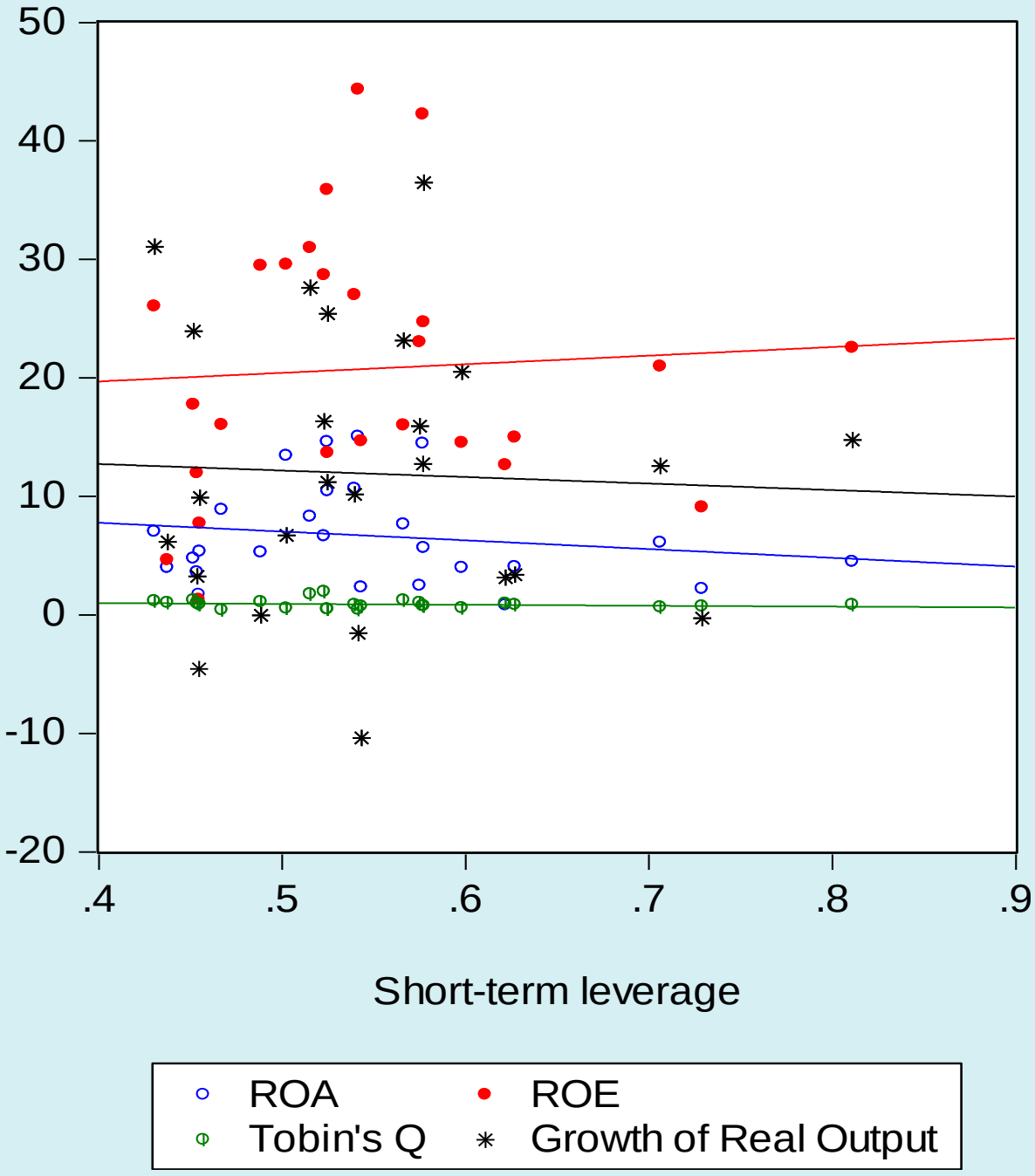

Figure 2.19: Short-term leverage and firm performance

Source: Author's computation (2017)

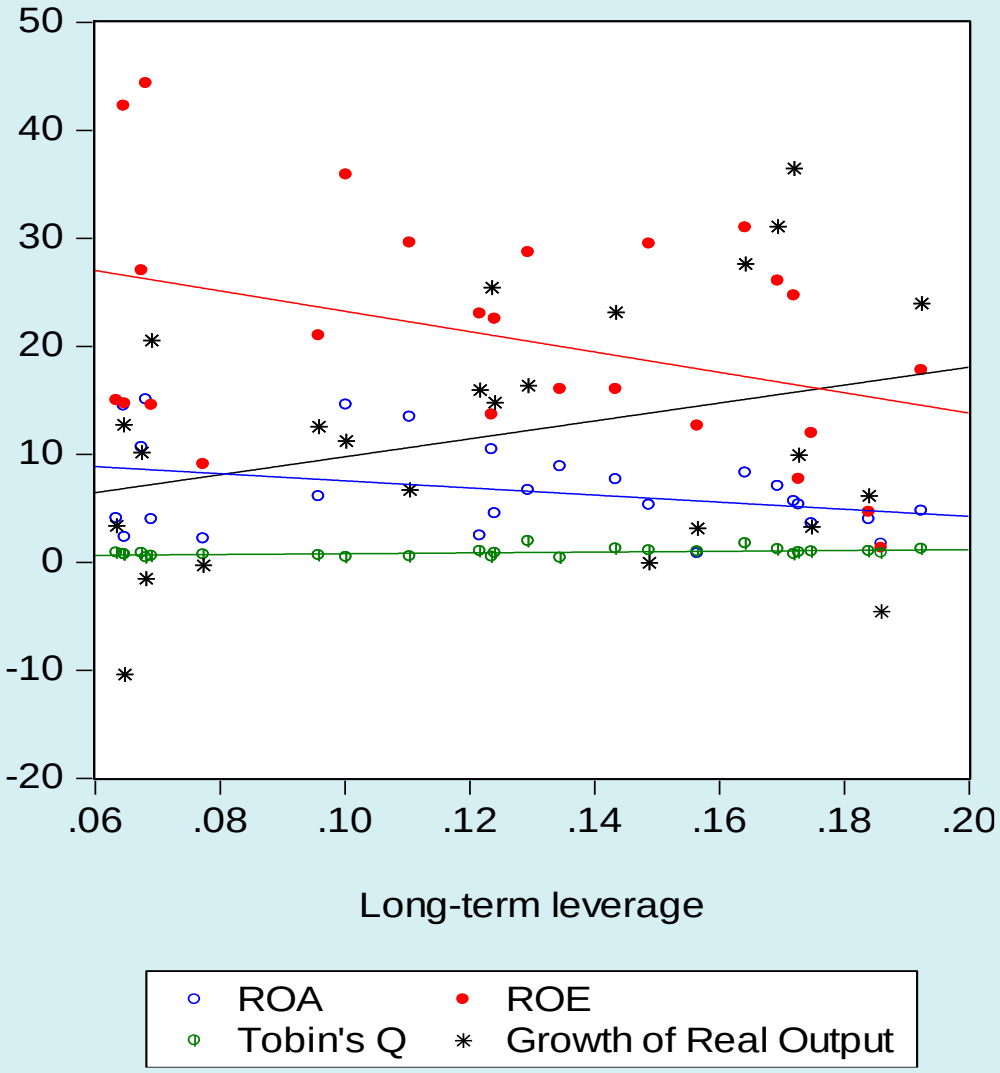

Figure 2.20: Long-term leverage and firm performance

Source: Author's computation (2017)

The association between short-term leverage and performance is depicted in Figure 2.21a. The plots show that short-term leverage is negatively associated with ROA in most sectors, while ROE has a positive relationship with short-term leverage in most sectors. The pattern of relationship between short-term leverage and real output growth varies by sector. For instance, higher short-term leverage is associated with improved real output growth in the Agriculture, Conglomerate, Consumer Goods, Industrial Goods and Oil and Gas sectors, while higher short-term leverage is associated with lower real output growth in the Construction, Healthcare, ICT, Natural Resources and Services sectors. Also, it is observed that higher short-term leverage is associated with improved Tobin's Q in the Consumer Goods, Industrial Goods and Natural Resources sectors, while no distinct pattern of relationship is observed in other sectors.

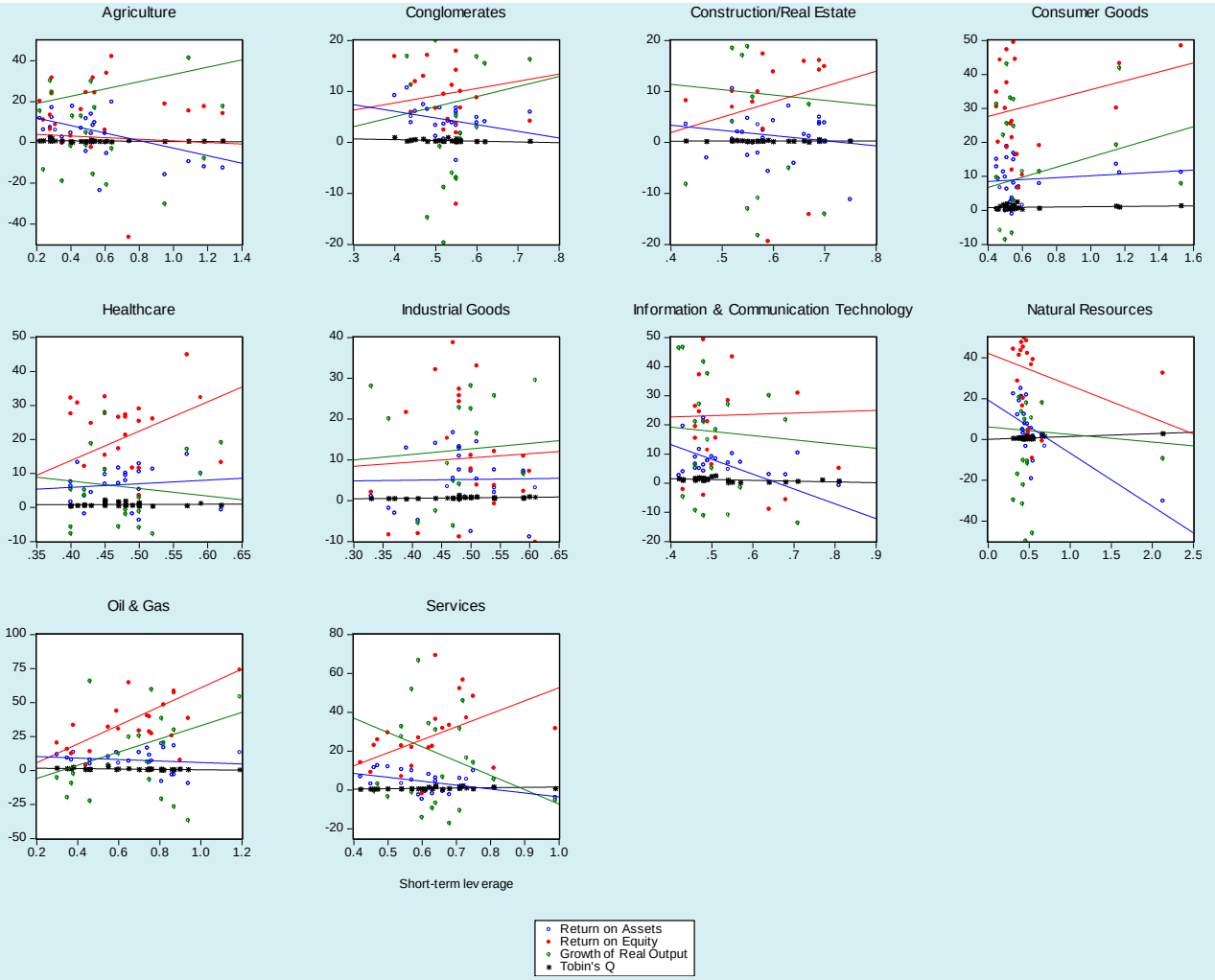

Figure 2.21a: Short-term leverage and firm performance across sectors

Source: Author's computation (2017)

Figure 2.21b presents the relationship between long-term leverage and performance. As depicted in the figure, the association between long-term leverage and performance varies across sectors. For example, higher long-term leverage is associated with better ROA in the Conglomerate, Construction, Healthcare, ICT and Agriculture sectors. ROA falls as long-term leverage decreases in the Oil and Gas, Industrial Goods, Natural Resources, Services and Consumer Goods sectors. Also, the figure shows that ROE increases as long-term leverage rises in the Conglomerate, ICT, Healthcare, Industrial Goods and Services sectors, while ROE reduces as long-term leverage decreases in the Agriculture, Construction, Consumer Goods, Natural Resource and Oil and Gas sectors. Furthermore, the increased long-term leverage is associated with improved growth in real output in all sectors, except for the ICT sector. Tobin's Q depicts no unique pattern of relationship.

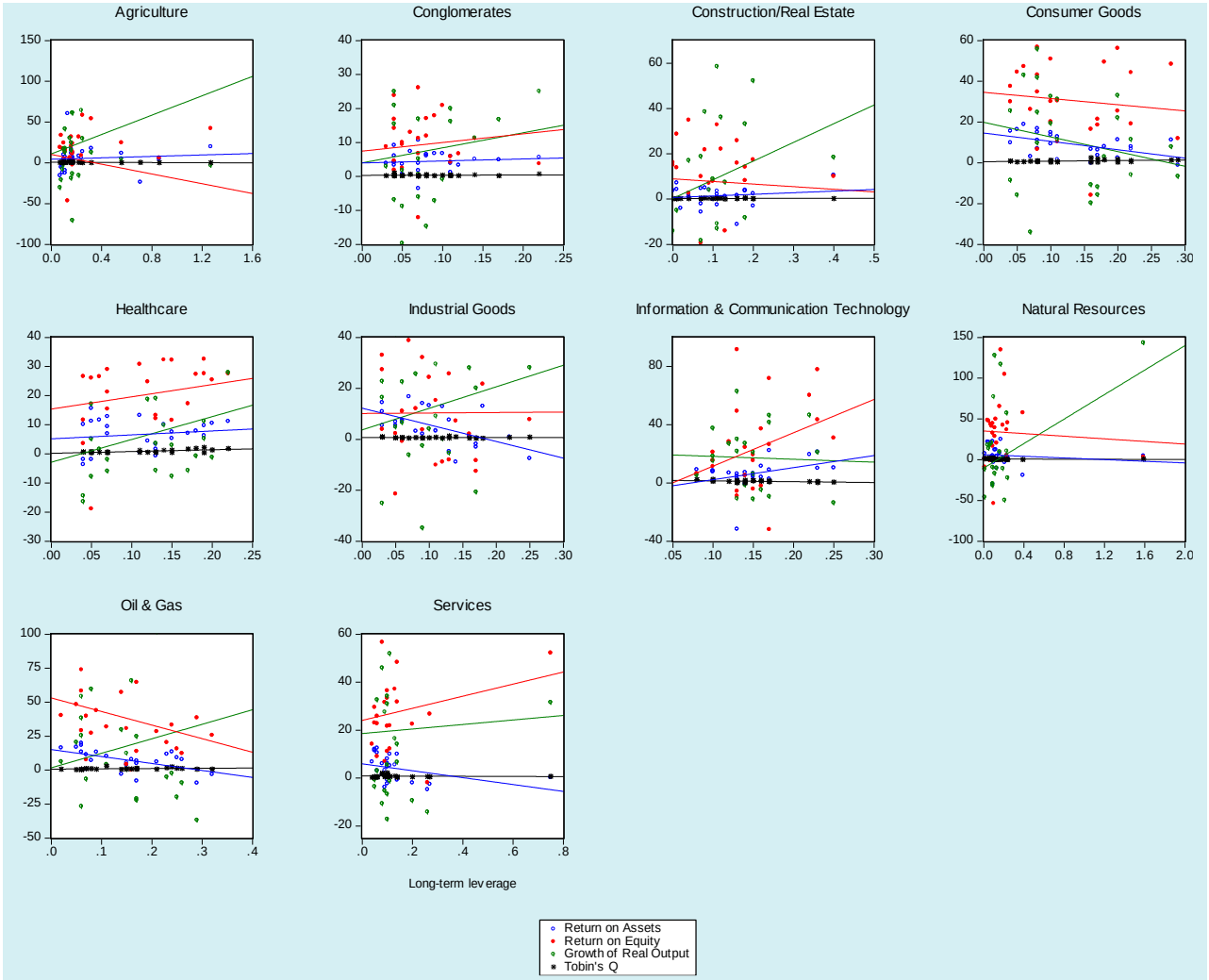

Figure 2.21b: Long-term leverage and firm performance across sectors

Source: Author's computation (2017)

2.2 Theoretical literature review

2.2.1. Theory of corporate ownership and firm value

(i) The Agency cost theory

The theory was first proposed in the seminal work of Berle and Means (1932) and later developed by Jensen and Meckling (1976). It explains the relationship between agents and principals in terms of decision making. According to the theory, agency conflicts exist in an agency relationship. Jensen and Meckling (1976) identified two forms of conflicts:

a) between managers (agents) and shareholders (principals).

b) between external shareholders and debt holders.

This study focuses on the conflict between managers (agents) and shareholders (principals). This occurs when the goal or interest of the manager (agent) is different from that of the shareholders (principals). The goal of the shareholder is to maximize the shareholders' wealth or firm value. In most organizations, the managers (agents) are saddled with the responsibility of making decisions to promote the goal or interest of shareholders. However, in reality, the managers often pursue their interests and not those of the shareholders. For instance, when a firm is fully owned by a manager, the profits made would solely belong to the manager. In such a case, they do not have to share residual claims with other shareholders, hence, they will make decisions to maximize the value of their firms.

If the manager sells equity claims to other shareholders, this will generate agency conflict, because the manager could have a different interest from that of the shareholders. Since profit will be shared by both parties, managers may use the firm's resources sub-optimally. This unusual behaviour of managers often leads to agency cost problem and it reduces the value of the firms.

To mitigate agency cost problem, Jensen and Meckling (1976) advocated for higher managerial shareholding. This increases the managerial stake in the firm. The higher managerial stake will reduce managerial incentives to engage in opportunistic behaviour (such as consumption of perquisites). It will also reduce agency cost by aligning the interests of the manager with those of the shareholders.

2.2.2 Theory of capital structure and firm value

(i) The Modigliani–Miller (M and M) theory.

M and M (1958) postulated that debt and equity financing do not influence the value of the firms. According to the M and M theory, the value of the firm is influenced by assets. Their postulation was considered under the following assumptions:

a) there exists a perfect market, where investors can buy and sell their investment.
b) no bankruptcy cost.
c) absence of taxes.
d) no transaction cost of buying and selling.
e) all investors have perfect information and behave rationally
f) managers aim at maximizing the value of the firm
g) investors can borrow and lend at the same rate.

The theory used the arbitrage argument in which investors sell their investment in a firm with a lower value and buy new investments in another firm with a higher value. This implies that the firm value does not respond to changes in either debt or equity. In 1963, Miller and Modigliani modified their proposition by relaxing the no tax assumption. They noted that debt financing enhances firm value because it comes with tax shield benefits.

(ii) The trade-off theory.

This theory was first proposed by Kraus and Litzenberger (1973). Contrary to the M and M proposition, the trade-off theory relaxed no tax assumption and concluded that capital structure affects firm value. The theory states that an optimal capital structure could be achieved by swapping off the cost of debt for the benefit of debt. According to the theory, the firm's value will be maximized when the firm employs an optimal debt ratio.

(iii) The pecking order theory

The theory was developed by Myers and Majluf (1984). It states that firms will first prefer internal financing (e.g. retained earnings) to other sources of financing (either debt or equity) because internal financing has lower transaction cost. The theory was developed based on the assumptions below:

a) firms incur transaction cost.
b) Managers are well informed than investors, and this is known to both managers and investors.
c) information cost on issuing debt is lesser than that of equity.

Most external investors are rational and want a higher return on their investment, thus, firms will choose internal financing (which often is retained earnings) over external financing. However, if external financing is chosen, the firms will choose to finance their investment with the use of debt compared to equity because debt is associated with a lower expected risk than equity.

(iv) Agency theory

Jensen (1986) proposed the use of capital structure (higher debt financing) to reduce the agency conflict between agents (managers) and principals (shareholders). According to Jensen (1986), the cost of debt (bankruptcy) will serve as a corporate monitoring mechanism to curtail managerial wasteful spending/sub-optimal investment decisions as well as managerial inefficiencies. This suggests that higher debt (higher leverage) could be used to influence managerial decisions and reduce agency cost.

Similarly, Grossman and Hart (1982) proposed three ways of dealing with the agency problem between managers and shareholders. First, they advocated for compensation benefits or salary incentive schemes. This implies that managers would be given incentives that would stimulate them to focus on profit maximization since this is in line with the shareholders' objective. Second, shareholders could sign a corporate charter that permits takeover bids. Takeover bid will ensure that managers operate optimally to achieve higher profit which is also in tandem with the shareholders' objective. The third relates to the issuance of debt financing. They posited that the high cost of debt (interest rate) compels managers to make efficient investment decisions to avoid bankruptcy or financial distress. This implies that debt serves as a corporate governance mechanism to mitigate agency cost and improve firm efficiency.

Stulz (1990) extended the agency theory by analysing the asymmetric relationship between managers and atomistic shareholders. Following Grossman and Hart (1982), he noted that managers derive perquisites from investment decisions. Managers in firms with high cash flow would maximize their objective and over-invest, even when the project is not profitable, or it has a negative Net Present Value (NPV). To mitigate the agency cost problem associated with over-investment, Stulz (1990) suggested the use of higher leverage (debt). This is because high debt forces managers to pay out interest, hence, it reduces the over-investment problem. Similarly, Zwiebel (1996) asserted that managers choose debt financing voluntarily not to build empires, but to commit themselves to manage their firms efficiently and prevent the threat of takeover. In this case, debt financing serves as a self-correcting mechanism to ensure that the manager's interest aligns with those of the shareholders.

2.3 Methodological literature review

2.3.1 Methodological issues on data and variable measurements

Previous studies have employed panel data to explore the relationship between corporate ownership and leverage (Dewenter and Malatesta, 2001; Pöyry and Maury, 2010; Liu *et al*., 2011; Anwar and Sun, 2015; Bamiatzi *et al*., 2017); corporate ownership on performance (Gelübcke, 2012; Phung and Le, 2013; Bogart and Chaudhary, 2015; Ciftci *et al*., 2019); capital structure and performance (Olokoyo, 2013; Le and Phan, 2017; Ibhagui and Olokoyo, 2018; Ciftci *et al*., 2019); and corporate ownership in the relationship between capital structure and performance (Le and O'Brien, 2010; Wahba, 2013; Chung *et al*., 2018), with varying findings.

In terms of the level of analysis, most studies considered an aggregate level analysis, which focuses on the entire market, neglecting sectoral analysis. Some studies have noted that the effect of corporate ownership on leverage and performance could differ across sectors (Wang, 2005; Margaritis and Psillaki, 2010; Ibhagui and Olokoyo, 2018), however, only few studies have examined these effects across various sectors. Specifically, Anwar and Sun (2015) explored the effect of corporate ownership on sectoral performance; Gelübcke (2012), Abor and Biekpe (2007) and Wang, (2005) investigated the impact of corporate

ownership on sectoral performance; while Margaritis and Psillaki (2010) and Ibhagui and Olokoyo (2018) explored the impact of capital structure on various sectoral indices.

Another germane methodological issue is the measurement of corporate ownership, capital structure and performance. The share of corporate ownership has been largely proxied with either a binary variable (dummy) or the share of ownership in total equity shareholdings. Some studies classified corporate ownership into high and low using different thresholds. For instance, Wahba (2013) and Ciftci *et al*. (2019) used a dummy variable to categorize equity ownership of at least 5 percent as "low ownership" and above 5 percent equity ownership as "high ownership". Nguyen *et al*. (2012) classified firms with below 50 percent of state-owned shares as non-state-owned firms and firms with above 50 percent as state-owned firms. Studies have classified corporate ownership concentration using a dummy variable. According to Margaritis and Psillaki (2010), corporate ownership concentration less than 25 percent was classified as low, corporate ownership concentration between 25 percent and 50 percent as intermediate, and corporate ownership concentration greater than 50 percent as high. Other studies have proxied corporate ownership as the share of foreign or state ownership in total equity ownership (Li *et al*., 2009; Hallward-Driemeier, 2006; Le and O'Brien, 2010; Wahba, 2013; Chung *et al*., 2018).

To a large extent, there is consistency in the capital structure proxies used in existing studies. Capital structure has been largely proxied using the leverage ratio (debt to total asset) and/or equity to debt ratio. Studies that proxied capital structure using debt to total asset ratio include Ebaid (2009), Vithessonthi and Tongurai (2015), Bevan and Danbolt (2002), Margaritis and Psillaki (2007, 2010), Le and O'Brien (2010), Wahba (2013), Ciftci *et al*. (2019). Previous studies have shown that short-term debt constitutes a larger percentage of total debt. Besides, in the case of developing economies, the short-term debt to asset ratio best explains leverage (Booth et. al., 2001).

Various indicators have been used to proxy firm performance. These indicators can be grouped into three broad classes – accounting measure (ROA and ROE), market value measure (Tobin's Q or stock price) and productivity measure (firm efficiency). Although

the financial measure has been argued to be susceptible to price movements and accounting practices, like different approaches used to value tangible capital (Demsetz and Villalonga, 2001); it has been widely used in existing studies (Wahba 2013; Ebaid, 2009; Shyu, 2012; Nhung and Okuda, 2015; Jouida 2018; Olokoyo, 2013; Le and Phan 2017; Ibhagui and Olokoyo 2018). The market value measure (Tobin's Q) has been largely used to measure firm performance (Wahba 2013; Olokoyo, 2013; Ibhagui and Olokoyo 2018). However, only few studies have employed the productivity measure of firm performance (Margaritis and Psillaki, 2010).

2.3.2 Methodological issues on estimation techniques

The differences in corporate ownership, capital structure and firm performance have been examined using the univariate test of mean difference (t-test). For instance, Dewenter and Malatesta (2001) used the univariate test of mean difference to study the differences in firm performance between government-owned and privately-owned firms. A similar technique was employed by Liu *et al*. (2011) to examine the differences in leverage and firm performance between SOEs and non-SOEs. Gelübcke (2012) evaluated the differences in key financial indicators between foreign-controlled affiliates and domestically controlled affiliates in Germany. Other studies that also employed the univariate test of mean difference include Wang (2005), Du and Boateng (2014), Wong and Hooy (2018), and Li *et al*. (2018).

In the literature, differences abound across studies in terms of the estimation techniques used. A review of existing methodologies shows that the major estimation techniques used in various studies are the static panel - pooled, Fixed Effect Model and Random Effect Model; dynamic GMM and simultaneous regression methods (OLS, 2SLS and 3SLS, SEM).

Studies have employed the panel fixed and random effect methods to correct unobserved heterogeneity that could be correlated with the error term. Some studies have used static panel methods (pooled, FE and RE) to determine the effect of foreign ownership on leverage (Anwar and Sun, 2015; Ezeoha and Okafor, 2010; Vo, 2010; Bokpin and Arko,

2009), state ownership on leverage (Pöyry and Maury, 2010; Liu *et al*., 2011; Nguyen *et al*., 2012), foreign ownership on performance (Hallward-Driemeier, 2006), state ownership on performance (Qi *et al*., 2000; Li *et al*., 2018; Asaftei *et al*., 2008; Wang *et al*., 2011; Bogart and Chaudhary, 2015), leverage on performance relationship (Olokoyo, 2013; Frank and Goyal, 2009; Oino and Ukaegbu, 2015) and among leverage, corporate ownership and performance (Le and O'Brien, 2010; Wahba, 2013).

The fixed-effect model has been criticized by Coles *et al* (2012). They noted that the firm-fixed (random) effect is insufficient to eliminate the endogenous relationship between corporate ownership and performance. The panel Fixed Effect Model does not correct for potential simultaneity bias between corporate ownership and firm performance. A potential remedy for the endogeneity problem is to use the instrumental variables (IV) regression method (2SLS, GMM or 3SLS). Demsetz and Villalonga (2001) employed the panel 2SLS regression method to analyse the influence of corporate ownership on firm performance. They established a positive relationship using OLS, but when the endogenous effect of corporate ownership was controlled for using 2SLS, their findings revealed that corporate ownership does not affect performance. They concluded that ignoring the endogenous effect of corporate ownership in modelling firm performance will yield a biased outcome. In a related study on corporate ownership and firm value, Jiraporn and Liu (2007) used the 2SLS regression estimation method. In choosing their instrument, they used the average value (1985-1989) of the number of shareholders and Tobin's q. Similarly, Shyu (2012) employed the past values (lags) of the dependent variable as instruments. Studies have used the 2SLS to determine the effect of state shareholdings on firm performance (Lin *et al*., 2010; Haider *et al*., 2017; Arocena and Oliveros, 2012) and the effects of capital structure on performance (Vithessonthi and Tongurai, 2015)

Another germane issue in the literature is the simultaneity problem between corporate ownership, capital structure and firm performance. An appropriate estimation method to resolve the potential simultaneity problem is the 3SLS, Seemingly Unrelated Regression Estimation (SUR) or Structural Equation Model (SEM). The 3SLS technique does not only correct for endogeneity and simultaneity bias but also explains the causal relationship

among variables. According to Driffield *et al*. (2007), the failure to account for potential simultaneity problem could cause bias in the effects of corporate ownership on performance. They used the 3SLS estimation method to determine the relationship between leverage, corporate ownership and firm performance. Their findings revealed that concentrated ownership affects both leverage and firm value. Ruan *et al*. (2011) employed the 3SLS regression estimation method to empirically examine the interrelationship among capital structure, corporate ownership and firm performance. Their model consists of three sets of equations (managerial ownership, leverage and Tobin's Q). To control for endogeneity, they considered the lagged variables of managerial ownership, Tobin's Q, leverage and control variables as instruments. Their result showed that managerial ownership significantly affects leverage and firm performance. According to Phung and Le (2013), endogeneity problem often occurs in the field of finance research; thus, studies should consider other techniques to account for both endogeneity and simultaneity. Nhung and Okuda (2015)used the 3SLS to estimate the simultaneous link between capital structure and performance. The lags of exogenous variables were used as instruments.

2.4 Empirical literature review

2.4.1 Review of corporate ownership and capital structure

(i) Review of foreign ownership and capital structure

Most empirical studies on this relationship have provided mixed results. Although most studies contended that higher foreign ownership is associated with more leverage (Li *et al*., 2009; Ezeoha and Okafor, 2010; Vo 2010), few studies noted that higher corporate ownership is associated with less leverage (Csermely and Vincze, 2000), while other studies noted that capital structure does not respond to changes in foreign ownership (Bokpin and Arko, 2009).

Studies have claimed that foreign firms use less debt because they often benefit from various international funds and aids; thus, they tend to be less levered. According to Li *et al*. (2009), foreign firms were entitled to the lower tax rate in China, they were less levered compared to domestic firms. Ezeoha and Okafor (2010) found that foreign firms accounted for about 36 percent of firms in Nigeria between 1990 and 2006. Based on their findings,

foreign-owned firms were less levered compared to locally owned firms in Nigeria. This is not surprising as foreign firms have more access to various sources of international aids and grants compared to their domestic counterparts. Vo (2010) noted that foreign investors prefer investing in less levered firms, and they allocate more funds to larger firms. In a more recent study, Bamiatzi *et al.* (2017) showed that foreign acquisition has a significant impact on the debt ratios of target companies.

Contrary to the arguments that higher foreign ownership is associated with less leverage, few studies have established that higher foreign ownership is associated with more leverage, while others concluded that leverage is insensitive to changes in foreign ownership. For instance, Csermely and Vincze (2000) concluded that foreign firms are more levered because they have a good reputation and face less stringent constraints in acquiring bank loans. Phung and Le (2013) showed that higher foreign ownership is negatively associated with leverage. They noted that foreign investors suffer from asymmetric information, thus, they prefer more debt financing to mitigate agency problem. On a different note, Bokpin and Arko (2009) found that foreign ownership does not affect capital structure decision of listed firms in Ghana. They concluded that leverage is insensitive to the amount of foreign ownership.

Anwar and Sun (2015) established that foreign presence has a negative impact on the leverage of domestic firms in the manufacturing and textile sectors. In the transportation equipment manufacturing sector, the impact of foreign presence is significant and positive while an insignificant relationship is observed in the electronic equipment manufacturing sector. This suggests that the effects of corporate ownership structure on capital structure differ across sectors in China.

(ii) Review of state ownership and capital structure

Most studies on state ownership and capital structure found that state-owned companies have easy access to debt and are more levered than their private counterparts. However, the few available studies on state ownership have focused on the Asian stock markets, while very little is known about the African market, especially in Nigeria.

Studies have shown that state-owned companies have easy access to debt financing; thus, they tend to use more leverage in their capital structure mix. Popular among the literature are Dewenter and Malatesta (2001), Pöyry and Maury (2010), Li *et al.* (2009), Liu *et al.* (2011), Nguyen *et al*. (2012), Anwar and Sun (2015) and Borisova (2015).

According to Dewenter and Malatesta (2001), the state-owned firms employed more leverage, but performed poorly than private firms. Pöyry and Maury (2010) noted that the state-controlled firms employed higher leverage than the firms controlled by private domestic owners. They noted that the state-owned firms have a lower probability of default; hence, they have easy access to debt financing.

Li *et al*. (2009) showed that the managers of the state-owned firms employed higher leverage, given their easy access to long-term debt financing in China. Also, Liu *et al*. (2011) noted that financing decisions of the state-owned enterprises are influenced by the government and they employed more debt compared to non-state-owned firms in China. The higher leverage associated with state-owned firms was linked to the support from the government in terms of heavy subsidized bank loans. Similarly, Nguyen *et al*. (2012) found that the state-controlled firms have higher preferential access to finance, and they relied mainly on external debt financing.

Anwar and Sun (2015) concluded that corporate ownership affects capital structure decisions. They also noted that the state-owned firms use more debt because they have better access to credit in China (specifically from state-owned banks). Similarly, Nhung and Okuda (2015) revealed that the state-controlled firms relied more on debt financing because they have better advantages in terms of sourcing for external debt financing.

2.4.2 Review of corporate ownership and performance

(i) Review of foreign ownership and performance

Some studies have established that foreign ownership positively affects performance, with a large focus on developed economies. Hallward-Driemeier (2006) found that corporate ownership (both foreign and domestic) is positively linked with performance; however, the

impact of foreign ownership on performance is higher than the domestic ownership in China. In a similar study, Omran (2009) established that firms with higher foreign ownership concentration are associated with improved performance while firms with high employee ownership concentration are associated with lower performance. Choi *et al*. (2012) revealed that the independent monitoring practice of foreign-owned firms improved performance.

In a similar study, Gelübcke (2012) noted that foreign-owned firms in Germany exhibited a significantly higher performance compared to their domestic counterpart. The study found foreign-controlled firms to have significantly higher employment, wage and productivity compared to their domestic counterparts. Similarly, Chen *et al*. (2014) found noteworthy evidence that foreign ownership positively affected investment efficiency and the relationship becomes stronger as the government surrenders majority control.

Furthermore, some studies have argued that foreign investors often transfer technology and funds to the host country which helps to boost performance (Javorcik, 2004). Abor and Biekpe (2007) noted that international exposure and skills demonstrated by foreign owners helped to improve performance. Pervan, *et al*. (2012) highlighted that foreign-controlled firms have higher performance than domestically controlled firms. A major reason for their higher performance rests on the fact that foreign-controlled firms often have access to technical and financial resources, and they also bring in expertise in terms of management. Nakano and Nguyen (2013) noted that changes in firm performance are strongly associated with high level of foreign ownership.

In a more recent study, Ciftci *et al*. (2019) noted that firms with high foreign ownership provide connections to the external environments which help to reduce internal resource dependence and improve firm performance.

On the contrary, Phung and Le (2013) empirically showed that foreign investors often suffer from asymmetric information and this increases agency cost, which in turn reduces firm performance. They noted that the foreign investors in Vietnam cannot play a monitoring role to reduce agency cost due to their low concentration.

(iii) Review of state ownership and performance

Studies have shown that state-owned firms are inefficient and state ownership exerts a negative influence on firm performance while others argued that state ownership improves firm performance through supports from political connections and government assistance. A few studies noted that state ownership does not affect performance.

Shleifer (1998) argued that firms with higher state ownership often suffer from agency cost, weak corporate governance and poor performance. Xu and Wang (1999) found that legal person ownership has a higher ability to monitor the activities of their management. Qi *et al*. (2000) showed that firm profitability (measured by ROE) is lower than firms with high state ownership compared to those with low state ownership. Also, they noted that greater state ownership increases agency cost and reduces firm performance. In a related study, Sun and Tong (2003) noted that state ownership reduces performance, while legal-person ownership improves performance. Lin *et al*. (2010) established that higher state shareholding reduces efficiency. In a more recent study, Li et al. (2018) found that SOE sunder performed in the marketplace than private enterprises.

Few studies have argued that high state ownership promotes firm performance through supports from political connections and government assistance (Asaftei *et al*., 2008; Du and Boateng, 2014; Bogart and Chaudhary, 2015; Wong and Hooy, 2018). Asaftei *et al*. (2008) noted that state-owned enterprises performed better than privatized enterprises. Du and Boateng (2014) showed that state ownership has a positive influence on firm value. According to the study, the positive relationship was attributed to the Chinese government's explicit policy which was aimed at supporting Chinese firms (mostly SOEs) through tax rebates, low-cost loans and other incentives.

Bogart and Chaudhary (2015) reported that firms became more productive after the government took over. According to the study, the effectiveness of state ownership often depends on good institutions. In the case of India, the state-owned railway operates like private firms and creates a similar incentive structure for their employees.

Recent studies have established a positive association between state ownership and firm performance. According to Haider *et al*. (2017), government-owned firms often observe fewer financial constraints and are associated with improved performance. Wong and Hooy (2018) showed that politically connected firms are associated with improved performance. This is because politically connected firms in Malaysia received contracts and projects from having a direct connection to the central government.

Few studies have maintained that state ownership does not affect performance. For instance, Wang (2005) noted that the beneficial and detrimental effects of state ownership offset each other; thus, produce no significant effect on the performance of listed firms in China. In a related study, Wang *et al*. (2011) showed that firm performance is insensitive to changes in state ownership. Arocena and Oliveros (2012) showed that efficiency does not differ before and after the privatisation of state-owned enterprises. Also, they noted that the newly privatized firms were found to have higher performance after privatisation.

2.4.3 Review of capital structure and firm performance

Several empirical studies have been conducted to determine the influence of capital structure on performance. The findings in the seminar work by Jensen and Meckling (1976) laid a foundation for several works to investigate the role of leverage (debt financing) on agency cost and firm value. They posited that debt reduces agency cost and improves firm value. The major argument for the positive relationship between debt financing and firm value is that it serves as a corporate disciplinary mechanism to reduce managerial wasteful spending and it lowers the bankruptcy cost and/or financial distress (Jensen and Meckling, 1976; Grossman and Hart 1982).

Few studies conducted on developing/emerging economies also arrived at similar findings. Fosu (2014) showed that higher financial leverage enhances performance in South Africa. This signifies that leverage is an active corporate mechanism that reduces agency cost and improves performance. Abor and Biekpe (2007) noted that Ghanaian firms mainly depend on short-term debt financing and the long-term debt market is still underdeveloped in Ghana.

In a more recent study, Detthamrong *et al*. (2017) concluded that higher leverage exerts a positive influence on performance. This is in line with the agency theory which suggests that debt serves as a corporate instrument to mitigate agency cost and improve performance.

Some studies on leverage and firm performance have noted that leverage reduces performance. Most of these studies focused on developing/emerging economies. For instance, Olokoyo (2013) noted that due to high agency conflict, listed firms in Nigeria are over-levered and this negatively affects their performance. Le and Phan (2017) noted that debt ratio has a negative impact on firm performance, as its benefits are less than the cost. Similarly, Ibhagui and Olokoyo (2018) found that higher leverage is associated with lower firm profitability (ROA and ROE), especially for small-sized firms. However, the negative influence of leverage on performance vanishes when firm size exceeds its estimated threshold level. Also, the study noted that higher leverage is associated with improved Tobin's Q.

Ciftci *et al*. (2019) noted that firms with lower leverage have a higher probability of achieving better performance. According to the study, the negative influence of capital structure on performance could be linked to the free cash flow effects. They noted that low leverage is associated with low-interest payment and this increases cash flow for more profitable investments.

Results from some studies revealed a mixed association between capital structure and firm performance. For instance, Lang *et al*. (1996) empirically showed that higher leverage reduces the growth of firms with low Tobin's Q, while no relationship is observed for firms with high Tobin's Q. Ebaid (2009) found that both short-term and long-term leverage ratios have negative influence ROA, while no impact was observed on ROE and gross margin.

Vithessonthi and Tongurai (2015) revealed that capital structure is negatively associated with domestically oriented firms and positively related to internationally oriented firms. According to their findings, international firms are more likely to have a better set of

investment opportunities than domestic firms; thus, they optimally use high leverage ratio to ensure higher performance.

Another line of argument in the capital structure and performance literature is that firm performance determines the choice of leverage. Booth *et al*., (2001) found profitability to have a significant negative impact on capital structure. Bevan and Danbolt (2002) found that higher profitability is associated with less leverage. A similar result was reported by Al-Sakran (2001) for Saudi Arabian firms. Frank and Goyal (2009) showed that more profitable firms tend to lower their debt financing ratio. Chang *et al*. (2014) noted that ROA is the most important determinant of leverage. They noted that more profitable firms tend to prefer low leverage.

Some studies on capital structure determinants in Nigeria have also found a negative association between firm profitability and leverage. These studies include Salawu (2007), Akinlo (2011) and Ogebe *et al*. (2013) and Oino and Ukaegbu (2015).

The effect of firm performance on leverage can be explained by two contrasting hypotheses – the efficiency risk hypothesis and the franchise value hypothesis. The efficiency risk hypothesis argues that firms with high performance tend to be more levered, because their high-performance acts as a buffer against the expected cost of debt (bankruptcy/financial distress), while the franchise value hypothesis posits that firms with high performance prefer low leverage to prevent liquidation and to protect their franchise value.

Based on these hypotheses, Berger and Bonaccorsi di Patti (2006) found a reverse causal effect between leverage and firm efficiency. Their results support the agency theory and efficiency-risk hypothesis. In line with the agency theory, Margaritis and Psillaki (2007) noted that leverage reduces agency cost and improves firm efficiency. In a similar study, Margaritis and Psillaki (2010) found evidence of both the efficiency risk and franchise value hypotheses. In particular, at low to mid-level leverage, the efficiency risk hypothesis dominates the franchise value hypothesis, while at a high level of leverage the reverse case holds.

In the context of emerging and developing economies, Ganiyu (2015) established a causal link between capital structure and performance. The study found that leverage acts as a corporate mechanism to mitigate agency cost and improve firm performance. In terms of the impact of performance on capital structure, the study found support for the franchise value hypothesis. This suggests that high performing firms often prefer a lower leverage ratio to protect their franchise value.

Shyu (2012) noted that higher leverage increases firm performance, but, performance does not significantly influence leverage. Although their findings are consistent with the agency theory, it refutes both the efficiency-risk and franchise value hypotheses. King and Santor (2008) provided evidence that a reverse causal link exists between leverage and performance. In particular, they found a negative causal link between leverage and performance.

In a recent study, Jouida (2018) found evidence of a reverse causal link between capital structure and performance. The study established an inverse bi-directional causal relation between profitability and leverage. Ramli *et al* (2018) empirically showed that Malaysian firms use more external financing compared to internal financing to improve their performance.

2.4.4 Review of corporate ownership, capital structure and performance.

Only a few studies have examined the indirect impact of corporate ownership on the relationship between leverage and performance. Le and O'Brien (2010) showed that state ownership reduces firm performance; however, when interacted with leverage, it exerts a positive influence on performance. This suggests that high state ownership is unfavourable to firm value, but it improves the value of firms when interacting with leverage.

Wahba (2013) showed that managerial ownership moderates the relationship between leverage and performance. In particular, leverage reduces firm performance for firms with high concentrated managerial ownership, while it increases performance for firms with low concentrated managerial ownership.

More recently, Chung *et al.* (2018) showed that the reduction in leverage deviation due to institutional monitoring leads to higher firm value. This suggests that effective monitoring by institutional shareholders will lower leverage deviations and improve firm performance.

2.4.5 Gaps from existing studies

This study established three major gaps from previous literature. First, previous studies failed to show a clear theoretical indirect linkage of corporate ownership on firm performance, through capital structure. Although studies have used the agency theory to explain the direct impact of capital structure on firm performance as well as the direct impact of corporate ownership on firm performance, the theoretical indirect linkage between corporate ownership and firm performance, through capital structure is still underdeveloped

Second, studies have largely ignored two important methodological issues – (i) endogeneity between corporate ownership and firm performance (ii) reverse causal link between capital structure and firm performance. Previous studies on capital structure and firm performance only considered the one-way causal link, without analysing the reverse causal link from firm performance to capital structure. The reverse causal link is supported by the efficiency risk and franchise value hypotheses.

Third, only three studies have been able to estimate the indirect impact of corporate ownership on firm performance, to the best of our knowledge. Le and O'Brien (2010) estimated the indirect impact of state ownership on performance; Wahba (2013) analysed the indirect impact of managerial ownership on firm performance, while Chung *et al*. (2018) examined the indirect impact of institutional ownership on firm performance. Of the three studies, none estimated the indirect impact of foreign ownership on firm performance.

CHAPTER THREE

THEORETICAL FRAMEWORK AND METHODOLOGY

3.0 Introduction

The theoretical framework of the study, model specification, estimation techniques, sources of data and variable definitions are presented in this chapter.

3.1 Theoretical framework

This study adopts a combination of agency theory and theory of firm as the underlying framework, with some modifications to reflect the direct and indirect effects of corporate ownership structure on performance through leverage. The agency theory explains how conflicts between agents and principals affect firm value. According to Jensen and Meckling (1976), the basic assumptions of the theory are:

a) Self-interest: The interest of an agent differs from that of the principal. Agents are mostly interested in achieving their objectives, while principals are interested in maximizing shareholders' wealth.
b) There is partial goal conflict between the agent and principals.
c) Agent and principals are both rational.
d) Agents are more risk-averse than principals.
e) Existence of information asymmetry.

Based on these assumptions, the theory posits that conflict of interests between agent (manager) and principals (shareholders) will lead to agency cost which affects decision-making and firm performance. A major inadequacy of the agency theory is that it

considers shareholders as a homogenous group. However, in most publicly listed firms, the manager may be surrounded by various types of shareholders (foreign and state shareholders), with different monitoring roles. The monitoring roles played by these shareholders may have different implications on agency cost, capital structure and performance, especially in a developing economy like Nigeria with a weak institutional framework.

Most foreign investors effectively monitor their managers. The experience and active monitoring role played by foreign investors ensure good corporate governance, reduces agency cost and asymmetric information associated with procuring funds through equity financing; thus, reduce dependency on debt financing (this implies less leverage). Also, the high cost of domestic loans (interest rate) in most developing and emerging economies may deter foreign-controlled firms from engaging in domestic borrowings (Li et. al., 2009). This study argues that firms will acquire less leverage as the share of foreign ownership increases. This indicates that foreign ownership will have a negative impact on leverage. Also, the effective monitoring role played by foreign investors could reduce agency costs, increase efficiency and firm value (Choi et. al, 2012). Hence, firms with higher foreign ownership would be associated with better performance.

Also, state-affiliated firms are often associated with higher leverage. This is because they have easy access to credit given their political connections and lower probability of default which encourages managers to be more levered (Li *et al*., 2009). Therefore, state-affiliated firms would employ more leverage. Also, the state investors in developing economies often exert weak monitoring and control over their management; hence, they suffer from high agency costs which directly reduces efficiency and firm performance (Sun and Tong, 2003). Furthermore, the agency theory posits that capital structure affects firm performance (Jensen and Meckling, 1976). According to the theory, higher leverage reduces managerial incentive to engage in wasteful spending or sub-optimal investments; thus, reduces inefficiency and improves firm performance. This argument shows that the agency theory explains the influence of capital structure on performance.

Figure 3.1 shows the modified agency theory and proposes a theoretical link between corporate ownership, capital structure and firm performance. Specifically, it shows the direct effect of corporate ownership on firm performance; the direct impact of corporate ownership (foreign and state) on capital structure; the direct effect of capital structure on performance, and the mediating role (indirect effect) of corporate ownership structure on performance through capital structure.

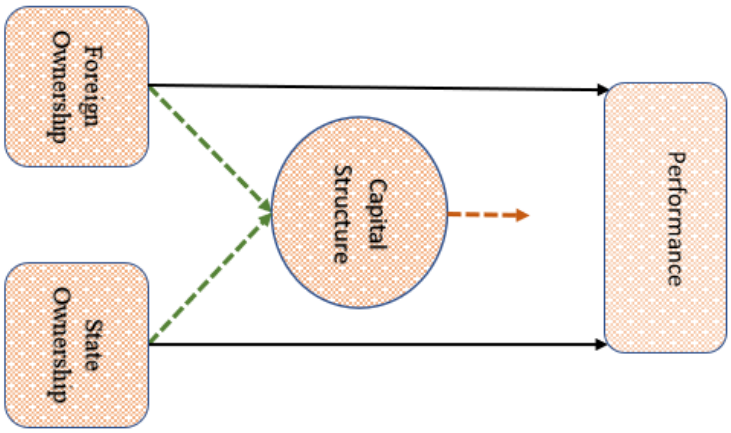

Figure 3.1: Diagrammatic rrepresentation of the modified Agency Theory

Source: Author's compilation

Furthermore, the agency theory can also be operationalized using the theory of firm which covers production cost, revenue and profit functions of a firm. The theory of firm relates revenue (R) and cost (C) to firm output level and product input prices to generate profit (π) function which reflects firm value (performance, PER) as follows:

$$\pi = R(Y, Pc) - C(Y, Pn) \quad (3.1)$$

where R = total revenue, C=total cost, Y=total output, Pc=per unit price of output and Pn=per unit input cost.

Assuming per unit price of output (Pc) and per unit input cost (Pn) are constant, then

$$\pi = f(Y) \quad (3.2)$$

Using Cobb-Douglas[7] production function to define output ($Y = AK^{\alpha}L^{\beta}$) and then substitute Y into the π function yields

$$\pi = f\left(AK^{\alpha}L^{\beta}\right) \quad (3.3)$$

In line with Berger and Bonaccorsi di Patti (2006), this study assumes that production efficiency (A) is related to the agency cost which could be substituted by capital structure and corporate ownership. This is plausible given that capital structure (CS) and corporate ownership (CO) are corporate mechanisms that could influence the agency cost and firm efficiency. Based on this, Equation (3.3) is re-specified to incorporate capital and corporate ownership structures as follows:

$$\pi = f(A(CO, CS)K^{\alpha}L^{\beta}) \quad (3.4)$$

Equation 4.4 shows that π depends on the efficiency of production (which also depends on agency cost) and the levels of inputs (capital and labour).

Alternatively, firm performance (FP) can be measured from either efficiency or productivity perspective. Since 'A' in the above production function is used to substitute firm efficiency which depends on capital structure and corporate ownership (foreign and state), it can be expressed as:

$$A = \frac{Y}{KL} = f(CO, CS) \quad (3.5)$$

[7] The Cobb-Douglas production function is ideal for estimating firm efficiency using DEA. This is because DEA models do not impose any specific functional form on the underlying technology and interactions (Fare *et. al*., 2000)

Incorporating foreign and state ownership, and a set of control variables (Z), Equation (3.5), can be re-specified in an explicit form as shown below:

$$FP = \gamma + \alpha_1 \ln CS + \alpha_2 \ln FO + \alpha_3 \ln DSO + \theta \ln Z_1 \quad (3.6)$$

Where FO is foreign ownership; DSO is state ownership and other variables remain as defined.

The link between corporate ownership (foreign and state) and capital structure is explained by the active monitoring hypothesis, within the context of the agency theory. The active monitoring hypothesis states that the shareholders will prefer higher leverage to monitor the behaviour of their manager. This is because high leverage serves as a corporate mechanism to lessen agency conflict between the manager and shareholders (Shliefer and Vishny, 1986). This implies that firms with substantial shareholders (foreign and state) will be more levered. Also, the reverse causal link between performance and capital structure can be explained by the Efficiency Risk and Franchise Value hypotheses. The Efficiency Risk hypothesis posits that firms with high efficiency will prefer more leverage. This is because higher efficiency will reduce the cost of going bankrupt and avoid potential financial distress (Margaritis and Psillaki, 2010). According to the Franchise Value hypothesis, firms with high efficiency will prefer lower leverage ratios to protect their future income or franchise value (Margaritis and Psillaki, 2010).

Following the works of Berger and Bonaccorsi di Patti (2006); Anwar and Sun (2015), this study specifies a model in which capital structure depends on corporate ownership (CO), firm performance (FP) and a set of control variables (Z) as shown below:

$$CS = f(CO, FP, Z) \quad (3.7)$$

Equation (3.7) is specified in an explicit form as shown below:

$$CS_{it} = \psi_0 + \psi_1 CO + \lambda FP + \vartheta Z_2 \quad (3.8)$$

Where CO is corporate ownership (foreign and state). Equation (3.8) is re-specified to capture the effects of foreign ownership (FO) and domestic state ownership (DSO), and performance on capital structure as given below:

$$CS_{it} = \psi_0 + \psi_1 FO + \psi_2 DSO + \lambda_1 FP + \vartheta Z_2 \quad (3.9)$$

Based on Equations (3.6) and (3.9), this study established an indirect link between corporate ownership (foreign and state) and performance through capital structure. Figure 3.2 shows the direct and indirect links with parameters.

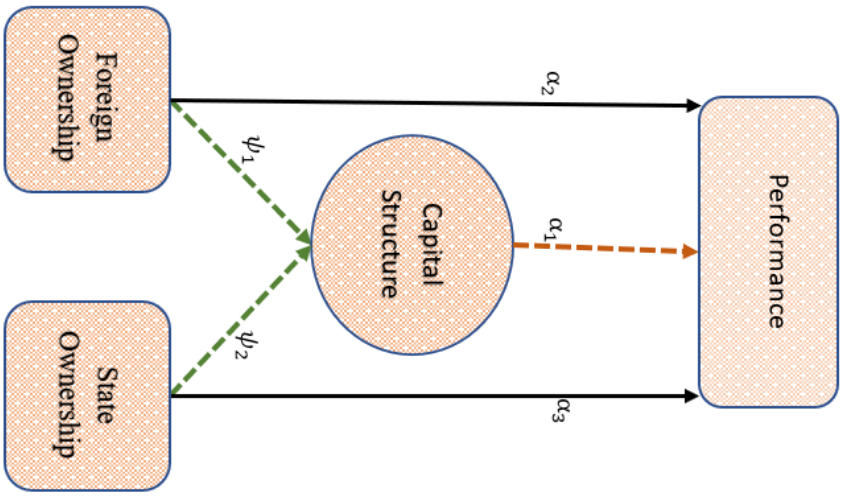

Figure 3.2: Diagrammatic representation of the theoretical model with parameters

Source: Author's compilation

3.2 Methodology

3.2.1 Model specification

A variant of the firm performance model (Equation 3.6) and capital structure model (Equation 3.9) are the estimable equations. Solving both equations simultaneously will produce the direct effect of corporate ownership (foreign and state) on capital structure and performance. The coefficients of both equations were used to compute the indirect effects of corporate ownership (foreign and state) on performance. The estimable equations are presented below:

$$FP_{it} = \alpha_0 + \alpha_1 CS_{it} + \alpha_2 FO_{it} + \alpha_3 DSO_{it} + \gamma_1 FSIZE_{it} + \gamma_2 FAGE_{it} + \gamma_3 FGWR_{it} + \gamma_3 TAN_{it} + e_{1it} \quad (3.10)$$

$$CS_{it} = \psi_0 + \psi_1 FOW_{it} + \psi_2 DSO_{it} + \lambda_1 FP_{it} + \lambda_2 FSIZE_{it} + \lambda_3 FAGE_{it} + \lambda_4 FGWR_{it} + \lambda_5 TAN_{it} + e_{2it} \quad (3.11)$$

Where *i* is the number of listed firms considered in this study and *t* is the time. The set of control variables (Z) are asset tangibility (TAN), size of firm ($FSIZE$), age of the firm ($FAGE$) and firm growth ($FGWR$). Table 3.1 shows the coefficients of the direct and indirect effects of corporate ownership (foreign and state) on performance.

Table 3.1: Direct and indirect effects of foreign and state ownership on firm performance

The direct effect of:	
Foreign ownership on capital structure	$\frac{\partial CS}{\partial FO} = \psi_1$
State ownership on capital structure	$\frac{\partial CS}{\partial DSO} = \psi_2$
Capital structure on firm performance	$\frac{\partial FP}{\partial CS} = \alpha_1$
Foreign ownership on firm performance	$\frac{\partial FP}{\partial FO} = \alpha_2$
State ownership on firm performance	$\frac{\partial FP}{\partial DSO} = \alpha_3$
The Indirect effect of:	
Foreign ownership on firm performance	$\frac{dFP}{dFO} = \frac{\partial FP}{\partial CS} * \frac{\partial CS}{\partial FO} = \alpha_1 * \psi_1$
State ownership on firm performance	$\frac{dFP}{dDSO} = \frac{\partial FP}{\partial CS} * \frac{\partial CS}{\partial DSO} = \alpha_1 * \psi_2$

Source: Author's Compilation

3.2.2 Measurement of variables

i. Corporate ownership (CO): This study considers two types of corporate ownership (foreign and state). Foreign ownership is the percentage of shares held by foreigners, while state ownership is the percentage of shares held by the government (federal and state) in a listed company. A similar definition has been used in previous studies for foreign ownership (Sun and Tong, 2003; Anwar and Sun, 2015) and state ownership (Sun and Tong, 2003; Li *et al*., 2009).

ii. Capital structure (CS): This is proxied by leverage ratio. Short-term leverage (SLEV) is the ratio of short-term debt to total assets, while long-term (LEV) and total leverage (TLEV) are the ratios of long-term debt to total assets and total debt (short-term plus long-term) to total assets respectively. A similar definition was used by Sun *et al*. (2015).

iii. Firm performance (FP): this is proxied by firm efficiency, ROA, ROE and Tobin's Q. Firm efficiency is estimated using the non-parametric Data Envelopment Analysis (DEA). The choice of the non-parametric technique over the parametric technique is based on the fact that it requires no mathematical functional form; it is capable of handling multiple inputs and outputs; and the source of inefficiency can be analysed and quantified for every evaluated unit (Coelli *et al*., 2005). ROA is the ratio of net income to total assets, ROE is the ratio of Net Income to shareholder's equity, while Tobin's Q (TOBIN) is the ratio of the firm's market value of common equity plus book value of liabilities to total assets.

iv. Firm size (FSIZE)

This is proxied by the natural logarithm of total assets. A similar definition has been used in previous studies (see Anwar and Sun, 2015). Large firms enjoy economies of scale when they are more diversified, use better technology and are better managed. As a result, they are more efficient and perform better. Studies that have found a positive relationship between firm size and performance include Margaritis and Psillaki (2010), among others. Some capital structure theories (Trade-off theory and Pecking order) posits that firm size influences capital structure. According to the trade-off theory, large firms are more profitable and less likely to face default/bankruptcy risk. The low risk reduces the cost of procuring more leverage. This suggests that large firms will prefer to substitute more equity

for debt given their high profitability and low risk. Some studies have found a positive relationship between firm size and capital structure (Brailsford *et al*., 2002; Frank and Goyal, 2009).

v. Firm growth (FGWR)

Firm growth is proxied by the change in natural logarithm of total assets of the firm. Firms with high growth often invest in profitable ventures which increases firm value. Previous studies have established a positive relationship between firm growth and performance (King and Santor, 2008; Margaritis and Psillaki, 2010).

Based on the pecking order theory, firms with high growth will issue more debt to maintain a stable or optimal debt ratio. They posit that firms with high growth potential will have a strict preference for debt financing. The theory predicts a positive relationship between firm growth and leverage. Some studies have established a positive relationship between firm growth and capital structure (King and Santor, 2008).

vi Asset tangibility (TAN)

This refers to the share of fixed assets in total assets. Studies have shown that firms with more tangible assets are often large and benefit from large economies of scale resulting in lower cost and higher performance. Also, asset sales of solvent firms add to firm value and performance (Morellec, 2001). This study expects asset tangibility to exert a positive impact on performance.

Also, the relationship between asset tangibility and capital structure is explained within the framework of the agency theory. The theory posits that firms with high tangible assets are less likely to face financial distress or bankruptcy. This is because tangible assets serve as debt collateral; thus, it reduces agency cost and firms with low agency cost are more likely to employ more debt (Jensen and Meckling, 1976). Sun *et al*. (2015) established a positive relationship between asset tangibility and capital structure.

Table 3.2: Definition and measurement of variables

	Variable	Definition/Proxy	Measurement
Key variables	Firm performance	Firm productivity	An estimate of the directional distance function using deterministic non-parametric frontier methods (DEA)
		Return on assets (ROA)	The ratio of Net Income to total assets
		Return on equity (ROE)	The ratio of Net Income to shareholder's equity
		Tobin's Q	The ratio of the firm's market value of common equity plus book value of liabilities to total assets
	Capital structure	Short-term leverage (SLEV)	The ratio of short-term debt to total assets
		Long-term leverage (LLEV)	The ratio of long-term debt to total assets
		Total leverage (TLEV)	The ratio of total debt to total assets
	Corporate ownership	Foreign ownership	Percentage of shares held by foreigners.
		State ownership	Percentage of shares held by government (Federal and State) in Nigeria.
Control variables	Firm size	Size of the firm	Natural log of total assets
	Firm growth	Growth prospects of the firm	Change in the log of total assets
	Asset tangibility	Asset structure of the firm	Fixed tangible assets divided by total assets
	Firm age	Company's age	Current year of the firm minus year of incorporation

3.2.3 Method of analysis

This study employs descriptive analysis, independent samples t-test and simultaneous regression estimation technique.

3.2.4 Descriptive statistics

The descriptive properties of each variable were examined using the mean and standard deviation statistics. The study considered both the aggregate descriptive and sectoral descriptive analyses. While the aggregate descriptive statistics were used to examine the properties of the entire market (NSE), the sectoral descriptive was employed to examine sectoral differences in the market.

3.2.5 Test of mean difference

The independent samples t-test was used to examine differences among firms in terms of corporate ownership structure, capital structure and performance in Nigeria. The test was conducted both at the aggregate level (consisting of all firms) and sectoral level (for each of the sectors). To do this, firms were classified into high and low foreign ownership as well as high and low state ownership. Firms with high foreign ownership refer to firms with at least 5 percent of foreign shareholders, while firms with less than 5 percent of foreign ownership were classified as low foreign ownership. Similarly, firms with at least 50 percent of debt in their total assets were classified as high levered firms, while those with less than 50 percent of leverage were classified as low levered firms. The mean values of firm performance and leverage were compared between firms with low and high corporate ownership. Likewise, the mean values of firm performance were compared between firms with low and high leverage ratios.

To correct for sectoral differences among firms, corporate ownership, capital structure and performance were adjusted by their sectoral mean values. The adjusted values were computed by subtracting the sectoral mean of each series from their actual values.

3.2.6 Regression estimation

This study used panel data of 70 listed firms from 1990 to 2015. Given the long-time span (1990 to 2016), each series were demeaned to control for fixed effect and cross-sectional variation across time. However, a cross-sectional dependence test was conducted to examine whether the series are cross-sectionally dependent. The estimation of the direct and indirect effects of corporate ownership (foreign and state) on firm performance, through capital structure, was conducted in two stages. The first stage computes the change in productivity (firm efficiency), using the non-parametric Data Envelopment Analysis (DEA) method, while the second stage entails solving a set of structural equations (leverage and firm performance) simultaneously, using the 3SLS instrumental variable regression estimation technique.

The Data Envelopment Analysis (DEA) technique was used to compute firm efficiency. The choice of the non-parametric DEA technique over the parametric technique (stochastic frontier) was based on the fact that the former requires no mathematical functional form and it is capable of handling multiple inputs and outputs. Also, the source of inefficiency can be analysed and quantified for every evaluated unit (Coelli *et al.,* 2005).

The second stage estimation requires estimating the firm performance and capital structure equations (Equation 4.10 and 4.11) jointly using the instrumental variable regression estimation technique. This technique is most suitable because it controls the potential endogeneity between corporate ownership and firm performance (Coles *et al.,* 2012). Also, the link between capital structure and firm performance could be established using a system of equations (Berger and Bonaccorsi di Patti, 2006). Solving the system of equations simultaneously will enable us to compute the direct and indirect effects of corporate ownership on firm performance through capital structure.

Equations 3.10 and 3.11 were estimated jointly using the 2SLS and 3SLS regression techniques. Consider a system of M equations as shown in matrix form below:

$$\begin{bmatrix} y_1 \\ y_2 \\ \vdots \\ y_M \end{bmatrix} = \begin{bmatrix} Z_1 & 0 & \dots & 0 \\ 0 & Z_2 & \dots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \dots & Z_M \end{bmatrix} \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \vdots \\ \alpha_M \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \vdots \\ \varepsilon_M \end{bmatrix}$$

The matrix can be written in matrix notation as shown below:

$$y = ZB + \varepsilon \qquad (3.12)$$

where "y" is a vector of dependent variables (capital structure and firm performance), "Z" represents both the endogenous and the exogenous right-hand-side variables in the equations (foreign ownership, state ownership and controls), "B" is a vector of coefficients and ε is the vector of error term of the ith equation.

It is assumed that there is a potential correlation between the error terms "ε" of the equations, therefore:

$$E(\varepsilon\varepsilon') = \sum$$

Also, the error term "ε" is assumed to have an expected value of 0

$$E(\varepsilon) = 0$$

Based on these assumptions, the first stage of the 3SLS entails regressing the instrumented variable on a set of instruments and exogenous variables. The predicted value of the instrumented variables is shown below:

$$\hat{Z} = \mathrm{X}(\mathrm{X}'\mathrm{X})^{-1}\mathrm{X}'Z_i \text{ for each i}$$

Where $\hat{Z}$ contains the instrumented values for all the regressors and X is the exogenous variables. The parameters of the system can be estimated by a generalized least squares (GLS) estimator. This is shown below:

$$\hat{B} = \left\{\hat{Z}'(\sum^{-1} \otimes I)\hat{Z}\right\}^{-1}\hat{Z}'(\sum^{-1} \otimes I)y$$

A consistent estimate will be obtained for $\sum$. The estimate could be obtained from the residual of the 2SLS estimates of each equation in the system. The residuals are computed from the estimates formed by assuming that $\sum$is an identity matrix.

Assume E to be the matrix of residuals from these estimates, a consistent estimate of $\sum$ is

$$\hat{\sum} = \frac{E'E}{n}$$

Where n represents the number of observations in the sample. Incorporating the estimate of $\hat{\sum}$ into the GLS estimating equation, this presents the 3SLS estimates of the system parameters as shown below:

$$\hat{B} = \{\widehat{Z}'(\sum^{-1} \otimes I)\hat{Z}\}^{-1}\widehat{Z}'(\sum^{-1} \otimes I)y$$

3.2.7 Direct and indirect effects of ownership on firm performance

This study followed the approach of Adewuyi (2016) in computing the direct and indirect effects of corporate ownership on firm performance. The regression coefficient for the indirect effect is the change in firm performance for every unit of corporate ownership that is mediated by capital structure. First, the indirect effect was computed using the Sobel (1982) product of the coefficients approach. The Preacher and Hayes (2008) bootstrapping method, which has greater power in small samples was used to correct the biased standard errors. The bootstrapping was carried out using the Preacher and Hayes (2008) Stata command.

3.2.8 Sample and data sources

The study obtained annual data of 70 non-financial firms listed on the NSE. The period of the study covers 1990 to 2015. The choice of the sample period (1990 – 2015) was based on available data. The start date was chosen based on the available data, as it was difficult to obtain audited annual reports before 1990. Also, the start sample period corresponds with the period when the Companies and Allied Matters Act (1990) was established. The end sample period was truncated in 2015 as the annual reports of most companies were not published at the time of data collection.

Two sampling criteria were employed in selecting the number of firms. First, firms must be consistently listed on the NSE from 1990 to 2015. Second, the firms must belong to the non-financial sector. From a population of about 110 listed companies (non-financial firms consistently listed from 1990 to 2015), 70 firms that met the sampling criteria were selected. The choice of the sampled firm was based on data availability.

The study sample constitutes 64 percent of the population. The selected firms span across 10 sectors[8] based on the new NSE classification. The financial sector was excluded because they operate a different financial account system (Basil and Khaled 2011), while the Alternative Securities Market (ASeM) sector was excluded due to the paucity of data on major indicators, as the sector was launched in 2013.

Data on all indicators were sourced from the audited financial reports of various companies. The audited financial reports of companies were used because listed firms are mandated to make their information public. Most of the data in this study were obtained from an independent data vendor, Analysts' Data Services and Resources (ADSR) Limited based in Ibadan, Oyo State Nigeria.

[8] Agriculture, Services, Consumer Goods, Industrial Goods, Healthcare, ICT, Natural Resources, Conglomerates, Construction/Real Estate and Oil & Gas.

CHAPTER FOUR

EMPIRICAL RESULTS AND DISCUSSIONS

4.0 Introduction

This section presents the empirical results of the study. The descriptive statistics of key variables and test of mean difference (mean comparison - t-test) are presented in this section. The regression analyses are also presented in this section.

4.1 Descriptive statistics

The aggregate descriptive statistics of key variables (corporate ownership, leverage and firm performance) are presented in Table 4.1. The mean value of foreign ownership (FO) was high at 32.8 percent. State investors had less participation in the NSE, with average ownership of 1.3 percent. Most non-financial firms employed more debt financing compared to equity. Total debt averaged about 68.0 percent of total assets, short-term and long-term leverage ratios averaged 56.7 percent and 11.7 percent respectively.

Four indicators were used to represent firm performance – efficiency (EFF), Return on Assets (ROA), Return on Equities (ROE) and Tobin's Q (Tobin). Most listed firms in Nigeria were less efficient as their average efficiency ratio stood at 30.7 percent. On average, ROA and ROE stood at 6.6 percent and 19.7 percent respectively. Tobin's Q averaged 90.4 percent. Considering other indicators, the average firm size (FSIZE) was 14.3; firm growth (FGWR) was slow at 1.3 percent and the average age of firms in Nigeria was about 40 years. Asset tangibility was 36.4 percent.

Table 4.1 Descriptive statistics

	VARIABLES	N	MEAN	SD	MIN	MAX
Corporate **ownership**	FO	1,610	32.8	25.7	0	91
	DSO	1,583	1.3	6.2	0	40
Capital structure	SLEV	1,815	56.7	60.6	3	99.0
	LLEV	1,813	11.7	22.5	0	61.4
	TLEV	1,813	68.0	65.6	0	99.0
Firm performance	EFF	1,820	30.7	27.3	0	100
	ROA	1,815	6.6	14.8	-80	79
	ROE	1,661	19.7	30.3	-98	100
	TOBIN	1,815	90.4	107.5	0.1	1117
Controls	FSIZE	1,815	14.3	2.2	8.4	20.2
	FAGE	1,820	40	15	1	92
	FGWR	1,750	1.3	2.2	-8.0	16.0
	TAN	1,804	36.4	21.3	1.0	99
Others	YK	1,820	1.3	2.6	-21.9	37.1

Source: Author's computation

The sectoral averages of key variables are presented in Table 4.2. In line with the aggregate result, foreign investors dominated most sectors as they accounted for more than a quarter of total ownership. For instance, foreign ownership in the Conglomerates was 55.3 percent, Agriculture was 47 percent and Consumer Goods stood at 41.2 percent of total ownership in the sector. Other sectors such as Construction/Real Estate (35.3 percent), ICT (31.0 percent), Oil and Gas (28.3 percent), Industrial Goods (27.9 percent) and Healthcare (24.6 percent) had a relatively moderate degree of foreign ownership. Natural Resources (23.0 percent) and Services (20.5 percent) sectors had the least foreign participation. For state ownership, the government had investments in only five sectors. Also, state ownership was less than five percent in most of the sectors. Specifically, the Oil and Gas sector had the highest state ownership (6.7 percent), followed by Industrial Goods (1.5 percent), Services (1.2 percent), Conglomerates (0.7 percent) and Health care (0.5 percent).

Further analysis reveals that leverage ratio varies across sectors and that most sectors were more levered in short-term debt compared to long-term debt. The Oil and Gas sector was more levered in short-term debt than other sectors. On average, trade credit and other short-term financing accounted for 76.7 percent of total assets in the Oil and Gas sector. Also, the average short-term leverage ratio in the Agriculture, Construction/Real Estate, Consumer Goods, Natural Resources, Conglomerates and ICT sectors were relatively high at 69.1 percent, 64.7 percent, 61.2 percent, 54.1 percent, 53.0 percent and 52.6 percent respectively. Also, short-term leverage was relatively high in Industrial Goods, Services and Healthcare sectors with an average of 49.5 percent, 47.8 percent and 45.9 percent respectively.

In terms of long-term leverage, the ICT and agricultural sectors employed more long-term debt compared to other sectors. The average long-term leverage ratio in the ICT and Agriculture sectors were 22.6 percent and 21.8 percent respectively. Long-term leverage ratio in the Natural Resources, Consumer Goods, Oil and Gas, Healthcare and Construction/Real Estate sectors averaged 14.5 percent, 13.1 percent, 12.9 percent, 11.4 percent and 10.9 percent respectively. Other sectors such as Industrial Goods,

Conglomerates and Services had the least average long-term leverage ratios of 9.7 percent, 8.2 percent and 8.1 percent respectively.

Furthermore, the productivity measure of firm performance (firm efficiency) varies across sectors and most sectors were less efficient. Oil and Gas was the only efficient sector, with an average efficiency score of 54.8. Other sectors such as ICT (36.9), Consumer Goods (35.6), Agriculture (28.5), Services (26.8), Industrial Goods (26.0) and Healthcare (24.8) were less efficient. On the bottom side, the least efficient sectors were Natural Resources 18.1, Construction/Real Estate 18.7 and Conglomerate 21.0.

Financial performance, measured in terms of firm profitability indicators (ROA and ROE), varied across sectors. In terms of ROA, Consumer Goods ranked top with an average ROA of 10.0 percent which suggests that the net income accounted for 10 percent of the total assets in the sector. This is followed closely by Industrial Goods, Services and Natural Resources, with an average ROA of 7.8 percent, 6.7 percent and 6.7 percent respectively. Also, ROA in the Oil and Gas sector was 6.2 percent, ICT 5.5 percent and Conglomerate 4.2 percent. The sectors with the least ROA were Healthcare, Agriculture and Construction/Real Estate, with an average of 3.4 percent, 2.1 percent and 1.0 percent respectively. In terms of ROE, the Consumer Goods sector had the highest ROE of 28.4 percent, followed closely by Oil and Gas with 27.5 percent, Natural Resources 24.5 percent, Agriculture 21.2 percent and ICT 20.4 percent. ROE in the Industrial Goods sector was 17.1 percent, Services 14.1 percent, Healthcare 13.6 percent, Conglomerates 10.7 percent, while Construction/Real Estate had the least ROE of 9.6 percent.

In terms of firm value proxied by Tobin's Q, the Natural Resources, Consumer Goods, Industrial Goods and Oil and Gas sectors had the highest firm value of 1.3, 1.2, 1.1 and 1.0 respectively. Other sectors such as Agriculture (0.8) Healthcare (0.7), Services (0.6), ICT (0.6) had a relatively high firm value, while the Conglomerates and Construction/Real Estate sectors both had the least firm value of 0.3.

Table 4.2 Descriptive statistics by sectors

	Corporate Ownership		Capital Structure			Firm Performance			
	FO	DSO	SLEV	LLEV	TLEV	EFF	ROA	ROE	TOBIN
Agriculture	47	-	69.1	21.8	90.8	28.5	2.1	21.2	0.8
Consumer Goods	41.2	-	61.2	13.1	74.4	35.6	10	28.4	1.2
Services	20.5	1.2	47.8	8.1	54.7	26.8	6.7	14.1	0.6
Industrial Goods	27.9	1.5	49.5	9.7	58.7	26	7.8	17.1	1.1
Healthcare	24.6	0.5	45.9	11.4	57.2	24.8	3.4	13.6	0.7
ICT	31	-	52.6	22.6	76	36.9	5.5	20.4	0.6
Natural Resources	23	-	54.1	14.5	68.3	18.1	6.7	24.5	1.3
Conglomerates	55.3	0.7	53	8.2	61	21	4.2	10.7	0.3
Construction/Real Estate	35.3	-	64.7	10.9	75.2	18.7	1	9.6	0.3
Oil and Gas	28.3	6.7	76.7	12.9	88.2	54.8	6.2	27.5	1

Source: Author's computation

4.2 Test of means difference

4.2.1 Mean comparison of ownership and firm performance, by capital structure (leverage)

The mean comparison of corporate ownership and firm performance across low[9] and high[10] leveraged firms are presented in Table 4.3. From the results, firms with high short-term leverage ratios have significantly higher foreign and state ownership. Also, firms with high short-term leverage ratios were more efficient and performed better in terms of ROE, while ROA was significantly lower for firms with higher short-term leverage. The higher efficiency could be linked to the effective monitoring of high levered firms. Tobin's Q showed no significant difference when high and low short-term leverage ratios were considered.

[9] Firms with less than 50 percent leverage ratio
[10] Firms with at least 50 percent leverage ratio

Table 4.3: Mean comparison of ownership and firm performance by low and high leverage

		Short-term leverage		
		High	Low	Difference
Corporate Ownership	FO	35.2	30	5.2**
	DSO	1.9	0.7	1.2**
Firm Performance	EFF	34.6	26.7	7.9**
	ROA	4.2	9.1	-4.9**
	ROE	22	17.8	4.2**
	TOBIN	0.87	0.94	-0.7

Source: Author's computation

Note: (i) the symbols***, ** and * connote significance at 1, 5 percent and 10 percent respectively. *(ii) leverage ratio less than 50% is low and leverage ratio above 50 is high*

4.2.2 Comparison of capital structure and performance by ownership types

Table 4.4 shows the mean comparison of capital structure and firm performance between firms with high and low corporate ownership. Firms with high foreign ownership had higher leverage (short-term and long-term debt) than firms with low foreign ownership, though the mean difference in leverage was not significant. All the firm performance indicators differ significantly between low and high foreign ownership. For instance, firms with high foreign ownership performed better, in terms of efficiency and profitability, compared to others with low percentage of foreign ownership. This could be attributed to the gains from superior technology, better experience and effective monitoring practised by most foreign shareholders.

Short-term leverage is significantly different in firms with low and high state ownership. Firms with high state ownership employed significantly high short-term leverage and less long-term leverage. Also, all firm performance indicators (efficiency, ROA, ROE and Tobin's Q) are significantly lower for firms with high state ownership compared with firms with low state ownership.

Table 4.4 Mean comparison of capital structure and firm performance by ownership types

		Foreign ownership			State ownership		
		High	Low	Difference	High	Low	Difference
Capital Structure	SLEV	56.6	60.4	-3.8**	63.4	57.7	5.7
	LLEV	11.1	11.8	-0.7	6.1	11.5	-5.4**
Firm Performance	EFF	33.4	28.3	5.1**	31.1	32	-0.9*
	ROA	7.7	6.1	1.6**	4.7	7.4	-2.7*
	ROE	22.5	18.4	4.1**	13.5	21.8	-8.3**
	TOBIN	0.9	1.0	-0.1**	0.6	0.95	-0.3**

Source: Author's computation

Note: (i) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively.

4.3 Regression analysis

The results are structured into three sections. The first section shows the aggregate regression results which examined the direct effect of corporate ownership and capital structure (hereafter referred to as capital structure) on firm performance. The second section presents the direct effect of corporate ownership and capital structure on firm performance, during and after the equity market liberalisation as well as during and after the privatisation policy in Nigeria. The third section presents the sectoral analysis which shows the impact of corporate ownership (foreign and state) on capital structure and firm performance.

4.3.2 Cross-sectional dependence (CSD) test

Table 4.5 presents the CSD test result which examines the presence of cross-sectional dependence in the errors. The test fails to reject the null hypothesis that the key variables are cross-sectionally independent. From the result, we conclude that most of the variables are cross-sectionally independent.

Table 4.5: Cross-Sectional Dependence (CSD) test

	VARIABLES	CSD-test	p-value
Corporate Ownership	FO	12.73	0.275
	DSO	11.11	0.305
Capital structure	SLEV	9.45	0.415
	LLEV	14.52	0.149
	TLEV	13.93	0.168
Firm Performance	EFF	5.63	0.570
	ROA	6.10	0.429
	ROE	14.01	0.159
	TOBIN	4.67	0.062
Control	FSIZE	2.05	0.003
	FAGE	9.88	0.442
	FGWR	3.29	0.041
	TAN	1.60	0.004

Source: Author's computation

4.3.2 Aggregate analyses: the impacts of corporate ownership and capital structure on firm performance.

The results from Table 4.6 indicate that capital structure affects firm efficiency. A percentage increase in short-term leverage (SLEV), long-term (LLEV) and total leverage (TLEV) ratios will increase efficiency by 0.12 percent, 0.67 percent and 0.11 percent respectively. The findings are consistent with the agency cost theory which noted that higher capital structure would reduce agency cost and improve firm performance. The results support previous findings which showed that high leverage is an effective corporate governance mechanism used to reduce agency costs and enhance efficiency (Margaritis and Psillaki, 2010; Le and O'Brien, 2010; Wahba, 2013; Ganiyu, 2015).

Furthermore, firms with high efficiency employed higher leverage. Precisely, a percentage increase in firm efficiency will increase SLEV by 8.39 percent; LLEV and TLEV by 1.45 percent and 9.40 percent. The positive impact of firm efficiency on leverage suggests that firms with high efficiency will prefer higher leverage. This is plausible given that improved firm performance is associated with high expected returns which serve as a cushion to lower portfolio risks and reduce the likelihood of incurring bankruptcy cost or financial distress. The results validate the efficiency-risk hypothesis and are consistent with the findings of Margaritis and Psillaki (2010).

Foreign ownership directly affects capital structure. A percentage increase in foreign ownership will reduce SLEV, LLEV and TLEV ratios by 1.80 percent, 0.29 percent and 1.97 percent respectively. Previous studies also established that foreign-controlled firms are associated with lower leverage (Ezeoha and Okafor, 2010; Bamiatzi et. al., 2017). This is plausible given that the high cost of debt (interest) in most developing and emerging countries increases operating expenses as well as the risk associated with bankruptcy (Majumdari and Chhibber, 1999; O'Brien, 2003; Le and O'Brien, 2010; Bamiatzi et. al., 2017). Also, the negative impact of foreign ownership on leverage could be linked to the asymmetric information associated with debt financing and the ease of accessing cheap foreign capital and grants which reduces their tendency to be highly levered in the operating country.

High foreign ownership is directly associated with increased firm efficiency. A percentage increase in foreign ownership will directly increase efficiency by about 0.21 - 0.23 percent. The improved efficiency could be linked to the superior technology as well as effective monitoring roles played by foreign shareholders. This is consistent with the results of previous studies which showed that foreign-affiliated firms possess superior technology, organizational capital, and have better access to international capital markets which help to improve firm performance (Bai *et al*., 2004; Nakano and Nguyen, 2013).

Domestic state ownership (also referred to as state ownership) directly affects leverage and reduces firm efficiency. A percentage increase in state ownership will increase SLEV, LLEV and TLEV ratios by 9.26 percent, 2.32 percent and 11.14 percent respectively. The positive relationship between state ownership and leverage suggests that firms with higher state ownership will employ more leverage as level of state ownership increases. The increased leverage resulting from higher state ownership could be linked to their easy access to credit, as state-affiliated firms are politically connected. Also, their lower probability of debt default encourages managers of state-affiliated firms to be more levered. Previous studies have also established a positive relationship between state ownership and leverage (see Dewenter and Malatesta, 2001; Li *et al*., 2009; Pöyry and Maury, 2010). State ownership exerts a negative direct impact on firm efficiency. A percentage increase in state ownership will directly reduce efficiency by 1.10 - 1.59 percent. The negative association between state ownership and efficiency suggests that state-affiliated firms are less efficient. This is plausible given that state-affiliated firms are associated with weak corporate governance which exacerbates agency cost and directly reduces firm efficiency. This confirms the findings of Li et. al. (2009).

Foreign ownership indirectly lowers firm efficiency, while state ownership indirectly increases firm efficiency. A percentage increase in foreign ownership will reduce efficiency by 0.20 - 0.21 percent through leverage. The negative indirect relationship between foreign ownership and firm efficiency could be attributed to the low leverage employed by foreign-controlled firms in Nigeria. Low leverage ratios weaken corporate governance, increase agency cost as well as reduce firm efficiency. State ownership

indirectly improves firm efficiency through its influence on leverage. A percentage increase in state ownership will indirectly increase efficiency by 1.10 - 1.59 percent through leverage. This is plausible given that high leverage in state-affiliated firms helps to reduce agency cost and improves firm efficiency. This is in line with the findings of Le and O'Brien (2010).

Firm age and tangible assets are significant factors that affect both leverage and firm efficiency. The positive impact of firm age on leverage suggests that older firms are more levered, while the negative influence of firm age on efficiency suggests that older firms are less efficient. Firms with high tangible assets employed higher leverage. This is consistent with the findings of Wiwattanakantang (1999).

Table 4.6: The impacts of corporate ownership and capital structure on firm performance (firm efficiency).

	Panel A		Panel B		Panel C	
	EFF	SLEV	EFF	LLEV	EFF	TLEV
SLEV	0.118***					
	(0.010)					
LLEV			0.686***			
			(0.054)			
TLEV					0.106***	
					(0.006)	
EFF		8.395***		1.458***		9.399***
		(0.988)		(0.117)		(0.725)
FO	0.224***	-1.797***	0.219***	-0.289***	0.229***	-1.965***
	(0.051)	(0.489)	(0.066)	(0.100)	(0.052)	(0.514)
DSO	-1.102***	9.256***	-1.592***	2.321***	-1.185***	11.137***
	(0.165)	(1.719)	(0.215)	(0.332)	(0.166)	(1.728)
FSIZE	0.011	-0.089	-0.001	0.001	0.010	-0.093
	(0.011)	(0.088)	(0.014)	(0.020)	(0.011)	(0.101)
FAGE	-0.006***	0.053***	-0.009***	0.013***	-0.007***	0.065***
	(0.002)	(0.016)	(0.002)	(0.003)	(0.002)	(0.017)
FGWR	0.209	-1.768	0.296	-0.432	0.194	-1.821
	(0.245)	(2.006)	(0.313)	(0.455)	(0.246)	(2.291)
TAN	-0.400***	3.357***	-0.504***	0.735***	-0.420***	3.952***
	(0.035)	(0.494)	(0.045)	(0.080)	(0.035)	(0.440)
C	0.012**	-0.104**	0.024***	-0.036***	0.015***	-0.138***
	(0.005)	(0.045)	(0.006)	(0.010)	(0.005)	(0.049)
INDIRECT: FO	-0.212**		-0.197**		-0.208**	
	(0.087)		(0.078)		(0.094)	
INDIRECT: DSO	1.096***		1.591**		1.183***	
	(0.299)		(0.889)		(0.423)	
OBS	1,359		1,351		1,353	
F-STAT	427.08	76.83	335.59	185.77	577.76	172.58
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
OVERID	8.74		1.17		6.46	
	(0.18)		(0.97)		(0.37)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.7 presents the direct effect of corporate ownership and capital structure on financial performance (ROA). It also reports the indirect effects of corporate ownership on financial performance. The results show strong evidence that capital structure affects financial performance. Leverage has a positive impact on ROA. A percentage increase in SLEV, LLEV and TLEV ratios will increase ROA by 0.06 percent, 0.80 percent and 0.11 percent respectively. These results support the agency cost theory which states that higher capital structure is an effective mechanism used to reduce agency cost and improve firm performance.

ROA has a positive impact on capital structure. A percentage increase in ROA will lead to a 1.55 percent increase in short-term leverage, 0.13 percent increase in long-term leverage and 0.92 percent increase in total leverage. The positive impact of firm performance on leverage supports the efficiency risk hypothesis. Also, the results are consistent with the findings of Wahba (2013) which suggests that more profitable firms employ higher leverage.

The impact of foreign ownership on leverage is not statistically significant. This suggests that foreign ownership has no direct significant effect on SLEV, LLEV and TLEV ratios in the ROA model. Likewise, the indirect effect of foreign ownership on ROA is not statistically significant. State ownership has no significant direct effect on SLEV, LLEV and TLEV. Similarly, the indirect impact of state ownership on ROA is not statistically significant.

Table 4.7: The impacts of corporate ownership and capital structure on firm performance (ROA).

	Panel A		Panel B		Panel C	
	ROA	SLEV	ROA	LLEV	ROA	TLEV
SLEV	0.065***					
	(0.013)					
LLEV			0.797***			
			(0.012)			
TLEV					0.109***	
					(0.022)	
ROA		1.547***		0.125***		0.915***
		(0.311)		(0.021)		(0.174)
FO	-0.042	0.648	-0.057	0.072	-0.063	0.575
	(0.093)	(1.435)	(0.067)	(0.084)	(0.091)	(0.820)
DSO	6.509	-100.744	0.701	-0.879	6.093	-5.574*
	(4.877)	(74.161)	(2.593)	(3.254)	(3.711)	(3.857)
FSIZE	0.087	-1.349	0.026	-0.033	0.090*	-0.821**
	(0.058)	(0.878)	(0.032)	(0.040)	(0.046)	(0.401)
FAGE	-0.002	0.028	-0.006***	0.008***	-0.003	0.028
	(0.003)	(0.048)	(0.002)	(0.003)	(0.003)	(0.028)
FGWR	0.988*	-15.292*	1.603***	-2.012***	1.144**	-10.464**
	(0.529)	(8.960)	(0.354)	(0.445)	(0.477)	(4.888)
TAN	-0.274***	4.246***	-0.314***	0.394***	-0.282***	2.579***
	(0.095)	(1.596)	(0.060)	(0.075)	(0.082)	(0.807)
C	-0.011	0.171	0.003	-0.004	-0.012	0.107
	(0.010)	(0.147)	(0.007)	(0.008)	(0.009)	(0.082)
INDIRECT : FO	0.041 (.256)		0.057 (.113)		0.062 (.189)	
INDIRECT : DSO	-6.508 (12.610)		-0.700 (2.580)		-6.093 (4.358)	
OBS	1,359		1,352		1,354	
F-STAT	50.64 (0.00)	26.05 (0.00)	4404.40 (0.00)	4389.41 (0.00)	53.98 (0.00)	31.22 (0.00)
OVERID	0.03 (0.98)		0.001 (0.99)		0.04 (0.97)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.8 presents the direct impact of corporate ownership and capital structure on firm performance (ROE). It also reports the indirect effects of corporate ownership on firm performance. The results show that capital structure has a positive effect on firm performance. A percentage increase in SLEV, LLEV and TLEV ratios will increase ROE by 0.11 percent, 0.91 percent and 0.087 percent respectively. This is in line with the agency cost theory which states that higher capital structure would reduce agency cost and enhance firm performance. Similarly, a percentage increase in ROE will improve SLEV, LLEV and TLEV by 0.92 percent, 1.10 percent and 1.14 percent respectively.

Foreign ownership has a negative effect on capital structure. A percentage increase in foreign ownership will reduce leverage by 0.24 - 2.93 percent. The results corroborate the findings of Ezeoha and Okafor (2010); Bamiatzi *et al.* (2017), which concluded that foreign-affiliated firms employ lower debt ratio to mitigate the risk of failure. Also, foreign-affiliated firms ensure good corporate governance which reduces information asymmetry associated with procuring more funds by issuing more equities. State ownership affects LLEV ratio but has no significant impact on both SLEV and total-term leverage ratios. A percentage increase in state ownership will increase LLEV ratio by 0.91 percent. Foreign ownership has a direct positive impact on ROE. A percentage increase in foreign ownership will directly increase ROE by 0.22 - 0.28 percent through leverage. This confirms the findings of Omran (2009), which noted that high foreign ownership facilitates effective monitoring of managers, improve corporate governance, reduces inefficiency and enhances firm performance. State ownership directly affects ROE in the LLEV model. A percentage increase in state ownership will reduce ROE by 0.83 percent.

Foreign ownership has a significant indirect impact on ROE. Specifically, a percentage increase in foreign ownership will indirectly reduce ROE by 0.26 percent, 0.22 percent and 0.25 percent in the SLEV, LLEV and TLEV models. The indirect impact of state ownership on ROE is not statistically significant.

Table 4.8: The impacts of corporate ownership and capital structure on firm performance (ROE).

	Panel A		Panel B		Panel C	
	ROE	SLEV	ROE	LLEV	ROE	TLEV
SLEV	0.108***					
	(0.012)					
LLEV			0.911***			
			(0.033)			
TLEV					0.087***	
					(0.012)	
ROE		0.925***		1.098***		1.148***
		(0.125)		(0.040)		(0.214)
FO	0.274***	-2.354**	0.226*	-0.237*	0.275***	-2.926**
	(0.098)	(0.981)	(0.122)	(0.134)	(0.097)	(1.277)
DSO	-0.173	1.602	-0.829***	0.910***	-0.242	2.775
	(0.234)	(2.165)	(0.291)	(0.318)	(0.230)	(2.645)
FSIZE	-0.061***	0.566***	-0.058**	0.064**	-0.063***	0.727***
	(0.019)	(0.195)	(0.023)	(0.025)	(0.018)	(0.265)
FAGE	0.007**	-0.062**	0.001	-0.001	0.006**	-0.073*
	(0.003)	(0.029)	(0.004)	(0.004)	(0.003)	(0.038)
FGWR	1.996***	-18.477***	2.283***	-2.507***	2.057***	-23.628***
	(0.418)	(4.472)	(0.521)	(0.576)	(0.411)	(6.176)
TAN	-0.180***	1.667***	-0.332***	0.364***	-0.192***	2.209***
	(0.056)	(0.568)	(0.070)	(0.077)	(0.055)	(0.742)
C	0.011	-0.102	0.021**	-0.024**	0.012	-0.141
	(0.009)	(0.082)	(0.011)	(0.012)	(0.008)	(0.102)
INDIRECT: FO	-0.254*** (0.013)		-0.216*** (0.014)		-0.254** (0.0189)	
INDIRECT: DSO	-.0173 (.240)		0.828 (1.514)		0.241 (0.389)	
OBS	1,175		1,173		1,175	
F-STAT	145.76	56.49	808.44	787.21	124.56	30.18
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
OVERID	0.68 (0.71)		0.001 (0.99)		0.78 (0.67)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of corporate ownership and capital structure on Tobin's Q and the indirect effects of corporate ownership on Tobin's Q through capital structure are reported in Table 4.9. The results show that capital structure has a positive impact on Tobin's Q. This is consistent with the agency cost theory which notes that higher capital structure would reduce agency cost and improve firm performance. A percentage increase in SLEV, LLEV and TLEV ratios will increase Tobin's Q by 0.36 percent, 3.59 percent and 0.45 percent respectively. This result is consistent with previous studies (Margaritis and Psillaki, 2010; Wahba, 2013). Similarly, firms with high Tobin's Q will be more levered. A percentage increase in Tobin's Q will increase SLEV, LLEV and TLEV ratios by 2.20 - 2.80 percent. Although the impact of foreign ownership on capital structure is not statistically significant, state ownership has a significant impact on LLEV. A percentage increase in state ownership will increase LLEV by 0.77 percent.

Foreign ownership has no significant direct effect on Tobin's Q. This suggests that Tobin's Q is insensitive to the degree of foreign ownership. State ownership has a significant negative impact on firm performance, only in the LLEV model. A percentage increase in state ownership will directly reduce Tobin's Q by 2.75 percent. The negative direct impact of state ownership on Tobin's Q could be linked to the weak monitoring role played by state investors. This increases agency cost and inefficiency as well as lower firm value.
In terms of indirect effects of both foreign and state ownership on Tobin's Q, the results show no statistically significant impact on Tobin's Q. This implies that both foreign and state ownership do not pass through capital structure to affect Tobin's Q.

Table 4.9: The impacts of corporate ownership and capital structure on firm performance (Tobin's Q)

	TOBIN	SLEV	TOBIN	LLEV	TOBIN	TLEV
SLEV	0.357***					
	(0.021)					
LLEV			3.585***			
			(0.239)			
TLEV					0.454***	
					(0.028)	
TOBIN		2.804***		0.279***		2.203***
		(0.194)		(0.019)		(0.147)
FO	0.464	-1.302	0.232	-0.065	0.395	-0.870
	(0.303)	(0.853)	(0.400)	(0.112)	(0.311)	(0.687)
DSO	-0.474	1.328	-2.746***	0.766***	-0.804	1.772
	(0.691)	(1.935)	(0.926)	(0.255)	(0.710)	(1.561)
FSIZE	-0.089*	0.250	-0.106	0.030	-0.075	0.165
	(0.054)	(0.154)	(0.072)	(0.020)	(0.056)	(0.124)
FAGE	0.058***	-0.162***	0.039***	-0.011***	0.054***	-0.118***
	(0.009)	(0.028)	(0.012)	(0.004)	(0.009)	(0.023)
FGWR	1.795	-5.033	2.842*	-0.793*	2.155*	-4.747*
	(1.229)	(3.443)	(1.630)	(0.454)	(1.265)	(2.785)
TAN	0.134	-0.375	-0.405*	0.113*	0.079	-0.173
	(0.175)	(0.489)	(0.234)	(0.064)	(0.179)	(0.395)
Constant	0.041	-0.114	0.088***	-0.025***	0.039	-0.086
	(0.025)	(0.072)	(0.034)	(0.009)	(0.026)	(0.058)
INDIRECT: FO	-0.464 (0.730)		-0.232 (0.413)		-0.394 (0.689)	
INDIRECT: DSO	0.473 (.933)		2.746 (6.063)		0.804 (1.091)	
OBS	1,360		1,353		1,355	
F-STAT	400.30 (0.00)	209.80 (0.00)	296.85 (0.00)	255.96 (0.00)	387.18 (0.00)	228.65 (0.00)
OVERID	1.249 (0.53)		0.02 (0.98)		1.00 (0.60)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

4.3.4 Aggregate analyses: The impacts of corporate ownership and capital structure on firm performance during different policy regimes

To further understand the impact of corporate ownership on leverage and firm performance during various policy periods in Nigeria, this study considered two major policies (equity market liberalisation and privatisation) related to corporate ownership participation in the domestic economy.

(i) The effects of capital structure and corporate ownership on firm performance during the partial and full equity market liberalisation era.

Tables 4.10 – 4.15 show the direct effects of corporate ownership and capital structure on firm efficiency. Also, the tables report the indirect effects of corporate ownership on firm efficiency, during the partial (1990-1995) and full equity market liberalisation era (1996-2015). In line with our previous analyses, leverage has a significant effect on firm efficiency during both periods. During the partial liberalisation era, a percentage increase in SLEV, LLEV and TLEV ratios increased efficiency by 0.17 percent, 1.21 percent and 0.15 percent respectively. However, during the full liberalisation era, a percentage increase in SLEV, LLEV and TLEV ratios increased efficiency by 0.14 percent, 0.81 percent and 0.14 percent respectively. This is in line with the agency cost theory and it shows that leverage is an effective corporate mechanism to mitigate agency cost and enhance firm efficiency during the partial and full liberalisation era.

More efficient firms tend to be less levered in both SLEV and TLEV during the partial liberalisation. This is consistent with the franchise value hypothesis which suggests that more efficient firms often prefer lower debt ratio to protect their economic rents derived from higher efficiency (Demsetz, 1973; Margaritis and Psillaki, 2010). On the contrary, more efficient firms tend to be more levered in SLEV, LLEV and TLEV during the full liberalisation era. The positive impact of firm efficiency on leverage, during the full liberalisation era, suggests that more efficient firms would prefer to employ more debt given that improved performance is associated with high expected returns which serve as a buffer against portfolio risks and reduce the likelihood of bankruptcy cost or financial distress (Margaritis and Psillaki, 2010).

Foreign ownership is positively associated SLEV and TLEV during the partial privatisation period. A percentage increase in foreign ownership increased SLEV and TLEV ratios by 3.05 percent and 3.54 percent respectively, while it reduced LLEV by 0.26 percent during the partial liberalisation era. The increase in leverage during the partial liberalisation is plausible given that restriction on foreign participation could limit funds/grants from the international community; hence, listed firms may access loans from the domestic capital market, and this would increase their leverage ratio. Firms with more foreign ownership employed less leverage during full liberalisation. During the full liberalisation era, a percentage increase in foreign ownership will reduce SLEV, LLEV and TLEV ratios by about 1.11 percent, 0.20 percent and 1.10 percent respectively. The low leverage employed by firms during full liberalisation is plausible given that no restriction was placed on foreign participation in the equity market. The absence of restriction on foreign participation led to higher foreign participation and hence more aids/grants from their international community and less leverage from the domestic capital market. In line with our expectations, foreign ownership has a direct effect on efficiency both during partial and full liberalisation periods. A percentage increase in foreign ownership will directly increase efficiency by 0.42 - 0.51 percent during the partial liberalisation period, and 0.15 – 0.16 percent during the full liberalisation period. The results support previous findings which showed that foreign-controlled firms often have superior technology which helps to improve performance (Sun and Tong, 2003; Bai *et al.*, 2004).

State ownership has no direct significant impact on leverage and efficiency during partial liberalisation. During the full liberalisation era, a percentage increase in state ownership will increase SLEV, LLEV and TLEV ratios by 1.00 percent, 2.79 percent and 11.73 percent respectively. The high leverage associated with state-affiliated firms, during the full liberalisation could be linked to their easy access to loans given their low probability of default or low financial risk (Allen *et al*., 2005). State ownership has no significant impact on firm efficiency during the partial liberalisation period. However, the impact was significant during the full liberalisation period. A percentage increase in state ownership will directly reduce efficiency by 1.44 - 2.27 percent. The low efficiency associated with state-affiliated firms, during full liberalisation, could be attributed to their weak

monitoring/control which induces managers to exert sub-optimal effort in creating value for shareholders (Dharwadkar *et al*., 2000).

In terms of the indirect effects, foreign ownership indirectly passes through capital structure to lower firm efficiency, both during the partial and full liberalisation. In line with our previous results, a percentage increase in foreign ownership will indirectly reduce efficiency by 0.50 – 0.51 during the partial liberalisation period and 0.15 – 0.16 during the full liberalisation period. The results show that state ownership passes through capital structure to enhance firm efficiency. A percentage increase in state ownership will indirectly increase efficiency by 1.41-2.26 percent through leverage, only during the full liberalisation era.

Table 4.10: The impacts of corporate ownership and capital structure (short-term leverage) on firm performance (before the full equity market liberalisation policy).

	Partial Liberalisation	
	EFF	SLEV
SLEV	0.165***	
	(0.008)	
EFF		-6.071***
		(0.331)
FO	0.502***	3.047***
	(0.116)	(0.722)
DSO	-0.080	-0.486
	(0.252)	(1.526)
FSIZE	-0.012	-0.074
	(0.025)	(0.154)
FAGE	0.020	0.121
	(0.018)	(0.111)
FGWR	1.266**	7.683**
	(0.563)	(3.437)
TAN	-0.516***	-3.134***
	(0.093)	(0.580)
C	0.115	0.700
	(0.139)	(0.844)
INDIRECT: FO	-.502***	
	(0.155)	
INDIRECT: DSO	.080	
	(.319)	
OBS	149	149
F-STAT	491.19	337.05
	(0.00)	(0.00)
OVERID	1.80	
	(0.93)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.11: The impacts of corporate ownership and capital structure (short-term leverage) on firm performance (during the full equity market liberalisation policy).

	Full Liberalisation	
	EFF	SLEV
SLEV	0.141***	
	(0.014)	
EFF		7.001***
		(0.954)
FO	0.159***	-1.105**
	(0.057)	(0.436)
DSO	-1.436***	1.00***
	(0.199)	(0.189)
FSIZE	0.006	-0.047
	(0.012)	(0.084)
FAGE	-0.008***	0.057***
	(0.002)	(0.015)
FGWR	0.305	-2.161
	(0.280)	(1.900)
TAN	-0.397***	2.781***
	(0.037)	(0.460)
C	0.022***	-0.152***
	(0.006)	(0.051)
INDIRECT: FO	-.155*	
	(.088)	
INDIRECT: DSO	1.413***	
	(.512)	
OBS	1,210	1,210
F-STAT	378.03	62.48
	(0.00)	(0.00)
OVERID	11.27	
	(0.08)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.12: The impacts of corporate ownership and capital structure (long-term leverage) on firm performance (before the full equity market liberalisation policy)

	Partial Liberalisation	
	EFF	LLEV
LLEV	1.211***	
	(0.410)	
EFF		-0.650*
		(0.353)
FO	0.429***	-0.260
	(0.123)	(0.203)
DSO	0.129	-0.131
	(0.270)	(0.165)
FSIZE	-0.040	0.032*
	(0.028)	(0.016)
FAGE	0.019	-0.014
	(0.019)	(0.012)
FGWR	1.527***	-1.037*
	(0.579)	(0.573)
TAN	-0.414***	0.270*
	(0.095)	(0.155)
C	0.152	-0.115
	(0.145)	(0.090)
INDIRECT: FO	-.315	
	(.235)	
INDIRECT: DSO	-.158	
	(.368)	
OBS	148	148
F-STAT	65.66	13.04
	(0.00)	(0.07)
OVERID	7.56	
	(0.27)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.13: The impacts of corporate ownership and capital structure (long-term leverage) on firm performance (during full equity market liberalisation policy)

	Full Liberalisation	
	EFF	LLEV
LLEV	0.813***	
	(0.072)	
EFF		1.228***
		(0.107)
FO	0.160**	-0.196*
	(0.080)	(0.101)
DSO	-2.267***	2.786***
	(0.292)	(0.376)
FSIZE	-0.006	0.007
	(0.017)	(0.021)
FAGE	-0.013***	0.016***
	(0.003)	(0.003)
FGWR	0.460	-0.565
	(0.396)	(0.485)
TAN	-0.531***	0.653***
	(0.054)	(0.078)
C	0.038***	-0.047***
	(0.008)	(0.011)
INDIRECT: FO	-.159**	
	(.080)	
INDIRECT: DSO	2.265**	
	(1.140)	
OBS	1,203	1,203
F-STAT	268.28	163.93
	(0.00)	(0.00)
OVERID	1.57	
	(0.95)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.14: The impacts of corporate ownership and capital structure (total leverage) on firm performance (before the full equity market liberalisation policy)

	Partial Liberalisation	
	EFF	TLEV
TLEV	-0.145***	
	(0.008)	
EFF		-6.898***
		(0.449)
FO	0.513***	3.536***
	(0.116)	(0.834)
DSO	-0.124	-0.854
	(0.252)	(1.735)
FSIZE	-0.006	-0.043
	(0.026)	(0.175)
FAGE	0.017	0.119
	(0.018)	(0.126)
FGWR	1.211**	8.357**
	(0.565)	(3.930)
TAN	-0.505***	-3.485***
	(0.093)	(0.669)
C	0.092	0.637
	(0.139)	(0.958)
INDIRECT: FO	-.512***	
	(.144)	
INDIRECT: DSO	.123	
	(.352)	
OBS	150	150
F-STAT	384.95	237.18
	(0.00)	(0.00)
OVERID	2.13	
	(0.90)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.15: The impacts of corporate ownership and capital structure (total leverage) on firm performance (during the equity market liberalisation policy)

	Full Liberalisation	
	EFF	TLEV
TLEV	0.135***	
	(0.010)	
EFF		7.367***
		(0.726)
FO	0.150***	-1.102**
	(0.057)	(0.438)
DSO	-1.592***	1.173***
	(0.200)	(0.176)
FSIZE	0.008	-0.058
	(0.012)	(0.089)
FAGE	-0.009***	0.068***
	(0.002)	(0.015)
FGWR	0.292	-2.162
	(0.281)	(2.030)
TAN	-0.425***	3.129***
	(0.037)	(0.399)
C	0.024***	-0.178***
	(0.006)	(0.049)
INDIRECT: FO	-.148	
	(.101)	
INDIRECT: DSO	1.583***	
	(.608)	
OBS	1,203	1,203
F-STAT	477.66	111.84
	(0.00)	(0.00)
OVERID	12.01	
	(0.06)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

(iii) The effects of capital structure and corporate ownership on firm performance before and after the privatisation policy.

Table 4.16 – 4.21 presents the direct effects of capital structure and corporate ownership on firm efficiency. Also, the tables show the indirect effect of corporate ownership on efficiency before and after privatisation. Capital structure has a significant impact on firm efficiency, both before and after privatisation. A percentage increase in leverage will increase firm efficiency by 0.11 - 0.25 percent before privatisation and 0.05 - 0.63 percent after privatisation. This suggests that debt serves as an effective corporate mechanism to lessen agency cost and improve efficiency, both before and after privatisation. More efficient firms employed higher LLEV before privatisation. The impacts of SLEV and TLEV on efficiency are not statistically significant before privatisation. After privatisation, more efficient firms employed higher leverage ratios. This shows that listed firms would prefer more leverage after privatisation.

Foreign ownership has a significant effect on SLEV, LLEV and TLEV before privatisation. A percentage increase in foreign ownership will lower SLEV, LLEV and TLEV by 0.52 percent, 2.69 percent and 1.18 percent. Foreign ownership directly affects efficiency before privatisation. A percentage increase in foreign ownership will increase efficiency by 0.28 - 0.36 percent. After privatisation, foreign ownership negatively affected leverage. A percentage increase in foreign ownership will reduce SLEV, LLEV and TLEV ratios by 4.13, 0.35 and 3.43 percent respectively. Also, a percentage increase in foreign ownership will improve efficiency by 0.19 - 0.22 percent after privatisation.

State ownership is positively related to LLEV before privatisation, while SLEV and TLEV have no significant relationship with state ownership before privatisation. In line with our previous results, a percentage increase in state ownership will increase LLEV by 1.25 percent. State ownership has a positive direct effect on efficiency before privatisation. A percentage increase in state ownership will lower efficiency by 1.38 – 1.57 percent. Similarly, state ownership positively affected leverage and negatively affected efficiency after privatisation. A percentage increase in state ownership will increase SLEV, LLEV and TLEV ratios by 2.06 percent, 3.63 percent and 1.94 percent respectively. Also, a

percentage increase in state ownership will reduce firm efficiency by 0.97 – 2.23 percent after privatisation.

In terms of the indirect effects, foreign and state ownership affect efficiency through leverage, both before and after privatisation. A percentage increase in foreign ownership will indirectly lower efficiency, a percentage increase in state ownership will indirectly increase efficiency through leverage.

Table 4.16: The impacts of corporate ownership and capital structure (short-term leverage) on firm performance (before the 1999 privatisation policy)

	Before privatisation	
	EFF	SLEV
SLEV	0.246**	
	(0.027)	
EFF		2.016
		(1.963)
FO	0.289***	-0.524***
	(0.103)	(0.069)
DSO	-1.574***	3.449
	(0.280)	(2.918)
FSIZE	0.012	-0.084
	(0.039)	(0.074)
FAGE	-0.005	0.034
	(0.015)	(0.024)
FGWR	0.841	-2.318
	(0.526)	(1.619)
TAN	-0.397***	0.619
	(0.125)	(0.981)
C	0.034	0.033
	(0.063)	(0.187)
INDIRECT: FO	-0.128***	
	(0.013)	
INDIRECT: DSO	0.848	
	(0.621)	
OBS	420	420
F-STAT	103.07	13.75
	(0.00)	(0.05)
OVERID	2.28	
	(0.31)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.17: The impacts of corporate ownership and capital structure (short-term leverage) on firm performance (after the 1999 privatisation policy).

	After privatisation	
	EFF	SLEV
SLEV	0.047***	
	(0.002)	
EFF		21.359***
		(0.857)
FO	0.193***	-4.132***
	(0.065)	(1.392)
DSO	-0.967***	2.065***
	(0.263)	(0.566)
FSIZE	-0.002	0.036
	(0.014)	(0.288)
FAGE	-0.006**	0.122**
	(0.002)	(0.053)
FGWR	-0.392	8.369
	(0.351)	(7.512)
TAN	-0.391***	8.361***
	(0.041)	(0.930)
C	0.016*	-0.347*
	(0.009)	(0.202)
INDIRECT: FO	-0.193***	
	(0.010)	
INDIRECT: DSO	0.510***	
	(0.003)	
OBS	892	892
F-STAT	878.39	621.45
	(0.00)	(0.00)
OVERID	0.52	
	(0.76)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.18: The impacts of corporate ownership and capital structure (long-term leverage) on firm performance (before the 1999 privatisation policy)

	Before privatisation	
	EFF	LLEV
LLEV	0.113***	
	(0.003)	
EFF		8.873***
		(0.277)
FO	0.303***	-2.691***
	(0.091)	(0.809)
DSO	-1.418***	1.258***
	(0.218)	(0.197)
FSIZE	-0.019	0.173
	(0.020)	(0.177)
FAGE	0.007	-0.065
	(0.006)	(0.052)
FGWR	0.497	-4.409
	(0.372)	(3.308)
TAN	-0.490***	4.348***
	(0.071)	(0.641)
C	0.088***	-0.785***
	(0.026)	(0.233)
INDIRECT: FO	-0.303***	
	(0.0.17)	
INDIRECT: DSO	1.23**	
	(0.659)	
OBS	419	419
F-STAT	1171.07	1027.67
	(0.00)	(0.00)
OVERID	0.002	
	(0.99)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.19: The impacts of corporate ownership and capital structure (long-term leverage) on firm performance (after the 1999 privatisation policy)

	After privatisation	
	EFF	LLEV
LLEV	0.632**	
	(0.251)	
EFF		1.581**
		(0.628)
FO	0.223**	-0.352*
	(0.087)	(0.193)
DSO	-2.295***	3.631***
	(0.650)	(0.806)
FSIZE	-0.006	0.009
	(0.018)	(0.029)
FAGE	-0.007**	0.012*
	(0.003)	(0.006)
FGWR	0.484	-0.768
	(0.607)	(0.810)
TAN	-0.489***	0.773***
	(0.066)	(0.263)
C	0.008	-0.013
	(0.014)	(0.025)
INDIRECT: FO	-.222**	
	(.101)	
INDIRECT: DSO	2.29	
	(2.312)	
OBS	885	885
F-STAT	88.98	33.89
	(0.00)	(0.00)
OVERID	0.134	
	(0.93)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.20: The impacts of corporate ownership and capital structure (total leverage) on firm performance (before the 1999 privatisation policy)

	Before privatisation	
	EFF	TLEV
TLEV	0.145***	
	(0.012)	
EFF		-2.749
		(3.188)
FO	0.364***	1.177***
	(0.097)	(0.107)
DSO	-1.378***	-3.541
	(0.222)	(4.645)
FSIZE	-0.033	-0.156*
	(0.024)	(0.089)
FAGE	0.015*	0.073**
	(0.009)	(0.031)
FGWR	0.462	0.963
	(0.373)	(2.138)
TAN	-0.525***	-1.616
	(0.078)	(1.560)
C	0.109***	0.405
	(0.034)	(0.283)
INDIRECT: FO	-0.170***	
	(0.017)	
INDIRECT: DSO	0.514	
	(0.606)	
OBS	421	421
F-STAT	123.68	11.02
	(0.00)	(0.13)
OVERID	4.70	
	(0.09)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.21: The impacts of corporate ownership and capital structure (total leverage) on firm performance (after the 1999 privatisation policy).

	After privatisation	
	EFF	TLEV
TLEV	0.056***	
	(0.000)	
EFF		17.932***
		(0.050)
FO	0.191***	-3.432***
	(0.066)	(0.117)
DSO	-1.082***	1.939***
	(0.267)	(0.004)
FSIZE	-0.000	0.000
	(0.014)	(0.246)
FAGE	-0.006**	0.101**
	(0.003)	(0.045)
FGWR	-0.350	6.280
	(0.360)	(6.463)
TAN	-0.400***	7.174***
	(0.041)	(0.741)
C	0.013	-0.224
	(0.010)	(0.172)
INDIRECT: FO	-0.191**	
	(0.092)	
INDIRECT: DSO	0.608***	
	(0.006)	
OBS	885	885
F-STAT	130205.02	129946.05
	(0.00)	(0.00)
OVERID	0.006	
	(0.99)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

4.3.4. Disaggregated analyses: the impacts of corporate ownership and capital structure on firm performance.

(i) The impacts of corporate ownership and capital structure on firm performance in the Agriculture sector.

Table 4.22 shows the direct effect of leverage and corporate ownership on efficiency and the indirect effects of corporate ownership on efficiency in the Agriculture sector. Leverage affects efficiency in the Agriculture sector. Firms with higher leverage (SLEV and TLEV) are associated with higher efficiency. A percentage increase in SLEV and TLEV ratios will increase efficiency by 0.35 percent and 0.28 percent respectively. The positive relationship between leverage (SLEV and TLEV) and efficiency is in line with the agency hypothesis. Also, it suggests that leverage (SLEV and TLEV) is an effective corporate governance mechanism to reduce agency cost and enhance firm efficiency in the Agriculture sector. LLEV has a negative association with firm efficiency. A percentage rise in LLEV will reduce efficiency by 0.56 percent. This suggests that LLEV is not an effective corporate governance mechanism to reduce agency cost and increase firm efficiency in the agricultural sector. More efficient firms are associated with higher SLEV and TLEV ratios. This suggests that more efficient firms in the Agriculture sector will be more levered in SLEV and total debt. Also, firms with high efficiency are associated with lower LLEV. This implies that more efficient firms will be less levered in long-term debt.

Foreign ownership directly affects SLEV. A percentage increase in foreign ownership will increase SLEV by 1.38 percent. The positive direct effect of foreign ownership on SLEV reveals that foreign investors in the agricultural sector will prefer more SLEV. There is no significant relationship between foreign ownership and LLEV as well as TLEV. Contrary to expectation, firms with higher foreign ownership are associated with lower efficiency in the Agriculture sector. A percentage increase in foreign ownership will directly reduce efficiency by 0.49 percent in the SLEV model.

Furthermore, foreign ownership has no significant indirect effect on efficiency through leverage in the Agriculture sector. This could be attributed to the insignificant effect of LLEV and TLEV ratios on firm performance in the Agriculture sector.

Table 4.22: The impacts of corporate ownership and capital structure on firm performance (firm efficiency) in the Agricultural sector.

	Panel A		Panel B		Panel C	
	EFF	SLEV	EFF	LLEV	EFF	TLEV
SLEV	0.353***					
	(0.048)					
LLEV			-0.555***			
			(0.068)			
TLEV					0.278***	
					(0.048)	
EFF		2.820***		-1.788***		3.543***
		(0.390)		(0.286)		(0.651)
FO	-0.489*	1.387**	0.252	0.449	-0.292	1.073
	(0.250)	(0.644)	(0.212)	(0.379)	(0.229)	(0.749)
FSIZE	0.115	-0.328	-0.241***	-0.432***	0.094	-0.349
	(0.115)	(0.314)	(0.080)	(0.145)	(0.106)	(0.357)
FAGE	-0.036*	0.103**	0.026*	0.047*	-0.029	0.106*
	(0.020)	(0.052)	(0.014)	(0.025)	(0.018)	(0.059)
FGWR	0.149	-0.410	0.332	0.585	0.575	-2.006
	(2.207)	(6.235)	(1.513)	(2.640)	(1.932)	(6.890)
TAN	-1.052***	2.970***	-0.835***	-1.494***	-0.955***	3.395***
	(0.288)	(0.855)	(0.204)	(0.412)	(0.252)	(1.018)
C	-0.029	0.084	-0.020	-0.036	0.006	-0.020
	(0.047)	(0.132)	(0.032)	(0.056)	(0.041)	(0.146)
INDIRECT: FO	.489 (.552)		-.249 (.259)		.297 (.643)	
OBS	41	41	41	41	41	41
F-STAT	66.29	90.67	92.26	41.43	51.67	64.56
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
OVERID	1.627 (0.803)		5.649 (0.226)		2.731 (0.603)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.23 presents the direct impact of capital structure and corporate ownership structure on ROA in the Agriculture sector. The indirect impact of corporate ownership on ROA in the Agriculture sector is also presented in Table 4.23. Firms with higher leverage are associated with lower ROA. A percentage increase in leverage will reduce efficiency by 0.12-0.17 percent. The negative impact of leverage on firm profitability suggests that leverage is not an effective corporate governance mechanism to reduce agency cost and enhance ROA in the Agriculture sector. Firms with high ROA are associated with lower leverage. This result supports the franchise value hypothesis.

Foreign ownership has no significant effect on leverage. Also, the direct and indirect effects of foreign ownership on ROA are not statistically significant in the Agriculture sector. This implies that foreign ownership does not pass through leverage to affect firm profitability in the Agriculture sector.

Table 4.23: The impacts of corporate ownership and capital structure on firm performance (ROA) in the Agriculture sector.

	Panel A		Panel B		Panel C	
	ROA	SLEV	ROA	LLEV	ROA	TLEV
SLEV	-0.158***					
	(0.018)					
LLEV			-0.168***			
			(0.027)			
TLEV					-0.116***	
					(0.004)	
ROA		-6.334***		-5.939***		-8.643***
		(0.981)		(1.379)		(0.288)
FO	-0.037	-0.238	-0.216	-1.286	-0.083	-0.720
	(0.122)	(0.814)	(0.198)	(1.186)	(0.114)	(0.988)
FSIZE	-0.102**	-0.643**	-0.117*	-0.692*	-0.140***	-1.206***
	(0.046)	(0.280)	(0.063)	(0.370)	(0.043)	(0.372)
FAGE	0.013	0.085	0.010	0.058	0.016*	0.141*
	(0.009)	(0.055)	(0.013)	(0.075)	(0.008)	(0.073)
FGWR	1.535	9.720	0.481	2.849	0.917	7.929
	(1.050)	(6.652)	(1.348)	(8.106)	(1.002)	(8.670)
TAN	-0.359***	-2.274**	-0.760***	-4.514***	-0.524***	-4.527***
	(0.131)	(0.968)	(0.174)	(1.342)	(0.124)	(1.082)
C	0.033	0.207	0.025	0.148	0.032*	0.279*
	(0.020)	(0.128)	(0.026)	(0.154)	(0.019)	(0.168)
INDIRECT: FO	.037 (.319)		.216 (.252)		.083 (.083)	
OBS	43	43	43	43	43	43
F-STAT	154.48	71.05	83.13	22.39	1007.03	926.48
	(0.0)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
OVERID	1.081 (0.582)		1.023 (0.599)		0.031 (0.984)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.24 shows the direct impact of leverage and corporate ownership structure on ROE in the Agriculture sector. It also presents the indirect effects of corporate ownership on ROE in the sector. As depicted in the table, firms with higher leverage are associated with lower ROE. A percentage increase in SLEV, LLEV and TLEV ratios will increase ROE by 0.36 percent, 0.45 percent and 0.44 percent respectively. Also, firms with high ROE are associated with lower leverage.

Foreign ownership positively affects SLEV and TLEV ratios. A percentage increase in foreign ownership will increase SLEV by 2.43 percent and TLEV by 2.54 percent. Foreign ownership negatively affects LLEV. A percentage increase in foreign ownership will reduce LLEV by 0.21 percent. In line with expectations, foreign ownership directly affects ROE. A percentage increase in foreign ownership will increase ROE by 0.91 – 1.11 percent.

In terms of indirect effect, foreign ownership has no significant impact on ROE in the Agriculture sector. This implies that foreign ownership does not pass through leverage to affect firm ROE in the Agriculture sector.

Table 4.24: The impacts of corporate ownership and capital structure on firm performance (ROE) in the Agriculture sector

	Panel A		Panel B		Panel C	
	ROE	SLEV	ROE	LLEV	ROE	TLEV
SLEV	-0.360***					
	(0.130)					
LLEV			-0.451***			
			(0.044)			
TLEV					-0.438***	
					(0.085)	
ROE		-1.617***		-2.216***		-2.143***
		(0.484)		(0.254)		(0.366)
FO	0.909***	2.431***	-0.094	-0.208	1.114***	2.531***
	(0.346)	(0.424)	(0.225)	(0.494)	(0.287)	(0.477)
FSIZE	-0.465***	-1.062***	-0.249***	-0.552***	-0.608***	-1.360***
	(0.130)	(0.231)	(0.086)	(0.194)	(0.128)	(0.244)
FAGE	0.070***	0.174***	0.022	0.049	0.094***	0.212***
	(0.024)	(0.037)	(0.016)	(0.034)	(0.023)	(0.040)
FGWR	1.906	3.472	1.185	2.627	2.209	4.824
	(1.898)	(4.611)	(1.744)	(3.850)	(2.170)	(5.052)
TAN	-0.122	0.161	-0.447**	-0.990**	-0.130	-0.236
	(0.250)	(0.576)	(0.215)	(0.482)	(0.263)	(0.614)
C	0.117***	0.259***	0.016	0.036	0.092**	0.201**
	(0.043)	(0.093)	(0.034)	(0.076)	(0.043)	(0.100)
INDIRECT: FO	-.874 (.812)		.093 (.399)		-1.108 (.877)	
OBS	39	39	39	39	39	
F-STAT	97.78 (0.00)	122.24 (0.0)	77.86 (0.000)	36.10 (0.0)	112.18 (0.000)	
OVERID	1.765 (0.778)		9.655 (0.046)		2.456 (0.956)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.25 shows the direct impact of leverage and corporate ownership on Tobin's Q, and the indirect effects of corporate ownership on Tobin's Q in the agricultural sector. Leverage negatively affects Tobin's Q. A percentage increase in SLEV, LLEV and TLEV ratios will reduce Tobin's Q by 2.35 percent, 3.90 percent and 2.26 percent respectively. The negative relationship between leverage and Tobin's Q suggests that leverage is not an effective corporate governance mechanism to reduce agency cost and improve Tobin's Q in the Agriculture sector. Also, higher Tobin's Q is associated with lower leverage in the agricultural sector.

From the results, foreign ownership affects leverage and Tobin's Q in the Agriculture sector. Higher foreign ownership is associated with more leverage. A percentage increase in foreign ownership will increase SLEV by 1.90 percent, LLEV by 0.53 percent and TLEV by 2.02 percent. In addition, foreign ownership directly affects Tobin's Q. A percentage increase in foreign ownership will improve Tobin's Q by 2.12 – 4.72 percent. This is consistent with the previous results in this section.

Indirectly, foreign ownership affects Tobin's Q through SLEV. A percentage increase in foreign ownership will indirectly reduce Tobin's Q by 4.46 percent through SLEV.

Table 4.25: The impacts of corporate ownership and capital structure on firm performance (Tobin's Q) in the Agriculture sector.

	Panel A		Panel B		Panel C	
	TOBIN	SLEV	TOBIN	LLEV	TOBIN	TLEV
SLEV	-2.350***					
	(0.455)					
LLEV			-3.900***			
			(0.699)			
TLEV					-2.351***	
					(0.420)	
TOBIN		-0.400***		-0.250***		-0.411***
		(0.072)		(0.060)		(0.067)
FO	4.412***	1.897***	2.117*	0.531*	4.716***	2.016***
	(1.381)	(0.411)	(1.262)	(0.322)	(1.425)	(0.457)
FSIZE	-1.652***	-0.706***	-1.162**	-0.295**	-2.090***	-0.890***
	(0.580)	(0.200)	(0.531)	(0.126)	(0.637)	(0.217)
FAGE	0.391***	0.165***	0.277***	0.070***	0.453***	0.192***
	(0.103)	(0.034)	(0.093)	(0.024)	(0.112)	(0.037)
FGWR	12.985*	5.253	16.653**	4.166**	14.453*	5.990*
	(7.365)	(3.226)	(7.789)	(2.089)	(7.895)	(3.465)
TAN	2.871**	1.198**	-0.870	-0.222	2.525*	1.061*
	(1.241)	(0.508)	(1.280)	(0.308)	(1.301)	(0.550)
C	0.279	0.120	-0.266	-0.068	0.107	0.046
	(0.210)	(0.085)	(0.213)	(0.050)	(0.215)	(0.092)
INDIRECT: FO	-4.457* (2.698)		-2.069 (2.413)		-4.738 (4.582)	
OBS	42	42	42	42	42	42
F-STAT	35.81 (0.000)	118.67 (0.000)	41.01 (0.000)	21.09 (0.001)	39.32 (0.000)	122.03 (0.000)
OVERID	8.846 (0.065)		4.836 (0.304)		7.235 (0.124)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

(ii) The impacts of corporate ownership and capital structure on firm performance in the Services sector.

Leverage affects efficiency in the Services sector (see Table 4.26). A percentage increase in SLEV and TLEV ratios will reduce efficiency by 0.83 percent and 0.80 percent. The negative impact of leverage (SLEV and total) on firm efficiency could be linked to the weak monitoring of creditors which could lead to inefficient utilization of debt and further increase agency cost as well as lower firm efficiency. Also, high levered firms are often faced with debt overhang which could hinder firms from getting additional debt even in the presence of viable investment opportunities. This result is consistent to the findings of Majumdari and Chhibber (1999); O'Brien (2003) and Le and O'Brien (2010). Long term leverage has a positive impact on efficiency in the Services sector. A percentage increase in LLEV will increase efficiency by 2.29 percent. Efficiency has a positive effect on leverage. The results suggest that firms in the Services sector will prefer to substitute more debt (SLEV and TLEV) for equity as their efficiency increases.

Foreign ownership does not affect SLEV, but positively increases LLEV. A percentage increase in foreign ownership will increase LLEV by 0.22 percent. Firms with higher foreign ownership in the Services sector are directly associated with improved efficiency. A percentage increase in foreign ownership will directly increase efficiency by 0.26 - 0.53 percent. Given that most firms in this sector are service-oriented and technology-dependent, the positive impact of foreign ownership on firm efficiency could be linked to the superior technology or technical expertise employed by foreign investors as well as the effective monitoring roles played by foreign shareholders.

State ownership has a positive effect on SLEV and TLEV ratios. A percentage increase in state ownership will increase SLEV and TLEV ratios by 3.70 percent and 2.86 percent respectively. Also, state ownership has a direct positive impact on efficiency. A percentage increase in state ownership will directly increase efficiency by 3.00- 3.06 percent.

Foreign ownership has no significant indirect effect on efficiency, but state ownership indirectly reduced efficiency by 3.06 percent through SLEV.

Table 4.26: The impacts of corporate ownership and capital structure on firm performance (firm efficiency) in the Services sector.

	Panel A		Panel B		Panel C	
	EFF	SLEV	EFF	LLEV	EFF	TLEV
SLEV	-0.826***					
	(0.110)					
LLEV			2.923***			
			(0.803)			
TLEV					-0.796***	
					(0.147)	
EFF		-1.185***		0.340***		-1.168***
		(0.180)		(0.081)		(0.233)
FO	0.257*	0.301	-0.646*	0.222**	0.531***	0.635***
	(0.152)	(0.186)	(0.387)	(0.099)	(0.165)	(0.207)
DSO	3.064***	3.701***	-1.134	0.387	2.299***	2.860**
	(0.970)	(1.033)	(1.711)	(0.588)	(1.028)	(1.125)
FSIZE	-0.031	-0.037	-0.048	0.016	-0.014	-0.016
	(0.045)	(0.051)	(0.080)	(0.028)	(0.048)	(0.056)
FAGE	-0.002	-0.002	-0.009	0.003	-0.002	-0.002
	(0.009)	(0.010)	(0.016)	(0.005)	(0.009)	(0.011)
FGWR	0.442	0.514	-0.178	0.063	0.975	1.153
	(0.687)	(0.801)	(1.262)	(0.433)	(0.734)	(0.878)
TAN	-1.009***	-1.205***	-0.700***	0.238**	-0.973***	-1.166***
	(0.152)	(0.200)	(0.259)	(0.102)	(0.165)	(0.232)
C	0.030*	0.036*	0.034	-0.012	0.031*	0.038*
	(0.016)	(0.019)	(0.030)	(0.010)	(0.018)	(0.020)
INDIRECT: FO	-0.248 (.190)		0.648 (.401)		-0.505** (.320)	
INDIRECT: DSO	-3.057** (1.335)		1.132 (.809)		-2.277** (1.825)	
OBS	132	132	132	132	132	132
F-STAT	92.90	69.13	24.42	42.53	60.93	37.74
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
OVERID	1.0599 (0.89)		3.598 (0.948)		6.093 (0.589)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of leverage and corporate ownership on ROA and the indirect effects of corporate ownership on ROA in the service sector are presented in Table 4.27. The results show significant relationships between leverage and efficiency. A percentage rise in SLEV and TLEV ratios will reduce ROA by 0.21 percent and 0.22 percent respectively. Although, firms in the Services sector employed low debt ratio, the negative effect of leverage on ROA suggests that firms in the sector could be faced with debt overhang. Hence, additional debt incurred will increase bankruptcy or financial distress cost. This result is consistent with the findings of Majumdari and Chhibber (1999); O'Brien (2003) and Le and O'Brien (2010). On the contrary, higher LLEV is associated with improved ROA. A percentage increase in LLEV will lead to 0.90 percent increase in ROA. This indicates that LLEV debt financing drives ROA in the Services sector. Higher ROA is negatively associated with lower SLEV and TLEV ratios. Thus, profitable firms in the Services sector will prefer low SLEV and total debt. The converse is applicable in terms of LLEV as more profitable firms will employ more leverage.

Foreign ownership positively affects LLEV and TLEV ratios. A percentage rise in foreign ownership will directly increase LLEV and TLEV ratios by 0.25 percent and 0.64 percent respectively. The positive effect of foreign ownership on LLEV may suggest that foreign investors will prefer LLEV financing. This is plausible given that foreign investors often have a long-term investment horizon. There is weak evidence that high foreign ownership directly increases profitability in the Services sector. Similarly, state ownership has no significant direct effect on leverage and ROA. This suggests that ROA is insensitive to changes in state ownership.

The indirect effects of foreign and state ownership on ROA through leverage are not statistically significant.

Table 4.27: The impacts of corporate ownership and capital structure on firm performance (ROA) in the Services sector.

	Panel A		Panel B		Panel C	
	ROA	SLEV	ROA	LLEV	ROA	TLEV
SLEV	-0.207***					
	(0.024)					
LLEV			0.900**			
			(0.357)			
TLEV					-0.217***	
					(0.033)	
ROA		-4.840***		1.090***		-4.601***
		(0.696)		(0.422)		(0.846)
FO	0.067	0.326	-0.219	0.245**	0.140*	0.644*
	(0.075)	(0.364)	(0.155)	(0.111)	(0.080)	(0.370)
DSO	0.035	0.173	-1.061*	1.163	-0.066	-0.297
	(0.451)	(2.175)	(0.599)	(0.729)	(0.478)	(2.205)
FSIZE	-0.034	-0.165	-0.039	0.043	-0.030	-0.136
	(0.022)	(0.108)	(0.028)	(0.034)	(0.023)	(0.110)
FAGE	0.006	0.029	0.004	-0.004	0.006	0.028
	(0.004)	(0.021)	(0.006)	(0.007)	(0.005)	(0.022)
FGWR	0.668**	3.233*	0.452	-0.486	0.802**	3.689**
	(0.339)	(1.708)	(0.446)	(0.573)	(0.360)	(1.758)
TAN	-0.184**	-0.891***	-0.112	0.123	-0.184**	-0.850**
	(0.072)	(0.345)	(0.090)	(0.105)	(0.076)	(0.351)
C	-0.002	-0.010	0.000	-0.000	-0.002	-0.007
	(0.008)	(0.039)	(0.010)	(0.012)	(0.009)	(0.039)
INDIRECT: FO	-.067 (.075)		.220 (.272)		-.139 (.103)	
INDIRECT: DSO	-.035 (.849)		1.046 (.850)		.064 (1.050)	
OBS	132	132	132	132	132	132
F-STAT	83.03	54.34	13.25	26.80	52.14	33.10
	(0.000)	(0.000)	(0.066)	(0.000)	(0.000)	(0.000)
OVERID	1.610 (0.778)		0.291 (0.950)		1.635 (0.788)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of leverage and corporate ownership on ROE and the indirect effects of corporate ownership on ROE in the service sector are presented in Table 4.28. The results show that SLEV and TLEV ratios negatively affect ROE in the Services sector. A percentage increase in SLEV and TLEV ratios will lead to 1.00 percent and 0.91 percent reduction in ROE. This suggests that SLEV and TLEV ratios are not effective corporate governance mechanisms used to improve firm performance in the Services sector. On the contrary, LLEV has a positive effect on ROE. A percentage increase in LLEV will lead to 2.90 percent increase in ROE. Firm performance has significant effects on leverage.

Foreign ownership affects LLEV and TLEV ratios in the Services sector. A percentage increase in foreign ownership will increase LLEV by 0.24 percent and TLEV by 0.59 percent. Foreign ownership only affects ROE in the TLEV-ROE model. A percentage increase in foreign ownership will lead to 0.55 percent increase in ROE. For state ownership, a percentage increase will lead to 1.57 percent increase in LLEV and reduce ROE by 4.63 percent.

The indirect effects of foreign and state ownership on ROE through leverage are not statistically significant.

Table 4.28: The impacts of corporate ownership and capital structure on firm performance (ROE) in the Services sector.

	Panel A		Panel B		Panel C	
	ROE	SLEV	ROE	LLEV	ROE	TLEV
SLEV	-0.997***					
	(0.185)					
LLEV			2.902**			
			(1.225)			
TLEV					-0.905***	
					(0.164)	
ROE		-0.939***		0.333***		-1.057***
		(0.207)		(0.120)		(0.221)
FO	0.205	0.183	-0.673	0.236**	0.547***	0.588***
	(0.187)	(0.182)	(0.507)	(0.105)	(0.194)	(0.211)
DSO	0.086	0.187	-4.630**	1.567*	0.603	0.743
	(1.386)	(1.262)	(2.355)	(0.816)	(1.459)	(1.489)
FSIZE	-0.028	-0.027	-0.040	0.014	-0.025	-0.026
	(0.056)	(0.050)	(0.083)	(0.029)	(0.057)	(0.059)
FAGE	-0.004	-0.004	-0.010	0.004	0.001	0.001
	(0.011)	(0.010)	(0.017)	(0.006)	(0.011)	(0.012)
FGWR	1.486	1.325	1.109	-0.353	2.183**	2.289**
	(0.911)	(0.965)	(1.450)	(0.555)	(0.916)	(1.101)
TAN	-0.431**	-0.428***	-0.066	0.022	-0.391**	-0.428**
	(0.190)	(0.162)	(0.266)	(0.094)	(0.192)	(0.190)
C	0.013	0.014	0.014	-0.005	0.019	0.021
	(0.020)	(0.018)	(0.030)	(0.010)	(0.021)	(0.021)
INDIRECT: FO	-.182 (.237)		.684 (.537)		-.532 (.316)	
INDIRECT: DSO	-.186 (1.785)		4.548 (5.269)		-.672 (2.401)	
OBS	127	127	127	127	127	127
F-STAT	45.54	41.37	13.75	32.80	46.09	32.61
	(0.000)	(0.000)	(0.055)	(0.000)	(0.000)	(0.000)
OVERID	1.341 (0.578)		0.305 (1.789)		0.154 (0.919)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.29 presents the direct effect of leverage and corporate ownership on Tobin's Q, and the indirect effects of corporate ownership on Tobin's Q in the Services sector. The results show that leverage (SLEV and total) negatively affects Tobin's Q. A percentage increase in SLEV and TLEV ratios will reduce Tobin's Q by 1.17 percent and 1.16 percent respectively. The negative effect of leverage (SLEV and TLEV) on Tobin's Q could be linked to the weak utilization of debt resulting from poor corporate governance which increases agency cost and lowers Tobin's Q. This supports the findings of O'Brien (2003). Foreign ownership has a direct effect on both leverage and Tobin's Q. Higher foreign ownership will directly reduce SLEV and increase LLEV. A percentage rise in foreign ownership will reduce SLEV by 0.91 percent and 0.37 percent respectively. A percentage increase in foreign ownership will reduce Tobin's Q by 0.66 – 1.06 percent. This shows that foreign investors in the Services sector have a long-term investment horizon and will prefer more LLEV debt financing.

State ownership has a significant direct impact on leverage and Tobin's Q. A percentage rise in state ownership will decrease SLEV by 6.40 percent and TLEV by 7.23 percent. This suggests that the state-controlled firms in the Services sector will prefer less SLEV and TLEV ratios. Higher state ownership is negatively associated with Tobin's Q. A percentage increase in state ownership will lower Tobin's Q by 7.49 - 12.61 percent. The low monitoring role played by most state-affiliated firms could increase agency cost, reduce inefficiency as well as market value. Previous studies have established a negative direct association between state ownership and firm performance (Sun and Tong, 2003; Le and O'Brien, 2010).

Foreign and state ownership have a positive indirect impact on Tobin's Q. A percentage increase in foreign ownership will indirectly improve Tobin's Q by 1.06 – 0.66 percent through leverage. State ownership has a negative indirect effect on Tobin's Q. A percentage increase in state ownership will indirectly increase Tobin's Q by 7.49 – 8.44 percent.

Table 4.29: The impacts of corporate ownership and capital structure on firm performance (Tobin's Q) in the Services sector.

	Panel A		Panel B		Panel C	
	TOBIN	SLEV	TOBIN	LLEV	TOBIN	TLEV
SLEV	-1.170***					
	(0.135)					
LLEV			0.474			
			(3.238)			
TLEV					-1.168***	
					(0.139)	
TOBIN		-0.854***		0.025		-0.856***
		(0.118)		(0.172)		(0.113)
FO	-1.059***	-0.905**	-1.078	0.367**	-0.663*	-0.567
	(0.399)	(0.354)	(1.180)	(0.182)	(0.399)	(0.354)
DSO	-7.496***	-6.398***	-12.613***	0.634	-8.449***	-7.228***
	(2.405)	(2.414)	(2.667)	(2.218)	(2.386)	(2.384)
FSIZE	0.010	0.009	0.018	0.008	0.035	0.030
	(0.118)	(0.100)	(0.120)	(0.027)	(0.118)	(0.100)
FAGE	-0.002	-0.002	-0.001	0.003	-0.002	-0.002
	(0.023)	(0.020)	(0.025)	(0.005)	(0.023)	(0.020)
FGWR	-0.158	-0.136	0.271	0.338	0.602	0.516
	(1.805)	(1.528)	(2.115)	(0.420)	(1.804)	(1.536)
TAN	-0.603	-0.515	-0.039	0.031	-0.570	-0.488
	(0.381)	(0.319)	(0.387)	(0.087)	(0.381)	(0.321)
C	0.055	0.047	0.035	-0.008	0.057	0.049
	(0.043)	(0.036)	(0.048)	(0.011)	(0.043)	(0.036)
INDIRECT: FO	1.058** (.465)		.173 (1.368)		.662* (.389)	
INDIRECT: DSO	7.485** (3.622)		.300 (5.399)		8.443** (3.311)	
OBS	132	132	132	132	132	132
F-STAT	112.76	58.82	40.62	26.49	109.04	61.62
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
OVERID	1.672 (0.947)		3.549 (0.737)		1.015 (0.985)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

(iii) The impacts of corporate ownership and capital structure on firm performance in the ICT sector.

The direct effect of leverage and corporate ownership on efficiency in the ICT sector is reported in Table 4.30. Also, the table presents the indirect effects of corporate ownership on firm efficiency in the ICT sector. LLEV and TLEV ratios are negatively related to efficiency, while SLEV ratio is positively related to efficiency. A percentage increase in LLEV and TLEV ratios will reduce efficiency by 0.52 percent and 0.61 percent respectively. The negative impact of LLEV and TLEV ratios on firm performance could be linked to the negative cost of debt, as higher debt could increase operating expenses as well as increase the risk associated with bankruptcy and financial distress (Majumdari and Chhibber, 1999; O'Brien, 2003; Le and O'Brien, 2010). Also, a percentage increase in SLEV will increase efficiency by 1.93 percent. This implies that SLEV is an effective corporate governance mechanism to reduce agency cost and enhance efficiency in the ICT sector.

SLEV and TLEV ratios do not respond to changes in foreign ownership, while LLEV is positively associated with efficiency. The positive effect of foreign ownership on LLEV suggests that firms with high foreign ownership in the ICT sector will prefer more LLEV debt financing. Foreign ownership affects firm efficiency. A percentage increase in foreign ownership will increase efficiency by 35.70 – 39.42 percent. The results suggest that firms with high foreign ownership will be more efficient. This is plausible given that foreign investors in the ICT sector bring superior technology and organizational capital which help to improve firm efficiency. The results support the findings of Griffith et. al. (2004); Gelübcke (2012); Nguyen et. al. (2017); Aggarwal (2018).

The indirect effect of foreign ownership on efficiency is negative and not statistically significant. This implies that foreign ownership does not pass through leverage to affect firm efficiency in the ICT sector.

Table 4.30: The impacts of corporate ownership and capital structure on firm performance (firm efficiency) in the ICT sector.

	Panel A		Panel B		Panel C	
	EFF	SLEV	EFF	LLEV	EFF	TLEV
SLEV	1.934***					
	(0.205)					
LLEV			-0.522***			
			(0.014)			
TLEV					-0.609**	
					(0.246)	
EFF		0.517***		-1.917***		-1.591***
		(0.053)		(0.052)		(0.604)
FO	27.040	-13.978	35.706**	68.464**	39.421*	63.196
	(20.413)	(10.558)	(17.002)	(32.605)	(21.488)	(39.259)
FSIZE	-0.154	0.080	-0.146	-0.281	-0.130	-0.204
	(0.152)	(0.079)	(0.124)	(0.238)	(0.130)	(0.238)
FAGE	0.011	-0.006	-0.005	-0.009	-0.011	-0.018
	(0.025)	(0.013)	(0.020)	(0.039)	(0.021)	(0.033)
FGWR	-4.582*	2.368*	-5.630***	-10.796***	-6.347***	-10.214**
	(2.609)	(1.360)	(2.129)	(4.085)	(2.330)	(4.307)
TAN	-0.730	0.377	-0.656	-1.257	-0.569	-0.903
	(0.757)	(0.394)	(0.618)	(1.185)	(0.608)	(1.068)
C	0.048	-0.025	0.057	0.109	0.049	0.077
	(0.070)	(0.037)	(0.057)	(0.110)	(0.060)	(0.105)
INDIRECT: FO	-27.035 (29.063)		-35.705 (36.928)		-38.467 (56.145)	
OBS	42	42	42	42	42	42
F-STAT	92.20	95.97	1348.23	1344.89	12.53	8.80
	(0.000)	(0.000)	(0.000)	(0.000)	(0.051)	(0.185)
OVERID	0.509 (0.775)		0.005 (0.997)		1.154 (0.561)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of leverage and corporate ownership on profitability as well as the indirect effects of corporate ownership on profitability are presented in Table 4.31. SLEV is positively associated with higher ROA, while both LLEV and TLEV ratios are positively associated with lower ROA. A percentage increase in LLEV and TLEV ratios will lower ROA by 2.30 percent and 2.03 percent respectively, while a percentage increase in SLEV will increase ROA by 0.91 percent.

Foreign ownership has a direct significant effect on LLEV and TLEV ratios. A percentage rise in foreign ownership will increase LLEV and TLEV ratios by 81.43 percent and 69.76 percent respectively. The higher leverage associated with foreign ownership suggests that foreign firms prefer more debt to prevent share dilution or to retain control (Ezeoha and Okafor, 2010; Le and Tannous, 2016). Foreign ownership is negatively related to a SLEV. A percentage increase in foreign ownership will lower a SLEV by 27.89 percent.

In addition, foreign ownership has a significant direct effect on ROA. A percentage increase in foreign ownership will increase ROA by 25.41 – 34.70 percent. The positive effect of foreign ownership on ROA suggests that government policies aimed to increase foreign participation in the sector will yield positive impact on firm performance. The results are in line with the findings of Griffith et. al. (2004); Gelübcke (2012); Nguyen et. al. (2017); Aggarwal (2018).

The indirect effect of foreign ownership on ROA is negative and not statistically significant. This implies that foreign ownership does not pass through leverage to affect firm efficiency in the ICT sector.

Table 4.31: The impacts of corporate ownership and capital structure on firm performance (ROA) in the ICT sector.

	Panel A		Panel B		Panel C	
	ROA	SLEV	ROA	LLEV	ROA	TLEV
SLEV	0.910***					
	(0.152)					
LLEV			-0.413**			
			(0.169)			
TLEV					-0.444**	
					(0.198)	
ROA		1.097***		-2.300**		-2.030**
		(0.193)		(0.976)		(0.850)
FO	25.414*	-27.885*	34.70***	81.436**	33.07***	69.766**
	(13.289)	(14.978)	(12.210)	(33.285)	(11.819)	(29.694)
FSIZE	-0.091	0.099	-0.082	-0.186	-0.074	-0.146
	(0.099)	(0.110)	(0.080)	(0.208)	(0.077)	(0.189)
FAGE	-0.003	0.003	-0.014	-0.034	-0.016	-0.034
	(0.016)	(0.018)	(0.014)	(0.031)	(0.014)	(0.028)
FGWR	-2.058	2.258	-3.193**	-7.540**	-3.048**	-6.512**
	(1.698)	(1.880)	(1.522)	(3.574)	(1.473)	(3.237)
TAN	-0.001	0.001	0.063	0.154	0.081	0.186
	(0.493)	(0.540)	(0.401)	(0.933)	(0.386)	(0.855)
C	0.014	-0.015	0.019	0.044	0.016	0.034
	(0.046)	(0.050)	(0.037)	(0.088)	(0.036)	(0.081)
INDIRECT: FO	-25.372 (29.997)		-33.601 (55.292)		-30.972 (24.698)	
OBS	41	41	41	41	41	41
F-STAT	38.34	33.34	10.53	8.71	9.77	8.26
	(0.000)	(0.000)	(0.104)	(0.190)	(0.134)	(0.219)
OVERID	0.609 (0.737)		1.421 (0.491)		2.399 (0.301)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.32 presents the direct effect of leverage and corporate ownership on ROE and the indirect effects of corporate ownership on ROE in the ICT sector. The results show that leverage negatively affects ROE. A percentage rise in SLEV, LLEV and total will reduce ROE by 1.16 percent, 0.56 percent and 0.50 percent respectively. The negative effect of leverage on ROE could be linked to the negative cost of debt, as higher debt could increase operating expenses as well as increase the risk associated with bankruptcy and financial distress (Majumdari and Chhibber, 1999; O'Brien, 2003; Le and O'Brien, 2010).

Foreign ownership has a positive effect on leverage and ROE. A percentage increase in foreign ownership will increase SLEV by 18.98 percent, LLEV by 82.48 percent and TLEV by 95.51 percent. Also, a percentage increase of foreign ownership will increase ROE by 22.06 – 49.01 percent. The positive relationship is consistent with the findings of Griffith et. al. (2004); Gelübcke (2012); Nguyen et. al. (2017); Aggarwal (2018).

In terms of the indirect effect, foreign ownership affects ROE only through the SLEV and TLEV ratios. A percentage increase in foreign ownership will indirectly lower ROE by 22.05 percent through the SLEV and 48.46 percent through the TLEV.

Table 4.32: The impacts of corporate ownership and capital structure on firm performance (ROE) in the ICT sector.

	Panel A		Panel B		Panel C	
	ROE	SLEV	ROE	LLEV	ROE	TLEV
SLEV	-1.162***					
	(0.089)					
LLEV			-0.560***			
			(0.138)			
TLEV					-0.507***	
					(0.072)	
ROE		-0.861***		-1.66***		-1.934***
		(0.071)		(0.371)		(0.263)
FO	22.055***	18.980***	47.430***	82.48***	49.011***	95.509***
	(7.483)	(6.623)	(12.839)	(20.777)	(10.470)	(21.567)
FSIZE	-0.064	-0.055	0.005	0.012	-0.007	-0.014
	(0.066)	(0.056)	(0.089)	(0.164)	(0.085)	(0.169)
FAGE	-0.015	-0.013	-0.029*	-0.051*	-0.032**	-0.063**
	(0.012)	(0.010)	(0.017)	(0.029)	(0.015)	(0.030)
FGWR	0.588	0.506	-3.400	-6.071	-2.831	-5.576
	(1.490)	(1.269)	(2.174)	(3.693)	(1.942)	(3.794)
TAN	0.458	0.394	0.536	0.919	0.663	1.289
	(0.356)	(0.305)	(0.485)	(0.897)	(0.458)	(0.922)
C	-0.010	-0.009	-0.026	-0.042	-0.019	-0.036
	(0.034)	(0.029)	(0.046)	(0.085)	(0.043)	(0.087)
INDIRECT: FO	-22.045* (11.224)		-46.219 (29.804)		-48.460*** (18.585)	
OBS	33	33	33	33	33	33
F-STAT	182.11	155.86	19.64	30.26	58.61	59.79
	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)
OVERID	3.926		6.808		7.697	
	(0.416)		(0.146)		(0.103)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.33 presents the direct effect of leverage and corporate ownership on Tobin's Q, and the indirect effects of foreign ownership on Tobin's Q in the ICT sector. There is a significant relationship between leverage and Tobin's Q in the ICT sector. A percentage increase in SLEV and TLEV ratios will increase Tobin's Q by 13.41 percent and 0.91 percent respectively. On the contrary, LLEV is negatively associated with Tobin's Q. A percentage increase in LLEV will lower Tobin's Q, by 0.22 percent. This suggests that the LLEV is not an effective corporate mechanism used to reduce agency cost and improve Tobin's Q in the ICT sector. The results support the findings of O'Brien (2003) and Le and O'Brien (2010).

From the results, there is no evidence that foreign ownership directly affects leverage and Tobin's Q in the ICT sector. The insignificant impact of foreign ownership on leverage suggests that capital structure does not respond to changes in foreign ownership in the ICT sector. Likewise, the insignificant impact of foreign ownership on Tobin's Q implies that Tobin's Q does not respond to changes in foreign ownership in the ICT sector.

Also, the indirect impact of foreign ownership on Tobin's Q through capital structure is not statistically significant. The result suggests that foreign ownership does not pass through capital structure to affect Tobin's Q.

Table 4.33: The impacts of corporate ownership and capital structure on firm performance (Tobin's Q) in the ICT sector.

	Panel A		Panel B		Panel C	
	TOBIN	SLEV	TOBIN	LLEV	TOBIN	TLEV
SLEV	13.415***					
	(4.241)					
LLEV			-0.217***			
			(0.055)			
TLEV					0.906***	
					(0.068)	
TOBIN		0.074***		-4.602***		1.104***
		(0.013)		(1.331)		(0.083)
FO	19.245	-1.435	9.057	41.686	-24.486	27.033
	(103.871)	(7.778)	(20.391)	(93.267)	(29.959)	(33.001)
FSIZE	0.185	-0.014	-0.125	-0.575	-0.144	0.159
	(0.775)	(0.058)	(0.149)	(0.705)	(0.218)	(0.241)
FAGE	0.025	-0.002	-0.026	-0.119	0.003	-0.004
	(0.125)	(0.009)	(0.024)	(0.114)	(0.035)	(0.039)
FGWR	-4.879	0.364	-2.607	-12.000	1.532	-1.692
	(13.151)	(0.984)	(2.546)	(11.871)	(3.724)	(4.105)
TAN	0.984	-0.073	1.200*	5.524	0.948	-1.047
	(3.769)	(0.283)	(0.729)	(3.683)	(1.068)	(1.183)
C	-0.125	0.009	0.107	0.491	0.083	-0.091
	(0.374)	(0.028)	(0.071)	(0.354)	(0.104)	(0.115)
INDIRECT: FO	-19.250 (138.426)		-9.057 (32.1580		24.485 (76.472)	
OBS	41	41	41	41	41	41
F-STAT	10.85	36.24	38.06	12.22	188.94	180.36
	(0.093)	(0.000)	(0.000)	(0.057)	(0.000)	(0.000)
OVERID	0.548 (0.760)		0.050 (0.975)		0.048 (0.976)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

(iv) The Impacts of corporate ownership and capital structure on firm performance in the Construction/ Real estate sector.

The direct effect of leverage and corporate ownership on efficiency in the Construction/Real Estate sector is reported in Table 4.34. Also, the table presents the indirect effects of foreign ownership on efficiency in the Construction/Real Estate sector. Firms with more SLEV are associated with lower efficiency, while firms with high LLEV and TLEV ratios are associated with improved efficiency in the Construction/Real Estate sector. A percentage increase in SLEV will lower firm efficiency by 0.33 percent, while a similar increase in LLEV and TLEV ratios will increase firm efficiency by 0.33 percent and 0.49 percent respectively. This suggests that LLEV and TLEV ratios are effective corporate mechanisms that could be used to reduce agency cost and improve firm efficiency in the Construction/Real Estate sector. Margaritis and Psillaki (2010) and Wahba (2013) also reported a positive impact of leverage on firm performance. More efficient firms in the Construction/Real Estate sector will prefer lower SLEV, but higher LLEV and TLEV ratios. A percentage increase in firm efficiency will increase LLEV and TLEV ratios by 3.08 percent and 1.96 percent respectively, while a similar increase in SLEV will lower firm efficiency by 3.04 percent in the Construction/Real Estate sector.

Foreign ownership exerts a significant direct impact on both leverage and firm efficiency in the Conglomerate/real estate sector. Higher foreign ownership is associated with the lower SLEV, but positively associated with both the LLEV and TLEV ratios. A percentage increase in foreign ownership will reduce the SLEV by 1.35 percent but will increase the LLEV and TLEV ratios by 1.48 percent and 1.03 percent respectively. Also, a percentage increase in foreign ownership will reduce firm efficiency by about 0.44 – 0.52 percent in the Construction/Real Estate sector.

Considering the SLEV model, the result shows that a percentage increase in foreign ownership will increase firm performance by 0.44 percent through SLEV ratio. The indirect effects of foreign ownership on firm performance through LLEV and TLEV ratios are not statistically significant.

Table 4.34: The impacts of corporate ownership and capital structure on firm performance (efficiency) in the Construction/ Real estate sector.

	Panel A		Panel B		Panel C	
	EFF	SLEV	EFF	LLEV	EFF	TLEV
SLEV	-0.329***					
	(0.028)					
LLEV			0.325***			
			(0.025)			
TLEV					0.494***	
					(0.159)	
ROA						
EFF		-3.040***		3.082***		1.955***
		(0.280)		(0.245)		(0.694)
FO	-0.444**	-1.350**	-0.481**	1.484**	-0.527**	1.031*
	(0.209)	(0.642)	(0.204)	(0.635)	(0.234)	(0.582)
FSIZE	-0.055	-0.166	-0.030	0.093	0.006	-0.015
	(0.034)	(0.102)	(0.034)	(0.105)	(0.039)	(0.076)
FAGE	-0.001	-0.003	-0.005	0.015	-0.008	0.016
	(0.007)	(0.021)	(0.007)	(0.021)	(0.008)	(0.015)
FGWR	-0.647	-1.967	-0.541	1.667	0.007	-0.017
	(0.503)	(1.512)	(0.515)	(1.579)	(0.563)	(1.097)
TAN	-0.592***	-1.801***	-0.552***	1.701***	-0.473***	0.921**
	(0.067)	(0.250)	(0.069)	(0.247)	(0.077)	(0.395)
C	0.032**	0.097**	0.026**	-0.080**	0.015	-0.028
	(0.013)	(0.038)	(0.013)	(0.040)	(0.014)	(0.032)
INDIRECT : FO	.443* (.246)		.481 (.340)		.509 (.361)	
OBS	81	81	81	81	81	81
F-STAT	245.85	123.73	270.69	160.44	98.84	11.08
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.086)
OVERID	1.790 (0.774)		0.201 (0.995)		1.655 (0.798)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of leverage and corporate ownership on profitability in the Construction/Real Estate sector is presented in Table 4.35. The table also reports the indirect effects of foreign ownership on firm profitability in the Construction/Real Estate sector. The results show evidence of a significant association between leverage and firm profitability in the Construction/Real Estate sector. The impact of leverage on firm profitability is mixed. Firms with more SLEV are associated with lower ROA, while firms with more LLEV and TLEV are associated with improved ROA. Similarly, the effect of ROA on leverage is mixed. Firms with higher ROA will prefer less SLEV and more LLEV as well as TLEV ratios. The negative impact of firm profitability on SLEV validates the franchise-value hypothesis while the positive impact of firm profitability on LLEV and TLEV ratios further validates the existence of the efficiency-risk hypothesis in the Construction/Real Estate sector.

The direct effects of foreign ownership on leverage is mixed. Firms with higher foreign ownership will employ less leverage (SLEV and total). Specifically, a percentage rise in foreign ownership will reduce SLEV, while the impact of foreign ownership on LLEV is positive. This suggests that firms with high foreign participation in the Construction/Real Estate sector would prefer less SLEV and more LLEV. This is plausible, given that the Construction/ Real Estate sector is capital intensive and may require more LLEV debt financing. In addition, foreign ownership exerts a negative direct impact on profitability in the Construction/Real Estate sector.

In terms of indirect impact, foreign ownership exerts a significant indirect effect on ROA. Firms with high foreign ownership in the Construction/Real Estate sector are indirectly associated with improved ROA, through the SLEV and LLEV ratios. Precisely, a percentage increase in foreign ownership will indirectly increase ROA by 0.36 percent and 0.4 percent through the SLEV and LLEV ratios respectively.

Table 4.35: The impacts of corporate ownership and capital structure on firm performance (ROA) in the Construction/ Real estate sector.

	Panel A		Panel B		Panel C	
	ROA	SLEV	ROA	LLEV	ROA	TLEV
SLEV	-0.220***					
	(0.014)					
LLEV			0.336***			
			(0.095)			
TLEV					0.312	
					(0.233)	
ROA		-4.539***		2.759**		1.209
		(0.305)		(1.131)		(1.179)
FO	-0.361*	-1.638*	-0.419**	1.179*	-0.434**	0.535
	(0.187)	(0.853)	(0.187)	(0.605)	(0.195)	(0.621)
FSIZE	0.008	0.038	0.028	-0.079	0.050	-0.100
	(0.030)	(0.136)	(0.031)	(0.084)	(0.035)	(0.068)
FAGE	-0.004	-0.019	-0.009	0.025	-0.009	0.017
	(0.006)	(0.028)	(0.006)	(0.017)	(0.007)	(0.014)
FGWR	-0.329	-1.493	-0.463	1.408	0.102	-0.160
	(0.448)	(2.028)	(0.492)	(1.246)	(0.467)	(0.871)
TAN	-0.194***	-0.882***	-0.177***	0.496**	-0.117*	0.071
	(0.060)	(0.274)	(0.062)	(0.235)	(0.068)	(0.214)
C	-0.003	-0.011	-0.006	0.015	-0.014	0.027
	(0.011)	(0.051)	(0.012)	(0.032)	(0.012)	(0.024)
INDIRECT : FO	.360* (.191)		.395* (.214)		.167 (.291)	
OBS	81	81	81	81	81	81
F-STAT	256.33	224.43	24.92	10.23	16.14	6.10
	(0.000)	(0.000)	(0.000)	(0.115)	(0.013)	(0.412)
OVERID	0.515 (0.972)		3.719 (0.445)		5.322 (0.255)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.36 shows the direct effect of leverage and corporate ownership on ROE, and the indirect effects of corporate ownership on ROE in the Construction/Real Estate sector. The results show evidence of a significant association between leverage and firm profitability in the Construction/Real Estate sector. A percentage increase in SLEV and LLEV ratios will increase ROE by 0.76 and 1.4 percent, while a percentage increase in LLEV will reduce ROE by 1.28 percent.

Foreign ownership only affects LLEV. A percentage increase in foreign ownership will reduce LLEV by 0.78 percent. This implies that firms with higher foreign ownership will prefer less LLEV. Foreign ownership negatively affects ROE. A percentage rise in foreign ownership will reduce ROE by about 0.77 – 0.88 percent.
In terms of the indirect effect, foreign ownership has no significant impact on ROE through SLEV, LLEV and TLEV ratios.

Table 4.36: The impacts of corporate ownership and capital structure on firm performance (ROE) in the Construction/ Real estate sector.

	Panel A		Panel B		Panel C	
	ROE	SLEV	ROE	LLEV	ROE	TLEV
SLEV	0.756***					
	(0.195)					
LLEV			-1.275***			
			(0.195)			
TLEV					1.427***	
					(0.507)	
ROE		1.070**		-0.779***		0.505***
		(0.513)		(0.124)		(0.173)
FO	-0.765**	0.754	-0.778*	-0.604*	-0.878**	0.408
	(0.389)	(0.656)	(0.439)	(0.365)	(0.435)	(0.318)
FSIZE	0.096	-0.108	0.083	0.065	0.116	-0.066
	(0.074)	(0.086)	(0.084)	(0.066)	(0.083)	(0.051)
FAGE	-0.003	0.002	0.003	0.002	-0.012	0.007
	(0.015)	(0.016)	(0.017)	(0.013)	(0.016)	(0.010)
FGWR	2.892**	-3.452**	3.704***	2.897***	1.232	-0.578
	(1.255)	(1.454)	(1.402)	(1.071)	(1.332)	(0.842)
TAN	-0.124	0.088	-0.238	-0.185	-0.068	-0.012
	(0.165)	(0.226)	(0.179)	(0.144)	(0.195)	(0.118)
C	-0.028	0.032	-0.039	-0.031	-0.015	0.006
	(0.031)	(0.034)	(0.035)	(0.027)	(0.034)	(0.021)
INDIRECT: FO	.570 (.610)		.770 (.557)		.583 (.427)	
OBS	72	72	72	72	72	72
F-STAT	35.95	13.65	59.80	46.04	25.28	14.14
	(0.000)	(0.033)	(0.000)	(0.000)	(0.000)	(0.028)
OVERID	10.550 (0.103)		2.645 (0.851)		8.571 (0.199)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of leverage and corporate ownership on Tobin's Q in the Construction/Real Estate sector is reported in Table 4.37. Also, the table presents the indirect effect of foreign ownership on Tobin's Q. In line with our previous results, there is strong evidence of a significant causal link between leverage and Tobin's Q in the Construction/Real Estate sector. A percentage increase in SLEV will reduce Tobin's Q by 0.47 percent, while a similar increase in LLEV and TLEV ratios will increase Tobin's Q by 0.74 percent and 0.61 percent respectively. Firms with higher Tobin's Q will employ less SLEV and more LLEV. A percentage increase in Tobin's Q will result in a more proportional reduction in SLEV but will increase LLEV and TLEV ratios.

From the results, foreign ownership has a significant direct effect on leverage and Tobin's Q. Firms with higher foreign ownership are associated with more short-term debt financing. A percentage increase in foreign ownership will increase short-term leverage by 1.34 percent, but reduce LLEV and TLEV ratios by 0.62 percent and 1.07 percent respectively. This suggests that firms in the Construction/Real Estate sector will prefer SLEV as foreign participation in the sector increases. Firms with higher foreign ownership will increase Tobin's Q by about 0.60 – 0.71 percent. The direct effect of foreign ownership on firm value suggests that firm value increases as the level of foreign participation in the Construction/Real Estate sector increases. This is plausible given that foreign-controlled firms often employ better technology, organizational capital, and have better access to international capital markets which help to improve performance.

Foreign ownership has no significant indirect effect on Tobin's Q. This indicates that changes in foreign ownership do not pass through leverage to affect firm value in the Construction/Real Estate sector.

Table 4.37: The impacts of corporate ownership and capital structure on firm performance (Tobin's Q) in the Construction/ Real estate sector.

	Panel A		Panel B		Panel C	
	TOBIN	SLEV	TOBIN	LLEV	TOBIN	TLEV
SLEV	-0.474***					
	(0.069)					
LLEV			0.744**			
			(0.374)			
TLEV					0.607*	
					(0.310)	
TOBIN		-2.077***		1.069*		1.507
		(0.378)		(0.563)		(0.934)
FO	0.646**	1.341**	0.609**	-0.624	0.707**	-1.067
	(0.303)	(0.669)	(0.296)	(0.524)	(0.297)	(0.779)
FSIZE	-0.075	-0.158	-0.057	0.061	-0.030	0.042
	(0.047)	(0.097)	(0.046)	(0.062)	(0.047)	(0.084)
FAGE	0.020**	0.041*	0.014	-0.013	0.016	-0.023
	(0.010)	(0.021)	(0.010)	(0.016)	(0.010)	(0.023)
FGWR	-1.397**	-2.933**	-1.419*	1.770**	-0.211	0.277
	(0.690)	(1.389)	(0.825)	(0.844)	(0.681)	(1.088)
TAN	-0.072	-0.154	-0.018	0.032	0.114	-0.184
	(0.098)	(0.197)	(0.100)	(0.115)	(0.105)	(0.142)
C	0.012	0.025	0.011	-0.015	-0.002	0.004
	(0.018)	(0.036)	(0.018)	(0.021)	(0.017)	(0.026)
INDIRECT: FO	-.635 (.438)		-.463 (.452)		-.647 (.403)	
OBS	84	84	84	84	84	84
F-STAT	58.61	36.05	16.14	11.71	15.86	5.67
	(0.000)	(0.000)	(0.013)	(0.068)	(0.014)	(0.461)
OVERID	5.124 (0.077)		2.976 (0.225)		1.366 (0.505)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

(v) The impacts of corporate ownership and capital structure on firm performance in the consumer goods sector.

Table 4.38 presents the direct effects of leverage and corporate ownership on firm efficiency in the Consumer Goods sector. Also, the table reports the indirect effects of foreign and state ownership on efficiency. The results show a significant relationship between leverage and efficiency. A percentage increase in the SLEV and TLEV ratios will lead to a less proportional increase in firm efficiency. This implies that firms with high SLEV and total debt, in the Consumer Goods sector, will be more efficient. The result suggests that SLEV and TLEV ratios are effective corporate governance mechanisms to reduce agency costs and improve firm efficiency. In contrast, higher LLEV lowers firm efficiency. This suggests that firms with LLEV, in the Consumer Goods sector, will be less efficient. More efficient firms in the Consumer Goods sector will prefer less LLEV, but more SLEV as well as TLEV ratios. A percentage increase in firm efficiency lowers LLEV by 1.12 percent, while a similar increase in firm efficiency will increase the SLEV and TLEV ratios by 17.31 percent and 31.6 percent respectively.

Foreign ownership positively affects the LLEV and negatively affects both the SLEV and total-leverage ratios. A percentage increase in foreign ownership will lower the SLEV and TLEV ratios by 7.26 percent and 13.61 percent respectively, while a similar increase in foreign ownership will increase the LLEV by 0.84 percent. This shows that foreign investors in the Consumer Goods sector will prefer firms with more LLEV. This is plausible given that most foreign investors have a long-term investment horizon (Bena et. al., 2017). Foreign ownership has a significant direct effect on efficiency. A percentage increase in foreign ownership will increase firm efficiency by about 0.42 – 0.71 percent respectively. The results support the findings of Harris and Robinson (2003) and Xia and Walker (2015), which focused on manufacturing-related sectors. The direct effects of state ownership on leverage and firm efficiency are not statistically significant in the Consumer Goods sector.

Foreign ownership has a negative indirect effect on firm efficiency in the Consumer Goods sector. A percentage increase in foreign ownership will indirectly lead to a less proportional reduction in firm efficiency. The indirect effect of state ownership on firm efficiency is not statistically significant in the Consumer Goods sector.

Table 4.38: The impacts of corporate ownership and capital structure on firm performance (efficiency) in the Consumer Goods sector.

	Panel A		Panel B		Panel C	
	EFF	SLEV	EFF	LLEV	EFF	TLEV
SLEV	0.058***					
	(0.006)					
LLEV			-0.776**			
			(0.325)			
TLEV					0.031***	
					(0.005)	
EFF		17.314***		-1.122**		31.670***
		(1.823)		(0.513)		(5.925)
FO	0.419**	-7.260*	0.705***	0.839**	0.471***	-13.606*
	(0.218)	(3.823)	(0.257)	(0.334)	(0.225)	(7.371)
DSO	-15.186	263.188	-29.097	-38.383	-30.383	967.277
	(62.968)	(1,084.067)	(57.945)	(64.792)	(63.692)	(1,986.441)
FSIZE	-0.005	0.078	0.005	0.009	-0.012	0.385
	(0.026)	(0.454)	(0.028)	(0.032)	(0.027)	(0.853)
FAGE	-0.003	0.056	-0.001	-0.001	-0.002	0.071
	(0.004)	(0.078)	(0.005)	(0.005)	(0.005)	(0.145)
FGWR	-0.818	14.167	-0.663	-0.679	-1.131	35.808
	(0.684)	(11.925)	(0.753)	(1.006)	(0.722)	(23.547)
TAN	-0.353***	6.120***	-0.236	-0.235	-0.367***	11.621**
	(0.122)	(2.223)	(0.144)	(0.256)	(0.126)	(4.671)
C	0.031**	-0.531**	0.036***	0.040*	0.035***	-1.104**
	(0.013)	(0.231)	(0.013)	(0.024)	(0.013)	(0.466)
INDIRECT: FO	-.419** (.202)		-.651* (.360)		-.427*** (.161)	
INDIRECT: DSO	15.19 (103.414)		29.78 (41.881)		30.407 (71.193)	
OBS	318	318	309	309	310	310
F-STAT	146.60	90.95	43.14	24.53	72.65	28.99
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
OVERID	1.598 (0.952)		2.803 (0.833)		1.735 (0.942)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of leverage and corporate ownership on firm profitability (ROA), as well as the direct and indirect effects of corporate ownership on ROA, are presented in Table 4.39. As shown in the tables, firms with more SLEV and TLEV ratios will experience higher profitability (ROA) in the Consumer Goods sector. The impact of LLEV on firm profitability is positive but not statistically significant. In line with our previous results, high performing firms are associated with higher SLEV and TLEV ratios. A percentage increase in SLEV and TLEV ratios will increase ROA by 0.04 percent and 0.03 percent respectively. The impact of firm profitability on LLEV is not statistically significant.

Foreign ownership directly affects leverage (SLEV and TLEV) and firm profitability. Higher foreign ownership reduces leverage (SLEV and TLEV) and improves profitability in the Consumer Goods sector. A percentage increase in foreign ownership will reduce SLEV and TLEV ratios by 11.46 percent and 14.34 percent respectively. The negative impact of foreign ownership on SLEV and TLEV ratios suggest that foreign investors will prefer less SLEV in the Consumer Goods sector. Foreign ownership positively affects LLEV, but the relationship is not statistically significant. Also, the direct effect of state ownership on leverage and profitability is not statistically significant.

Foreign ownership has an indirect impact on ROA. A percentage increase in foreign ownership will indirectly reduce profitability, though less proportionally. The negative indirect relationship between foreign ownership and profitability suggests that foreign ownership passes through the SLEV and TLEV ratios to affect firm profitability. The total effect of foreign ownership on firm profitability is positive, but marginal in most cases. For state ownership, the indirect effect on firm profitability is not statistically significant.

Table 4.39: The impacts of corporate ownership and capital structure on firm performance (ROA) in the Consumer Goods sector.

	Panel A		Panel B		Panel C	
	ROA	SLEV	ROA	LLEV	ROA	TLEV
SLEV	0.042***					
	(0.005)					
LLEV			0.438			
			(0.382)			
TLEV					0.032***	
					(0.005)	
ROA		23.926***		1.106		30.599***
		(4.231)		(0.965)		(8.304)
FO	0.479***	-11.456**	0.220	0.056	0.468***	-14.340**
	(0.178)	(4.627)	(0.286)	(0.542)	(0.169)	(6.310)
DSO	-19.714	472.263	-3.993	-26.814	-19.874	612.766
	(42.929)	(1,014.103)	(44.520)	(67.540)	(40.695)	(1215.479)
FSIZE	0.036**	-0.866**	0.018	-0.010	0.033*	-1.012*
	(0.018)	(0.436)	(0.019)	(0.039)	(0.017)	(0.563)
FAGE	-0.007**	0.169**	-0.006**	0.007	-0.007**	0.213**
	(0.003)	(0.075)	(0.003)	(0.008)	(0.003)	(0.099)
FGWR	1.645***	-39.373***	1.505***	-1.471	1.716***	-52.566***
	(0.457)	(12.435)	(0.503)	(1.786)	(0.446)	(18.965)
TAN	-0.091	2.182	-0.220*	0.380**	-0.097	2.940
	(0.083)	(2.022)	(0.132)	(0.166)	(0.080)	(2.612)
C	-0.010	0.236	-0.005	0.007	-0.009	0.271
	(0.009)	(0.205)	(0.009)	(0.015)	(0.008)	(0.250)
INDIRECT: FO	-.419** (.202)		-.651* (.360)		-.427*** (.161)	
INDIRECT: DSO	15.19 (103.414)		29.78 (41.881)		30.407 (71.193)	
OBS	318	318	309	309	310	310
F-STAT	146.60	90.95	43.14	24.53	72.65	28.99
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
OVERID	1.598 (0.952)		2.803 (0.833)		1.735 (0.942)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.40 shows the direct effect of leverage and corporate ownership on profitability (ROE). Also, the direct and indirect effects of corporate ownership on profitability are presented in the table. Firms with higher SLEV and TLEV ratios will experience higher ROE in the Consumer Goods sector. A percentage increase in the SLEV and TLEV ratios will increase ROE by 15.72 percent and 18.78 percent respectively. LLEV has no significant impact on ROE.

Foreign ownership directly affects leverage (SLEV and TLEV) and firm profitability (ROE). Higher foreign ownership reduces leverage (SLEV and TLEV) and improves profitability in the Consumer Goods sector. A percentage increase in foreign ownership will reduce SLEV and TLEV ratios by 17.78 percent and 21.88 percent respectively. Foreign ownership positively affects LLEV. The direct effects of foreign and state ownership on LLEV are not statistically significant.

Foreign ownership indirectly affects ROE, through the SLEV and TLEV ratios. A percentage increase in foreign ownership will indirectly reduce ROE by 1.11 percent and 0.88 percent through the SLEV and TLEV ratios respectively. The total effect of foreign ownership on firm profitability is positive. State ownership has no significant indirect effect on ROE.

Table 4.40: The impacts of corporate ownership and capital structure on firm performance (ROE) in the Consumer Goods sector.

	Panel A		Panel B		Panel C	
	ROE	SLEV	ROE	LLEV	ROE	TLEV
SLEV	0.063***					
	(0.010)					
LLEV			1.010			
			(0.840)			
TLEV					0.040***	
					(0.013)	
ROE		15.713***		0.459		18.779
		(3.314)		(0.381)		(12.364)
FO	1.130***	-17.776***	0.796**	-0.220	1.139***	-21.888
	(0.359)	(6.592)	(0.402)	(0.452)	(0.328)	(14.624)
DSO	-72.637	1149.556	-18.148	-11.404	-82.382	1,832.679
	(96.767)	(1,506.536)	(82.172)	(49.700)	(88.351)	(1,792.525)
FSIZE	-0.062	0.968	-0.084**	0.042	-0.071*	1.326
	(0.044)	(0.718)	(0.041)	(0.038)	(0.040)	(1.193)
FAGE	-0.001	0.009	-0.001	0.002	0.000	0.006
	(0.007)	(0.114)	(0.007)	(0.004)	(0.007)	(0.136)
FGWR	2.274**	-35.770*	2.080*	-0.695	2.318**	-43.212
	(1.133)	(18.951)	(1.152)	(1.168)	(1.051)	(36.052)
TAN	-0.069	1.059	-0.361	0.296***	-0.070	0.863
	(0.198)	(3.113)	(0.271)	(0.114)	(0.182)	(4.028)
C	0.042**	-0.653*	0.045**	-0.019	0.045**	-0.855
	(0.021)	(0.361)	(0.020)	(0.022)	(0.019)	(0.679)
INDIRECT: FO	-1.114** (.451)		-.221 (.575)		-.880** (.420)	
INDIRECT: DSO	72.078 (168.672)		-11.513 (196.497)		73.683 (223.363)	
OBS	293	293	288	288	289	289
F-STAT	4.07	0.24	36.99	30.62	45.01	2.88
	(0.000)	(0.976)	(0.000)	(0.000)	(0.000)	(0.895)
OVERID	30.503 (0.000)		4.165 (0.654)		6.184 (0.402)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of leverage and corporate ownership on Tobin's Q is presented in Table 4.41. Also, the table reports the indirect effect of corporate ownership on Tobin's Q in the Consumer Goods sector. Firms with more leverage (SLEV, LLEV and TLEV) will experience higher Tobin's Q. A percentage increase in the SLEV and TLEV ratios will improve Tobin's Q by about 0.12 – 0.31 percent, while a similar increase in the LLEV will improve Tobin's Q by 8.43 percent. The results are consistent with our previous findings and confirm the validity of the agency hypothesis. Higher Tobin's Q is positively associated with more leverage. A percentage increase in Tobin's Q will increase the LLEV and TLEV ratios by 0.11 percent and 6.01 percent respectively. The positive impact of Tobin's Q on leverage is consistent with our previous results and further confirms the validity of the efficiency-risk hypothesis in the Consumer Goods sector.

Foreign ownership has a significant direct effect on TLEV and Tobin's Q. Higher foreign ownership will reduce TLEV. The relationship between foreign ownership SLEV and the LLEV is not statistically significant. Also, foreign ownership has a positive direct effect on Tobin's Q. A percentage increase in foreign ownership will increase Tobin's Q by about 5.62 - 5.70 percent. This implies that foreign-controlled firms are associated with better performance. State ownership has no direct significant effect on both leverage and Tobin's Q. This shows that both leverage and firm performance do not respond to changes in state ownership.

Similarly, foreign ownership indirectly affects Tobin's Q, through leverage, while no significant indirect relationship is noticed between state ownership and Tobin's Q. A percentage increase in foreign ownership will indirectly reduce Tobin's Q by about 4.60 – 5.26 percent, through SLEV and TLEV ratios. This further confirms previous results and suggests that foreign ownership passes through leverage to reduce firm performance in the Consumer Goods sector. In total, higher foreign ownership will increase Tobin's Q. State ownership has no significant indirect effect on Tobin's Q, and the total effect of state ownership on Tobin's Q is negative.

Table 4.41: The impacts of corporate ownership and capital structure on firm performance (Tobin's Q) in the Consumer Goods sector.

	Panel A		Panel B		Panel C	
	TOBIN	SLEV	TOBIN	LLEV	TOBIN	TLEV
SLEV	0.314***					
	(0.073)					
LLEV			8.433***			
			(2.297)			
TLEV					0.155***	
					(0.037)	
TOBIN		2.525		0.118***		6.008***
		(1.662)		(0.033)		(2.292)
FO	5.698***	-14.628	0.404	-0.047	5.622***	-33.941**
	(1.510)	(9.690)	(2.449)	(0.298)	(1.631)	(15.542)
DSO	-361.878	1,017.42	-81.015	9.515	-400.384	2,491.182
	(375.791)	(1,035.5)	(463.656)	(55.838)	(398.017)	(2,426.35)
FSIZE	-0.020	0.026	-0.247	0.029	-0.057	0.346
	(0.150)	(0.402)	(0.203)	(0.024)	(0.162)	(0.983)
FAGE	0.050**	-0.122	0.054	-0.006	0.053*	-0.318
	(0.025)	(0.116)	(0.033)	(0.004)	(0.027)	(0.212)
FGWR	0.195	-1.115	-4.860	0.576	-0.668	4.104
	(3.857)	(10.156)	(5.384)	(0.630)	(4.269)	(25.726)
TAN	1.029	-2.813	-1.271	0.151	0.964	-5.922
	(0.712)	(2.188)	(1.136)	(0.116)	(0.775)	(4.893)
C	0.035	-0.079	0.067	-0.008	0.056	-0.339
	(0.073)	(0.209)	(0.096)	(0.012)	(0.079)	(0.490)
INDIRECT: FO	-4.599*** (1.562)		-.397 (4.562)		-5.264* (2.963)	
INDIRECT: DSO	319.930 (386.268)		80.246 (1578.524)		386.415 (2972.285)	
OBS	318	318	309	309	310	310
F-STAT	79.33	3.42	48.31	52.48	69.88	7.22
	(0.000)	(0.843)	(0.000)	(0.000)	(0.000)	(0.406)
OVERID	9.629 (0.047)		0.397 (0.982)		3.393 (0.494)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

(vi) The impacts of corporate ownership and capital structure on firm performance in the Industrial Goods sector.

The direct effect of leverage and corporate ownership on firm efficiency in the Industrial Goods sector is reported in Table 4.42. Also, the table presents the indirect effects of corporate ownership on firm efficiency. From the result, there is strong evidence of a significant relationship between leverage and firm efficiency. A percentage increase in leverage will reduce efficiency by about 0.24-0.27 percent. This suggests that firms with higher leverage in the Industrial Goods sector will be less efficient. The negative effect of leverage on efficiency is likely associated with the weak corporate governance or poor monitoring of creditors which could lead to inefficient utilization of borrowed funds (debt) in the sector. In addition, high debt could be associated with debt overhang which could hinder firms from getting additional debt even in the presence of viable investment opportunities. This supports the findings of Majumdari and Chhibber (1999); O'Brien (2003) and Le and O'Brien (2010). Likewise, more efficient firms in the Industrial Goods sector tend to employ less leverage. A percentage rise in efficiency will reduce leverage, albeit more proportionally.

Foreign ownership has a positive direct effect on leverage and firm performance. A percentage increase in foreign ownership will increase leverage by about 6.52-7.08 percent. Similarly, higher foreign ownership will increase firm efficiency by about 1.56-1.89 percent. The result is plausible given that foreign-controlled firms are better endowed with superior technical knowledge and organizational capital which help to reduce the cost of production and increase efficiency (Nakano and Nguyen, 2013; Javorcik, 2004). Also, high foreign ownership may facilitate effective monitoring of managers, promote good corporate governance, reduce agency cost and improve firm efficiency (Gelübcke, 2012). State ownership has no significant direct effect on leverage and firm efficiency.

Foreign and state ownership have no significant indirect effect on efficiency. The insignificant indirect effect implies that both foreign and state ownership do not pass through leverage to affect efficiency in the Consumer Goods sector.

Table 4.42: The impacts of corporate ownership and capital structure on firm performance (efficiency) in the Industrial Goods sector.

	Panel A		Panel B		Panel C	
	EFF	SLEV	EFF	LLEV	EFF	TLEV
SLEV	-0.268***					
	(0.016)					
LLEV			-0.264***			
			(0.066)			
TLEV					-0.240***	
					(0.028)	
EFF		-3.735***		-3.793***		-4.174***
		(0.242)		(0.996)		(0.500)
FO	1.886**	7.043**	1.866**	7.080**	1.563**	6.523**
	(0.813)	(3.046)	(0.855)	(3.423)	(0.678)	(2.798)
DSO	3.567	13.322	3.867	14.669	2.396	10.005
	(2.955)	(11.036)	(3.222)	(12.112)	(2.611)	(10.784)
FSIZE	-0.141**	-0.525**	-0.140**	-0.532**	-0.124**	-0.516**
	(0.064)	(0.240)	(0.067)	(0.266)	(0.054)	(0.224)
FAGE	0.009	0.034	0.012	0.045	0.007	0.031
	(0.011)	(0.040)	(0.011)	(0.042)	(0.009)	(0.038)
FGWR	1.101	4.113	1.299	4.928	0.783	3.271
	(1.112)	(4.154)	(1.193)	(4.510)	(0.987)	(4.097)
TAN	-0.654***	-2.441***	-0.575***	-2.179***	-0.564***	-2.356***
	(0.159)	(0.607)	(0.170)	(0.813)	(0.138)	(0.605)
C	0.072***	0.269***	0.061***	0.233**	0.061***	0.256***
	(0.021)	(0.080)	(0.022)	(0.098)	(0.018)	(0.077)
INDIREC	-1.885		-1.8661		-1.562	
T: FO	(2.175)		(1.301)		(1.467)	
INDIREC	-3.566		-3.866		-2.396	
T: FO	(7.354)		(5.788)		(5.770)	
OBS	303	303	303	303	304	304
F-STAT	345.60	241.23	89.07	16.15	169.79	73.34
	(0.000)	(0.000)	(0.000)	(0.023)	(0.000)	(0.000)
OVERID	0.734		0.073		0.250	
	(0.692)		(0.964)		(0.882)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of leverage and corporate ownership on profitability (ROA) in the Industrial Goods sector is presented in Table 4.43. It also presents the indirect effects of corporate ownership on firm performance, through leverage. The results show that leverage affects ROA. A percentage increase in SLEV and TLEV ratios will reduce ROA by 0.20 and 2.74 percent respectively. The negative impact of leverage on profitability is in line with our previous results and it suggests that leverage is not an effective corporate governance instrument to reduce agency cost and improve profitability in the Industrial Goods sector. Previous studies have also established similar findings (Majumdari and Chhibber, 1999; O'Brien, 2003; Le and O'Brien, 2010). A percentage increase in profitability will reduce leverage by about 2.74-5.0 percent. This suggests that more profitable firms in the Industrial Goods sector employ less leverage to protect the gains derived from being profitable.

Foreign ownership has a positive significant impact on both TLEV and ROA in the LLEV model. A percentage increase in foreign ownership will increase the TLEV and ROA by 3.55 percent and 1.29 percent respectively. This suggests that foreign-controlled firms in the Industrial Goods sector tend to employ more TLEV. The high leverage is likely attributable to the high capital-intensive nature of the sector. Higher foreign ownership is associated with increased profitability. The positive relationship between foreign ownership and ROA is consistent with our previous results. It is plausible given that foreign-controlled firms have improved technology and better managerial expertise, which reduce operating cost and enhances profitability (Gelübcke, 2012). In contrast, state ownership has no significant impact on leverage and ROA. This implies that profitability (ROA) does not respond to changes in state ownership.

The indirect effect of corporate ownership (foreign and state ownership) on profitability is not significant. Likewise, state ownership has no significant indirect effect on profitability, through leverage.

Table 4.43: The impacts of corporate ownership and capital structure on firm performance (ROA) in the Industrial Goods sector.

	Panel A		Panel B		Panel C	
	ROA	SLEV	ROA	LLEV	ROA	TLEV
SLEV	-0.200***					
	(0.005)					
LLEV			-0.381			
			(0.298)			
TLEV					-0.365***	
					(0.017)	
ROA		-5.012***		-1.856		-2.743***
		(0.129)		(1.352)		(0.128)
FO	0.859	4.306	0.148	0.959	1.293*	3.547*
	(0.607)	(3.041)	(0.916)	(1.365)	(0.696)	(1.900)
DSO	2.330	11.678	-0.474	1.708	3.710	10.178
	(2.207)	(11.061)	(3.460)	(6.252)	(2.690)	(7.353)
FSIZE	-0.089*	-0.444*	-0.047	-0.144*	-0.135**	-0.370**
	(0.048)	(0.240)	(0.074)	(0.081)	(0.056)	(0.152)
FAGE	0.014*	0.068*	0.008	0.026*	0.022**	0.060**
	(0.008)	(0.040)	(0.014)	(0.015)	(0.010)	(0.026)
FGWR	2.355***	11.804***	1.599	3.761**	2.756***	7.561***
	(0.831)	(4.172)	(1.162)	(1.521)	(1.021)	(2.801)
TAN	-0.364***	-1.825***	-0.138	-0.336*	-0.405***	-1.111***
	(0.119)	(0.596)	(0.145)	(0.193)	(0.143)	(0.390)
C	0.022	0.111	-0.003	0.006	0.032*	0.089*
	(0.016)	(0.079)	(0.019)	(0.033)	(0.019)	(0.051)
INDIRECT: FO	-.859 (1.495)		-.365 (1.591)		-1.293 (1.546)	
INDIRECT: DS(	-2.329 (4.719)		-.650 (5.610)		-3.710 (5.159)	
OBS	303	303	303	303	304	304
F-STAT	1566.84	1509.54	38.23	20.97	476.11	470.12
	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)
OVERID	0.104 (0.949)		3.009 (0.222)		0.138 (0.933)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.44 presents the direct effect of leverage and ownership on profitability (ROE) in the Industrial Goods sector. Also, the table shows the indirect effects of ownership on firm performance (ROE) through leverage. The results show that the SLEV and TLEV ratios have significant effects on ROE. A percentage increase in the SLEV and TLEV ratios will reduce ROE by 0.21 and 0.30 percent respectively. Similarly, ROE has a negative impact on both the SLEV and TLEV ratios. A percentage increase in profitability will reduce leverage by about 2.72-4.89 percent. This suggests that more profitable firms in the Industrial Goods sector employ less leverage to protect their profitability.

Foreign ownership has a positive significant impact on both the TLEV and ROA in the LLEV model. A percentage increase in foreign ownership will increase TLEV and ROA by 3.33 percent and 1.29 percent respectively. State ownership has no significant impact on both leverage and ROE. The results are similar when compared with estimates from the ROA model. The indirect effect of corporate ownership (foreign and state ownership) on profitability is not significant. Likewise, state ownership has no significant indirect effect on profitability, through leverage.

Table 4.44: The impacts of corporate ownership and capital structure on firm performance (ROE) in the Industrial Goods sector.

	Panel A		Panel B		Panel C	
	ROE	SLEV	ROE	LLEV	ROE	TLEV
SLEV	-0.210***					
	(0.005)					
LLEV			-0.298			
			(0.298)			
TLEV					-0.301***	
					(0.017)	
ROE		-4.889***		-0.938		-2.72***
		(0.027)		(2.050)		(0.025)
FO	1.760	2.340	0.298	0.900	1.289*	3.331*
	(1.609)	(3.059)	(0.914)	(1.305)	(0.670)	(1.902)
DSO	2.187	10.987	-1.309	1.799	4.749	11.119
	(2.201)	(12.010)	(1.981)	(1.901)	(3.911)	(10.213)
FSIZE	-1.919	-0.209	-0.049	-0.111*	-0.140**	-0.363**
	(1.021)	(0.240)	(0.071)	(0.080)	(0.057)	(0.151)
FAGE	0.011*	0.060*	0.007	0.021*	0.025**	0.068**
	(0.007)	(0.038)	(0.013)	(0.011)	(0.011)	(0.029)
FGWR	2.366**	11.981***	1.589	3.703**	2.781***	7.599***
	(0.801)	(4.161)	(1.165)	(1.509)	(1.001)	(2.801)
TAN	-0.381***	-1.890***	-0.189	-0.397*	-0.410***	-1.109***
	(0.120)	(0.580)	(0.198)	(0.198)	(0.119)	(0.200)
C	0.024	0.110	-0.010	0.005	0.034*	0.090*
	(0.018)	(0.079)	(0.019)	(0.031)	(0.018)	(0.053)
INDIRECT FO	-1.750 (1.505)		-.299 (0.791)		-1.290 (1.549)	
INDIRECT DSO	-2.190 (2.719)		1.310 (5.611)		-4.750 (5.159)	
OBS	303	303	303	303	304	304
F-STAT	15629.00	15081.40	38.21	40.07	473.13	410.12
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
OVERID	0.729 (0.598)		0.079 (0.989)		0.289 (0.811)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.45 presents the direct effects of leverage and corporate ownership on Tobin's Q as well as the indirect effect of corporate ownership on Tobin's Q in the industrial good sector. As shown in the table, leverage (SLEV and TLEV) affects Tobin's Q. While higher SLEV is associated with improved Tobin's Q, higher TLEV reduces Tobin's Q. A percentage increase in SLEV will increase Tobin's Q by 0.84 percent and a similar increase in TLEV will reduce Tobin's Q by 2.10 percent. Firms with higher Tobin's Q will employ significantly more SLEV while there is no significant impact of Tobin's Q on both LLEV and TLEV ratios.

Foreign and state ownership directly affect Tobin's Q. While foreign ownership directly increases TLEV and Tobin's Q, there is no evidence of a significant impact on SLEV. A percentage increase in foreign ownership will increase the TLEV and Tobin's Q by 6.10 percent and 14.64 percent respectively. The positive direct impact of foreign ownership on Tobin's Q suggests that foreign-controlled firms in the Industrial Goods sector will prefer more TLEV. This is plausible given that the Industrial Goods sector is more capital intensive. Also, a percentage increase in foreign ownership will result in a more proportional increase in Tobin's Q. The positive direct impact of foreign ownership on Tobin's Q suggests that foreign-controlled firms in the Industrial Goods sector will perform better in terms of Tobin's Q. Previous studies have shown that foreign-controlled firms are associated with higher performance (Gelübcke, 2012). State ownership has a significant impact on TLEV, while no significant impact is seen on both SLEV and LLEV ratios. A percentage increase in state ownership will result in a more proportional increase in TLEV and Tobin's Q. The significant relationship suggests that firms with high state ownership in the Industrial Goods sector, will be more levered in total debt and perform better.

In line with the previous results, foreign and state ownership have no significant indirect effect on Tobin's Q. This suggests that changes in foreign and state ownership do not affect firm performance indicator proxied by Tobin's Q.

Table 4.45: The impacts of corporate ownership and capital structure on firm performance (Tobin's Q) in the Industrial Goods sector.

	Panel A		Panel B		Panel C	
	TOBIN	SLEV	TOBIN	LLEV	TOBIN	TLEV
SLEV	0.843***					
	(0.076)					
LLEV			0.702			
			(0.434)			
TLEV					-2.098**	
					(0.895)	
TOBIN		1.187***		1.424		-0.320
		(0.138)		(1.592)		(0.341)
FO	5.233	-6.210	-4.945	7.041	14.642**	6.101**
	(6.729)	(8.036)	(5.071)	(8.776)	(7.385)	(3.044)
DSO	28.085	-33.331	-13.696	19.506	56.947**	22.702*
	(24.476)	(29.355)	(19.115)	(29.025)	(27.252)	(13.331)
FSIZE	-0.885*	1.051	-0.191	0.272	-1.683***	-0.656*
	(0.531)	(0.645)	(0.399)	(0.756)	(0.596)	(0.371)
FAGE	0.241***	-0.286***	0.101	-0.144	0.365***	0.136
	(0.088)	(0.110)	(0.068)	(0.225)	(0.100)	(0.089)
FGWR	12.130	-14.395	-0.693	0.988	19.816**	7.573
	(9.212)	(11.067)	(7.068)	(10.026)	(9.855)	(5.368)
TAN	-1.934	2.295	-0.266	0.378	-3.575**	-1.373
	(1.317)	(1.593)	(1.006)	(1.586)	(1.435)	(0.870)
C	0.207	-0.246	0.021	-0.030	0.459**	0.182*
	(0.176)	(0.212)	(0.130)	(0.198)	(0.194)	(0.103)
INDIRECT: FO	-5.232 (10.378)		.943 (10.144)		-12.796 (9.703)	
INDIRECT: DSO	-28.086 (34.115)		1.060 (39.093)		-47.619 (35.792)	
OBS	303	303	303	303	304	304
F-STAT	156.58	74.82	60.95	1.14	38.95	5.86
	(0.000)	(0.000)	(0.000)	(0.992)	(0.000)	(0.556)
OVERID	0.206 (0.902)		0.050 (0.975)		3.854 (0.145)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

(vii) The impacts of corporate ownership and capital structure on firm performance in the healthcare sector.

The direct effects of leverage and corporate ownership on efficiency as well as the indirect effects of corporate ownership on firm efficiency in the Healthcare sector are presented in Table 4.46. From the results, there exists a significant relationship between leverage and firm efficiency in the Healthcare sector. Although the SLEV and TLEV ratios are negatively related to firm efficiency, a positive relationship exists between the LLEV and firm efficiency. A percentage increase in the SLEV and TLEV ratios will reduce firm efficiency by 0.44 percent and 0.34 percent respectively. Conversely, a percentage increase in the LLEV will increase firm efficiency by 1.11 percent. This suggests that the LLEV promotes firm efficiency in the Healthcare sector. Previous studies have shown that high LLEV could serve as a corporate disciplinary measure to reduce agency cost and improve firm efficiency (Margaritis and Psillaki, 2010; Wahba, 2013). Furthermore, firm efficiency is negatively associated with the SLEV and TLEV ratios. A percentage increase in firm efficiency will lead to a more proportional reduction in both the SLEV and TLEV ratios. The results are in line with the franchise value hypothesis. Higher firm efficiency will result in more LLEV. A percentage increase in firm efficiency will result in a more proportional rise in LLEV.

On the direct effect of corporate ownership on leverage and firm efficiency in the Healthcare sector, the results show that firms with more foreign ownership will employ more leverage and are more efficient. A percentage increase in foreign ownership will increase the SLEV and TLEV ratios by 3.62 percent and 5.65 percent respectively. Also, a similar increase in foreign ownership will improve firm efficiency by about 1.18-1.94 percent. This implies that firms with more foreign ownership in the health care sector will be more efficient. State ownership has no significant direct effect on both leverage and firm efficiency. This suggests that leverage and firm efficiency do not respond to changes in state ownership. Both foreign and state ownership have no significant effect on efficiency in the Healthcare sector.

Table 4.46: The impacts of corporate ownership and capital structure on firm performance (efficiency) in the Healthcare sector.

	Panel A		Panel B		Panel C	
	EFF	SLEV	EFF	LLEV	EFF	TLEV
SLEV	-0.435***					
	(0.067)					
LLEV			1.106***			
			(0.266)			
TLEV					-0.339***	
					(0.072)	
EFF		-2.290***		0.889***		-2.903***
		(0.399)		(0.239)		(0.755)
FO	1.580***	3.622***	1.177***	-1.041**	1.937***	5.651***
	(0.426)	(1.028)	(0.449)	(0.522)	(0.526)	(1.784)
DSO	-0.934	-2.127	-0.024	0.014	1.849	5.440
	(5.365)	(12.179)	(2.952)	(2.594)	(5.011)	(14.256)
FSIZE	-0.033	-0.075	0.052	-0.047	-0.055	-0.163
	(0.053)	(0.119)	(0.059)	(0.050)	(0.056)	(0.158)
FAGE	0.010	0.022	-0.019	0.017*	0.020*	0.059**
	(0.009)	(0.021)	(0.012)	(0.009)	(0.011)	(0.029)
FGWR	1.412*	3.233*	0.661	-0.574	1.695**	4.930*
	(0.802)	(1.906)	(0.894)	(0.844)	(0.841)	(2.644)
TAN	-0.613***	-1.405***	-0.355**	0.312*	-0.639***	-1.862***
	(0.123)	(0.342)	(0.141)	(0.174)	(0.125)	(0.519)
C	0.043**	0.100**	0.037*	-0.033	0.045**	0.132**
	(0.019)	(0.045)	(0.021)	(0.021)	(0.020)	(0.064)
INDIET: FO	-1.576		-1.151		-1.914**	
	(1.186)		(.972)		(1.849)	
INDIRECT: DSO	.925		.015		-1.843	
	(11.692)		(6.137)		(13.592)	
OBS	120	120	120	120	120	120
F-STAT	111.36	36.37	74.48	29.32	86.47	18.63
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.009)
OVERID	1.773		1.914		2.297	
	(0.412)		(0.384)		(0.317)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of ownership and leverage on firm profitability (ROA) in the Healthcare sector is presented in Table 4.47. Also, the tables show the indirect effect of ownership on firm performance. The results show strong evidence of a significant relationship between leverage and firm profitability. A percentage increase in leverage will reduce ROA by about 0.02-0.42 percent. ROA has a negative impact on leverage. A percentage increase in ROA will lead to a more proportional reduction in leverage (SLEV and TLEV). The negative impact of ROA on leverage confirms the validity of the franchise value hypothesis. This suggests that high performing firms (in terms of ROA) will prefer low leverage to protect the benefits associated with improved performance.

Foreign ownership has a positive direct effect on both the SLEV and TLEV ratios as well as ROA. A percentage increase in foreign ownership will increase SLEV and TLEV ratios by 1.08 percent and 1.50 percent respectively. The positive direct effect of foreign ownership on leverage implies that firms with higher foreign ownership will be more levered in the Healthcare sector. This is consistent with the findings of Ezeoha and Okafor (2010) and Le and Tannous (2016). Also, a percentage increase in foreign ownership will improve ROA by about 0.65-0.66 percent. The positive direct impact of foreign ownership on ROA suggests that higher foreign ownership enhances firm performance. State ownership has no significant direct effect on both leverage and firm profitability in the Healthcare sector.

From the results, foreign and state ownership have no significant indirect effect on firm profitability in the Healthcare sector. The results suggest that both foreign and state ownership do not pass through leverage to affect profitability.

Table 4.47: The impacts of corporate ownership and capital structure on firm performance (ROA) in the Healthcare sector.

	Panel A		Panel B		Panel C	
	ROA	SLEV	ROA	LLEV	ROA	TLEV
SLEV	-0.374*					
	(0.213)					
LLEV			-1.021***			
			(0.197)			
TLEV					-0.423***	
					(0.112)	
ROA		-1.335*		-0.976***		-2.236***
		(0.740)		(0.188)		(0.600)
FO	0.651***	1.082**	0.412	0.403	0.660***	1.498**
	(0.226)	(0.503)	(0.307)	(0.297)	(0.233)	(0.591)
DSO	0.126	-0.473	-0.508	-0.498	-0.426	-1.037
	(1.190)	(1.994)	(1.340)	(1.305)	(1.180)	(2.639)
FSIZE	-0.008	-0.032	-0.047	-0.046	-0.033	-0.080
	(0.034)	(0.055)	(0.042)	(0.040)	(0.034)	(0.073)
FAGE	0.005	0.011	0.019**	0.019***	0.013**	0.031**
	(0.006)	(0.009)	(0.009)	(0.007)	(0.007)	(0.013)
FGWR	1.126**	1.414	1.929***	1.884***	1.391***	3.137**
	(0.501)	(1.217)	(0.637)	(0.644)	(0.497)	(1.326)
TAN	-0.170**	-0.324**	-0.232**	-0.227**	-0.228***	-0.526***
	(0.082)	(0.139)	(0.099)	(0.092)	(0.079)	(0.173)
C	0.008	0.016	0.001	0.001	0.007	0.016
	(0.012)	(0.020)	(0.015)	(0.015)	(0.012)	(0.027)
INDIRECT: FO	-.404 (.482)		-.4120 (.313)		-.634 (.417)	
INDIRECT: DSO	.177 (2.096)		.508 (1.869)		.439 (1.671)	
OBS	120	120	120	120	120	120
F-STAT	24.03	8.09	37.04	51.91	34.49	23.65
	(0.001)	(0.324)	(0.000)	(0.000)	(0.000)	(0.001)
OVERID	7.912 (0.094)		1.067 (0.899)		4.114 (0.390)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.48 shows the direct effect of corporate ownership and leverage on firm profitability (ROE) in the Healthcare sector. Also, it presents the indirect effect of corporate ownership on firm performance. The result shows that leverage has a positive impact on firm ROE. A percentage increase in leverage will increase ROE by about 0.75-1.22 percent. Similarly, ROE has a positive impact on SLEV, LLEV and TLEV ratios.

Foreign and state ownership have no significant impact on both leverage and ROE. This suggests that changes in both foreign and state ownership do not influence leverage and firm performance when the ROE model was considered.

Also, the result shows that both foreign and state ownership have no significant indirect effect on firm profitability in the Healthcare sector.

Table 4.48: The impacts of corporate ownership and capital structure on firm performance (ROE) in the Healthcare sector.

	Panel A		Panel B		Panel A	
	ROE	SLEV	ROE	LLEV	ROE	TLEV
SLEV	0.918***					
	(0.015)					
LLEV			1.217***			
			(0.049)			
TLEV					0.745***	
					(0.003)	
ROE		1.090***		0.822***		1.342***
		(0.018)		(0.033)		(0.006)
FO	-0.067	0.073	0.679	-0.558	-0.041	0.054
	(0.993)	(1.082)	(0.648)	(0.533)	(0.885)	(1.188)
DSO	-9.795	10.676	3.529	-2.901	-5.327	7.149
	(12.406)	(13.521)	(4.107)	(3.377)	(7.314)	(9.816)
FSIZE	-0.143	0.156	-0.200**	0.164**	-0.144	0.193
	(0.137)	(0.149)	(0.084)	(0.070)	(0.112)	(0.150)
FAGE	0.010	-0.011	0.009	-0.008	0.001	-0.001
	(0.024)	(0.027)	(0.015)	(0.013)	(0.021)	(0.028)
FGWR	0.930	-1.014	1.306	-1.073	0.858	-1.152
	(1.939)	(2.113)	(1.233)	(1.015)	(1.601)	(2.149)
TAN	-0.095	0.104	0.101	-0.083	0.045	-0.060
	(0.277)	(0.302)	(0.191)	(0.157)	(0.225)	(0.302)
C	0.048	-0.052	0.075**	-0.062**	0.060	-0.081
	(0.047)	(0.052)	(0.031)	(0.026)	(0.040)	(0.054)
INDIRECT FO	.067		-.678		.040	
	(1.239)		(1.159)		(2.070)	
DSO	9.795		-3.529		5.326	
	(9.478)		(13.557)		(39.520)	
OBS	111	111	111	111	111	111
F-STAT	3542.09	3527.79	634.68	619.45	50719.8	50707.70
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
OVERID	0.016		0.008		0.001	
	(0.992)		(0.995)		(1.000)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effects of leverage and corporate ownership on Tobin's Q as well as the indirect effect of corporate ownership on Tobin's Q are presented in Table 4.49. The results show a negative significant relationship between leverage and Tobin's Q in the Healthcare sector. A percentage increase in leverage will lower Tobin's Q by about 1.28-2.63 percent. Also, firms with higher Tobin's Q are less levered. A percentage increase in firm value will result in a less proportional reduction in leverage. This is consistent with the franchise-value hypothesis.

Foreign ownership directly increases leverage in the Healthcare sector. Firms with higher foreign participation tend to be more levered in SLEV and TLEV ratios. A percentage increase in foreign ownership will increase SLEV and TLEV ratios by 0.75 and 0.96 percent respectively. Foreign ownership has a positive impact on Tobin's Q when the SLEV model is considered. This shows weak evidence that foreign ownership directly affects Tobin's Q. State ownership has no significant impact on both leverage and Tobin's Q. This suggests that both leverage and Tobin's Q do not respond to changes in state ownership.

Indirectly, foreign and state ownership significantly affect Tobin's Q. This suggests that foreign and state ownership do not pass through capital structure to affect firm performance in the Healthcare sector.

Table 4.49: The impacts of corporate ownership and capital structure on firm performance (Tobin's Q) in the Healthcare sector.

	Panel A		Panel B		Panel C	
	TOBIN	SLEV	TOBIN	LLEV	TOBIN	TLEV
SLEV	-1.773***					
	(0.342)					
LLEV			-2.629***			
			(0.350)			
TLEV					-1.279***	
					(0.186)	
TOBIN		-0.534***		-0.380***		-0.778***
		(0.117)		(0.055)		(0.123)
FO	1.309*	0.754**	0.531	0.202	1.228	0.961*
	(0.778)	(0.371)	(0.738)	(0.277)	(0.763)	(0.563)
DSO	-1.691	-0.926	-0.756	-0.287	-1.302	-1.014
	(2.988)	(1.580)	(2.955)	(1.117)	(3.022)	(2.330)
FSIZE	0.017	0.008	-0.052	-0.020	-0.030	-0.023
	(0.135)	(0.071)	(0.136)	(0.051)	(0.137)	(0.105)
FAGE	0.018	0.010	0.049**	0.019**	0.038	0.030*
	(0.023)	(0.012)	(0.024)	(0.009)	(0.024)	(0.018)
FGWR	1.640	0.829	4.137*	1.572*	2.509	1.948
	(2.140)	(1.181)	(2.131)	(0.822)	(2.148)	(1.700)
TAN	0.219	0.102	0.227	0.086	0.170	0.130
	(0.326)	(0.185)	(0.320)	(0.124)	(0.325)	(0.258)
C	0.037	0.020	0.009	0.003	0.026	0.020
	(0.048)	(0.025)	(0.048)	(0.018)	(0.048)	(0.037)
INDIRECT: FO	-1.335 (1.017)		-.531 (.718)		-1.229 (.946)	
INDIRECT: DSO	1.641 (1.666)		.754 (3.637)		1.297 (2.213)	
OBS	131	131	131	131	131	131
F-STAT	38.28	30.83	67.18	60.79	58.06	47.27
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
OVERID	6.609 (0.158)		1.218 (0.875)		2.486 (0.647)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

(viii) The impacts of corporate ownership and capital structure on performance in the Conglomerate sector.

Table 4.50 presents the direct effect of leverage and corporate ownership on firm efficiency as well as the direct and indirect effects of corporate ownership on firm efficiency in the Conglomerate sector. The result shows a significant link between leverage and efficiency in the Conglomerate sector. Firms with higher leverage are associated with improved efficiency. A percentage increase in SLEV and TLEV ratios will increase firm efficiency by about 0.37-0.53 percent, while a similar increase in LLEV will improve efficiency by 2.76 percent in the Conglomerate sector. This result validates the agency theory. Also, more efficient firms are associated with more leverage. A percentage increase in firm efficiency will lead to a less proportional increase in LLEV and a more proportional increase in SLEV as well as the TLEV ratios. The positive effect of firm efficiency on leverage suggests that more efficient firms will choose higher leverage ratio because higher efficiency reduces the expected costs of bankruptcy and financial distress.

Foreign ownership has a negative direct effect on LLEV and TLEV ratios, there is no significant direct effect on SLEV. A percentage increase in foreign ownership will reduce LLEV and TLEV ratios by 0.53 and 1.42 percent respectively. This suggests that firms with more foreign ownership will prefer less leverage to reduce the risk associated with leverage. Studies have shown that foreign-controlled firms employ lower debt levels to mitigate the risk of failure (Bamiatzi et. al., 2017). Similarly, firms with high foreign ownership in the Conglomerate sector are associated with improved performance. The results suggest that firms with high foreign ownership will be more efficient. A percentage increase in foreign ownership will increase efficiency by about 0.52-1.46 percent. This is plausible given that foreign investors in the Conglomerate sector bring superior technology and organizational capital which helps to improve firm efficiency.

The indirect effect of foreign ownership on firm performance is statistically significant in the LLEV model. A percentage increase in foreign ownership will indirectly reduce firm efficiency by 1.46 percent through the LLEV. The indirect effect of foreign ownership on firm efficiency is not statistically significant through the SLEV and TLEV.

Table 4.50: The impacts of corporate ownership and capital structure on firm performance (efficiency) in the Conglomerate sector.

	Panel A		Panel B		Panel C	
	EFF	SLEV	EFF	LLEV	EFF	TLEV
SLEV	0.531***					
	(0.036)					
LLEV			2.759**			
			(1.361)			
TLEV					0.367***	
					(0.033)	
EFF		1.882***		0.360**		2.728***
		(0.133)		(0.158)		(0.262)
FO	0.329	-0.620	1.459**	-0.528***	0.521*	-1.420*
	(0.270)	(0.512)	(0.639)	(0.182)	(0.277)	(0.765)
FSIZE	-0.006	0.011	-0.067	0.024	-0.000	0.001
	(0.060)	(0.112)	(0.116)	(0.038)	(0.061)	(0.165)
FAGE	-0.012**	0.023**	-0.027***	0.010**	-0.016***	0.044***
	(0.006)	(0.011)	(0.010)	(0.005)	(0.006)	(0.016)
FGWR	-1.355	2.549	-2.656	0.957	-1.705	4.652
	(1.188)	(2.250)	(2.064)	(0.825)	(1.192)	(3.297)
TAN	-0.323**	0.608**	-0.359	0.129	-0.366**	0.998**
	(0.155)	(0.296)	(0.269)	(0.120)	(0.155)	(0.438)
C	0.026	-0.049	0.054	-0.020*	0.026	-0.071
	(0.017)	(0.031)	(0.036)	(0.011)	(0.017)	(0.046)
INDIRECT: FO	-.329 (.389)		-1.455** (.726)		-.520 (.458)	
OBS	80	80	80	80	80	80
F-STAT	257.67	205.90	17.27	11.780	162.55	111.28
	(0.000)	(0.000)	(0.008)	(.067)	(0.000)	(0.000)
OVERID	0.710 (0.994)		0.261 (0.999)		0.442 (0.998)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effects of leverage and corporate ownership on profitability is presented in Table 4.51. Also, the table presents the indirect effects of corporate ownership on profitability. The results show a significant association between leverage and profitability in the Conglomerate sector. Firms with higher SLEV and TLEV ratios are associated with less profitability, while firms with high LLEV ratio are associated with higher profitability. This suggests that high leverage ratio lowers firm profitability. The low profitability associated with high leverage indicates that SLEV and TLEV ratios are not effective corporate governance measures used to reduce agency cost and improve firm performance in the Conglomerate sector.

Foreign ownership has a positive effect on both SLEV and ROA. A percentage increase in foreign ownership will increase SLEV and ROA by 1.62 percent and 0.60 percent respectively. The direct effects of foreign ownership on LLEV and TLEV ratios are not statistically significant. Also, the indirect effect of foreign ownership on ROA is not statistically significant. This implies that foreign ownership does not pass through leverage to affect ROA in the Conglomerate sector.

Table 4.51: The impact of corporate ownership and capital structure on firm performance (ROA) in the Conglomerate sector.

	Panel A		Panel B		Panel C	
	ROA	SLEV	ROA	LLEV	ROA	TLEV
SLEV	-0.363***					
	(0.061)					
LLEV			-1.167			
			(0.804)			
TLEV					-0.352***	
					(0.041)	
ROA		-2.662***		-0.672**		-2.825***
		(0.484)		(0.299)		(0.363)
FO	0.596*	1.623**	-0.380	-0.348	0.027	0.074
	(0.311)	(0.811)	(0.459)	(0.271)	(0.288)	(0.795)
FSIZE	-0.068	-0.181	0.019	0.026	0.018	0.051
	(0.058)	(0.157)	(0.077)	(0.056)	(0.054)	(0.150)
FAGE	-0.002	-0.006	0.005	0.004	-0.002	-0.006
	(0.003)	(0.009)	(0.004)	(0.004)	(0.003)	(0.008)
FGWR	0.885	2.314	1.337	0.911	0.699	1.966
	(0.700)	(1.946)	(0.831)	(0.831)	(0.592)	(1.689)
TAN	-0.155*	-0.423*	-0.062	-0.048	-0.099	-0.281
	(0.094)	(0.243)	(0.110)	(0.096)	(0.079)	(0.216)
C	-0.002	-0.006	-0.011	-0.011	-0.009	-0.027
	(0.010)	(0.026)	(0.017)	(0.010)	(0.008)	(0.023)
INDIRECT: FO	-.588 (.449)		.406 (.445)		-.025 (.306)	
OBS	78	78	78	78	78	78
F-STAT	40.46	42.77	5.15	9.17	81.01	72.96
	(0.000)	(0.000)	(0.524)	(0.164)	(0.000)	(0.000)
OVERID	6.713 (0.348)		4.332 (0.631)		5.357 (0.498)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.52 shows the direct effects of corporate ownership and capital structure on ROE. Also, the table presents the indirect effect of corporate ownership on profitability. SLEV and TLEV ratios have negative effect on ROE, while LLEV has a positive effect on ROA. A percentage increase in the SLEV and LLEV ratios will reduce ROE by 0.55 percent and 0.27 percent, while a similar increase in LLEV will improve ROE by 5.72 percent.

Foreign ownership has a negative effect on LLEV, but positively affects ROE. A percentage increase in foreign ownership will reduce LLEV by 0.25 percent, while a similar increase in foreign ownership will improve ROE by 1.45 percent. The indirect effect of foreign ownership on ROE is not statistically significant. This implies that foreign ownership does not pass through leverage to affect ROE in the Conglomerate sector.

Table 4.52: The impact of corporate ownership and capital structure on firm performance (ROE) in the Conglomerate sector.

	Panel A		Panel B		Panel C	
	ROE	SLEV	ROE	LLEV	ROE	TLEV
SLEV	-0.553***					
	(0.109)					
LLEV			5.722***			
			(1.489)			
TLEV					-0.270***	
					(0.054)	
ROE		-1.805***		0.175***		-3.698***
		(0.542)		(0.044)		(1.138)
FO	0.610	1.101	1.450*	-0.253*	0.485	1.795
	(0.532)	(1.001)	(0.782)	(0.132)	(0.528)	(2.046)
FSIZE	-0.026	-0.047	-0.364**	0.064**	-0.054	-0.201
	(0.113)	(0.209)	(0.171)	(0.028)	(0.112)	(0.429)
FAGE	-0.010	-0.018	0.007	-0.001	-0.005	-0.017
	(0.009)	(0.016)	(0.013)	(0.002)	(0.009)	(0.033)
FGWR	1.448	2.613	-0.134	0.024	1.704	6.302
	(1.704)	(3.186)	(2.481)	(0.433)	(1.698)	(6.572)
TAN	-0.435*	-0.785*	-0.431	0.075	-0.366	-1.355
	(0.245)	(0.472)	(0.348)	(0.062)	(0.243)	(0.974)
C	0.000	0.001	0.168***	-0.029***	0.005	0.020
	(0.025)	(0.046)	(0.052)	(0.006)	(0.025)	(0.096)
INDIRECT: FO	-.609 (.774)		-1.449 (1.371)		-.485 (.759)	
OBS	78	78	78	78	78	78
F-STAT	30.20	14.49	16.85	20.45	29.13	11.41
	(0.000)	(0.024)	(0.009)	(0.002)	(0.000)	(0.076)
OVERID	0.715 (0.949)		0.304 (0.989)		0.175 (0.996)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of leverage and corporate ownership on Tobin's Q is presented in Table 4.53. Also, the table reports the indirect effects of corporate ownership on Tobin's Q in the Conglomerate sector. As shown in the table, there is evidence of a significant relationship between leverage and Tobin's Q. Firms with higher leverage are associated with lower Tobin's Q in the Conglomerate sector. A percentage increase in leverage will lead to a more proportional reduction in Tobin's Q. The negative impact of leverage on Tobin's Q suggests that leverage is not an effective corporate governance mechanism to reduce agency cost and improve Tobin's Q in the Conglomerate sector. Firms with higher Tobin's Q are associated with low leverage. A percentage increase in Tobin's Q will lead to a less proportional reduction in leverage. The negative impact of Tobin's Q on leverage confirms the validity of the franchise-value hypothesis in the Conglomerate sector.

From the results, there is evidence that foreign ownership has a direct effect on leverage and Tobin's Q. Firms with higher foreign ownership are associated with more SLEV and less LLEV. A percentage increase in foreign ownership will lead to more SLEV and less LLEV. This suggests that foreign investors in the Conglomerate sector will prefer more SLEV and less LLEV, as their level of foreign ownership increases. Likewise, the direct effect of foreign ownership on Tobin's Q is mixed. Firms with high foreign ownership are associated with more Tobin's Q, when the SLEV model was considered, and less Tobin's Q when the LLEV model was considered.

There is weak evidence that foreign ownership indirectly affects Tobin's Q through leverage. While foreign ownership exerts no significant indirect impact on Tobin's Q when the SLEV and TLEV ratios were considered, there is evidence of a significant indirect effect on Tobin's Q when the LLEV ratio was considered. Precisely, a percentage increase in foreign ownership will lead to a more proportional increase in Tobin's Q, through LLEV. This implies that foreign ownership passes through LLEV to increase Tobin's Q. The positive indirect impact of foreign ownership on Tobin's Q is likely due to the low LLEV employed by the foreign-controlled firms in the Conglomerate sector. Overall, the total effect of foreign ownership on Tobin's Q is close to zero. This suggests that the negative (positive) direct effect of foreign ownership on Tobin's Q offsets the positive (negative) indirect effect.

Table 4.53: The impacts of corporate ownership and capital structure on firm performance (Tobin's Q) in the Conglomerate sector.

	Panel A		Panel B		Panel C	
	TOBIN	SLEV	TOBIN	LLEV	TOBIN	TLEV
SLEV	-3.497***					
	(0.315)					
LLEV			-64.11***			
			(7.422)			
TLEV					-3.293***	
					(0.310)	
TOBIN		-0.285***		-0.016***		-0.303***
		(0.025)		(0.002)		(0.027)
FO	1.568**	0.446**	-17.802*	-0.278**	0.343	0.103
	(0.731)	(0.214)	(9.286)	(0.141)	(0.803)	(0.248)
FSIZE	0.322*	0.092*	2.135	0.033	0.402**	0.122**
	(0.174)	(0.049)	(2.093)	(0.032)	(0.191)	(0.056)
FAGE	-0.032*	-0.009**	0.144	0.002	-0.021	-0.006
	(0.017)	(0.005)	(0.199)	(0.003)	(0.018)	(0.005)
FGWR	0.530	0.144	11.514	0.180	1.219	0.365
	(3.056)	(0.881)	(37.592)	(0.586)	(3.313)	(1.021)
TAN	-0.678	-0.194	-1.831	-0.029	-0.599	-0.182
	(0.420)	(0.120)	(5.181)	(0.081)	(0.456)	(0.139)
C	-0.067	-0.019	-0.912	-0.014*	-0.107**	-0.032**
	(0.045)	(0.013)	(0.559)	(0.009)	(0.050)	(0.015)
INDIRECT : FO	-1.560		17.801***		-.338	
	(1.074)		(4.857)		(1.146)	
OBS	83	83	83	83	83	83
F-STAT	137.81	169.44	74.71	112.61	125.29	155.92
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
OVERID	7.539		0.049		5.938	
	(0.110)		(0.999)		(0.203)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

(ix) The impacts of corporate ownership and capital structure on firm performance in the Oil and Gas sector.

As depicted in Table 4.54, the LLEV and TLEV ratios have significant effects on efficiency. A percentage increase in LLEV and TLEV ratios will improve firm efficiency by 0.23 percent and 0.02 percent respectively, while the SLEV has no significant impact on firm efficiency. This suggests that both the LLEV and TLEV ratios are significant drivers of firm efficiency in the Oil and Gas sector. Firm efficiency has a positive effect on TLEV ratios. Also, a percentage increase in firm efficiency will lead to a more proportional increase in the TLEV. The increase in the TLEV resulting from higher efficiency suggests that more efficient firms in the Oil and Gas sector will prefer higher leverage because higher efficiency reduces the expected cost associated with financial distress and bankruptcy. Firm efficiency has no significant impact on both the SLEV and LLEV ratios.

The results show that foreign ownership has no direct effect on both leverage and firm efficiency in the Oil and Gas sector. This suggests that there is no direct relationship between foreign ownership and leverage. Also, the result shows no significant relationship between foreign ownership and firm efficiency. This implies that changes in foreign ownership do not affect firm efficiency in the Oil and Gas sector. The insignificant direct effect of foreign ownership on firm efficiency could be linked to the relatively low foreign participation in the sector, resulting from the restriction placed on foreign investment in the Oil and Gas sector. Conversely, there is evidence that state ownership directly affects TLEV and firm efficiency. Firms with more state ownership will employ significantly more TLEV. A percentage rise in state ownership will cause TLEV to increase, albeit more proportionally. This shows that leverage responds to changes in state participation in the Oil and Gas sector. In line with our previous results, state ownership has a direct impact on firm efficiency. A percentage increase in state ownership will result in a more proportional reduction in firm efficiency.

Furthermore, foreign and state ownership have no significant indirect effect on firm efficiency in the Oil and Gas sector. This suggests that foreign and state ownership do not pass through leverage to affect efficiency in the sector.

Table 4.54: The impacts of corporate ownership and capital structure on firm performance (efficiency) in the Oil and Gas sector.

	Panel A		Panel B		Panel C	
	EFF	SLEV	EFF	LLEV	EFF	TLEV
SLEV	0.231					
	(0.232)					
LLEV			0.498*			
			(0.292)			
TLEV					0.021***	
					(0.001)	
EFF		1.685		1.871		47.638***
		(1.713)		(1.222)		(1.165)
FO	-0.609	2.364	2.027	-3.862	0.435	-20.708
	(0.825)	(1.749)	(1.468)	(3.305)	(0.615)	(29.328)
DSO	0.263	-2.620	-3.749*	7.095	-1.385*	65.969*
	(1.245)	(2.672)	(2.146)	(5.595)	(0.829)	(39.533)
FSIZE	0.131	-0.408**	-0.036	0.063	0.027	-1.263
	(0.091)	(0.184)	(0.119)	(0.238)	(0.053)	(2.542)
FAGE	-0.013*	0.019	-0.029**	0.055*	-0.016**	0.756**
	(0.007)	(0.030)	(0.013)	(0.032)	(0.007)	(0.327)
FGWR	0.817	-1.213	3.320*	-6.439*	1.202	-57.258
	(0.897)	(2.832)	(1.839)	(3.609)	(0.908)	(43.280)
TAN	0.071	-0.684	-0.918**	1.786**	-0.239	11.387
	(0.279)	(0.536)	(0.444)	(0.822)	(0.176)	(8.367)
C	-0.033	0.103*	-0.004	0.007	-0.014	0.663
	(0.026)	(0.054)	(0.031)	(0.059)	(0.019)	(0.883)
INDIRECT: FO	.546		-1.923		-.434	
	(1.720)		(1.861)		(1.138)	
INDIRECT: DSO	-.605		3.532		1.384	
	(2.5140)		(3.047)		(1.669)	
OBS	147	147	147	147	147	147
F-STAT	13.98	12.10	9.81	12.92	1694.45	1671.59
	(0.051)	(0.097)	(0.199)	(0.074)	(0.000)	(0.000)
OVERID	3.421		0.728		0.0001	
	(0.180)		(0.695)		(1.000)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.55 shows both the direct effect of capital structure and corporate ownership on profitability (ROA) and the indirect effect of corporate ownership on profitability (ROA)in the Oil &Gas sector. As shown in the table, there exists a significant relationship between leverage and ROA. A percentage increase in SLEV and TLEV ratios will lower ROA by 0.34 percent and 0.05 percent respectively, while a similar increase in LLEV will increase ROA by 0.17 percent. The lower ROA resulting from higher SLEV and TLEV is plausible given the high leverage employed in the Oil and Gas sector. The high cost of debt (interest rate) associated with high levered firms could reduce profitability. More profitable firms are associated with lower SLEV and TLEV ratios. A percentage increase in profitability will result in a more proportional reduction in SLEV and TLEV ratios. This shows that more profitable firms tend to be less levered in the Oil and Gas sector. This result is consistent with the franchise-value hypothesis.

Foreign ownership has a significant negative effect on ROA when the TLEV model was considered. The effect of state ownership on leverage is not statistically significant. Also, the direct relationship between state ownership and firm profitability is not statistically significant, implying that ROA does not respond to changes in foreign and state ownership. Foreign and state ownership have no significant indirect impact on firm profitability in the Oil and Gas sector. This suggests that foreign and state ownership do not pass through capital structure to affect profitability in the sector.

Table 4.55: The impacts of corporate ownership and capital structure on firm performance (ROA) in the Oil and Gas sector.

	Panel A		Panel B		Panel C	
	ROA	SLEV	ROA	LLEV	ROA	TLEV
SLEV	-0.341***					
	(0.122)					
LLEV			0.173***			
			(0.037)			
TLEV					-0.054***	
					(0.008)	
ROA		-2.858***		5.781***		-18.476***
		(0.988)		(1.264)		(3.267)
FO	-0.376	-1.018	-0.266	1.539	-0.668*	-12.337
	(0.595)	(1.917)	(0.673)	(3.926)	(0.374)	(7.522)
DSO	0.171	0.398	0.102	-0.590	0.629	11.620
	(0.876)	(2.625)	(0.992)	(5.743)	(0.506)	(9.921)
FSIZE	0.025	0.064	0.087	-0.505	0.078**	1.444**
	(0.059)	(0.187)	(0.055)	(0.332)	(0.033)	(0.705)
FAGE	-0.016***	-0.045**	-0.020***	0.115***	-0.015***	-0.268***
	(0.006)	(0.021)	(0.006)	(0.038)	(0.004)	(0.090)
FGWR	1.764**	5.048*	2.573***	-14.876***	1.709***	31.568***
	(0.732)	(2.714)	(0.742)	(4.926)	(0.549)	(11.610)
TAN	-0.183	-0.548	-0.156	0.902	0.070	1.295
	(0.184)	(0.447)	(0.161)	(0.908)	(0.106)	(1.981)
C	0.018	0.054	-0.005	0.026	-0.003	-0.053
	(0.018)	(0.044)	(0.014)	(0.083)	(0.011)	(0.208)
INDIRECT: FO	.347 (1.064)		.266 (1.591)		.667 (.620)	
INDIRECT: DSO	-.135 (1.528)		-.102 (2.573)		-.629 (.916)	
OBS	147	147	147	147	147	147
F-STAT	54.85	26.16	41.70	22.17	101.29	34.23
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)
OVERID	0.058 (0.971)		1.393 (0.498)		0.009 (0.891)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of corporate ownership and capital structure on firm performance is presented in Table 4.56. The table also presents the results on the indirect effects of corporate ownership on firm performance in the Oil and Gas sector. The results show a significant relationship between leverage and ROE. A percentage increase in SLEV and TLEV ratios will lower ROE by 0.32 percent and 0.05 percent respectively, while a similar increase in LLEV will increase ROE by 0.11 percent. More profitable firms are associated with lower SLEV and TLEV ratios. A percentage increase in ROE will result in a more proportional reduction in SLEV and TLEV ratios. This shows that more profitable firms tend to be less levered in the Oil and Gas sector. This result is consistent with the franchise-value hypothesis.

Foreign ownership has a significant negative effect on ROE when the TLEV model was considered. There is no significant relationship between foreign ownership and leverage. State ownership on leverage have no significant impact on firm profitability (ROE). This implies that ROE does not respond to changes in foreign and state ownership.

Similarly, foreign and state ownership have no significant indirect impact on firm profitability in the Oil and Gas sector. This implies that foreign and state ownership do not pass through capital structure to affect profitability in the Oil and Gas sector.

Table 4.56: The impacts of corporate ownership and capital structure on firm performance (ROE) in the Oil and Gas sector.

	Panel A		Panel B		Panel C	
	ROE	SLEV	ROE	LLEV	ROE	TLEV
SLEV	-0.321***					
	(0.101)					
LLEV			0.107***			
			(0.017)			
TLEV					-0.053***	
					(0.001)	
ROE		-2.69***		5.483***		-1.810***
		(0.093)		(1.004)		(0.007)
FO	-0.370	-1.030	-0.211	1.501	-0.568*	-1.237
	(0.605)	(1.999)	(0.679)	(3.990)	(0.304)	(0.752)
DSO	0.192	0.388	0.112	-0.500	0.599	1.620
	(0.890)	(2.611)	(0.990)	(5.913)	(0.516)	(0.91)
FSIZE	0.124	0.067	0.098	-0.511	0.079**	1.441**
	(0.109)	(0.181)	(0.081)	(0.399)	(0.037)	(0.707)
FAGE	-0.006***	-0.015**	-0.029***	0.200***	-0.095***	-0.299***
	(0.001)	(0.011)	(0.004)	(0.003)	(0.002)	(0.004)
FGWR	1.764**	5.043*	2.503***	-1.481***	1.901***	3.156***
	(0.712)	(2.718)	(0.703)	(3.226)	(0.891)	(1.121)
TAN	-0.111	-0.599	-0.189	0.918	0.170	1.200
	(0.114)	(0.587)	(0.178)	(0.999)	(0.249)	(1.977)
C	0.028	0.155	-0.098	0.016	-0.033	-0.041
	(0.048)	(0.144)	(0.018)	(0.043)	(0.011)	(0.239)
INDIRECT: FO	0.330 (1.061)		0.160 (1.532)		0.066 (0.600)	
INDIRECT: DSO	-0.124 (1.528)		-0.053 (2.573)		-0.085 (0.890)	
OBS	147	147	147	147	147	147
F-STAT	52.39	26.22	41.90	21.90	100.19	34.10
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)
OVERID	0.052 (0.971)		1.398 (0.498)		0.020 (0.903)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.57 presents the direct effect of leverage and corporate ownership on Tobin's Q, and the indirect effect of corporate ownership on Tobin's Q in the Oil & Gas sector. From the table, leverage affects Tobin's Q. Firms with higher leverage are associated with lower Tobin's Q. A percentage increase in leverage will reduce Tobin's Q by about 0.85-1.68 percent. This confirms our previous results when other firm performance indicators were considered. Firms with higher Tobin's Q are associated with less leverage. In particular, a percentage increase in Tobin's Q will result in a less proportional reduction in leverage. The negative relationship is consistent with the franchise-value hypothesis and further confirms our previous results when other firm performance indicators were used.

From the results, foreign ownership has no direct effect on leverage and Tobin's Q. This suggests that both leverage and Tobin's Q do not respond to changes in foreign participation in the sector. While state ownership has a direct negative effect on SLEV, no significant relationship exists between state ownership and LLEV as well as TLEV. A percentage increase in state ownership will reduce the SLEV, albeit more proportionally. This suggests that firms with high state ownership in the Oil and Gas sector may prefer less SLEV. Also, high state ownership reduces Tobin's Q. A percentage rise in state ownership will lead to a more proportional reduction in Tobin's Q. This implies that firms with high state ownership are associated with lower performance in the sector. Both foreign and state ownership have no significant indirect effect on Tobin's Q.

Table 4.57: The impact of corporate ownership and capital structure on firm performance (Tobin's Q) in the Oil and Gas sector.

	TOBIN	SLEV	TOBIN	LLEV	TOBIN	TLEV
SLEV	-1.471***					
	(0.202)					
LLEV			-1.678**			
			(0.796)			
TLEV					-0.851***	
					(0.053)	
TOBIN		-0.680***		-0.596**		-1.17***
		(3.386)		(3.152)		(8.096)
FO	6.904	4.695	-4.867	-2.900	2.415	2.836
	(4.517)	(3.061)	(5.220)	(2.927)	(3.049)	(3.580)
DSO	-13.997*	-9.518*	6.213	3.702	-6.460	-7.587
	(7.542)	(5.118)	(8.730)	(4.942)	(4.978)	(5.847)
FSIZE	-0.991**	-0.674**	0.007	0.004	-0.653**	-0.766**
	(0.439)	(0.297)	(0.450)	(0.268)	(0.297)	(0.349)
FAGE	0.012	0.008	0.068	0.040	0.039	0.046
	(0.047)	(0.032)	(0.045)	(0.026)	(0.034)	(0.040)
FGWR	4.728	3.215	-4.459	-2.657	0.943	1.107
	(6.362)	(4.341)	(6.334)	(3.365)	(4.586)	(5.388)
TAN	-1.432	-0.974	2.854*	1.700**	0.416	0.489
	(1.320)	(0.886)	(1.562)	(0.773)	(0.920)	(1.081)
C	0.213*	0.145*	0.103	0.061	0.175*	0.205*
	(0.126)	(0.086)	(0.106)	(0.070)	(0.091)	(0.108)
INDIRECT: FO	-6.904		4.866		-2.414	
	(5.526)		(4.407)		(5.295)	
INDIRECT: DSO	13.996		-6.213		6.459	
	(9.150)		(6.764)		(9.609)	
OBS	150	150	150	150	150	150
F-STAT	55.39	56.00	6.51	13.10	262.00	260.41
	(0.000)	(0.000)	(0.481)	(0.069)	(0.000)	(0.000)
OVERID	0.125		0.029		0.031	
	(0.939)		(0.985)		(0.961)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

(x) The impacts of corporate ownership and capital structure on firm performance in the Natural Resources sector.

As shown in Table 4.58, there is evidence of a significant relationship between leverage and firm efficiency in the Natural Resources sector. Firms with higher LLEV and TLEV ratios are associated with improved efficiency. A percentage increase in LLEV and TLEV ratios will improve firm efficiency by 0.76 percent and 0.20 percent respectively. The positive impact of both LLEV and TLEV ratios on firm efficiency validates the agency hypothesis. Studies have shown that high leverage serves as a corporate mechanism to reduce managerial wasteful spending as well as prevent bankruptcy or financial distress (Grossman and Hart, 1982; Margaritis and Psillaki, 2010). Conversely, firms with higher short-term leverage are associated with lower efficiency. A percentage rise in short-term leverage will reduce efficiency by 0.08 percent. This suggests that the SLEV is not an effective corporate governance mechanism to reduce agency cost and improve firm efficiency in the Natural Resources sector. Firms with higher efficiency tend to employ more LLEV and TLEV ratios. A percentage increase in firm efficiency will lead to a more proportional increase in LLEV and TLEV ratios. This indicates that more efficient firms will prefer higher leverage to prevent bankruptcy cost and financial distress in the Natural Resources sector. On the contrary, higher efficiency is associated with lower SLEV. A percentage increase in firm efficiency will cause a more proportional decline in SLEV. The negative impact of firm efficiency on SLEV is consistent with the franchise-value hypothesis. The results suggest that more efficient firms in the Natural Resources sector will prefer SLEV to protect the economic rents derived from higher efficiency.

Foreign ownership has a significant negative direct effect on both SLEV and firm efficiency in the Natural Resources sector. A percentage increase in foreign ownership will lower SLEV by 16.60 percent and firm efficiency by 1.36 percent. Foreign ownership has no significant impact on both LLEV and TLEV ratios as well as firm efficiency in the LLEV and TLEV models. The results show no evidence that foreign ownership indirectly affects firm efficiency, through leverage. The insignificant relationship between foreign ownership and firm efficiency suggests that changes in foreign ownership do not pass through leverage to affect firm efficiency in the Natural Resources sector.

Table 4.58: The impacts of corporate ownership and capital structure on firm performance (efficiency) in the Natural Resources sector.

	Panel A		Panel B		Panel C	
	EFF	SLEV	EFF	LLEV	EFF	TLEV
SLEV	-0.082***					
	(0.012)					
LLEV			0.755***			
			(0.016)			
TLEV					0.203***	
					(0.069)	
EFF		-12.21***		1.325***		4.386
		(1.983)		(0.028)		(2.769)
FO	-1.360*	-16.599*	0.338	-0.447	0.704	-3.874
	(0.787)	(9.689)	(1.073)	(1.421)	(0.902)	(3.730)
FSIZE	0.101	1.232	0.053	-0.070	0.047	-0.188
	(0.074)	(0.923)	(0.102)	(0.135)	(0.072)	(0.366)
FAGE	-0.019*	-0.234*	-0.016	0.021	-0.004	0.012
	(0.010)	(0.124)	(0.014)	(0.018)	(0.010)	(0.054)
FGWR	0.163	1.990	0.283	-0.374	0.222	-1.013
	(0.723)	(8.824)	(0.988)	(1.309)	(0.696)	(2.872)
TAN	-0.063	-0.767	0.022	-0.029	-0.304**	1.419**
	(0.110)	(1.361)	(0.149)	(0.198)	(0.119)	(0.578)
C	-0.004	-0.049	0.006	-0.008	0.000	-0.003
	(0.014)	(0.173)	(0.019)	(0.026)	(0.014)	(0.056)
INDIRECT : FO	1.359 (1.601)		-.337 (2.327)		-.787 (2.320)	
OBS	67	67	67	67	67	67
F-STAT	55.65	40.00	2314.59	2321.82	18.33	27.19
	(0.000)	(0.000)	(0.00)	(0.00)	(0.005)	(0.00)
OVERID	0.081 (0.960)		0.006 (0.996)		4.163 (0.124)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

The direct effect of leverage and corporate ownership on profitability (ROA) in the Natural Resources sector is reported in Table 4.59. The table also presents the indirect effects of corporate ownership on efficiency in the Natural Resources sector. Firms with higher SLEV and TLEV ratios are associated with low profitability. A percentage increase in SLEV and TLEV ratios will lower ROA by 0.34 percent and 0.50 percent respectively. The lower ROA resulting from high SLEV and TLEV ratios could be attributed to the high cost of debt which increases operating expenses, lowers net income as well as firm profitability. Also, the negative impact of SLEV and TLEV ratios on firm profitability suggest that SLEV and TLEV are not effective corporate governance measures used to reduce agency cost and improve profitability in the Natural Resources sector. Conversely, firms with higher long-term leverage are associated with higher ROA. A percentage increase in long-term leverage will improve ROA by 0.29 percent. The positive impact of long-term leverage on ROA suggests that long-term leverage is an effective corporate governance mechanism to reduce managerial wasteful spending and to prevent the cost of bankruptcy or financial distress in the Natural Resources sector. More profitable firms are associated with lower SLEV and TLEV ratios. This validates the existence of the franchise-value hypothesis in the Natural Resources sector. The negative effect of firm profitability on SLEV and TLEV implies that more profitable firms in the Natural Resources sector would choose lower SLEV and TLEV ratios to protect the economic benefits derived from higher profitability. The result shows that firms with high profitability will be more levered in long-term debt. The positive impact of firm profitability on long-term leverage suggests that more profitable firms will choose lower long-term leverage to protect their economic rents derived from higher efficiency.

The results show strong evidence that foreign ownership directly affects leverage and ROA in the Natural Resources sector. Firms with high foreign ownership are associated with low leverage. A percentage increase in foreign ownership will lower long-term leverage and TLEV ratios by 9.32 percent and 9.95 percent respectively. The negative impact of foreign ownership on leverage is plausible given that most foreign-controlled firms often engage in monitoring and disclose more extensive corporate information. These ensure good corporate governance and reduce information asymmetry associated with procuring more

funds; thus, issuing more equities and reduces the dependence on debt financing. Also, firms with high foreign ownership in the Natural Resources sector will employ less debt because they often benefit from various international funds and aids; thus, they tend to be less levered. This result is consistent with the findings of Li *et al*., (2009); Ezeoha and Okafor, 2010. The direct effect of foreign ownership on ROA is mixed, as it improves ROA in the long-term leverage model, but reduces ROA in the TLEV model.

Foreign ownership does not affect profitability indirectly in the Natural Resources sector. This suggests that changes in foreign ownership do not pass through leverage to affect profitability in the Natural Resources sector.

Table 4.59: The impacts of corporate ownership and capital structure on firm performance (ROA) in the Natural Resources sector.

	Panel A		Panel B		Panel C	
	ROA	SLEV	ROA	LLEV	ROA	TLEV
SLEV	-0.338***					
	(0.025)					
LLEV			0.287***			
			(0.049)			
TLEV					-0.503***	
					(0.021)	
ROA		-2.961***		3.477***		-1.986***
		(0.215)		(0.702)		(0.081)
FO	-1.302	-3.856	2.679*	-9.315*	-5.008**	-9.947**
	(1.095)	(3.175)	(1.382)	(5.038)	(2.040)	(4.007)
FSIZE	-0.028	-0.084	-0.221*	0.769*	0.180	0.357
	(0.098)	(0.291)	(0.123)	(0.450)	(0.184)	(0.364)
FAGE	-0.006	-0.016	0.030*	-0.104*	-0.035	-0.070
	(0.013)	(0.039)	(0.017)	(0.061)	(0.025)	(0.049)
FGWR	2.328***	6.894***	2.290***	-7.961***	2.178	4.326
	(0.786)	(2.377)	(0.767)	(3.084)	(1.388)	(2.764)
TAN	0.082	0.243	-0.136	0.474	0.087	0.173
	(0.122)	(0.359)	(0.122)	(0.442)	(0.214)	(0.426)
C	-0.004	-0.013	0.013	-0.046	-0.028	-0.056
	(0.016)	(0.048)	(0.018)	(0.062)	(0.030)	(0.059)
INDIRECT: FO	1.302 (1.572)		-2.677 (1.943)		5.007 (10.447)	
OBS	67	67	67	67	67	67
F-STAT	218.73	229.36	62.32	27.36	599.88	635.53
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
OVERID	0.187 (0.910)		0.501 (0.778)		0.031 (0.984)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.60 reports the direct effect of leverage and corporate ownership on ROE in the Natural Resources sector. It also presents the indirect effect of corporate ownership on efficiency in the same sector. The result shows that SLEV and TLEV ratios have significant negative impacts on ROE. A percentage increase in SLEV and TLEV ratios will lower ROE by 2.41 percent and 3.94 percent respectively. Also, the result shows that long-term leverage has a positive impact on ROE. A percentage increase in long-term leverage will improve ROE by 3.13 percent. This implies that long-term leverage positively affects ROE in the Natural Resources sector.

On the one hand, foreign ownership has a negative direct effect on leverage. A percentage increase in foreign ownership will lower SLEV by 5.71 percent, long-term leverage by 1.73 percent and TLEV by 7.00 percent. On the other hand, foreign ownership has a negative effect on ROE in the short-run and TLEV models, while it positively affects ROE in the long-term leverage model.

Foreign ownership does not affect profitability indirectly in the Natural Resources sector. This suggests that changes in foreign ownership do not pass through leverage to affect profitability in the Natural Resources sector.

Table 4.60: The impacts of corporate ownership and capital structure on firm performance (ROE) in the Natural Resources sector.

	Panel A		Panel B		Panel C	
	ROE	SLEV	ROE	LLEV	ROE	TLEV
SLEV	-2.410***					
	(0.287)					
LLEV			3.125***			
			(0.843)			
TLEV					-3.941***	
					(0.399)	
ROE		-0.415***		0.316***		-0.254***
		(0.046)		(0.078)		(0.024)
FO	-13.765***	-5.712***	5.424*	-1.732*	-27.574***	-6.997***
	(4.671)	(1.818)	(3.025)	(0.904)	(7.457)	(1.757)
FSIZE	0.107	0.044	-0.429	0.136	0.367	0.093
	(0.423)	(0.175)	(0.268)	(0.091)	(0.669)	(0.169)
FAGE	-0.117*	-0.049**	0.018	-0.006	-0.176*	-0.045*
	(0.061)	(0.024)	(0.038)	(0.012)	(0.095)	(0.024)
FGWR	2.294	0.952	5.329*	-1.692*	-2.143	-0.544
	(4.674)	(1.948)	(2.961)	(0.982)	(7.430)	(1.883)
TAN	2.942***	1.221***	0.965**	-0.307**	4.081***	1.036***
	(0.765)	(0.296)	(0.458)	(0.149)	(1.180)	(0.286)
C	0.026	0.011	0.048	-0.015	-0.006	-0.002
	(0.086)	(0.036)	(0.054)	(0.017)	(0.136)	(0.035)
INDIRET: FO	13.765 (11.517)		-5.412 (7.869)		27.573 (26.574)	
OBS	61	61	61	61	61	61
F-STAT	72.55	111.67	19.09	42.74	98.36	157.79
	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)
OVERID	0.512 (0.774)		1.358 (0.507)		0.142 (0.931)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

Table 4.61 presents the direct effect of corporate ownership on leverage and Tobin's Q, and the indirect effect of corporate ownership on Tobin's Q in the Natural Resources sector. The results show strong evidence that higher leverage will lead to lower Tobin's Q. Specifically, a percentage increase in leverage will result in a more proportional reduction in Tobin's Q. In line with our previous results, the negative impact of leverage on Tobin's Q suggests that leverage is not an effective corporate governance mechanism in the Natural Resources sector. Likewise, firms with high Tobin's Q are associated with less leverage. A percentage increase in Tobin's Q will lead to a less proportional reduction in leverage. This suggests that firms with high Tobin's Q will be less levered.

The direct effect of foreign ownership on leverage and Tobin's Q is not statistically significant. The insignificant impact of foreign ownership on leverage suggests that both SLEV and long-term leverage ratios do not respond to changes in foreign ownership. Also, the direct effect of foreign ownership on Tobin's Q is not statistically significant. This implies that Tobin's Q is insensitive to changes in foreign ownership in the Natural Resources sector.

Similarly, the indirect effect of foreign ownership on Tobin's Q is not statistically significant. This indicates that foreign ownership does not pass through leverage to affect Tobin's Q in the Natural Resources sector.

Table 4.61: The impacts of corporate ownership and capital structure on firm performance (Tobin's Q) in the Natural Resources sector.

	Panel A		Panel B		Panel C	
	TOBIN	SLEV	TOBIN	LLEV	TOBIN	TLEV
SLEV	-1.319***					
	(0.166)					
LLEV			-5.851***			
			(1.083)			
TLEV					-2.549***	
					(0.538)	
TOBIN		-0.758***		-0.166***		-0.386***
		(0.100)		(0.034)		(0.082)
FO	-7.873	-5.968	3.146	0.487	-19.325	-7.665*
	(10.849)	(8.111)	(10.554)	(1.755)	(12.797)	(4.352)
FSIZE	0.220	0.167	-0.785	-0.130	0.501	0.204
	(1.040)	(0.786)	(1.014)	(0.169)	(1.109)	(0.420)
FAGE	-0.106	-0.080	0.121	0.020	-0.164	-0.065
	(0.134)	(0.100)	(0.129)	(0.021)	(0.147)	(0.053)
FGWR	-2.937	-2.226	-5.249	-0.877	-3.633	-1.396
	(7.345)	(5.575)	(7.163)	(1.184)	(7.505)	(2.935)
TAN	2.727**	2.067**	0.274	0.040	3.575***	1.393***
	(1.111)	(0.843)	(1.092)	(0.182)	(1.209)	(0.451)
C	0.114	0.087	0.187	0.031	0.065	0.024
	(0.194)	(0.148)	(0.189)	(0.032)	(0.203)	(0.080)
INDIRECT : FO	7.873 (14.118)		-2.851 (11.697)		19.533 (22.303)	
OBS	64	64	64	64	64	64
F-STAT	66.64 (0.000)	64.92 (0.000)	33.34(0.000)	39.01 (0.000)	26.49 (0.000)	50.58 (0.000)
OVERID	0.197 (0.995)		4.677 (0.322)		2.711 (0.607)	

Note: (i) standard errors in parentheses (ii) the symbols ***, ** and * indicate level of significance at 1 percent, 5 percent and 10 percent respectively. (iii) for the indirect effect, the bootstrap standard errors in parentheses (iv) OVERID is the Hansen-Sargan test of the overidentifying restrictions.

Source: Author's computation (2017)

4.4 Discussions of Findings

Firms with high foreign ownership had lower leverage (short-term and long-term debt) than firms with low foreign ownership, though the mean difference in leverage was only statistically significant when the short-term leverage was considered. This suggests that firms with high foreign participation would prefer less short-term leverage. This is plausible given the high cost of debt (interest rate) in most developing economies. The high cost of debt increases operating expenses and the risk associated with bankruptcy. Also, the ease of accessing cheap foreign capital as well as grants reduces the tendency of foreign-affiliated companies to employ high debt.

In terms of firm performance, all the firms with high foreign ownership performed better, in terms of efficiency and profitability, compared to others with low percentage of foreign ownership. The high performance associated with firms with high foreign ownership could be attributed to the gains from superior technology, better experience and effective monitoring practised by most foreign shareholders.

Short-term leverage is significantly different in firms with low and high state ownership. Firms with high state ownership employed significantly higher short-term leverage and less long-term leverage. Also, all firm performance indicators (efficiency, ROA, ROE and Tobin's Q) are significantly lower for firms with high state ownership compared to firms with low state ownership.

The results show that capital structure is a key determinant of firm performance. The positive relationship between capital structure and firm performance suggests that higher capital structure improves firm performance. The findings are consistent with the agency cost theory which states that higher capital structure would reduce agency cost and improve firm performance. The results support previous findings which showed that high leverage is an effective corporate governance mechanism used to reduce agency costs and enhance efficiency (Margaritis and Psillaki, 2010; Le and O'Brien, 2010; Wahba, 2013 and Ganiyu, 2015).

Foreign ownership has a negative direct effect on capital structure. This implies that firms with higher foreign ownership would employ lower capital structure. The result is

consistent with the findings of Ezeoha and Okafor (2010) and Bamiatzi et. al. (2017), which noted that the high cost of debt (interest rate) in most developing and emerging countries increases operating expenses as well as the risk associated with bankruptcy and financial distress. Similarly, state ownership has a direct positive effect on capital structure. This is plausible given that firms with higher state ownership are politically connected and often have easy access to debt financing. This finding is consistent with the works of Dewenter and Malatesta (2001); Li *et al.* (2009) and Pöyry and Maury (2010).

Firms with high foreign ownership have a direct positive effect on firm performance. The result shows that firms with high foreign ownership performed better compared to firms with low foreign ownership. The higher performance associated with foreign-owned firms could be linked to the superior organizational and technical skills as well as effective monitoring role played by foreign investors. This supports the agency cost theory and supports the findings of Bai *et al*. (2004); Nakano and Nguyen (2013) which showed that foreign-affiliated firms possess superior technology, organizational capital, and have better access to international capital markets which help to improve firm performance.

State ownership has a negative direct effect on firm performance. Firms with high state ownership had lower performance compared to firms with low state ownership. This is plausible given that state-affiliated firms are associated with weak corporate governance which exacerbates agency cost and directly reduces firm efficiency. This finding supports the results of Li et. al. (2009).

In terms of the indirect effects, the study found that foreign ownership indirectly lowers firm performance, while state ownership indirectly increases firm performance. On the one hand, foreign ownership passes through capital structure to reduce firm performance. The negative indirect relationship between foreign ownership and firm performance could be attributed to the low leverage employed by foreign-controlled firms in Nigeria. On the other hand, state ownership passes through capital structure to improve firm performance. This is consistent with the findings of Le and O'Brien (2010) which showed that leverage employed by state-affiliated firms helps to reduce agency cost and improves firm efficiency.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary, conclusion, and relevant recommendations. Also, some limitations of the study and probable areas for further research are presented in this section.

5.1 Summary

This study examined both the direct effect of corporate ownership and capital structure on firm performance, as well as the indirect effect of corporate ownership on firm performance through capital structure. The three-stage least squares (3SLS) simultaneous regression estimation technique was employed to control the endogenous effect of corporate ownership on firm performance. Also, the 3SLS was used to estimate the reverse causal relationship between capital structure and firm performance. The results from the study reveal that capital structure is a significant determinant of firm performance. The positive effect of capital structure on firm performance suggests that capital structure is an important instrument for mitigating agency cost and increasing firm efficiency.

On the direct effect of corporate ownership on capital structure and firm performance, the results show that foreign ownership negatively affects capital structure, but positively affects firm performance. The negative relationship between foreign ownership and capital structure is plausible given that the high cost of debt (interest) in most developing and emerging countries increases operating expenses as well as the risk associated with bankruptcy. The positive effect of foreign ownership on firm performance could be linked to improved corporate monitoring and organizational capital by foreign shareholders, which reduces agency cost.

State ownership positively affects capital structure, but it has a negative direct impact on firm performance. The positive impact of state ownership on capital structure is plausible given that the state-affiliated firms in Nigeria are politically connected and thus creates easy access to debt financing. The negative direct effect of state ownership on firm performance is plausible given that state-affiliated firms are associated with weak corporate governance which exacerbates agency cost and directly reduces firm efficiency. This confirms the findings of Li *et. al.* (2009).

In terms of the indirect effect of corporate ownership on firm performance, the results show that foreign ownership negatively affects firm efficiency, through its negative influence on capital structure. This is plausible given that foreign-controlled firms often employ less leverage as their percentage of foreign ownership increases. Also, given that leverage is an effective corporate mechanism to reduce agency cost, less leverage implies low monitoring ability, which increases agency cost and lowers firm performance. State ownership has a positive indirect effect on efficiency. This is plausible given that the state-affiliated firms employ higher capital structure which serves as a corporate mechanism to reduce agency cost and enhance firm performance. Similar results were obtained when the analyses were done before and after the equity market liberalisation policy as well as pre-and post-privatisation policy.

On a sectoral basis, the results show that capital structure is a significant determinant of firm performance in most sectors. Firms with higher capital structure in the Agricultural, Construction/Real Estate, Consumer Goods, Conglomerates, Oil and Gas and Natural Resources sectors had improved performance. Also, the positive relationship between leverage and firm performance holds when the accounting (ROA and ROE) and market value (Tobin's Q) measures of firm performance were considered. Firms with high leverage in the Services, ICT, Industrial Goods and Healthcare sectors experienced lower firm value. This implies that leverage is not an effective corporate mechanism to reduce agency cost in these sectors. The negative impact of leverage on firm performance in these sectors could be linked to the high cost of debt financing.

The impact of corporate ownership on capital structure varies across sectors. Foreign ownership has a direct effect on capital structure in some sectors. Higher foreign ownership increases financial leverage in the Services and Industrial Goods sector, while in the Consumer Goods and Healthcare sectors, higher foreign ownership lowers financial leverage. Foreign ownership exerts no significant direct effect on leverage in the Agricultural, ICT, Construction/ Real Estate, Industrial Goods, Oil and Gas as well as Natural Resources sectors. Similarly, state ownership has no significant impact on leverage in the Construction/Real Estate, Industrial Goods, Healthcare and Oil and Gas sectors.

Furthermore, the direct effect of foreign ownership on firm performance varies across sectors. Firms with higher foreign ownership in the ICT, Consumer Goods and Conglomerates sectors are associated with higher firm performance. Foreign ownership has no significant direct impact on firm performance in the Agricultural, Industrial Goods, Healthcare, Oil and Gas and Natural Resources sectors. Likewise, state ownership has no significant direct impact on leverage in the Construction/Real Estate, Industrial Goods, Healthcare and Oil and Gas sectors, while the direct impact of state ownership on firm performance is mixed in the Services sector. In terms of the indirect effect of corporate ownership on firm performance in various sectors, both foreign and state ownership exhibit improved performance in few sectors.

5.2 Conclusion

This study examined the effects of corporate ownership and capital structure on firm performance, as well as the indirect effect of corporate ownership on firm performance in Nigeria. From the results, the positive impact of capital structure on firm performance validates the existence of the agency theory in the context of an emerging economy. This implies that capital structure (leverage) serves as a corporate mechanism to mitigate agency cost and improve firm performance. Also, the theory is valid after controlling sectoral differences across firms.

From the results, it is evident that both foreign and state ownership are significant factors affecting capital structure and firm performance. Some firms with higher foreign

ownership are associated with lower leverage. The negative association between foreign ownership and leverage could be linked to the high cost of debt financing (interest rate) in developing/emerging economies which increases operating expenses and the risk associated with bankruptcy. Also, the negative impact of foreign ownership on leverage could be linked to the asymmetric information associated with debt financing and the ease of accessing cheap foreign capital and grants which reduces their tendency to be highly levered in the operating country. Firms with higher state ownership are associated with significantly higher leverage ratios. The positive impact of state ownership on capital structure is likely linked to easy access to debt financing given the political connections of the state-affiliated firms.

Furthermore, foreign and state ownership are significant determinants of firm performance. The results show that firms with higher foreign ownership are directly associated with improved firm performance. The improved performance could be due to the superior technology and technical expertise employed by foreign investors. A similar finding was established after controlling for the liberalisation of the equity market. In addition, the result holds across most sectors. Firms with higher state ownership are directly associated with lower performance. The low performance is likely attributed to the weak corporate control mechanism of the state-affiliated firms, which exacerbates agency cost and directly reduces firm efficiency. Similar results were obtained after controlling for the privatisation of state shareholding. Also, the result holds across most sectors.

Corporate ownership has an indirect effect on firm efficiency through capital structure, while no indirect effect was observed when other measures (accounting and market value) of firm performance were considered. From the results, foreign ownership passes through capital structure to lower firm efficiency. The negative indirect effect of foreign ownership on performance was induced by the negative influence of foreign ownership on capital structure. Related results were obtained after controlling for the liberalisation of the equity market and no significant indirect effect was observed across sectors. State ownership passes through capital structure to increase firm efficiency. Although firms with higher state ownership are directly associated with lower efficiency, state ownership indirectly

improves firm efficiency through its positive influence on capital structure. State-affiliated firms will prefer higher leverage given their political connections and the ease of accessing debt financing. The high leverage employed by the state-affiliated firms serves as a corporate control mechanism to mitigate agency cost and indirectly improve firm efficiency. Similar results were obtained after controlling for the privatisation of state shareholdings, while no significant indirect effect was observed across sectors.

5.3 Recommendations

From the foregoing results, some key recommendations could be drawn for corporate finance decisions and domestic/international investors. First, the results suggest that capital structure decisions have some implications for agency cost, efficiency as well as firm performance. Since most firms in Nigeria are less efficient[11], the positive impact of capital structure on firm performance implies that firms could be more efficient if they increase their leverage ratio. This is plausible given that capital structure has a positive impact on firm efficiency and other measures of performance. Also, the results suggest that corporate leverage is an appropriate corporate control mechanism to reduce agency cost, improve efficiency as well as firm performance in Nigeria.

Second, there is a need for corporate managers and other stakeholders to distinguish the direct effects of corporate ownership on firm performance and the indirect effects of corporate ownership on firm performance, through capital structure. While there is clear evidence of a direct impact of corporate ownership on firm performance, an indirect impact also exists. From the results obtained, there is an indirect effect of corporate ownership on firm performance and this effect varies by corporate ownership type (foreign and state). Firms with higher foreign ownership have a higher tendency to indirectly reduce efficiency due to the low leverage ratio employed by most foreign-controlled firms in Nigeria, while firms with higher state ownership have a higher tendency to indirectly improve firm efficiency. Hence, managers and corporate stakeholders should recognize the indirect impact of the various types of corporate ownership on firm performance.

[11] The average efficiency score of listed firms in Nigeria is 30.7

5.4 Contributions to knowledge

This study modified the agency theory and established a theoretical link between the direct and indirect roles of various types of corporate ownership on firm performance. The study also proposed a more efficient method of estimating the direct and indirect effects of corporate ownership on firm performance. In addition, the study provided empirical evidence on the direct and indirect effects of foreign and state ownership on firm performance in the context of a developing economy.

5.5 Limitations

The major limitation of this study is the relatively small sample size in some sectors. Although, the sample period was relatively long (26 years), the number of firms in some sectors was relatively small, with the least sector having at least two firms. The relatively small number of firms in some sectors could influence the significance of testing in the sectoral regression estimates.

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Appendix

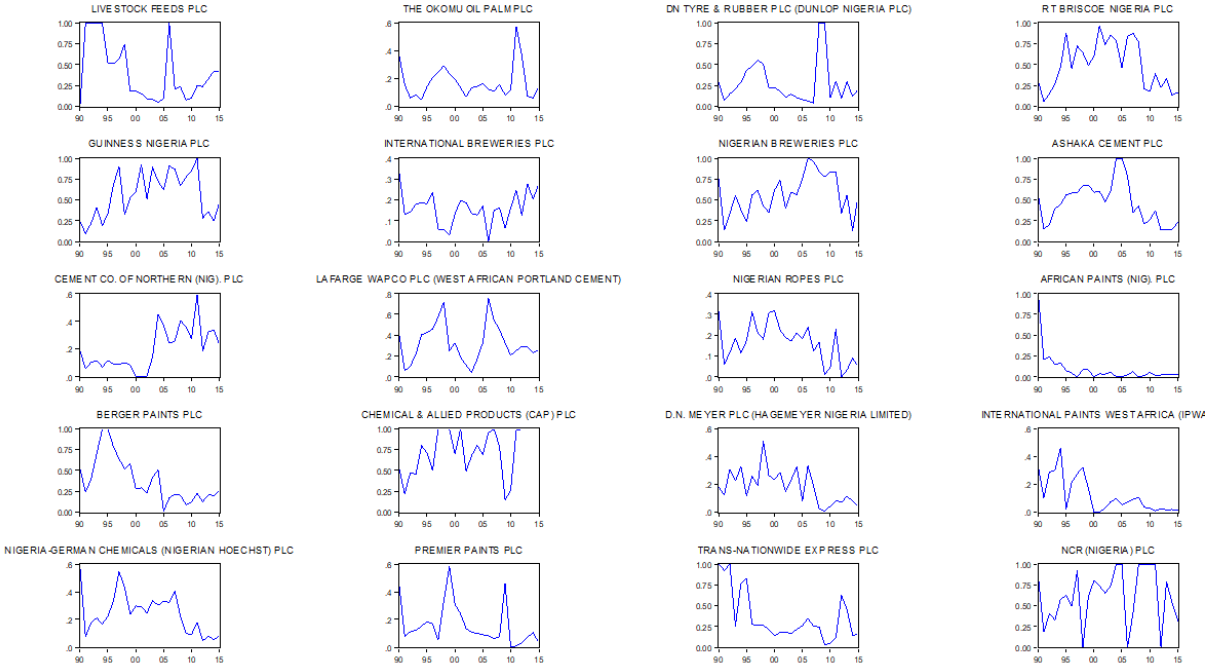
A. List of firms

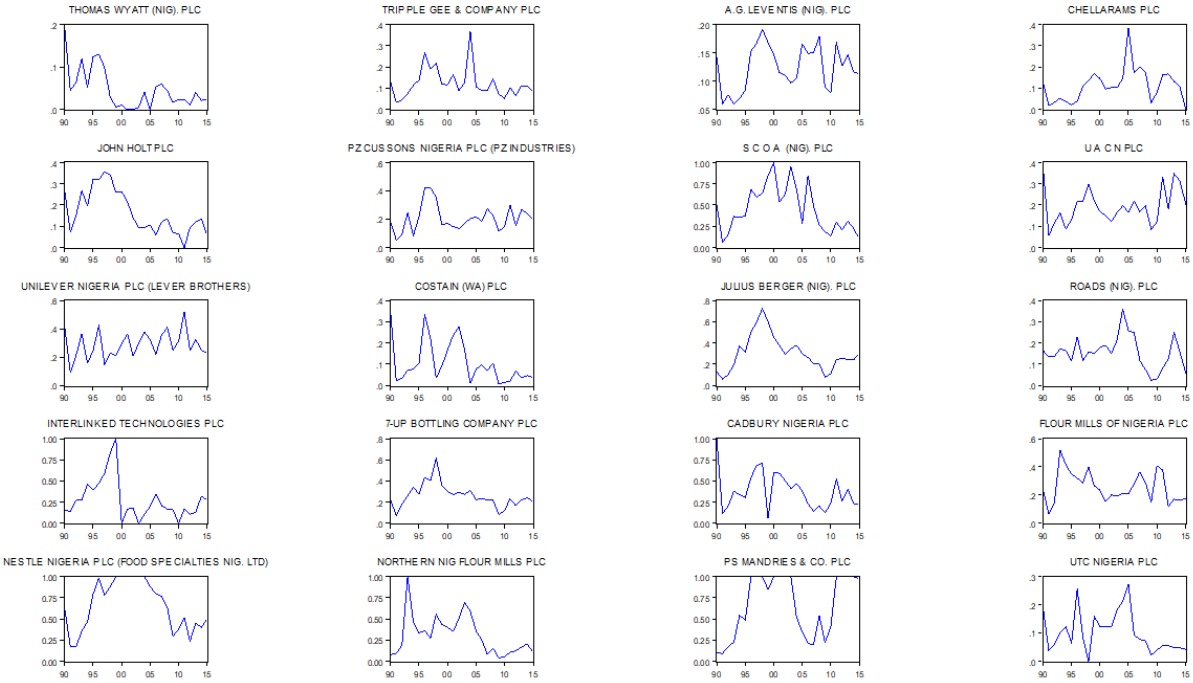
Firms	Sector
LIVESTOCK FEEDS PLC	Agriculture
THE OKOMU OIL PALM PLC	Agriculture
A.G. LEVENTIS (NIG). PLC	Conglomerates
CHELLARAMS PLC	Conglomerates
JOHN HOLT PLC	Conglomerates
S C O A (NIG). PLC	Conglomerates
U A C N PLC	Conglomerates
COSTAIN (WA) PLC	Construction/Real Estate
JULIUS BERGER (NIG). PLC	Construction/Real Estate
ROADS (NIG). PLC	Construction/Real Estate
SMART PRODUCTS NIGERIA PLC (SMURFIT PRINT NIG PLC)	Construction/Real Estate
DN TYRE & RUBBER PLC (DUNLOP NIGERIA PLC)	Consumer Goods
GUINNESS NIGERIA PLC	Consumer Goods
INTERNATIONAL BREWERIES PLC	Consumer Goods
NIGERIAN BREWERIES PLC	Consumer Goods
PZ CUSSONS NIGERIA PLC (PZ SECTORS)	Consumer Goods
UNILEVER NIGERIA PLC (LEVER BROTHERS)	Consumer Goods
7-UP BOTTLING COMPANY PLC	Consumer Goods
CADBURY NIGERIA PLC	Consumer Goods
FLOUR MILLS OF NIGERIA PLC	Consumer Goods
NESTLE NIGERIA PLC (FOOD SPECIALTIES NIG. LTD)	Consumer Goods
NORTHERN NIG FLOUR MILLS PLC	Consumer Goods
PS MANDRIES & CO. PLC	Consumer Goods
UTC NIGERIA PLC	Consumer Goods
NIGERIAN ENAMELWARE PLC	Consumer Goods

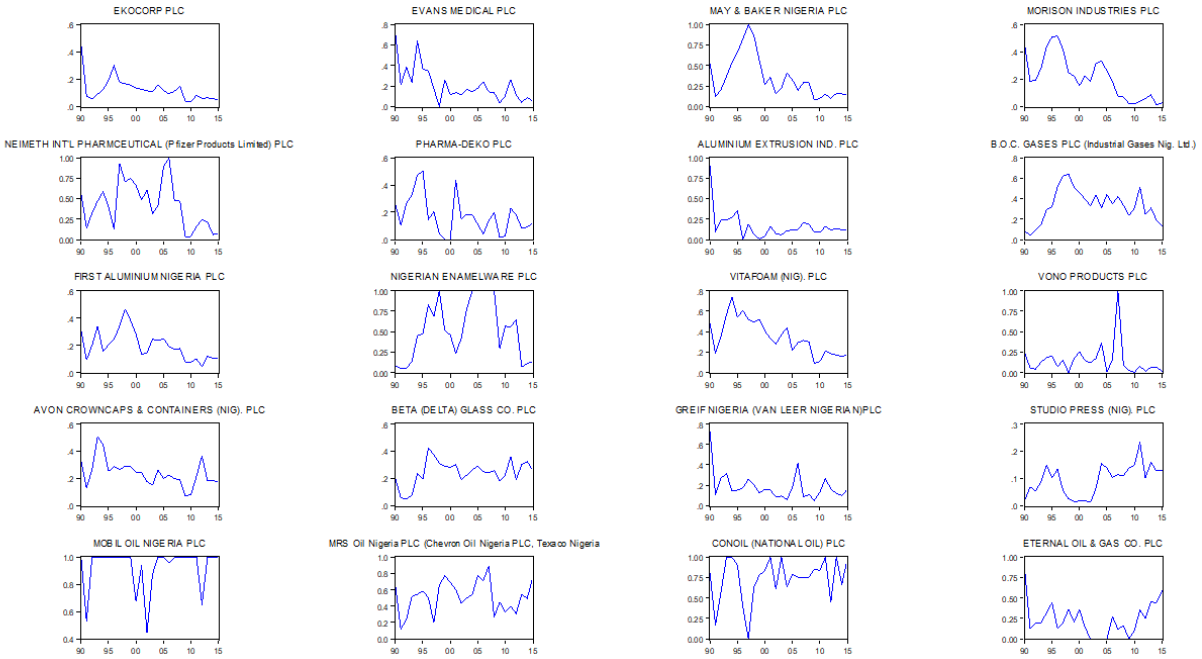
Firms	Sector
VITAFOAM (NIG). PLC	Consumer Goods
VONO PRODUCTS PLC	Consumer Goods
NIGERIA-GERMAN CHEMICALS (NIGERIAN HOECHST) PLC	Healthcare
EKOCORP PLC	Healthcare
EVANS MEDICAL PLC	Healthcare
MAY & BAKER NIGERIA PLC	Healthcare
MORISON SECTORS PLC	Healthcare
NEIMETH INT'L PHARMACEUTICAL (Pfizer Products Limited) PLC	Healthcare
PHARMA-DEKO PLC	Healthcare
ASHAKA CEMENT PLC	Industrial Goods
CEMENT CO. OF NORTHERN (NIG). PLC	Industrial Goods
LAFARGE WAPCO PLC (WEST AFRICAN PORTLAND CEMENT)	Industrial Goods
NIGERIAN ROPES PLC	Industrial Goods
AFRICAN PAINTS (NIG). PLC	Industrial Goods
BERGER PAINTS PLC	Industrial Goods
CHEMICAL & ALLIED PRODUCTS (CAP) PLC	Industrial Goods
D.N. MEYER PLC (HAGEMEYER NIGERIA LIMITED)	Industrial Goods
INTERNATIONAL PAINTS WEST AFRICA (IPWA) PLC	Industrial Goods
PREMIER PAINTS PLC	Industrial Goods
FIRST ALUMINIUM NIGERIA PLC	Industrial Goods
AVON CROWNCAPS & CONTAINERS (NIG). PLC	Industrial Goods
BETA (DELTA) GLASS CO. PLC	Industrial Goods
GREIF NIGERIA (VAN LEER NIGERIAN)PLC	Industrial Goods
ADSWITCH PLC	Industrial Goods

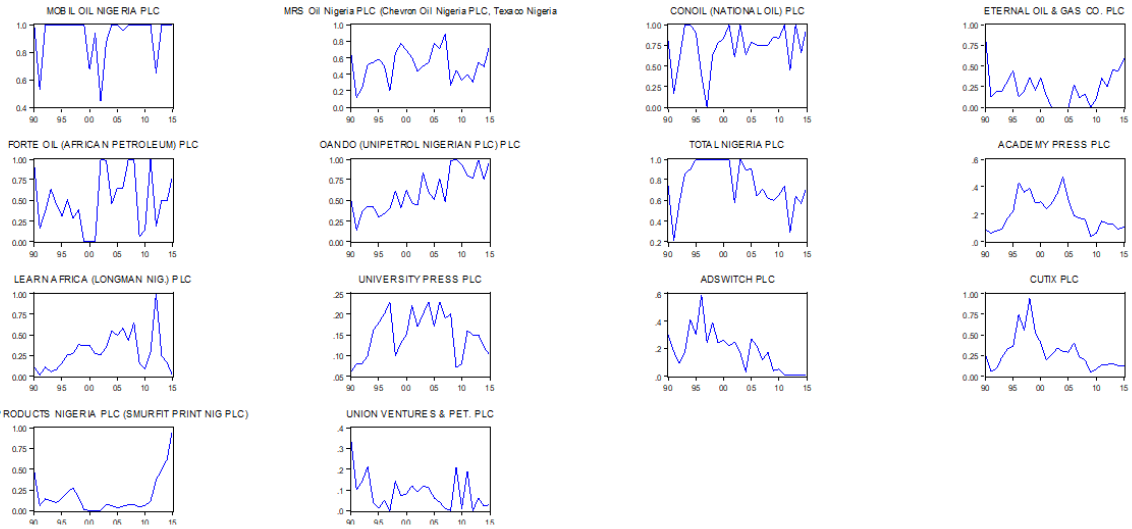
Firms	Sector
CUTIX PLC	Industrial Goods
NCR (NIGERIA) PLC	ICT
TRIPPLE GEE & COMPANY PLC	ICT
THOMAS WYATT (NIG). PLC	Natural Resources
ALUMINIUM EXTRUSION IND. PLC	Natural Resources
B.O.C. GASES PLC (Industrial Gases Nig. Ltd.)	Natural Resources
MOBIL OIL NIGERIA PLC	Oil & Gas
MRS Oil Nigeria PLC (Chevron Oil Nigeria PLC, Texaco Nigeria	Oil & Gas
CONOIL (NATIONAL OIL) PLC	Oil & Gas
ETERNAL OIL & GAS CO. PLC	Oil & Gas
FORTE OIL (AFRICAN PETROLEUM) PLC	Oil & Gas
OANDO (UNIPETROL NIGERIAN PLC) PLC	Oil & Gas
TOTAL NIGERIA PLC	Oil & Gas
UNION VENTURES & PET. PLC	Oil & Gas
R T BRISCOE NIGERIA PLC	Services
TRANS-NATIONWIDE EXPRESS PLC	Services
INTERLINKED TECHNOLOGIES PLC	Services
STUDIO PRESS (NIG). PLC	Services
ACADEMY PRESS PLC	Services
LEARN AFRICA (LONGMAN NIG.) PLC	Services
UNIVERSITY PRESS PLC	Services

B. Trends of firm efficiency

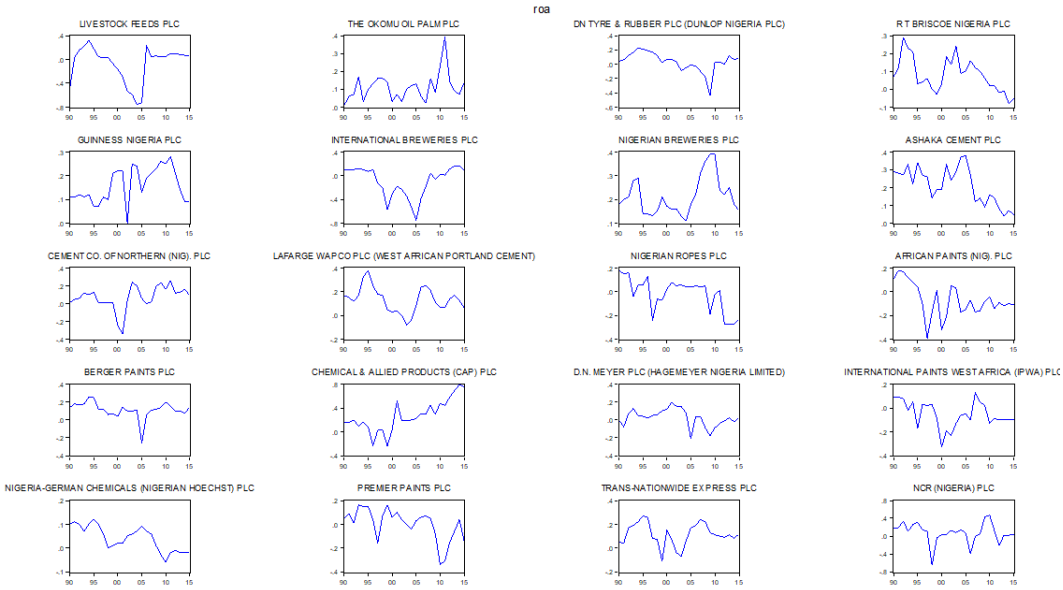


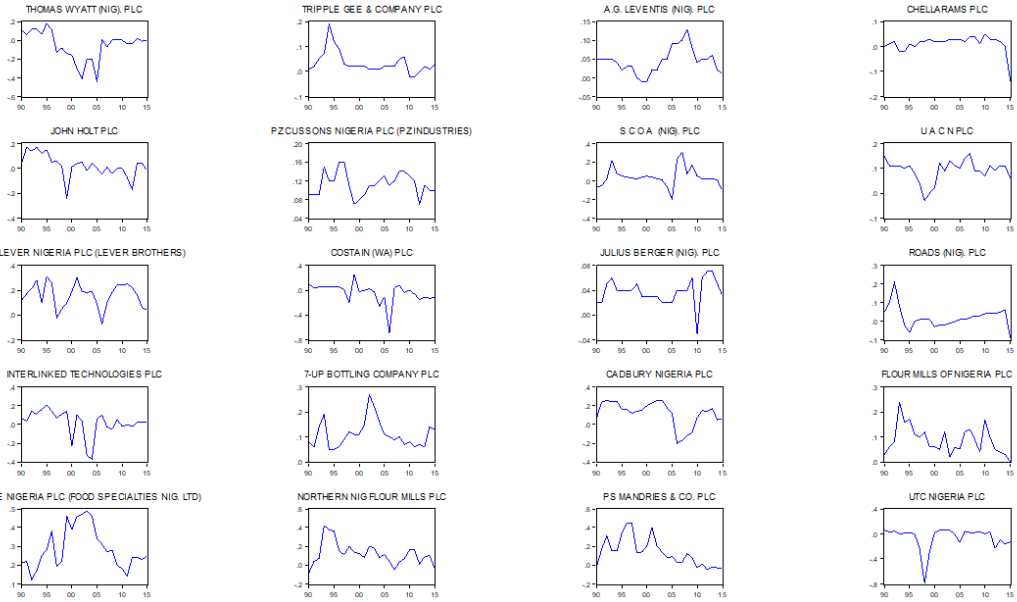

THOMAS WYATT (NIG). PLC
TRIPPLE GEE & COMPANY PLC
A.G. LEVENTIS (NIG). PLC
CHELLARAMS PLC
JOHN HOLT PLC
PZ CUSSONS NIGERIA PLC (PZ INDUSTRIES)
S C O A (NIG). PLC
U A C N PLC
UNILEVER NIGERIA PLC (LEVER BROTHERS)
COSTAIN (WA) PLC
JULIUS BERGER (NIG). PLC
ROADS (NIG). PLC
INTERLINKED TECHNOLOGIES PLC
7-UP BOTTLING COMPANY PLC
CADBURY NIGERIA PLC
FLOUR MILLS OF NIGERIA PLC
NESTLE NIGERIA PLC (FOOD SPECIALTIES NIG. LTD)
NORTHERN NIG FLOUR MILLS PLC
PS MANDRIES & CO. PLC
UTC NIGERIA PLC

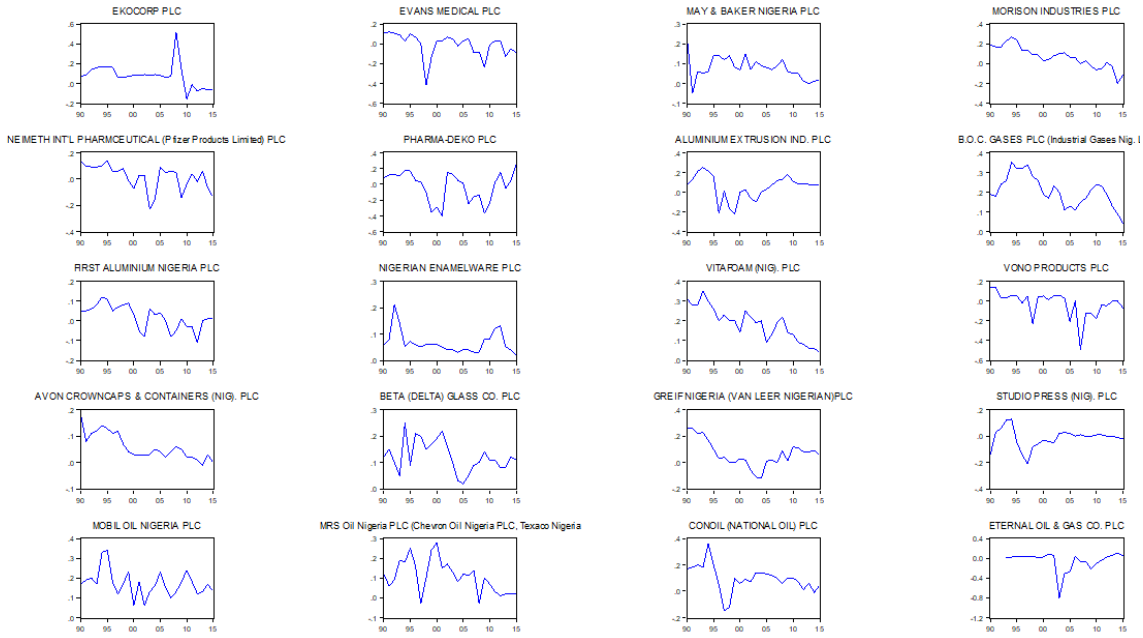

EKOCORP PLC
EVANS MEDICAL PLC
MAY & BAKER NIGERIA PLC
MORISON INDUSTRIES PLC
NEIMETH INTL PHARMCEUTICAL (Pfizer Products Limited) PLC
PHARMA-DEKO PLC
ALUMINIUM EXTRUSION IND. PLC
B.O.C. GASES PLC (Industrial Gases Nig. Ltd.)
FIRST ALUMINUM NIGERIA PLC
NIGERIAN ENAMELWARE PLC
VITAFOAM (NIG). PLC
VONO PRODUCTS PLC
AVON CROWNCAPS & CONTAINERS (NIG). PLC
BETA (DELTA) GLASS CO. PLC
GREIF NIGERIA (VAN LEER NIGERIA)PLC
STUDIO PRESS (NIG). PLC
MOBIL OIL NIGERIA PLC
MRS Oil Nigeria PLC (Chevron Oil Nigeria PLC, Texaco Nigeria
CONOIL (NATIONAL OIL) PLC
ETERNAL OIL & GAS CO. PLC

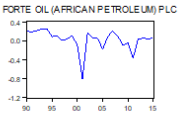

MOBIL OIL NIGERIA PLC
MRS Oil Nigeria PLC (Chevron Oil Nigeria PLC, Texaco Nigeria
CONOIL (NATIONAL OIL) PLC
ETERNAL OIL & GAS CO. PLC
FORTE OIL (AFRICAN PETROLEUM) PLC
OANDO (UNIPETROL NIGERIAN PLC) PLC
TOTAL NIGERIA PLC
ACADEMY PRESS PLC
LEARN AFRICA (LONGMAN NIG.) PLC
UNIVERSITY PRESS PLC
ADSWITCH PLC
CUTIX PLC
SMART PRODUCTS NIGERIA PLC (SMURFIT PRINT NIG PLC)
UNION VENTURES & PET. PLC

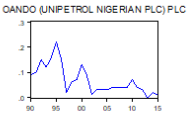
C. Trends of ROA

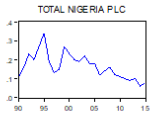


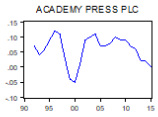

THOMAS WYATT (NIG). PLC
TRIPPLE GEE & COMPANY PLC
A.G. LEVENTIS (NIG). PLC
CHELLARAMS PLC
JOHN HOLT PLC
PZ CUSSONS NIGERIA PLC (PZ INDUSTRIES)
S C O A (NIG). PLC
U A C N PLC
UNILEVER NIGERIA PLC (LEVER BROTHERS)
COSTAIN (WA) PLC
JULIUS BERGER (NIG). PLC
ROADS (NIG). PLC
INTERLINKED TECHNOLOGIES PLC
7-UP BOTTLING COMPANY PLC
CADBURY NIGERIA PLC
FLOUR MILLS OF NIGERIA PLC
NESTLE NIGERIA PLC (FOOD SPECIALTIES NIG. LTD)
NORTHERN NIG FLOUR MILLS PLC
P.S MANDRIES & CO. PLC
UTC NIGERIA PLC

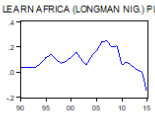

EKOCORP PLC
EVANS MEDICAL PLC
MAY & BAKER NIGERIA PLC
MORISON INDUSTRIES PLC
NEIMETH INT'L PHARMCEUTICAL (Pfizer Products Limited) PLC
PHARMA-DEKO PLC
ALUMINIUM EXTRUSION IND. PLC
B.O.C. GASES PLC (Industrial Gases Nig. I
FIRST ALUMINIUM NIGERIA PLC
NIGERIAN ENAMELWARE PLC
VITAFOAM (NIG). PLC
VONO PRODUCTS PLC
AVON CROWNCAPS & CONTAINERS (NIG). PLC
BETA (DELTA) GLASS CO. PLC
GREIF NIGERIA (VAN LEER NIGERIAN)PLC
STUDIO PRESS (NIG). PLC
MOBIL OIL NIGERIA PLC
MRS Oil Nigeria PLC (Chevron Oil Nigeria PLC, Texaco Nigeria
CONOIL (NATIONAL OIL) PLC
ETERNAL OIL & GAS CO. PLC

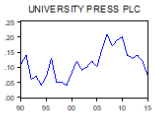

FORTE OIL (AFRICAN PETROLEUM) PLC


OANDO (UNIPETROL NIGERIAN PLC) PLC

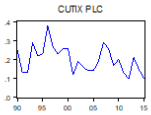

TOTAL NIGERIA PLC


ACADEMY PRESS PLC

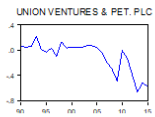

LEARN AFRICA (LONGMAN NIG.) PLC


UNIVERSITY PRESS PLC

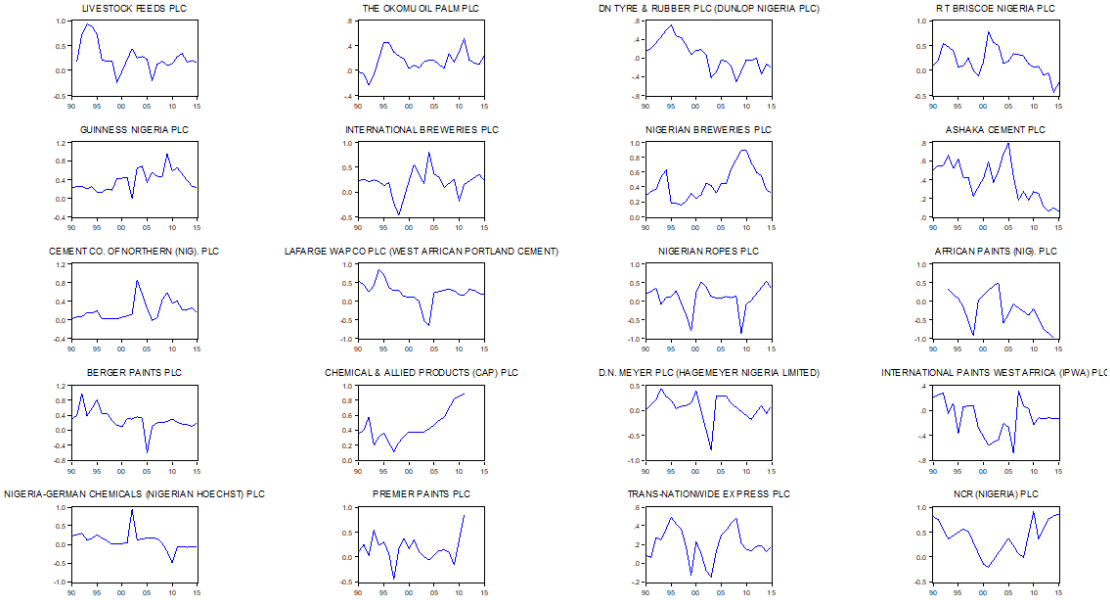

ADSWITCH PLC

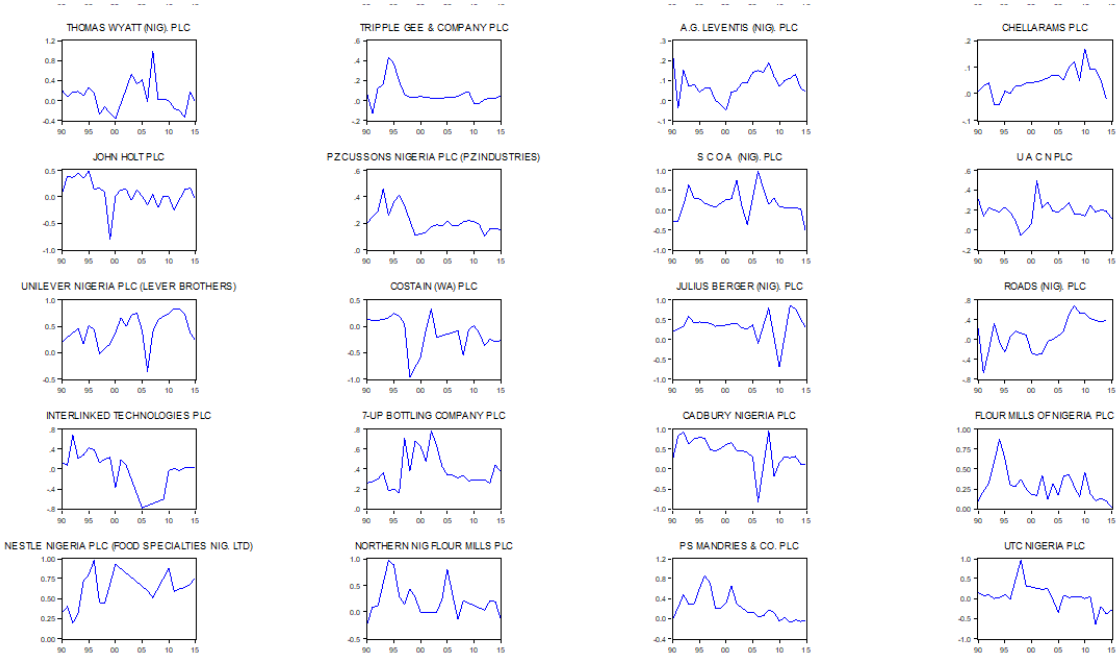

CUTIX PLC

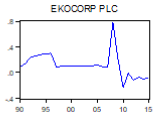

SMART PRODUCTS NIGERIA PLC (SMURFIT PRINT NIG PLC)

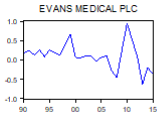

UNION VENTURES & PET. PLC

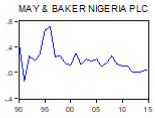
D. Trends of ROE

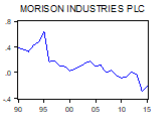


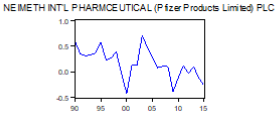

THOMAS WYATT (NIG). PLC
TRIPPLE GEE & COMPANY PLC
A.G. LEVENTIS (NIG). PLC
CHELLARAMS PLC
JOHN HOLT PLC
PZCUSSONS NIGERIA PLC (PZINDUSTRIES)
S C O A (NIG). PLC
U A C N PLC
UNILEVER NIGERIA PLC (LEVER BROTHERS)
COSTAIN (WA) PLC
JULIUS BERGER (NIG). PLC
ROADS (NIG). PLC
INTERLINKED TECHNOLOGIES PLC
7-UP BOTTLING COMPANY PLC
CADBURY NIGERIA PLC
FLOUR MILLS OF NIGERIA PLC
NESTLE NIGERIA PLC (FOOD SPECIALTIES NIG. LTD)
NORTHERN NIG FLOUR MILLS PLC
PS MANDRIES & CO. PLC
UTC NIGERIA PLC


EKOCORP PLC


EVANS MEDICAL PLC


MAY & BAKER NIGERIA PLC


MORISON INDUSTRIES PLC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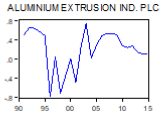
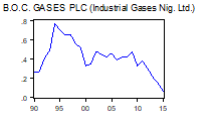
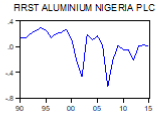
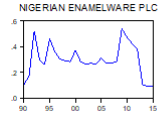
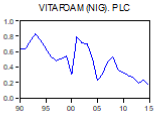
PHARMA-DEKO PLC


ALUMINIUM EXTRUSION IND. PLC


B.O.C. GASES PLC (Industrial Gases Nig. Ltd.)


RRST ALUMINIUM NIGERIA PLC


NIGERIAN ENAMELWARE PLC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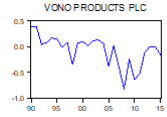
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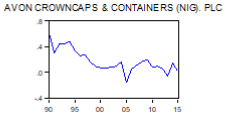
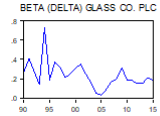
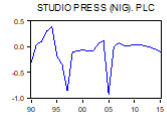

AVON CROWNCAPS & CONTAINERS (NIG). PLC


BETA (DELTA) GLASS CO. PLC


GREIF NIGERIA (VAN LEER NIGERIAN)PLC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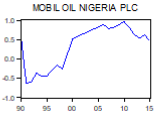
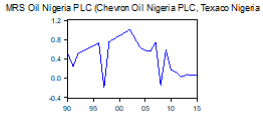
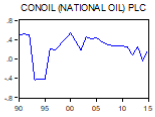
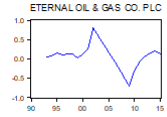
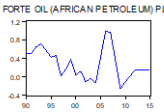

MOBIL OIL NIGERIA PLC

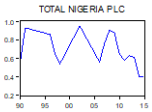

MRS Oil Nigeria PLC (Chevron Oil Nigeria PLC, Texaco Nigeria

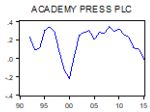

CONOIL (NATIONAL OIL) PLC

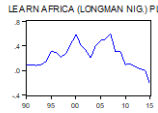

ETERNAL OIL & GAS CO. PLC

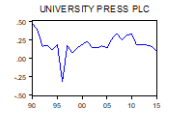

FORTE OIL (AFRICAN PETROLEUM) PLC


OANDO (UNIPETROL NIGERIAN PLC) PLC

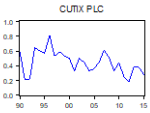

TOTAL NIGERIA PLC


ACADEMY PRESS PLC

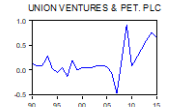

LEARN AFRICA (LONGMAN NIG.) PLC


UNIVERSITY PRESS PLC

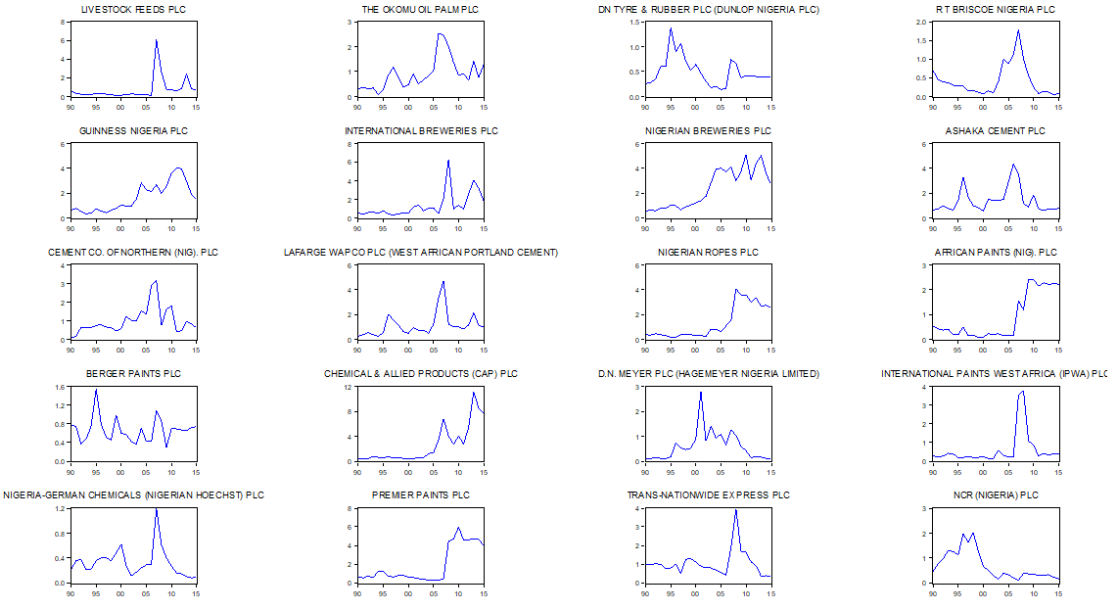

ADSWITCH PLC

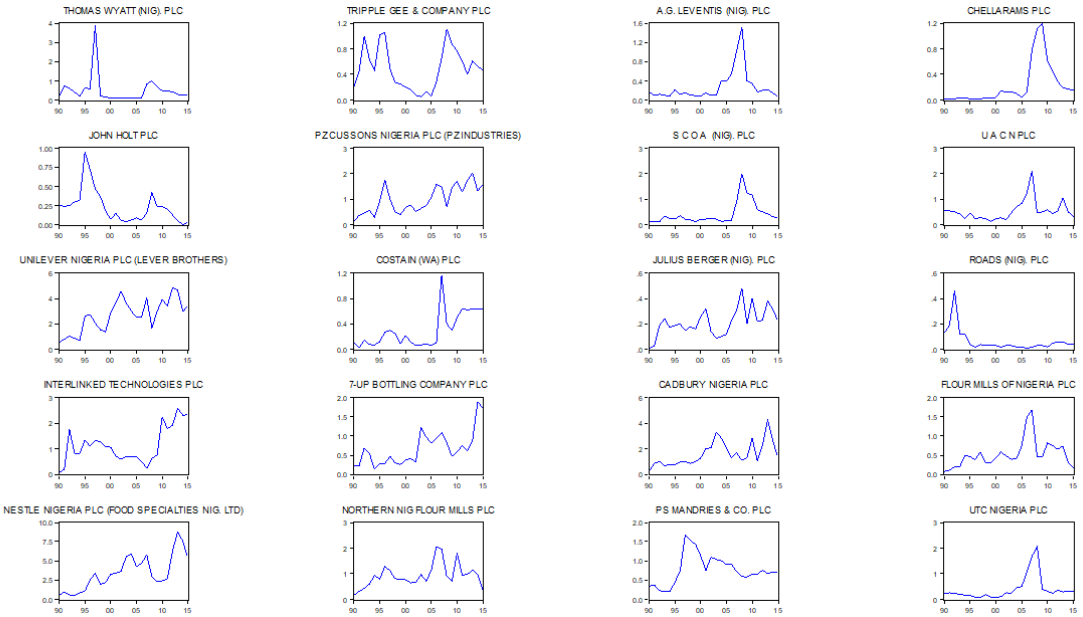

CUTIX PLC

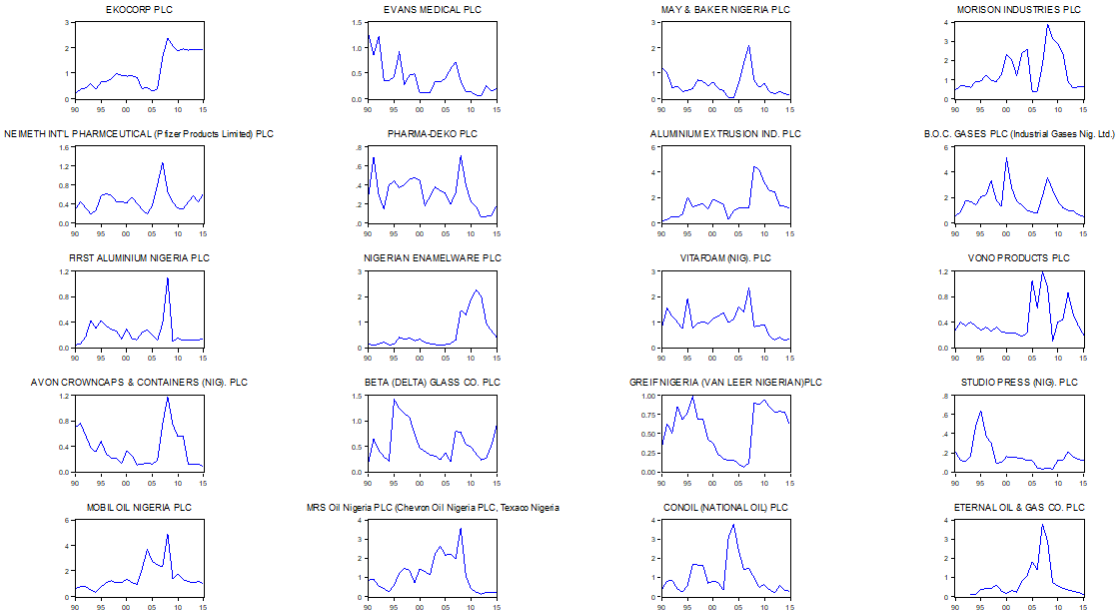

SMART PRODUCTS NIGERIA PLC (SMURRT PRINT NIG PLC)


UNION VENTURES & PET. PLC

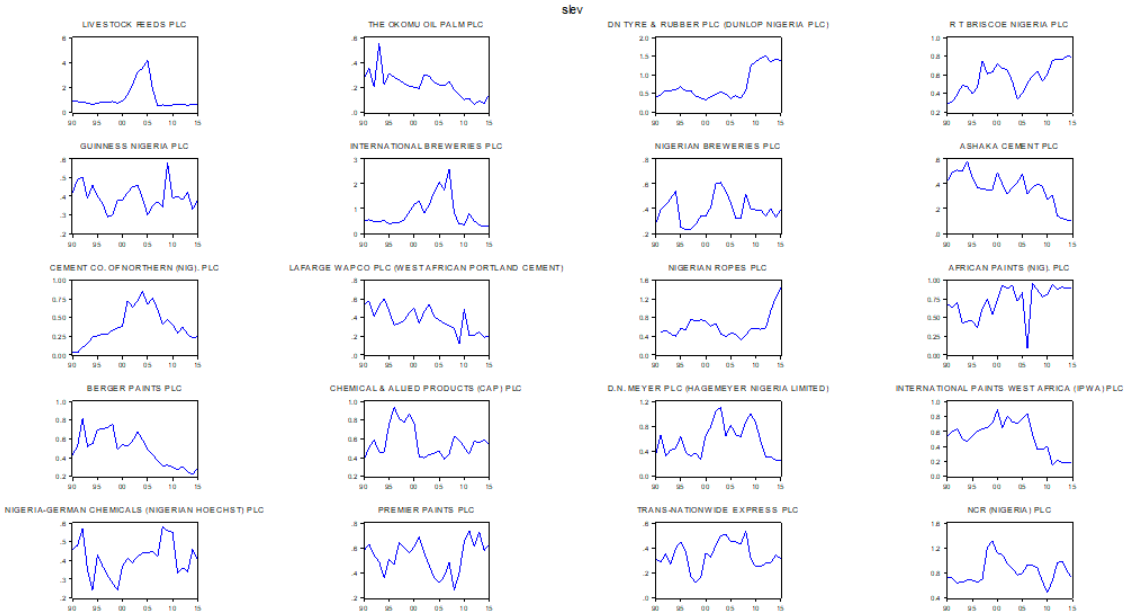
E. Trends of TOBIN's Q

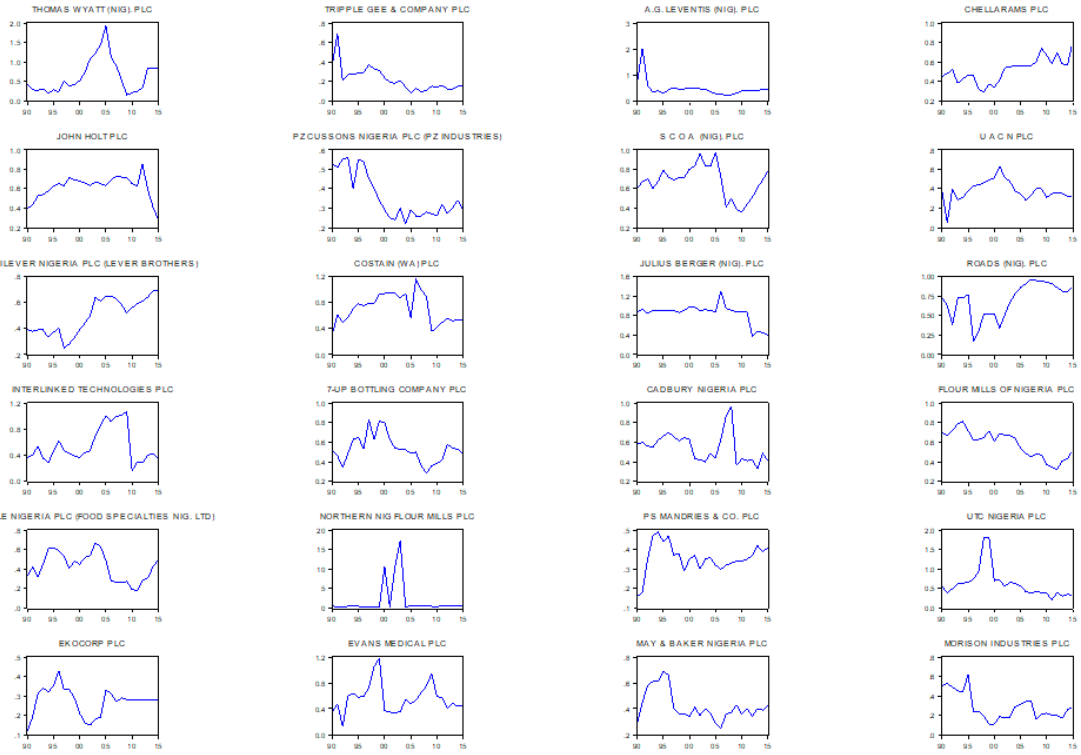


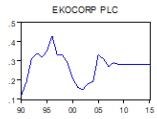

THOMAS WYATT (NIG). PLC
TRIPPLE GEE & COMPANY PLC
A.G. LEVENTIS (NIG). PLC
CHELLARAMS PLC
JOHN HOLT PLC
PZCUSSONS NIGERIA PLC (PZINDUSTRIES)
S C O A (NIG). PLC
U A C N PLC
UNILEVER NIGERIA PLC (LEVER BROTHERS)
COSTAIN (WA) PLC
JULIUS BERGER (NIG). PLC
ROADS (NIG). PLC
INTERLINKED TECHNOLOGIES PLC
7-UP BOTTLING COMPANY PLC
CADBURY NIGERIA PLC
FLOUR MILLS OF NIGERIA PLC
NESTLE NIGERIA PLC (FOOD SPECIALTIES NIG. LTD)
NORTHERN NIG FLOUR MILLS PLC
P.S MANDRIES & CO. PLC
UTC NIGERIA PLC

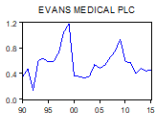

EKOCORP PLC
EVANS MEDICAL PLC
MAY & BAKER NIGERIA PLC
MORISON INDUSTRIES PLC
NEIMETH INT'L PHARMCEUTICAL (Pfizer Products Limited) PLC
PHARMA-DEKO PLC
ALUMNIUM EXTRUSION IND. PLC
B.O.C. GASES PLC (Industrial Gases Nig. Ltd.)
RRST ALUMINIUM NIGERIA PLC
NIGERIAN ENAMELWARE PLC
VITAFOAM (NIG). PLC
VONO PRODUCTS PLC
AVON CROWNCAPS & CONTAINERS (NIG). PLC
BETA (DELTA) GLASS CO. PLC
GREIF NIGERIA (VAN LEER NIGERIAN)PLC
STUDIO PRESS (NIG). PLC
MOBIL OIL NIGERIA PLC
MRS Oil Nigeria PLC (Chevron Oil Nigeria PLC, Texaco Nigeria
CONOIL (NATIONAL OIL) PLC
ETERNAL OIL & GAS CO. PLC

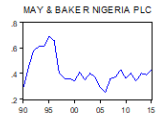
F. Trends of short-term leverage ratio

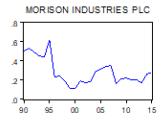


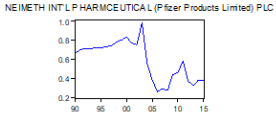

THOMAS WYATT (NIG), PLC
TRIPPLE GEE & COMPANY PLC
A.G. LEVENTIS (NIG), PLC
CHELLARAMS PLC
JOHN HOLT PLC
PZ CUSSONS NIGERIA PLC (PZ INDUSTRIES)
S C O A (NIG), PLC
U A C N PLC
UNILEVER NIGERIA PLC (LEVER BROTHERS)
COSTAIN (WA) PLC
JULIUS BERGER (NIG), PLC
ROADS (NIG), PLC
INTERLINKED TECHNOLOGIES PLC
7-UP BOTTLING COMPANY PLC
CADBURY NIGERIA PLC
FLOUR MILLS OF NIGERIA PLC
NESTLE NIGERIA PLC (FOOD SPECIALTIES NIG. LTD)
NORTHERN NIG FLOUR MILLS PLC
PS MANDRIES & CO. PLC
UTC NIGERIA PLC
EKOCORP PLC
EVANS MEDICAL PLC
MAY & BAKER NIGERIA PLC
MORISON INDUSTRIES PLC

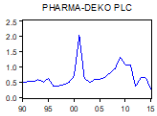

EKOCORP PLC

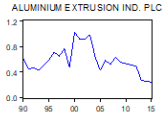

EVANS MEDICAL PLC

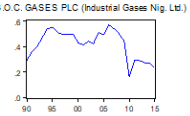

MAY & BAKER NIGERIA PLC


MORISON INDUSTRIES PLC


NEIMETH INT'L PHARMCEUTICAL (Pfizer Products Limited) PLC


PHARMA-DEKO PLC


ALUMINIUM EXTRUSION IND. PLC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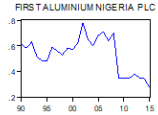
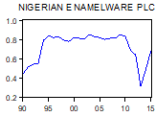
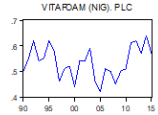
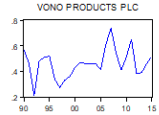
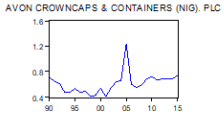
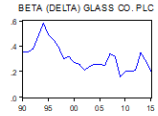

FIRST ALUMINIUM NIGERIA PLC

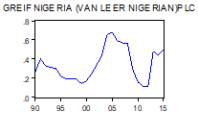

NIGERIAN ENAMELWARE PLC

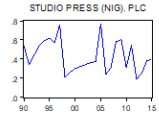

VITAFOAM (NIG). PLC

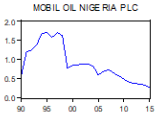

VONO PRODUCTS PLC

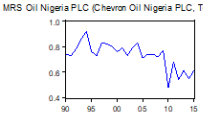

AVON CROWNCAPS & CONTAINERS (NIG). PLC

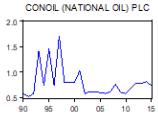

BETA (DELTA) GLASS CO. PLC

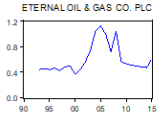

GREIF NIGERIA (VAN LEER NIGERIAN)PLC

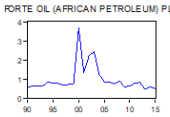

STUDIO PRESS (NIG). PLC

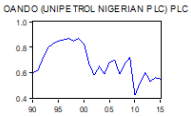

MOBIL OIL NIGERIA PLC

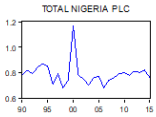

MRS Oil Nigeria PLC (Chevron Oil Nigeria PLC, Texaco Nigeria

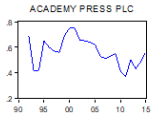

CONOIL (NATIONAL OIL) PLC

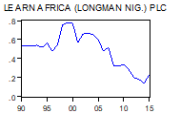

ETERNAL OIL & GAS CO. PLC

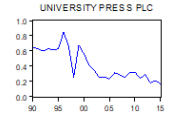

FORTE OIL (AFRICAN PETROLEUM) PLC

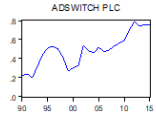

OANDO (UNIPETROL NIGERIAN PLC) PLC

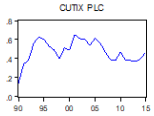

TOTAL NIGERIA PLC


ACADEMY PRESS PLC

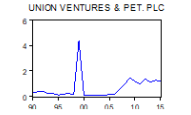

LEARN AFRICA (LONGMAN NIG.) PLC


UNIVERSITY PRESS PLC

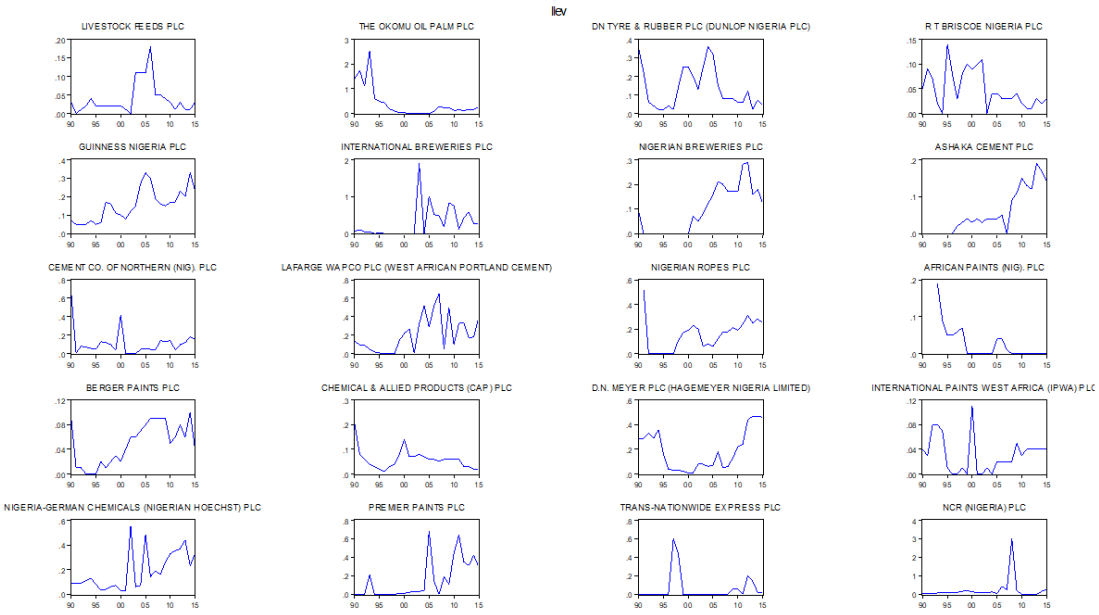

ADSWITCH PLC

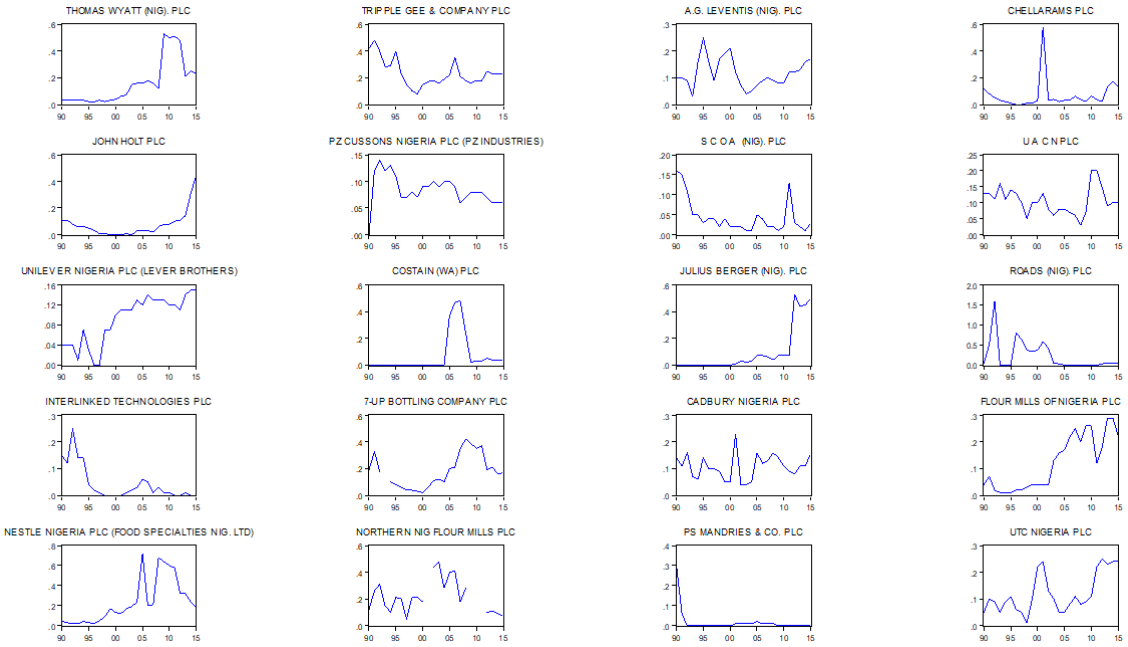

CUTIX PLC


SMART PRODUCTS NIGERIA PLC (SMURFIT PRINT NIG PLC)


UNION VENTURES & PET. PLC

G. Trends of long-term leverage ratio




THOMAS WYATT (NIG). PLC
TRIPPLE GEE & COMPANY PLC
A.G. LEVENTIS (NIG). PLC
CHELLARAMS PLC
JOHN HOLT PLC
PZ CUSSONS NIGERIA PLC (PZ INDUSTRIES)
S C O A (NIG). PLC
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UNILEVER NIGERIA PLC (LEVER BROTHERS)
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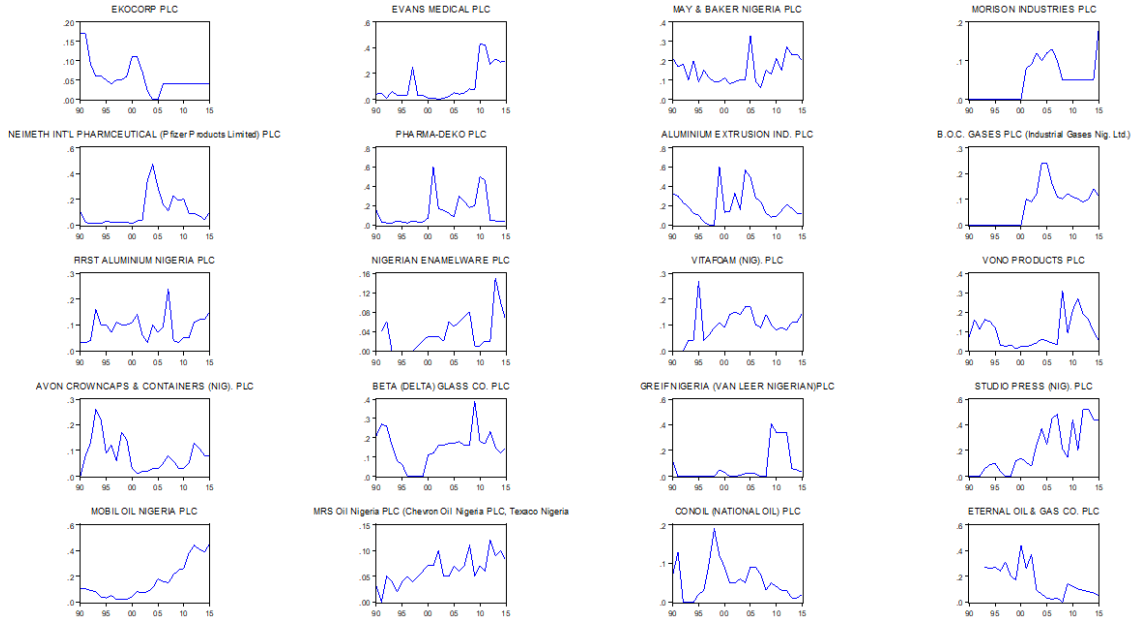
UTC NIGERIA PLC


EKOCORP PLC
EVANS MEDICAL PLC
MAY & BAKER NIGERIA PLC
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NEIMETH INTL PHARMCEUTICAL (Pfizer Products Limited) PLC
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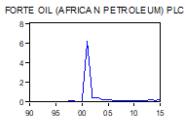
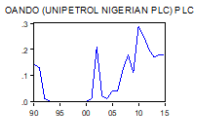
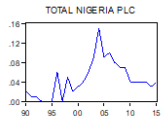
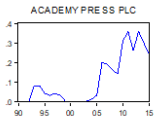
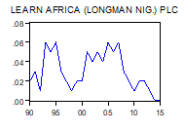
CONOIL (NATIONAL OIL) PLC
ETERNAL OIL & GAS CO. PLC

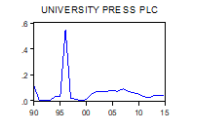

FORTE OIL (AFRICAN PETROLEUM) PLC


OANDO (UNIPETROL NIGERIAN PLC) PLC

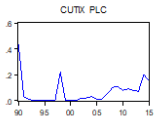

TOTAL NIGERIA PLC

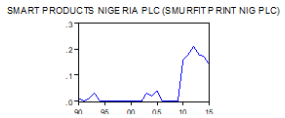

ACADEMY PRESS PLC

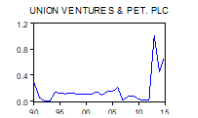

LEARN AFRICA (LONGMAN NIG.) PLC


UNIVERSITY PRESS PLC

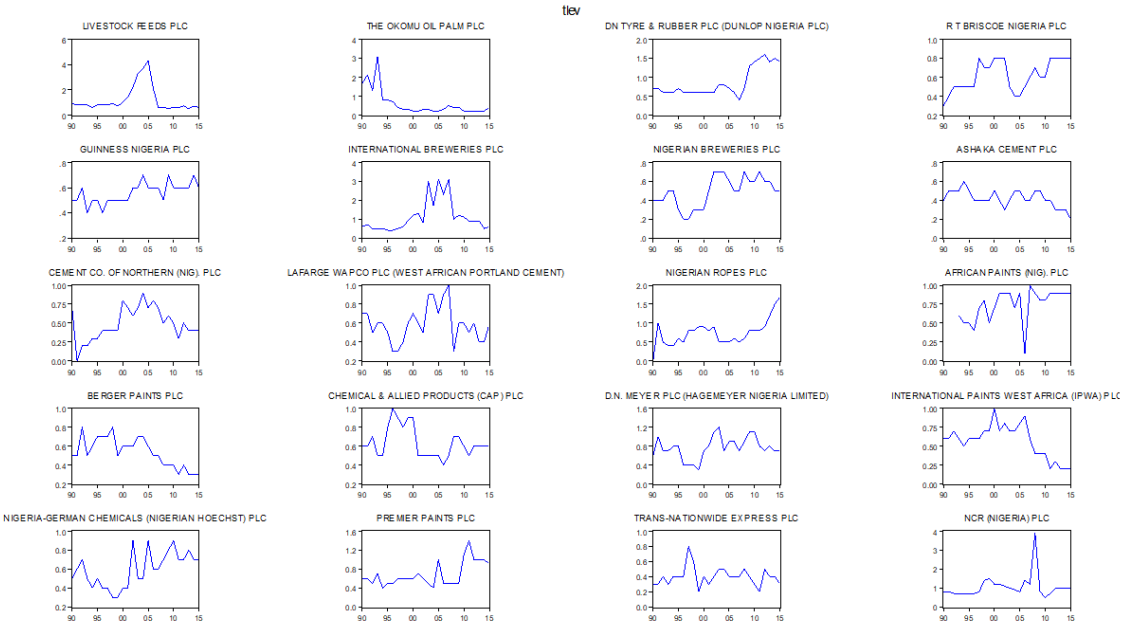

ADSWITCH PLC

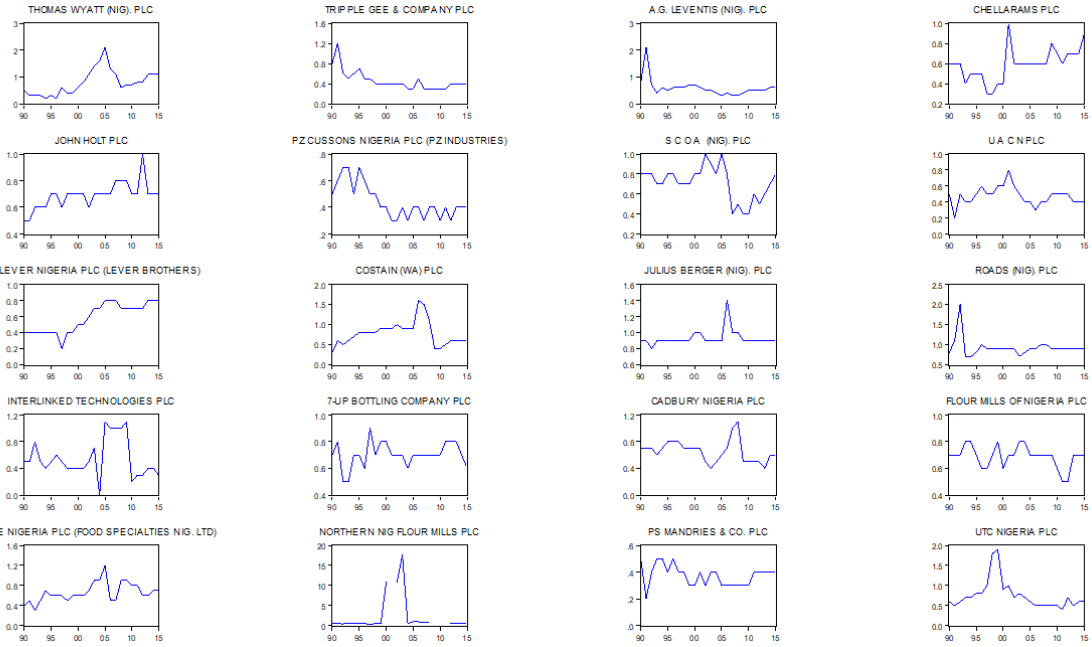

CUTIX PLC


SMART PRODUCTS NIGERIA PLC (SMURFIT PRINT NIG PLC)


UNION VENTURES & PET. PLC

H. Trend of total leverage ratio




THOMAS WYATT (NIG). PLC
TRIPPLE GEE & COMPANY PLC
A.G. LEVENTIS (NIG). PLC
CHELLARAMS PLC
JOHN HOLT PLC
PZ CUSSONS NIGERIA PLC (PZ INDUSTRIES)
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FLOUR MILLS OF NIGERIA PLC
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NORTHERN NIG FLOUR MILLS PLC
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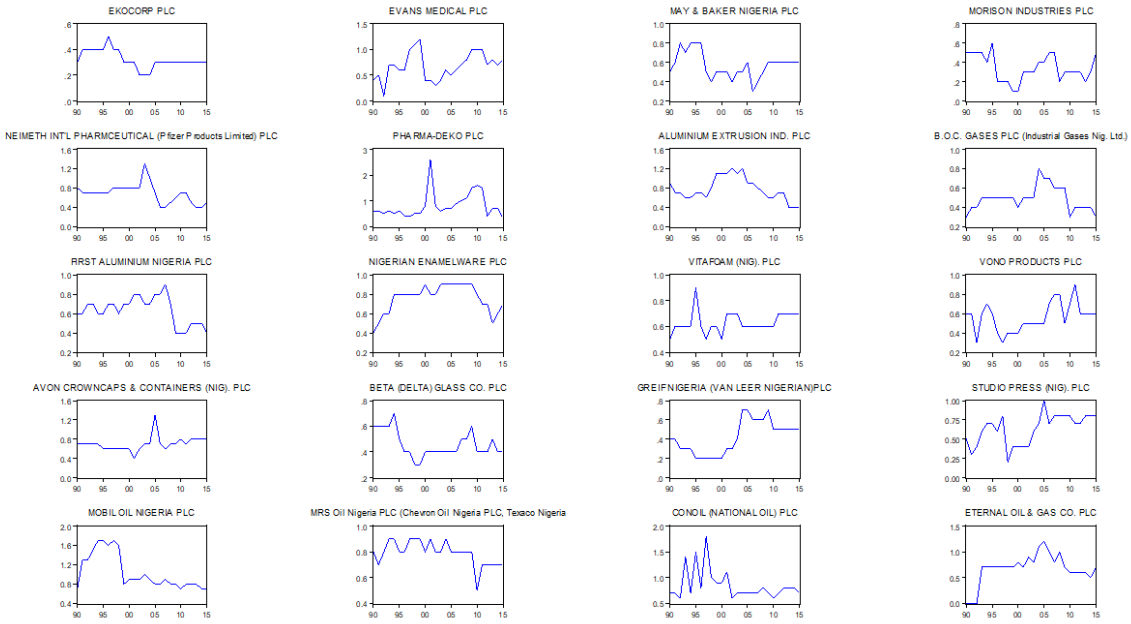
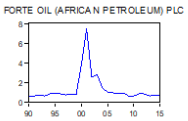
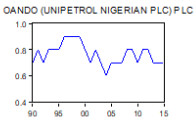
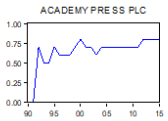
UTC NIGERIA PLC

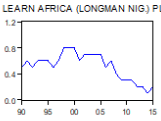

EKOCORP PLC
EVANS MEDICAL PLC
MAY & BAKER NIGERIA PLC
MORISON INDUSTRIES PLC
NEIMETH INT'L PHARMCEUTICAL (Pfizer Products Limited) PLC
PHARMA-DEKO PLC
ALUMINIUM EXTRUSION IND. PLC
B.O.C. GASES PLC (Industrial Gases Nig. Ltd.)
RRST ALUMINIUM NIGERIA PLC
NIGERIAN ENAMELWARE PLC
VITAFOAM (NIG). PLC
VONO PRODUCTS PLC
AVON CROWNCAPS & CONTAINERS (NIG). PLC
BETA (DELTA) GLASS CO. PLC
GREIFNIGERIA (VAN LEER NIGERIAN)PLC
STUDIO PRESS (NIG). PLC
MOBIL OIL NIGERIA PLC
MRS Oil Nigeria PLC (Chevron Oil Nigeria PLC, Texaco Nigeria
CONOIL (NATIONAL OIL) PLC
ETERNAL OIL & GAS CO. PLC

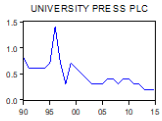

FORTE OIL (AFRICAN PETROLEUM) PLC

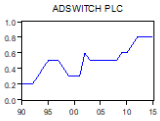

OANDO (UNIPETROL NIGERIAN PLC) PLC

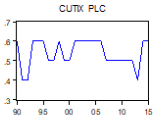

TOTAL NIGERIA PLC

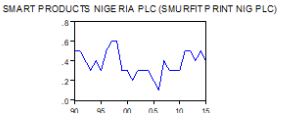

ACADEMY PRESS PLC

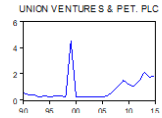

LEARN AFRICA (LONGMAN NIG.) PLC


UNIVERSITY PRESS PLC


ADSWITCH PLC


CUTIX PLC


SMART PRODUCTS NIGERIA PLC (SMURFIT PRINT NIG PLC)


UNION VENTURES & PET. PLC