

https://dspace.org/

# The effect of separating ownership from control on leverage in Sub-Saharan African listed firms

**Tembo, Samantha Tabeth**

**2018**

https://hdl.handle.net/10539/27028

Tembo, Samantha Tabeth (2018) The effect of the separating ownership from control on leverage in Sub-Saharan African listed firms, University of the Witwatersrand, Johannesburg, https://hdl.handle.net/10539/27028

Downloaded from a DSpace repository. https://dspace.org/




# FACULTY OF LAW, COMMERCE AND MANAGEMENT

# SCHOOL OF ECONOMIC AND BUSINESS SCIENCES

MASTER OF COMMERCE IN BUSINESS FINANCE (50 % DISSERTATION)

# The effect of Separating Ownership from Control on Leverage in Sub-Saharan African listed firms

by

**Samantha Tabeth Tembo**

**Student Number: 1475705**

Supervisor: Mr Douglas Mbululu

Date of submission: 29 March 2018

A thesis submitted to the Faculty of Law, Commerce and Management, at the University of Witwatersrand in fulfilment of the requirements for the degree of Master of Commerce (50% dissertation) in Business Finance.

Johannesburg, South Africa

- **SCHOOL OF ECONOMICS AND BUSINESS SCIENCE**

| **Declaration Regarding Plagiarism** |
|---|

| | |
|---|---|
| I (full names & surname): | Samantha Tabeth Tembo |
| Student number: | 1475705 |

**Declare the following:**

1. I understand what plagiarism entails and I am aware of the University's policy in this regard.
2. I declare that this dissertation is my own, original work. Where someone else's work was used (whether from a printed source, the internet or any other source) due acknowledgement was given and reference was made according to departmental requirements.
3. I did not copy and paste any information directly from an electronic source (e.g., a web page, electronic journal article or CD ROM) into this document.
4. I did not make use of another student's previous work and submitted it as my own.
5. I did not allow and will not allow anyone to copy my work with the intention of presenting it as his/her own work.

SIGNATURE: …… DATE …….

## DEDICATION

I dedicate this thesis to my wonderful mother, Mrs Sithembile Tembo, my late aunt, Silethemba Moyo and my late grandmother Patricia Gladys Moyo.

**Acknowledgements**

I would like to express my genuine appreciation to my supervisor, Mr Douglas Mbululu for his support, guidance and encouragement throughout the period of the study. I also thank Mr Ezekiel Langram for taking his time to help me during the writing of this thesis. I am also thankful to my colleague Prince Nkiwane for his support, motivation and availability even when he was busy with his own thesis. To my friend Phumudzo Raedani, no words can express how grateful I am for the encouragement during this study.

To my family:

My mother; my aunts Sibonginkosi and Senelisiwe; uncle Dr Mandlenkosi Mpofu; my grandfather and my sisters Siphiwo and Sandra. I am grateful for your love and support. Thank you so much for being there for me and believing in me since the beginning of time. I promise to continue striving and making you proud. For inspiring and challenging me to get this far, your prayers gave me the strength when I felt like giving up. I stand in awe of the support; love and guidance that I have received from all of you. May God abundantly bless you.

I am also thankful to the University of the Witwatersrand Financial Aid Scheme for their financial support. Thank you so much for giving me the opportunity to pursue my studies.

Above all, I thank God Almighty for grace!

## ABSTRACT

**Context:** This study seeks to examine the effect of separating ownership from control (SOC) on firm leverage in Sub-Saharan Africa, particularly, Kenya, Nigeria and South Africa. Research shows that the SOC or control-ownership wedge ratio (i.e. the deviation between control rights and cash-flow rights) positively affects firm leverage. One of the reasons given for this positive effect is that the large controlling shareholders use the high levels of debt to expropriate the wealth of the minority shareholders, to satisfy their private benefits. Owing to the misalignment of interests between the large and minority shareholders, research documents that the minority shareholders elect a board of directors that exerts pressure on managers to reduce debt financing, thus, satisfying the interests of all the shareholders. Nonetheless, no research has been done to evaluate the effect of SOC on capital structure, in Africa.

**Methods:** The study uses the sampled firms' financial statements as well as the I-Net Iress database, to collect the relevant data. The sample period runs from 2006 to 2017. The study challenges three hypotheses. The first hypothesis is that there is the incidence of the SOC in Sub-Saharan Africa. The second hypothesis is that the SOC or control ownership wedge ratio (CW) has a positive effect on firm leverage, in Sub-Saharan African firms. The third hypothesis is that a large board (in widely held firms) positively affects firm leverage. Panel data regressions are used to examine the effect of the SOC on firm leverage. The Arellano and Bond (1991) Generalised Method of Moments (GMM) procedure is used to perform the robustness checks.

**Findings:** The descriptive results document evidence that there is the incidence of the SOC in Sub-Saharan firms. Most importantly, the results document a statistically significant and positive relationship between the CW and firm leverage. Finally, the results designate that there is a negative association between a large board size and firm leverage.

**Conclusions:** These results suggest that owing to the SOC, the large controlling shareholders exert pressure on a firm's subsidiaries to issue high levels of debt, to avoid the dilution of ownership and control as well as expropriate the wealth of the minority shareholders (through private benefits). A large board has a negative significant impact on firm leverage, in dispersed Sub-Saharan firms, indicating that large boards (in widely Sub-Saharan firms) serve their purpose of protecting minority shareholders' interests using capital structure.

## TABLE OF CONTENTS

**CHAPTER 1 INTRODUCTION ..... 1**

1.1 BACKGROUND ..... 1

1.2 PROBLEM STATEMENT ..... 3

1.3 RESEARCH OBJECTIVES ..... 4

1.4 RESEARCH HYPOTHESES ..... 4

1.5 CONTRIBUTIONS ..... 6

1.6 DEFINITION OF KEY TERMS ..... 7

1.7 CONCLUSION AND STRUCTURE OF DISSERTATION ..... 7

**CHAPTER 2 LITERATURE REVIEW ..... 9**

2.1 INTRODUCTION ..... 9

2.2 THE THEORIES OF CAPITAL STRUCTURE. ..... 9

2.2.1 The capital structure irrelevancy theory ..... 10

2.2.2 The trade-off theory ..... 10

2.2.3 The Pecking Order Theory ..... 11

2.3 THE DETERMINANTS OF CAPITAL STRUCTURE ..... 12

2.3.1 Capital structure and growth opportunities ..... 12

2.3.2 Capital structure and profitability ..... 13

2.3.3 Capital structure and size ..... 13

2.3.4 Capital structure and asset tangibility ..... 14

2.3.5 Capital structure and corporate taxes ..... 15

2.4 Corporate managers and capital structure ..... 16

2.5 THE AGENCY THEORY ..... 18

2.6 LARGE SHAREHOLDING AND CAPITAL STRUCTURE ..... 19

2.7 THE BOARD OF DIRECTORS AND CAPITAL STRUCTURE ..... 21

2.7.1 Role of the board of directors ..... 21
2.7.2 The size of the board of directors and capital structure. ..... 22
2.8 THE SEPARATION OF OWNERSHIP AND CONTROL ..... 23
2.8.1 Large shareholding and the separation of ownership and control ..... 23
**CHAPTER 3 EMPIRICAL EVIDENCE LITERATURE ..... 28**
3.1 INTRODUCTION ..... 28
3.2 EVIDENCE FROM DEVELOPED COUNTRIES ..... 28
3.2.1 Theories of capital structure ..... 28
3.2.2 Determinants of capital structure ..... 29
Firm size and capital structure ..... 29
Profitability and capital structure ..... 30
Asset Tangibility and capital structure ..... 31
Growth opportunities and capital structure ..... 31
Conclusion ..... 32
3.2.3 Large shareholding (majority shareholding) and Capital structure. ..... 32
3.2.4 The Board of Directors and capital structure. ..... 33
Conclusion ..... 34
3.3 EVIDENCE FROM DEVELOPING COUNTRIES ..... 35
3.3.1 Theories of capital structure ..... 35
3.3.2 Determinants of capital structure. ..... 36
Size and capital structure ..... 36
Profitability and capital structure ..... 38
Growth opportunities ..... 38
Asset tangibility and capital structure ..... 39
3.3.3 Large shareholding and capital structure ..... 40
3.3.4 Board of Directors and capital structure ..... 43
3.2.5 The separation of control rights and cash-flow rights ..... 46

3.4 CONCLUSION ..... 50

**CHAPTER 4 RESEARCH METHODOLOGY ..... 51**

4.1 INTRODUCTION ..... 51

4.2 DATA ..... 51

4.3.1 Dual-class shares ..... 53

4.3.2 Cross-ownership ..... 55

4.3.3 Pyramid structures ..... 56

4.4 DEPENDANT VARIABLES ..... 57

4.4.1 Leverage ..... 57

4.5 INDEPENDENT VARIABLES ..... 59

4.5.2 A large board and firm leverage ..... 59

4.5.3 Control Variables ..... 60

4.6 REGRESSIONS ..... 62

4.6.1 Estimation of panel data regression models. ..... 62

4.7 CONCLUSION ..... 67

**CHAPTER 5 EMPIRICAL RESULTS ..... 68**

5.1 INTRODUCTION ..... 68

5.2 THE SEPARATION OF OWNERSHIP AND CONTROL ..... 68

5.2.1 Descriptive statistics ..... 68

5.2.2 Correlation tests ..... 72

5.2.3 Unit root tests ..... 74

5.2.4 Empirical results ..... 75

5.3 THE EFFECT OF A LARGE BOARD ON FIRM LEVERAGE ..... 79

5.3.1 Descriptive statistics ..... 80

5.3.2 Correlation tests ..... 83

5.3.3 Unit root tests ..... 85

5.3.4 Empirical results ..... 86

5.4 CONCLUSION ..... 91

**CHAPTER 6 SUMMARY, CONCLUSION AND RECOMMENDATIONS. ..... 92**

6.1 INTRODUCTION ..... 92

6.2 SUMMARY ..... 92

6.3 CONCLUSION AND RECOMMENDATIONS FOR FURTHER RESEARCH. ..... 97

REFERENCES ..... 99

APPENDIX A ..... 119

APPENDIX B ..... 121

## TABLE OF FIGURES AND LIST OF TABLES

## FIGURES

Figure 2.1: The pyramid structure of firms….....25

Figure 4.1: The cross ownership structure of firms….....55

## TABLES

Table 1.1: Summary of the control variable measurements…..7

Table 3.1: Summary of empirical studies on the separation of ownership and control .....49

Table 4.1: Summary of the control variable measurements…..61

Table 5.1: Summary statistics for the dependent and all the independent variables…….69

Table 5.2: Correlation matrices for variables…….73

Table 5.3: Unit root tests…….74

Table 5.4: Regression results for the effect of the Separating ownership and control on firm leverage…….76

Table 5.5: Summary statistics for the dependent and all the independent variables…….81

Table 5.6: Correlation matrices for variables…….85

Table 5.7: Unit root tests…….86

Table 5.8: Regression results for the effect of a large board (in dispersed firms) on firm leverage…….89

Table 6.1: Comparison of findings ….96

# CHAPTER 1

# INTRODUCTION

## 1.1 BACKGROUND

For almost half a century, the capital structure theory has proved to be one of the most important topics in corporate finance. Modigliani and Miller (1958) propose that, in perfect markets, capital structure does not affect firm value. This proposition does not hold in the real world, in consequence, stimulating a perpetuating debate.

Research indicates that, under less restrictive assumptions, factors such as tax; adverse selection; information and agency costs, among others, play a significant role in the determination of firm leverage (Leary & Roberts, 2005; Lemmon, Roberts & Zender, 2008; Mujahid & Sorin, 2009). The incorporation of the mentioned factors suggests that capital structure affects firm value, consequently, influencing the development of new capital structure theories (i.e. the trade-off and pecking order theory) (Jensen & Meckling, 1976; Myers & Majluf, 1984).

The trade-off theory assumes that a firm's first order of concern is to achieve an optimal balance between the debt and equity financing (Elsas & Florysiak, 2008; Leary & Roberts, 2005; Lemmon, Roberts & Zender, 2008). As a result, there is a balance between the marginal benefits of debt (e.g. tax savings) and the costs of debt financing (i.e. bankruptcy costs) (Jensen & Meckling, 1976).

The pecking order theory assumes that firms prefer the safest and cheapest form of financing when making capital structure decisions (Farooq, 2015; Kinyua & Muriu, 2017). Basically, firms prefer to issue debt financing once the retained earnings are exhausted (Elsas & Florysiak, 2008). Consequently, equity is issued as the last resort. The discussion proffered above advocates that capital structure decisions affect firm value (Myers & Majluf, 1984).

Research further shows that firm-specific factors like profitability; firm size; growth opportunities; asset tangibility and corporate tax affect firm leverage (Cespedes, González & Molina, 2010; Alghamdi, 2016). The same applies to the ownership structure of a firm (Ganzeboom, 2014; Lotto, 2015).

Another remarkable feature of most existing studies on capital structure is the implicit postulation that, large institutional shareholders positively affect firm leverage (Khan *et al.,* 2012). For instance, firms characterised by large shareholders issue debt to effectively monitor and exert pressure on managers, to maximise firm value (Cespedes *et al.,* 2010). As a result, the agency problem, whereby the managers do not act in the interest of the shareholders, is reduced (Jensen & Meckling, 1976). However, it is correct to put forward that the interest payments on debt create the agency problem between the large and minority shareholders (who expect dividend payments) (Barclay & Smith, 1999). Moreover, a firm incurs agency costs (e.g. monitoring and bonding costs) while aligning the interests of the managers and the shareholders (Jensen & Meckling, 1976).

Accordingly, one could argue that the agency costs (or monitoring costs) are inevitable when a firm is characterised by the separation of ownership and control (Jensen & Meckling, 1976). Fama and Jensen (1983), however, argue that by separating decision management (initiation and implementation of decisions) from decision control, the agency problem is reduced. The large shareholders or a board of directors (BOD) participate in the decision control process, which entails the ratification and monitoring of a firm's financing decisions (Fama & Jensen, 1983). This decision control process limits the discretion of the managers who only participate in decision management process (Fama & Jensen, 1983). Furthermore, the transfer of control to a board of directors reduces the agency problem between large and minority shareholders (Ahmed Sheikh & Wang, 2011). As a result, a BOD reduces firm leverage, thus satisfying the interests of minority shareholders who prefer dividends instead of the interest payments on debt. From the above discussion, it is safe to endorse that the separation of ownership and control affects capital structure (Lotto, 2015).

Abdullah and Pok (2015) and Lotto (2015) use the deviation between the control and cash flow rights (i.e. the control-ownership wedge ratio) to measure the effect of the separation of

ownership and control on firm leverage. Interestingly, the studies designate that highly separated, pyramidal firms are more levered. The evidence proffered above suggests that the large controlling shareholders issue high levels of debt to avoid the dilution of ownership, to preserve the control of subsidiaries (Lotto, 2015). Moreover, the large controlling shareholders (in pyramid firms) use debt to expropriate the wealth of the minority shareholders (Atanasov *et al.,* 2009).

Nevertheless, not much research has been done to investigate the effect of separating ownership and control on capital structure, especially in Africa (Lotto, 2015). Thus, this study seeks to investigate the effect of separating of cash flow rights and control rights on leverage, in Sub-Saharan Africa, particularly, Kenya; Nigeria and South Africa. Following Bebchuk, Kraakman and Triantis (2000), this study seeks to examine how the two-tier pyramid structures in non-financial listed firms affect leverage, in Sub-Saharan Africa.

## 1.2 PROBLEM STATEMENT

The Modigliani and Miller's (1958) capital structure irrelevancy theory motivates a perpetuating investigation of the capital structure theory. Jensen and Meckling (1976) develop the trade-off theory, which is further investigated and reinforced by Elsas and Florysiak (2008), Leary and Roberts (2005), Lemmon, Roberts and Zender (2008) and Myers (1977), among others. Correspondingly, the pecking order theory has received significant attention from numerous researchers (Benito, 2003; Farooq, 2015; Kinyua & Muriu, 2017 & Lopez-Gracia & Sogorb-Mira, 2008).

Additionally, substantial research has been done to investigate the influence of firm and country-specific factors on firm leverage, in developed and developing countries (Abdul-Qadir, Yaroson & Abdu, 2015; Céspedes *et al,*. 2010; Chepkowny, 2015; Ramjee & Gwatidzo, 2012). The same goes for the impact of the ownership structure and the BOD size on firm leverage (Abdul-Qadir *et al,* 2015; Alnodel & Hussainey, 2010; Ganiyu & Abiodun, 2012; Heng, Azrbaijani, & San, 2012; Ranti, 2013). Yet, the capital structure puzzle has not been solved (Al-Najjar, 2011).

Research further recommends that there is the incidence of the separation of ownership and control in public listed firms (Villalonga & Amit, 2008; Boubaker, 2006; Fairchild & Paulin, 2007). A small number of studies explore the effect of the separation of ownership and control of capital structure (Abdullah & Pok, 2015; Lotto, 2015). Nonetheless, the studies are carried out in Malaysia and the UK, postulating that no study has been done in Africa.

Consequently, this study attempts to fill this research gap by examining the effect of the separation of ownership and control on capital structure in Sub-Saharan Africa, specifically, Kenya, Nigeria and South Africa.

## 1.3 RESEARCH OBJECTIVES

The main objective is to examine the effect of the separation of ownership and control on leverage in Sub-Saharan Africa.

More specifically, the study seeks to examine;

1) there is the incidence of the SOC in Sub-Saharan African countries

2) the effect of large controlling shareholders on firm leverage in Sub-Saharan Africa

3) the effect of a large BOD (in dispersed firms) on firm leverage in Sub-Saharan Africa.

## 1.4 RESEARCH HYPOTHESES

The problem statement and objectives painted in this chapter proffer a foundation to formulate testable hypotheses. This section provides a general exploration of the empirical validation for each hypothesis. The first two hypotheses focus on the incidence and impact of the separation of ownership and control on firm leverage. The third hypothesis focuses on whether a large board size (in dispersed firms) affects firm leverage.

**Hypothesis 1**

Hypothesis 1 is developed based on the empirical finding that the separation of ownership and control brings about the transfer of control from the owners of the firm to the other individuals (i.e. the large shareholders or a board of directors) (Berle & Means, 1932). Claessens *et al.,* (2000); Malan, Salamudin and Ahmad (2012); Mohammad and Abdullah (2012), among others, find that there is the incidence of the separation of ownership and control in Asian firms.

Moreover, Lotto (2015) observes that there is the incidence of the separation of ownership and control in European firms. Conversely, Cronqvist and Nilsson's (2003) research results indicate that European firms are not characterised by the separation of ownership and control. Locally, Steyn and Stainbank (2013) find that firms are characterised by the separation of ownership and control. Thus, the evidence proffered above leads to the following null ($H_{0)}$ hypothesis and alternative hypothesis ($H_{a)}$:

$H_0$: There is no incidence of the separation of ownership and control in Sub-Saharan firms.

$H_{a:}$ There is the incidence of the separation of ownership and control in Sub-Saharan firms.

**Hypothesis 2**

Hypothesis 2 is formulated on the assumption that the separation of ownership and control affects firm leverage. Nor and Ariffin (2005) observes that most East Asian pyramid firms controlled by a large shareholder are highly levered. Lotto (2015) finds similar results in the UK. Nevertheless, Mohammad and Abdullah (2012) find that the separation of ownership and control does not affect firm leverage, in Malaysia. Thus, the above discussion leads to the following null ($H_{0)}$ hypothesis and alternative hypothesis ($H_{a)}$:

$H_0$: The separation of ownership and control (i.e. the control-ownership wedge ratio) does not affect firm leverage in Sub-Saharan firms.

$H_{a:}$ The separation of ownership and control (i.e. the control-ownership wedge ratio) positively affects firm leverage in Sub-Saharan firms.

**Hypothesis 3**

Hypothesis 3 is formulated on the presumption that a large board (in dispersed firms) affects firm leverage. Research shows that a large BOD affects firm leverage (Bodaghi & Ahmadpour, 2010; Elgiziry, 2015). Abdul-Qadir *et al.,* (2015), Agyei and Owusu (2014) and Ganiyu and Abiodun (2012), observe that there is a positive relationship between a large BOD and capital structure, in both developed and developing countries.

On the other hand, Bodaghi and Ahmadpour (2010), Heng *et al.*, (2012) and Ranti, (2013) contend that there is a negative relationship between the size of a board and capital structure in developing countries. Additionally, Hewa Wellalage and Locke (2012) find evidence to suggest that the size of a BOD does not have an impact on firm leverage. From the abovementioned arguments, it is hypothesised that:

$H_0$: A large board (in dispersed firms) does not affect firm leverage in Sub-Saharan firms.

$H_{a:}$ A large board (in dispersed firms) positively affects firm leverage in Sub-Saharan firms.

## 1.5 CONTRIBUTIONS

Since not much research on this topic has been done, this study contributes to the corporate finance literature by providing evidence on how the separation of ownership and control affects the capital structure, in Sub- Saharan Africa.

In addition, this study adds on to the corporate finance literature by providing evidence on how the shares owned by the large shareholders in subsidiaries affect capital structure decisions. Moreover, this study contributes to corporate finance literature by providing evidence on whether large boards affect financing decisions in dispersed Sub-Saharan firms.

Equally important, the investors who wish to invest in Africa can use the findings of this study to gauge if majority shareholders or large boards (in dispersed firms) will represent their interests. If not, the investors can invest in other continents like Asia (Malaysia), where the controlling shareholders have no significant impact on firm leverage (Abdullah & Pok, 2015). Equally, the evidence from this study helps academics to solve the capital structure puzzle. In other words, this study is a part of the missing piece that can be used to solve the capital structure puzzle. Finally, this study helps practitioners in the field of finance to draft capital structure and ownership structure policies that satisfy the interests of the shareholders, as well as maximise firm value.

## 1.6 DEFINITION OF KEY TERMS

**Table 1: Acronyms used in this paper.**

| Acronyms | Meaning |
|---|---|
| C-W | Control-ownership wedge ratio |
| SOC | Separation of ownership and control |
| SSA | Sub-Saharan Africa |
| GDP | Gross Domestic Product |
| BOD | Board of directors |
| ROA | Return on Assets |
| CF | Cash-flow rights |

## 1.7 CONCLUSION AND STRUCTURE OF DISSERTATION

The rest of the paper is organized in the following manner: Chapter 2 provides a detailed analysis of the literature review on capital structure. Chapter 3 gives an account of the

empirical evidence, so far, on capital structure. Chapter 4 gives a detailed description of the data, methodology and model specification. Chapter 5 reports the results based on the methodology developed in Chapter 4. Chapter 6 concludes the overall study.

# CHAPTER 2

# LITERATURE REVIEW

## 2.1 INTRODUCTION

This chapter looks at the theoretical background with respect to the theories and determinants (i.e. size; asset tangibility; profitability; growth opportunities and tax) of capital structure. In addition, the literature on the firm characteristics leading to the separation of ownership and control as well as its effects on capital structure is reviewed. Once a foundation centred on the theoretical framework has been established, the attention is shifted to look at the empirical findings of the significant studies surrounding the capital structure theory. Its determinants bring about the separation of ownership and control.

This chapter is organised as follows: Section 2.2 discusses the relevant literature on theories of capital structure, to be precise, the Modigliani and Miller (1958) capital structure irrelevancy theory, trade-off theory and the pecking order theory. Section 2.3 discusses the relevant literature on the factors (determinants) that affect capital structure. Section 2.4 discusses the effect of corporate managers on capital structure. Section 2.5 discusses the relevant literature on the agency theory. Section 2.6 discusses the relevant literature on the effect of large institutional shareholders on capital structure. Section 2.7 discusses the relevant literature on the effect of the size of the BOD on capital structure Section 2.8 discusses the literature on the incidence of the separation of ownership and control. Finally, Section 2.9 concludes.

## 2.2 THE THEORIES OF CAPITAL STRUCTURE.

This section evaluates the theories of capital structure. Initially, the theory of capital structure irrelevancy by Modigliani and Miller (1958). Then, the trade-off (or optimal capital structure) theory developed by Jensen and Meckling (1976). Finally, the pecking order theory is reviewed.

### 2.2.1 The capital structure irrelevancy theory

Virtually five decades ago, Modigliani and Miller (1958) contend that the capital structure of a firm is irrelevant. In other words, the combination of debt and equity does not have a significant effect on the value of a firm. In addition, the theory of capital structure irrelevancy is based on two impractical propositions. Firstly; the capital markets are perfect, recommending that there are no information asymmetries. As such, investors and firms have the same information regarding the financial markets. Secondly, there are no frictions in the markets (i.e. there are no transaction costs, taxes and bankruptcy costs).

Rolling the clock forward, the unrealistic propositions motivate a perpetuating debate on the development of the capital structure relevancy theories (Jensen & Meckling, 1976; Myers & Majluf, 1984). More than that, the capital structure irrelevancy theories inspire a bulk of academics to further examine the key drivers (determinants) of a firm's capital structure (i.e. profitability; growth opportunities; firm size; corporate tax; stock market development and asset tangibility) (González & González, 2012; Jaradat, 2015; Alghamdi, 2016). However, until now, there has been no consensus about the capital structure debate (Barclay & Smith, 1999).

### 2.2.2 The trade-off theory

Relaxing the propositions of Modigliani and Miller (1958), the optimal balance between debt and equity financing becomes the first order concern of capital structure decisions (Jensen & Meckling, 1976). In other words, through the introduction of taxes and bankruptcy costs, the trade-off theory undertakes that the firm value is maximized once the capital structure is at (or close to) its optimal target Debt /Equity (D/E) ratio. For that reason, to attain the optimal target D/E ratio, there should be an equilibrium between the marginal benefits of debt financing (e.g. tax savings) and the marginal costs of debt (e.g. costs bankruptcy costs) (Almeida & Philippon, 2007; Jensen & Meckling, 1976)

In addition, it is the duty of corporate managers to ensure that the optimal target D/E ratio is stable over time (Lemmon, Roberts & Zender, 2008). Therefore, in the circumstance that the D/E ratio becomes unstable due to an economic shock, the corporate managers ought to adjust it back to the optimal. From the discussion proffered above, one can argue that the capital structure decisions affect the value of the firm (Myers, 1977). As a result, the capital structure of a firm is relevant. As aforementioned, owing to the unrealistic propositions of the capital structure irrelevancy theory, Myers and Majluf (1984) develop the pecking order theory.

### 2.2.3 The Pecking Order Theory

The pecking order theory asserts that finance managers prefer the safest and cheapest means of financing when making capital structure decisions (Myers & Majluf, 1984). In other words, the time taken to make financing decisions is shortened since managers follow a hierarchy owing to the costs (i.e. transaction and information costs) associated with issuing certain securities (Mwangi, Makau, & Kosimbei, 2014).

In the direction of maximising firm value, corporate managers prefer to finance investments using retained earnings (Myers & Majluf, 1984). If need be, secured debt is issued (Elsas & Florysiak, 2008). Debt financing is preferred over equity because the existing shareholders fear to lose the control of the firm, owing to the dilution of ownership once new shareholders invest in the firm (Lotto, 2015). On the odd occasion that the above-mentioned sources of finance have been exhausted; equity is issued (Mwangi, Makau, & Kosimbei, 2014). Firms issue equity last because it is undervalued due to the information asymmetries between existing shareholders; finance managers and the new shareholders (Myers & Majluf, 1984). The picture emerging from the above discussion suggests that a financing hierarchy is driven by the costs and benefits associated with using each source of financing (Barclay & Smith, 1999).

Overall, the capital structure relevancy theories (i.e. the trade-off and pecking order) make the propositions of Modigliani and Miller (1958) invalid. Moreover, the theories undertake that a firm's financing decisions are driven by firm-specific factors such as the size of the

firm; profitability; corporate tax and growth opportunities (Myers & Majluf, 1984). Thus, in the direction of extensively appraising the firm's financing decisions, the key determinants of capital structure (or firm-specific factors) are discussed in the next section.

## 2.3 THE DETERMINANTS OF CAPITAL STRUCTURE

This section evaluates the key drivers of capital structure. The pertinent drivers comprise the size of the firm; profitability; asset tangibility; corporate tax and growth opportunities.

### 2.3.1 Capital structure and growth opportunities

It is interesting to note that firms with high growth opportunities are highly levered to finance their investments (Céspedes *et al.*, 2010). Thus, there is a positive relationship between growth opportunities and firm leverage (Shah, Hijazi & Javed, 2004). Additionally, the distress over the dilution of ownership forces the dominant shareholders in growth firms to use debt over equity financing (González & González, 2012). This preference for debt over equity by growth firms confirms the pecking order theory (Myers & Majluf, 1984).

On the other hand, there are several reasons why some growth firms are under levered .Firstly, due to risk aversion, growth firms tend to use less debt to avoid the personal costs of bankruptcy (González & González, 2012; Rocca, Rocca & Gerace, 2008). Secondly, the constraints in accessing debt forces firms to reject growth opportunities such as mergers and acquisitions (Bertrand & Schoar, 2003). Lastly, high growth firms frequently generate high profits. Which are why, firms finances growth opportunities using retained earnings (Alghamdi, 2016).

Established in the above discussion, one can argue that growth opportunities may positively or negatively affect firm leverage. Thus, the above discussion supports the trade-off and pecking order theory. The next section discusses the effect of profitability on firm leverage.

### 2.3.2 Capital structure and profitability

From the preceding section, high growth firms frequently generate high profits (i.e. retained earnings) that they in turn use to expand (Alghamdi, 2016). In other words, the higher the firm's profits, the lower the debt in a firm's capital structure (Chepkowny, 2015). The contrary is correct that firms that are less profitable are more levered (Céspedes *et al.*, 2010). This inverse relationship between profitability and leverage confirms the pecking order theory (Jaradat, 2015).

On the other hand, firms that generate more profits take on more risk by using external sources of finance to expand and exploit investment opportunities (Ganiyu & Abiodun, 2012; Shafana, 2016). Thus, there is a positive relationship between profitability and leverage, confirming the trade-off theory (Elsas & Florysiak, 2008). Surprisingly, there are instances where profitability does not have an impact on the capital structure decisions (Ajanthan, 2013).

To sum it up, the literature discussed above confirms that most profitable firms have low debt levels in their capital structure (Alghamdi, 2016; Chepkowny, 2015; Jaradat, 2015). However, in some instances profitable firms have high debt levels in their capital structure, to aggressively exploit investment opportunities (Ajanthan, 2013; Shafana, 2016).

### 2.3.3 Capital structure and size

The size of the firm is important as well in financing decisions (Abdul-Qadir *et al.*, 2015; Butt & Hasan, 2009; Suhaila, Mahmood & Mansor, 2008). Large firms have high debt levels in their capital structure, due to their good reputation, high levels of diversification and the condition that they are less susceptible to bankruptcy (Bhaduri, 2002; Cespedes *et al.*, 2010; Jaradat, 2015). Thus, the reasons mentioned before show that large firms have easier access to debt financing, confirming a positive relationship between firm size and leverage (Chepkowny, 2015).

The reverse is valid for small firms that generate low profits. As a result, creditors contemplate that small firms have a high risk of bankruptcy and default (Bhaduri, 2002). One could argue that this high risk of default creates borrowing constraints (e.g. high-interest rates and premiums) bringing about low debt levels in small firms' capital structure (Chipeta *et al.*, 2012). This positive relationship between firm size and leverage confirms the trade-off theory (Agyei & Owusu, 2014).

Inversely, the relationship between the size of a firm and leverage tends to be negative if the firm is financially stable and performs well (Hall, Hutchinson & Michaelas, 2004; Shah *et al.*, 2004). Consequently, the firm issues fairly priced equity to finance investment opportunities, thus, reducing the need for debt financing (Rajan & Zingales, 1995; Paulo Esperanca, Matias Gama & Azzim Gulamhussen 2003). This inclination to use fairly priced equity over debt confirms the pecking order theory.

To sum it up, there is a positive relationship between firm size and leverage. However, in the occasion that large firms are financially stable, fairly priced equity is preferred over debt financing. Moreover, large firms have easier access to debt because the creditors use their tangible assets as collateral (Shah *et al.*, 2004). So, the next section discusses the effect of the tangibility of assets on capital structure.

### 2.3.4 Capital structure and asset tangibility

Asset tangibility can be considered as a determinant of capital structure. The creditors use a firm's tangible assets as collateral to guarantee that a firm will not default on the interest payments of debt (Gitman, 2003; Psillaki & Daskalakis, 2008). As a result, the creditors demand a low a risk premium because high asset tangibility is associated with a low risk of bankruptcy (Frank & Goyal, 2009). The low-risk premium results reduce the cost of debt, enabling the firms to borrow more (Barbosa & Moraes, 2004; Degryse, Goeij & Kappert, 2012). The above discussion suggests a positive relationship between asset tangibility and firm leverage.

On the other hand, it is spot-on to argue that small firms with no collateral face constraints when accessing external financing (Balogun, Nazeemb & Agumba, 2016; Heyman, Deloof, & Ooghe, 2008). Additionally, firms that are highly collateralised may avoid debt, perhaps to maintain their reputation in case of bankruptcy (Daskalakis & Thanou, 2010). One possible explanation for the negative relationship between asset tangibility and firm leverage may be the impression that the creditors consider goodwill; profitability and growth opportunities when granting loans to firms (Deari, 2009).

Overall, the picture from the above discussion portrays a positive relationship between asset tangibility and firm leverage. Nevertheless, there are some instances whereby the creditors issue loans based on a firm's growth opportunities and profitability. The next section reviews the effect of corporate taxes on capital structure.

### 2.3.5 Capital structure and corporate taxes

Corporate tax has a significant impact on a firm's financing decisions (Green, Murinde & Suppakitjarak, 2002). Firms benefit from tax by deducting the interests' payments on debt from taxable corporate income (Abor, 2008; Modigliani & Miller, 1963). Therefore, in order to maximise firm value, this tax advantage prompts firms to wholly fund their investment opportunities using debt.

From the above discussion, one could maintain that the more levered a firm is, the more remuneration to the investors who receive the interest payments as proceeds. However, the proceeds are taxed in the investors' individual income accounts (Myers, 1977). Consequently, the benefits of tax arising from debt are alleviated by the income tax charged on the investors' personal accounts. Thus, there is a negative relationship between corporate tax and leverage (Chipeta *et al.*, 2012). The next section deliberates on how the stock market development affects capital structure.

### 2.3.6 The stock market development and capital structure

The development (or size) of a stock market has an impact on the firm's financing decisions .A developed stock market reduces the demand for debt financing, owing to the low cost and easy access to finance (Kayo & Kimura, 2011). This reduction in the demand for debt endorses that there is a negative relationship between firm leverage and the development (or size) of a stock market.

On the other hand, there is a positive relationship between stock market development and leverage (Chipeta, Wolmarans & Vermaak, 2012). Reason being that firms in developed stock markets face constraints when raising equity financing through the stock market and so they resort to debt financing (Demirguc-Kunt & Levine, 1996). In addition, the development of a country's stock market is highly linked with the financial system development (bank development). As a result, financial institutions issue more loans in countries with developed stock markets.

Based on the above discussion, one can argue that when a stock market is developed, firms prefer equity financing as opposed to debt. However, not all firms have access to equity financing via the stock market, thus, they resort to debt financing. The next section discusses how corporate managers make capital structure decisions.

## 2.4 Corporate managers and capital structure

In the mandate of investigating the effect of separating ownership from control on firm leverage, this section reviews the relevant literature of the effect of corporate managers on firm leverage. The relevant literature on how the corporate managers make capital structure decisions is appraised.

In the circumstance that the owners (i.e. shareholders) passively manage the firm, the authority to control the firm is shifted to the managers (Balasubramanian & Anand, 2013;

Cheng & Tzeng, 2011; Modugu, 2013). For that reason, managers control the firm on behalf of the shareholders (Spieler & Murray, 2008). It then becomes the responsibility of corporate managers to choose the most appropriate mix of debt and equity, to achieve an optimal capital structure that satisfies the interests of the shareholders (Karadeniz, Kandir, Balcilar & Onal, 2009; Modugu, 2013; Mohammadzadeh, Rahimi, Rahimi, Aarabi, & Salamzadeh, 2013).

Disappointment then comes when the corporate managers inappropriately use firms' resources to maximise their utility, at the expense of shareholders (Abor & Biekpe, 2005; Wahome, Memba, & Muturi, 2015). By so doing, corporate managers unproductively allocate the retained earnings to invest in non-optimal (negative Net Present Value) projects that do not generate profits, instead of paying dividends to the shareholders (Jensen, 1986; Rocca, Rocca & Gerace, 2008).

Moreover, the corporate managers indirectly expropriate the wealth of the minority shareholders. This expropriation of wealth is driven by the circumstance that the minority shareholders (who hold small stakes) do not find it worthwhile to monitor the decisions of the managers (Jahankhani & Kanani, 2006; Kangarlouei1, Abbaszadeh & Motavassel, 2012). As a result, firms characterised by managerial control incline to underperform.

The reverse is true that firms characterised by managerial control under-reinvest, to use a firm's retained earnings to pay dividends to shareholders (DeAngelo & DeAngelo, 2000). And so, to guarantee the payment of dividends, corporate managers use retained earnings to avoid the interest payments tied to debt (Baek, Cho & Fazio, 2016).

Additionally, corporate managers avoid issuing debt because it gives the debt holders the power and control over a firm (Baek, Cho & Fazio, 2016). Managers issue less debt to maintain a good reputation as well as avoid the costs of bankruptcy (Rocca, Rocca & Gerace, 2008; Wahome *et al.*, 2015). Furthermore, managers are averse to debt financing because it reduces the excess cash-flows that are used as private benefits (e.g. to pay high salaries) (Morellec & Wang, 2004). Owing to risk aversion corporate managers issue less debt, in the

mandate of mitigating the firm-specific risk in undiversified portfolios (Caprio, Croci & Del Giudice, 2011; Ellul, 2008). The reverse is true that risk-tolerant managers use more debt. Finally, manager-controlled high growth firms are under-levered to avoid the interest payments on debt, which may possibly hinder a firm from expanding (Harris & Raviv, 1991).

To summarise, the picture painted from the above literature shows that most corporate managers have a negative influence on firm leverage. However, in the instance of a potential takeover (e.g. being ousted by other managers or taken over by other firms), managers issue more debt. Thus, the next section ponders on the agency theory.

## 2.5 THE AGENCY THEORY

The agency theory is one of the most popular theories in corporate finance. According to Jensen and Meckling (1976), the agency relationship is one whereby the principal shifts his or her decision-making authority in the firm to the agent. The agent makes decisions on behalf of the principal (Fama & Jensen, 1983). Nonetheless, the agent does not always act in the interest of the principal (Delves & Patrick, 2008). From the previous section, the principal is the shareholder, whilst the agent is the corporate manager.

In attempting to align the interests of the principal and the agent, a firm incurs agency costs (Jensen & Meckling, 1976). The costs include monitoring costs, which arise when the large shareholders and the BOD effectively monitor the actions of the managers using leverage, to maximise firm value (Fama & Jensen, 1983).

In addition, the agency problem (between large and minority shareholders) arises once the large shareholders issue debt, to avoid the dilution of control of the firm (Lotto, 2015). As a result, the large shareholders use a firm's retained earnings to service the obligations on debt instead of paying out dividends to the minority shareholders (Barclay & Smith, 1999).

Furthermore, the agency costs are unavoidable when a firm is characterised by the separation of ownership and control (Jensen and Meckling, 1976). However, the separation of

ownership and control may reduce the agency problem by dividing the decision-making process into two (Fama & Jensen, 1983). The shareholders or board of directors participate in the decision control process (i.e. the ratification and monitoring of decisions), while the managers only partake in the decision management process (i.e. the initiation and implementation of the ratified decisions). In other words, the control of the firm is left in the hands of the majority shareholders or the board of directors (in widely held firms) (Chepkowny, 2015). Thus, the next section deliberates precisely how the large shareholders affect capital structure decisions.

## 2.6 LARGE SHAREHOLDING AND CAPITAL STRUCTURE

The goal of the large shareholders (i.e. residual claimants) is to maximise a firm's profits (Steyn & Stainbank, 2013). Consequently, it is the duty of the shareholders to effectively monitor the actions of the managers, to ensure that their investments yield high profits. The profits generated are rewarded to all the shareholders through dividends and the increase in the value of their shares (Jiang, Habib & Smallman, 2009).

Notably, the picture emerging from the above discussion suggests that large shareholders influence a firm's capital structure. A few reasons put forward that firms characterised by large shareholding have high levels of debt in their capital structure. Firstly, large shareholders use debt to exert pressure on corporate managers to maximise firm value (Steyn & Stainbank, 2013; Tsipouri & Xanthakis, 2004). Thus, debt acts as a monitoring device to align the interests of the managers and shareholders (Anderson and Reeb, 2003). Nevertheless, the interest payments on debt exploit the interests of the minority shareholders who expect dividend payments (Jung & Kwon, 2002; Khan, Kaleem & Nazir, 2012).

Secondly, the large shareholders prefer to issue debt as opposed to equity, in order to avoid the dilution of ownership as well as maintain control of the firm (Cespedes *et al.*, 2010; Faccio & Lang & Yang, 2002; Lotto, 2015). This preference for debt over equity confirms the pecking order theory (Leary & Roberts, 2005). Correspondingly, one may argue that the large shareholders' capital structure follows the trade-off theory such that the large

shareholders issue equity once the optimal target of leverage is achieved (Jensen & Meckling, 1976). The above discussion suggests a positive relationship between large shareholders and firm leverage (Driffield, Mahambare & Pal, 2007; Margaritis & Psillaki, 2010).

Moreover, it is correct to propose that there is the agency problem between the large and minority shareholders who prefer to use of retained earnings and equity as a source of financing (Cespedes *et al.,* 2010). This preference of equity is motivated by the fact that, losing the control of the firm is not of concern to the minority shareholders who hold too little stakes (Ganguli, 2013). In addition, the large shareholders issue debt to invest in high-risk projects that lower a firm's value (Driffield *et al.*, 2007). This reduction of the firm's value is not of concern to the large shareholders who hold too large stakes, implying that they do not lose much in case the firm becomes bankrupt (Cheng & Tzeng, 2011; Lin, Ma, Malatesta & Xuan, 2011; Lotto, 2015).

At the same time, the large shareholders could play an important role to ensure that they satisfy the interests of the minority shareholders (Cespedes *et al.,* 2010). In this exceptional circumstance, the large shareholders may perhaps monitor and alleviate all the information asymmetries between the managers, existing and the new shareholders (Michaely & Vincent, 2012). Accordingly, equity becomes a cheaper source of financing than debt.

Correspondingly, due to risk aversion, the large shareholders avoid issuing debt to maintain a firm's good reputation, minimise financial distress and avoid bankruptcy risks (Almeida & Philippon, 2007; Cheng & Tzeng, 2011; Kasbi, 2009; Khan *et al.,* 2012). Established from the preceding discussion, one can argue that to guarantee the protection of the minority shareholders, the large shareholders adhere to the pecking order theory (Chepkowny, 2015; Hussainey & Aljifri, 2012).

In conclusion, large shareholders prefer to issue debt to fund investment opportunities. However, this preference of equity financing is detrimental to the interests of the minority shareholders who are not part of the decision making (Driffield *et al.,* 2007; Psillaki & Daskalakis, 2010). This inefficiency of the large shareholders motivates dispersed firms to

select a BOD that protects the interests of the minority shareholders (Michaely & Vincent, 2012). Thus, the next section deliberates on the effect of the BOD, particularly the size of the board on capital structure.

## 2.7 THE BOARD OF DIRECTORS AND CAPITAL STRUCTURE.

### 2.7.1 Role of the board of directors

In the absence of a controlling shareholder, a firm's operations are controlled by a BOD (Steyn & Stainbank, 2013). The board is responsible for effectively directing and controlling the operations of a firm (Brennan & Solomon, 2008). Therefore, the BOD is responsible for safeguarding the interests of the shareholders (Richardson & Welker, 2001).

The BOD controls the firm by monitoring the actions of managers, (e.g. approving or disapproving the decisions made by managers), to ensure that the firm flourishes and maximises profits (Denis & McConnell, 2003). Additionally, the BOD prevents the expropriation of wealth from minority shareholders by the large shareholders (Anderson & Reeb, 2003). For that reason, the interests of the minority shareholders are satisfied (Aguilera, 2005; Nicholson & Kiel, 2004; Pye & Pettigrew, 2005). On the other hand, the shareholders are worse off if the BOD is not certain about its role in the firm's decision-making process (King & Wen, 2011).

Furthermore, the efficiency of a BOD in the firm is linked to its size. As a consequence, in order to efficiently monitor the actions of the managers, firms should have a significant number of directors on their board (Frias- Aceituno, Rodriguez- Ariza & Garcia- Sanchez, 2013). The next section ponders on how the size of a BOD affects a firm's capital structure decisions.

### 2.7.2 The size of the board of directors and capital structure.

This section reviews the pertinent literature on the effect of the BOD on capital structure. Specifically, how the size of the board influences capital structure decisions. As aforementioned, the board represents the shareholders by monitoring the actions of managers, to ensure that the value of the firm is maximised (Denis & McConnell, 2003).

In the absence of large controlling shareholders, the separation of ownership and control in public listed companies restricts shareholders from actively participating in the firm (Heng *et al.*,, 2012). As a result, the shareholders nominate and specify the number of the board members that will be involved in the firm's decision making (Agyei & Owusu, 2014).

Once the BOD is in control of the firm, it is expected to protect the interests of the shareholders by monitoring management, to limit its discretion and maximise shareholder wealth (Kanagaretnam, Lobo & Mathieu, 2004; Lorca, Sánchez-Ballesta & García-Meca, 2011). In addition, a large BOD influences the way the capital structure of a firm is crafted. Thus, the BOD controlled firms use retained earnings instead of debt to finance investment opportunities (Berger & Di Patti, 2006; Heng *et al.*, 2012). Moreover, to maximise firm value a large BOD prefers equity over debt financing (Bodaghi & Ahmadpour, 2010). From the above discussion, one could recommend a negative relationship between the size of a BOD and the D/E ratio.

Conversely, firms with a large BOD have high debt levels in their capital structure for several reasons (Jackling & Johl, 2009; Jaradat, 2015). Firstly, the creditors are confident that there is a low risk that the firm will default on the loan because a large BOD ensures value maximisation and firm performance. Consequently, the creditors reduce the cost of debt and firms borrow more (Anderson & Reeb, 2008). The reverse is precise that the smaller the number of directors, the lower the debt levels, possibly due to the lack of managerial monitoring (Anderson & Reeb, 2008; Rehman, Rehman & Raoof, 2010). Secondly, a large BOD issues more debt to reduce the interest payments on debt (Harvey, Lins & Roper, 2004).

Finally, a large BOD raises conflicts which result in resistances to reach an agreement in decision making. These conflicts provide a platform for high leverage that firms use to expand and exploit profitable investment opportunities (Ganiyu & Abiodun, 2012; Al-nodel & Hussainey, 2009). The preceding discussion recommends that there is a positive relationship between the size of the board and firm leverage.

In conclusion, the above discussion indicates that a large BOD influences a firm's capital structure decisions (Heng *et al.*, 2012). In other words, the size of the board has a significant role in choosing the best combination of debt and equity to fund a firm's operations (Ganiyu & Abiodun, 2012; Jaradat, 2015). The next section discusses the separation of ownership and control.

## 2.8 THE SEPARATION OF OWNERSHIP AND CONTROL

The incidence of the separation of ownership and control in firms dates back to the 1930s (Berle & Means, 1932). Owing to the SOC, the role of owners (or shareholders) is to reap the rewards generated by the operations of the firm. In other words, the owners passively manage the firm and shift their control to other individuals. Thus, the large shareholders and a BOD represent the shareholders when making decisions (Fama & Jensen, 1983).

The SOC can be alienated into two distinct levels. The first level is characterized by majority control (i.e. large shareholders) and dispersed minority shareholders who are separated from control (Chepkowny, 2015; Lotto, 2015). The second level is characterized by top management control whereby a BOD is responsible for controlling the firm's operations. The next section discusses the separation control rights and cash flow rights, in the instance of a large (majority) shareholder.

### 2.8.1 Large shareholding and the separation of ownership and control

As mentioned in Chapter one, this study seeks to investigate the effect of the separating ownership from control on capital structure. In other words, this study examines the effect of separating the control rights from cash flow rights, on firm leverage .

The control rights of ownership represent the majority voting rights, or the percentage of shares held by the largest shareholders in the firm (Chappelle & Szafarz, 2005). If a shareholder has high control rights of ownership, it simply means that he or she has direct control of the firm (Lotto, 2015). Consequently, the control rights give the largest shareholder the power to make decisions regarding the changes in the operations of a firm. The changes include the decision to issue new securities (Claessens *et al.*, 2000; Du & Dai, 2005).

The cash-flow rights represent the controlling shareholder's ultimate ownership (or actual investment) in subsidiaries (Claessens *et al.*, 2000). Consequently, the cash flow-rights give the largest shareholder the power to control a subsidiary's operations indirectly (Lotto, 2015).

The separation of cash flow rights from control rights results in the misalignment of the interest between the large and minority shareholders (Lemmon & Lins, 2003). High control rights give the largest shareholder the power to expropriate the wealth of the minority shareholders. In this instance, the large shareholder misuses his control rights by embezzling the firms' resources through his private benefits (Atanasov *et al.*, 2009, Lotto, 2015).

A bulk of literature suggests that the control rights of the largest shareholder are equal to his or her cash flow rights (Claessens *et al.*,2000; Faccio & Lang, 2002; Laeven & Levine, 2007). Nevertheless, another strand of literature suggests that the two control rights are not equal, owing to a pyramid structure (Attig & Gadhoum, 2003; Attig *et al.*, 2006; Edwards & Weichenrieder, 2009).

Pyramid structured firms allow the largest shareholder to control firms in which he or she has less ultimate ownership (Edwards & Weichenrieder, 2009; & Zhu, Tian & Zhao, 2010). As a result, pyramid firms develop a wedge between the largest shareholder's cash-flow and control rights (i.e. control-ownership wedge ratio) (Lotto, 2015). Figure 1 below, illustrates the separation of control rights and cash flow rights, through a pyramid structure of three firms (Edwards & Weichenrieder, 2009 & Morck, 2009).

Suppose Mr Moyo owns 32 percent of firm A, thus, making him a majority shareholder. The 32 percent ownership equates to 32 percent voting rights. In addition, firm A owns 28 percent (i.e. 28 percent voting rights) of firm B. Likewise; firm B owns 64 percent of firm C. This pyramid structure demonstrates that Mr Moyo is a majority shareholder in firm A that in turn owns firm B. Accordingly, Mr Moyo indirectly controls firm C, where firm B is a majority shareholder. Notably, the pyramid structure gives Mr Moyo the power to control firm C, even though Mr Moyo's ultimate ownership is approximately 5.73 percent (0.32*0.28*0.64) (see figure 1) (Claessens *et al.*, 2000; Edwards & Weichenrieder, 2009).

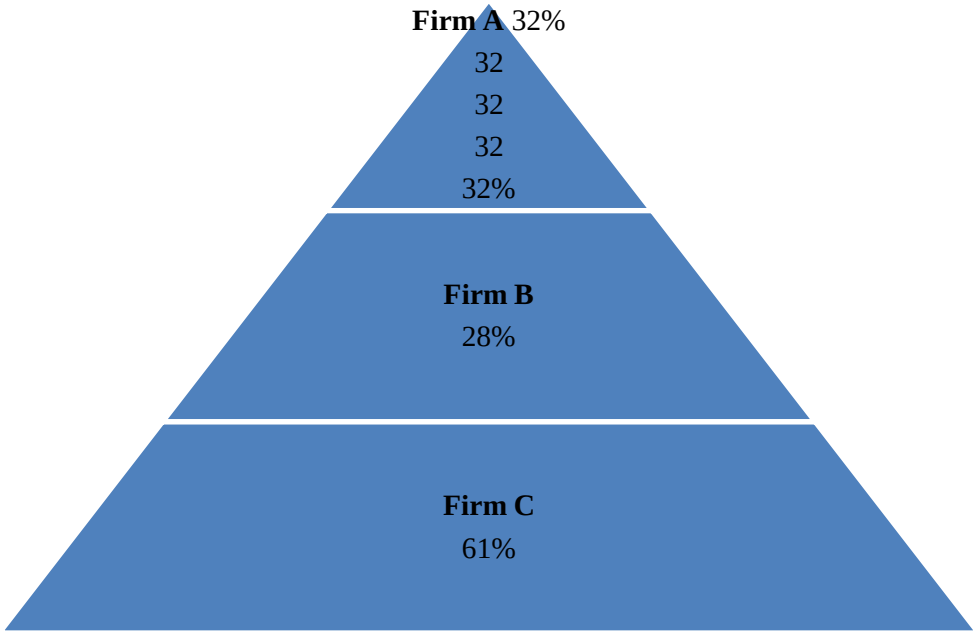



**Figure 2.1: Pyramid structure of firms.**

If firm B is worth R1 million, Mr Moyo owns only R 89,600.00 of the firm (0.32*0.28), yet he has full control of the firm. In the consequence that firm B fails, Mr Moyo loses only R 89,600.00 (Malan, Salamudin & Ahmad, 2012). Firm B bear the losses created by Mr Moyo's poor decision-making since they directly own the firm. In other words, the separation of cash-flow rights from control rights protects the controlling shareholder from bearing the costs of his or her actions.

Moreover, one could argue that the wider the separation of the two rights, the higher probability of the expropriation of the minority shareholders' wealth by the large controlling

shareholders (Lotto, 2015). This expropriation is encouraged using debt in order to uphold the control of the firm (Bunkanwanicha & Wiwattanakantang, 2008). In addition, owing to the separation of cash flow rights and control rights (pyramid structure), the large shareholders use the retained earnings of a firm's subsidiaries to exploit new investment opportunities (Bebchuk *et al.*, 2000). Moreover, the separation of cash flow rights from control rights gives the ultimate owner the power to control firm B's BOD decisions (Malan *et al.*, 2012).

Firm leverage is one of the determinants of a pyramid structure (Attig & Gadhoum, 2003). Accordingly ultimate owners adhere to the pecking order theory, to maintain control of the firm. Nevertheless, the large shareholders in pyramid firms may be forced to use internal financing due to the constraints faced when sourcing external finance (Khanna & Palepu, 2000).

Finally, the value of the firm increases when the largest shareholders have high cash flow rights in subsidiaries (Yeh, Lee & Woidtke, 2001). As a result, the minority shareholders prefer to invest in firms whereby the controlling shareholder has high cash flow rights (Claessens *et al.*, 2002). The reverse is valid for firms characterised by controlling shareholders with low cash-flow rights. As a result, minority shareholders prefer to invest in board controlled dispersed firms. Thus, the next section deliberates on the instance where the BOD controls firm operations.

### 2.8.2 The Board of Directors and the separation of ownership and control.

In the absence of a majority shareholder, the BOD controls a firm's operations (Chepkowny, 2015). In the instance, the control of a firm is left in the hands of a BOD. Thus, the minority shareholders passively manage the firm.

This type of SOC is common in most public listed firms, where the minority shareholders are not involved in decision making (Kassim, Ishak & Manaf, 2013). In addition, the BOD represents the minority shareholders once a firm's life cycle stages evolve from being an entrepreneurship to become a limited liability company (Berle & Means, 1932; Dalton, Hitt,

Certo & Dalton, 2007). Thus, the dispersed owners being the residual claimants are dependent on the BOD to represent and protect their interests in the firms (Kassim, Ishak & Manaf, 2013).

Founded on the above discussion, one could argue this type of SOC is not necessarily widespread in private family firms (Alghamdi, 2016). Generally, private family firms are characterised by a large ownership structure. Therefore, the owners are hands-on in the firm as well as effectively participate in the decision making. From the above discussion, one could argue that the private firms adhere to the pecking order theory when making capital structure decisions because the owners of the firm maximise the profits (retained earnings) to finance the business (Myers & Majluf, 1984).

To summarise, the above literature illustrates that there is the incidence of the separation of ownership and control in both widely held and concentrated firms. Additionally, the literature indicates that the large shareholders use debt to expropriate the wealth of the minority shareholders. However, a board of directors is appointed to protect the interests of the minority shareholders by issuing equity. Finally, the value of the firms increases when a controlling shareholder has low cash-flow rights in subsidiaries.

## 2.9 CONCLUSION

In summary, the picture portrayed from this chapter advocates that Modigliani and Miller's (1958) assumptions are unrealistic. Thus, the capital structure theory is relevant, according to the trade-off and pecking order theory. In addition, the literature recommends that the large shareholders and large boards (BOD) affect firm leverage. Moreover, owing to the separation of ownership the large controlling shareholders issue more debt to expropriate the wealth of the minority shareholders, through private benefits. As a result, a large BOD is selected to protect the interests of the minority shareholders. Chapter 3 reviews the empirical evidence.

# CHAPTER 3

# EMPIRICAL EVIDENCE LITERATURE

## 3.1 INTRODUCTION

Founded on the theoretical framework, this section reviews the empirical evidence. This section discusses the empirical findings pertaining to capital structure in developed and developing countries. Section 3.2 reviews the evidence from developed countries. Section 3.3 discusses the evidence from developing countries. Section 3.4 concludes.

## 3.2 EVIDENCE FROM DEVELOPED COUNTRIES

### 3.2.1 Theories of capital structure

This section provides an analysis of the empirical evidence on the theories of capital structure. Surprisingly, prior research provides mixed evidence with regards to the theories of capital structure, in developed economies.

Da Silva (2016) examines the theories of capital structure using a sample of 443 non-financial listed German firms, over the period 2005 to 2014. The results of the study indicate that German non-financial firms follow the traditional pecking order theory. Therefore, German firms prefer to use retained earnings as a source of finance, if they generate high profits. On the other hand, the results provide evidence of the trade-off theory, since German firms with high tangible assets (used as collateral by banks) have high levels of debt, owing to a lower cost of debt. Thus, the lower cost of debt encourages German firms to borrow more.

Beck, Demirguc-Kunt and Maksimovic (2005) find similar results in Australia and Singapore. The research results indicate that firms in Australia and Singapore have easier

access to external finance. Accordingly, Australian and Singaporean firms use more debt to finance their projects, confirming the trade-off theory.

Choi, Yoo, Kim and Kim (2014) find evidence that supports both the pecking order and trade-off theory, in South Korea. The study comprises 43 listed construction companies, over the period 2000 to 2010. Interestingly, the results are consistent with Cassar and Holmes (2003) who conduct the study using a sample of Small and Medium Enterprises (SMEs) in Australia, over the period 1995 to 1998. Benito (2003) finds that SMEs in Spain and the UK follow both the pecking order and the trade-off theory. The above results are consistent with López-Gracia and Sogorb-Mira (2008).

The empirical evidence presented in the above discussion designates that most firms in developed countries adhere to both the pecking order and trade-off theory when making financing decisions. These findings support the predictions of Myers (1977) and Myers and Majluf (1984). The next section reviews evidence on the determinants of capital structure.

### 3.2.2 Determinants of capital structure

As discussed in the theoretical framework, several factors (determinants) influence the crafting of a firm's capital structure. This section reviews prior empirical literature on the determinants of capital structure (i.e. firm size, profitability, growth opportunities and asset tangibility).

#### Firm size and capital structure

Research indicates that a firm's capital structure is relative to its size. López-Gracia and Sogorb-Mira (2008) conduct a study in Spain and find that the size of the firm affects its capital structure decisions, using a sample period from 1995 to 2004. Likewise, da Silva, (2016) investigate how the size of the firm affects its financing decisions, in listed non-financial German firms, over the period 2005 to 2014. Both studies report a positive and significant relationship between firm size and leverage. The authors contend that this positive relationship may arise due to the circumstance that large firms are more diversified and have a lower risk of bankruptcy. Additionally, López-Gracia and Sogorb-Mira's (2008) research

results indicate that large German firms use more debt financing to avoid the dilution of ownership.

Choi *et al.,* (2014) find similar results in 43 listed construction firms in South Korea, over the period 2000 to 2010. Conversely, Nunkooa and Boateng (2010) find that large Canadian firms have low debt levels because it is cheaper for large firms to issue new equity. The reverse is true that small Canadian firms have high levels of debt in their capital structure because it is costly for them to issue new equity. Therefore, small Canadian firms are inclined to borrow more.

Overall, the above evidence suggests that there is a positive relationship between the size of the firm and firm leverage, in developed economies (Choi *et al.*, 2014). One of the reasons for this positive relationship is the impression that large firms have easier access to debt financing (López-Gracia & Sogorb-Mira, 2008). In addition, the evidence confirms that most large firms in developed countries follow the trade-off theory when making financing decisions (Elsas & Florysiak, 2008). The next section reviews the evidence of the effect of profitability on capital structure.

**Profitability and capital structure**

Research further shows that profitability can play a significant role in a firm's capital structure. Cassar and Holmes (2003) find evidence to suggest that profitability is a key determinant of capital structure in Australian SMEs, over the period 1995 to 1998. Da Silva (2016) examines the effect of profitability on a firm's capital structure, in Germany. Following the pecking order, profit maximising German firms have lower debt levels in their capital structure. Thus, there is a negative relationship between profitability and debt.

Interestingly, Choi *et al.,* (2014) find similar results in South Korea. On the other hand, Nunkooa and Boateng (2010) find that Canadian firms that maximise profits are more levered. As a result, there is a positive relationship between profitability and leverage in Canada.

The evidence proffered above ties with the idea that corporate managers in developed countries consider the firm's profits when making capital structure decisions (Cassar & Holmes, 2003). Interestingly, the evidence indicates that most firms in developed economies

adhere to the pecking order theory when making financing decisions. Hence, the findings support the predictions of Myers and Majluf (1984). The next section discusses the empirical evidence on how the asset structure of firms (asset tangibility) affects the capital structure decisions of developed countries.

**Asset Tangibility and capital structure**

Numerous researchers provide evidence suggesting that asset tangibility plays a significant role in the firm's ability to acquire debt. Cassar and Holmes (2003) find that firms' tangible assets play a significant role in the capital structure, in Australia. Skoogh and Swärd (2015) take initiative to investigate the effect of asset tangibility on firm leverage in Sweden, over the period 2005 to 2014. The authors observe that there is a positive relationship between asset tangibility and leverage.

Nunkooa and Boateng (2010) find similar results in Canadian firms. One of the reasons could be the circumstance that Canadian banks use a firm's fixed assets as collateral (Da Silva, 2016). Subsequently, firms with more tangible assets have easier access to external financing (da Silva, 2016). On the other hand, Choi *et al.,* (2014) discover that South Korea's construction firms are less levered, though they have high tangible assets.

Overall, the empirical evidence discussed in this section provides a strong support for a positive relationship between asset tangibility and firm leverage, in developed countries. However, there are instances whereby firms that have high tangible assets have low debt levels in their capital structure. The next section reviews the evidence on the effect of growth opportunities on capital structure, in developed countries.

**Growth opportunities and capital structure**

The theoretical framework on capital structure suggests that growth opportunities are linked to a firm's capital structure (Alghamdi, 2016). Choi *et al.,* (2014) use a multiple regression analysis and find that South Korean construction firms with valuable growth opportunities have low debt levels. The results are consistent with Nunkooa and Boateng (2010) who use a panel data and a dynamic regression model, to examine how growth opportunities affect the financing decisions of Canadian firms, over the period 1996 to 2004. The authors contend that Canadian firms with high growth opportunities have lower debt levels in their capital

structure, to discourage the bondholders from passing up valuable investment opportunities. In addition, the results suggest that Canadian firms do not consider growth opportunities when issuing debt.

Furthermore, the evidence proffered above recommends that growth opportunities affect a firm's financing decisions. Nevertheless, Hall, Hutchinson and Michaelas' (2004) research results indicate that a firm's growth opportunities are not considered when making financing decisions in Belgium, Germany, Ireland, Italy, Netherlands, Portugal, Spain and the UK.

Overall, the above evidence suggests that most growth firms in developing countries have low debt levels in their capital structure. However, in unique circumstances, firms in developing countries do not consider their growth opportunities when borrowing.

**Conclusion**

In conclusion, the empirical evidence suggests that the size of the firm, profitability, asset tangibility and growth opportunities affect firm leverage in developed countries. Nevertheless, the evidence is mixed as research indicates both a positive and negative effect of the determinants of capital structure. The next section discusses the evidence on the effect of large shareholding on capital structure, in developed countries.

### 3.2.3 Large shareholding (majority shareholding) and Capital structure.

Numerous researchers provide empirical evidence on the effect of large shareholders on capital structure, in developed countries. Margaritis and Psillaki (2010), investigate the effect of large shareholders on firm leverage, in France. The results of the study indicate that concentrated French firms have high debt levels in their capital structure. Likewise, Pindado and de la Torre (2005) find a positive relationship between leverage and ownership concentration, in Spain.

In the same line, Fosberg (2004) examines the effect of large shareholders on US firms' financing decisions. The author observes that US firms characterised by large shareholding

(shareholders that hold 5 percent or more of firm shares) have high debt levels in their capital structure. The author contends that these findings imply that the large shareholders use debt as a monitoring device, to reduce managerial discretion. In addition, Du and Dai (2005) find similar results on firms listed in Singapore and South Korea, over the period 1994 to 1996.

Likewise, Lotto (2015) examines the relationship between the largest shareholders and firms' D/E ratios, in the UK. The study comprises 643 listed UK firms. The research results indicate that there is a positive relationship between the largest shareholders and the D/E ratio. The author contends that large shareholders prefer to issue more debt financing to avoid the dilution of ownership and control, which comes about due to the issuance of equity.

On the other hand, Short, Keasy and Duxbury (2002) examine the relationship between large shareholders and capital structure in the UK; over the period 1988 to 1992. The authors observe a negative relationship between firm leverage and large shareholding. The authors contend that this negative relationship implies that the large shareholders are hands-on in monitoring the actions of managers; hence there is no need for the firms to use debt as a disciplinary device. Hussainey and Aljifri (2012) find similar results in the United Arab Emirates.

Overall, the preceding evidence shows that firms characterised by large shareholding prefer debt over equity financing. Accordingly, there is a positive relationship between large shareholding and leverage, in developed countries. The next section discusses the effect of the size of the BOD on capital structure.

### 3.2.4 The Board of Directors and capital structure.

As mentioned in the literature review, owing to the SOC, the BOD makes financing decisions on behalf of the shareholders (Chepkowny, 2015). Thus, this section reviews the empirical evidence on just how the size of the BOD affects a firm's capital structure decisions, in developed countries.

Berger and Lubrano (2006) examine the effect the size of the BOD on capital structure, in the US. The research results suggest that firms with a large board size have a high debt ratio. Coles, Daniel and Naveen (2008) find similar results in the US, over the period 1992 to 1997.

Likewise, Anderson and Reeb (2004) contend that US firms with large boards have high debt levels because of the lower cost of debt since the creditors are confident that large boards effectively monitor a firm's financial accounting process. Accordingly, a large board maximises firm value by reducing the level of managerial discretion. The evidence proffered so far, suggests that there is a positive relationship between a large board and firm leverage.

On the other hand, Heng *et al.,* (2012) examine the influence of the size of the board on a firm's capital structure in Singapore, over the period 2005 to 2009. The research results bring about evidence to suggest that firms with a large board have low debt levels in their capital structure. Likewise, Alnajar and Hussainey (2014) find that there is a negative relationship between the size of the board and a firm's leverage in the UK, over the period from 1991 to 2002. The authors contend that large boards exert pressure on managers to issue less debt, to maximise the value of a firm.

To summarise, the picture emerging shows that most firms with a large BOD have high debt levels, attributed to the fact that debt limits managerial discretion and maximises firm value (Anderson & Reeb, 2003). However, there is evidence to suggest that firms with a large BOD have low debt levels, for the reason that large board challenges managers to pursue low D/E ratios.

**Conclusion**

Overall, the evidence presented suggests that the largest shareholders and a large BOD play a significant role in firms' capital structure decisions. In general, the empirical evidence from developed countries suggests that most firms characterised by large shareholding have high debt levels in their capital structure. Additionally, the empirical evidence suggests that firms with a large BOD issue more debt, to limit managerial discretion. The next section reviews the evidence from developing countries.

## 3.3 EVIDENCE FROM DEVELOPING COUNTRIES

As aforementioned, this section deliberates on the empirical evidence from developing countries. Comparable to the developed countries, the evidence is founded on the theoretical framework discussed in the literature review. The first section discusses the empirical evidence on the theories of capital structure.

### 3.3.1 Theories of capital structure

This section provides an analysis of the previous empirical literature on the theories of capital structure, in developing economies. Surprisingly, the evidence provides mixed results.

Chen (2004) investigates the theories of capital structures in Chinese listed firms, over the period 1995 to 2000. The research results indicate that Chinese firms follow the new pecking order theory when making capital structure decisions. In this instance, the firms prefer to finance their projects using retained earnings, followed by equity. Debt is issued as the last resort.

Abor (2008) examines the theories of capital structure in Ghana. The results of the research indicate that Ghanaian firms prefer the internal financing, as it is the cheapest source of capital. However, if need be, the firms acquire external financing (e.g. debt). In addition, the author finds that Ghanaian SMEs do not have access to public equity; hence, they have less equity in their capital structure. The results confirm the pecking order theory. Kinyua and Muriu (2017) find similar results in a study comprising Kenyan agricultural firms. The authors argue that Kenyan firms avoid using debt financing to escape the personal costs of bankruptcy.

Similarly, Farooq (2015) uses a sample of Egyptian and Moroccan firms, over the period from 2005 to 2009. The research results suggest that Egyptian and Moroccan firms adhere to the pecking order theory when making financing decisions. Likewise, Chadha and Sharma (2015) investigate the capital structure theories on a sample of 422 listed Indian manufacturing companies, over the period 2003 to 2013. The results of the research designate that small and less profitable Indian firms follow the pecking order when making financing decisions. Additionally, the results show that Indian firms with more tangible assets and

growth opportunities follow the trade-off theory when making financing decisions. Abdul-Qadir *et al.,* (2015) find that similar results in Nigerian commercial banks.

Furthermore, Da Silva and Leal (2006) find that Brazilian firms adhere to the pecking order theory when making financing decisions. These findings are further reinforced by Beck *et al.,* (2002) and Brendea (2014), who find that Malaysian, Romanian and Thai firms rely on the internal sources of finance to fund their projects.

Locally, Etudaiye-Muhtar and Ahma (2014) investigate the theories of capital structure on 244 firms listed on the (Johannesburg Stock Exchange (JSE), over the period 2003 to 2012. The research results indicate that South African firms adhere to the pecking order and trade-off theory when making financing decisions. In the same vein, Ramjee and Gwatidzo (2012) find similar results in South African listed firms, over the period 1998 to 2008. The above evidence is supported by Mgudlwa's (2010) survey results in South African manufacturing firms.

In sum, the evidence proffered above indicates that most firms in developing countries adhere to the pecking order theory when making financing decisions. Reason being, firms in developing countries do not have access to public equity. Nevertheless, there is limited evidence to suggest that firms with more tangible assets and growth opportunities follow the trade-off theory when making capital structure decisions. Owing to the effect of tangible assets and growth opportunities on financing decisions in developing countries, the next section reviews the evidence on the determinants of capital structure.

### 3.3.2 Determinants of capital structure.

**Size and capital structure**

The empirical evidence regarding the effect size of the firm on capital structure is mixed. Forte, Barros and Nakamura (2012) conduct a study to examine the effect of size on capital structure. The study comprises of over 19,000 Brazilian firms and the sample period runs from 1996 to 2004. The research results indicate a positive relationship between the size of the firm and leverage. Hence, the authors contend that larger firms have more access to

external financing. Interestingly, Abor (2008) and Agyei and Owusu (2014) find the similar results in Ghana.

Correspondingly, Farooq (2015) examines how the size of the firm affects its financing decisions in Egypt and Morocco; over the period 2005 to 2009. The results of the study suggest that large firms have high levels of debt in their capital structure, owing to the easy access to external financing. In the same vein, Chadha and Sharma (2015); Ogbulu and Emeni (2012) find similar results in Nigeria and India respectively.

In addition, Abdul-Qadir *et al.,* (2015) find a positive relationship between firm size and the debt ratio in Nigerian commercial banks, over the period 2009 to 2013. Wen, Rwegasira & Bilderbeek (2002) find similar results in China. In cooperation the studies designate that large firms have adequate collateral to secure debt. Thus, creditors are confident that the large firms will not default on the loan because secured debt has a low risk of bankruptcy. Moreover, the authors posit that large firms use debt as a disciplinary mechanism, to ensure that managers act in the interest of the shareholders as well as to maximise the value of the firm.

Locally, Rungani and Fatoki (2010) investigate the relationship between the size of the firm and capital structure. The research results indicate that small South African SMEs use the little profits that they generate to finance their projects, owing to the constraints that confront them when sourcing external finance. Correspondingly, Ramjee and Gwatidzo (2012) find a positive relationship between firm size and leverage in South Africa firms.

On the other hand, Kinyua and Muriu (2017) find a negative relationship between the size of the firm and leverage, in Kenya. The authors contend that this negative relationship indicates that as firms become larger, equity financing is the most preferred source of financing.

Established on the above evidence, one can argue that the size of the firm affects capital structure decisions, in developing countries. Most large firms in developing countries have high debt levels since they have easier access to external finance. The reverse is valid, for small firms that generate low profits. Consequently, the low profits bring about constraints when small firms seek external finance since the creditors are certain that the small firms might not be able to make the interest payments due to debt. Thus, the next section reviews the evidence on the effect of profitability on the firm's capital structure.

**Profitability and capital structure**

Research also indicates that the profits generated by a firm affect its financing decisions. Forte, Barros and Nakamura (2013) find that Brazilian firms that maximise profits are high levered. Therefore, there is a negative relationship between profitability and firm leverage. These results are consistent with Abdul-Qadir *et al,* (2015), Chadha and Sharma (2015) and Kinyua and Muriu (2017) who find a negative relationship between profitability and firm leverage in India, Nigeria and Kenya respectively.

Likewise, Farooq (2015) finds a negative relationship between profitability and leverage in Morocco and Egypt. The author contends that firms that maximise profits prefer to use retained earnings to finance their projects, as it is the cheapest source of financing. Locally, Meyer and de Wet (2013), Ramjee and Gwatidzo (2012) and Rungani and Fatoki (2010) observe a negative relationship between profitability and the D/E ratio.

On the other hand, Ganiyu and Abiodun (2012) find a positive relationship between profitability and firm leverage, in Nigerian firms. The authors argue that profitable firms prefer to use debt financing to expand and exploit their investment opportunities. Surprisingly, Ogbulu and Emeni's (2012) research results suggest that profitability does not affect firm leverage, in Nigeria.

Overall, the preceding evidence suggests that profitable firms in developing countries have low levels of debt. This evidence indicates that most profitable firms follow the pecking order theory. On the contrary, the evidence suggests that profitable firms in developing countries issue high levels debt financing to fund their investments and growth opportunities. Thus, the next section analyses the empirical evidence on the effect of growth opportunities on capital structure.

**Growth opportunities**

From the previous section, a firm's growth opportunities affect its capital structure decisions. Thus, numerous researchers examine the relationship between growth opportunities and leverage. Abor (2008) investigates the effect of growth opportunities on firm leverage, in Ghana. The results of the research indicate that Ghanaian SMEs issue high levels debt financing to grow or expand. In other words; there is a positive relationship between leverage and a firm's growth opportunities.

Farooq (2015) examines the effect of growth opportunities on capital structure in North African countries (i.e. Egypt and Morocco), over the period 2005 to 2009. The author finds that firms with high growth opportunities have high debt levels in their capital structure. In addition, Al Najjar's (2011) research results indicate that there is a positive relationship between Jordanian firms' growth opportunities and leverage. Chadha and Sharma (2015) find similar results in India.

Locally, Ramjee and Gwatidzo (2012) examine the effect of growth opportunities on firm leverage in South African listed firms; over the period 1998 to 2008. The research results indicate that South African growth firms prefer to use debt to expand. On the other hand, Ogbulu and Emeni's (2012) research results indicate that growth opportunities do not affect capital structure decisions, in Nigeria.

The evidence presented in the preceding discussion suggests that most growth firms in developing countries use debt financing to expand. Thus, growth firms follow the pecking order when making financing decisions (Myers & Majluf, 1984). The next section reviews the empirical evidence on the effect of a firm's tangible assets on capital structure.

**Asset tangibility and capital structure**

Numerous researchers have examined the effect of tangible assets on firm leverage. Abor (2008) examines the effect of a firm's tangible assets on firm leverage, in Ghana. The research results suggest that Ghanaian SMEs with no (or low) tangible assets have low debt levels in their capital structure. Thus, the author attributes these findings to the circumstance that creditors use tangible assets as collateral, in the instance that the firms default on the loan.

In addition, Chadha and Sharma (2015) investigate the effect of asset tangibility on Indian firms' capital structure, over the period 2003 to 2013. The research results indicate that there is a positive relationship between asset tangibility and firm leverage. Similarly, Brendea (2014) and Farooq (2015) find that there is a positive relationship between a firm's tangible assets and capital structure, in Romania and Nigeria respectively. The authors argue that this positive relationship is due to the impression that financial institutions use the firm's tangible assets as collateral when granting loans. Surprisingly, Ogbulu and Emeni's (2012) research provides evidence that a firm's tangible assets do not affect Nigerian firms' capital structure.

Furthermore, Chipeta and Deressa (2016) find that there is a positive relationship between asset tangibility and leverage in Botswana, Mauritius, Namibia, South Africa and Tanzania. The authors contend that firms with tangible assets have a low risk of default, hence they borrow more. Locally, Ramjee and Gwatidzo (2012) examine the effect of tangible assets on leverage, over the period 1998 to 2008. The authors find that South African listed firms with tangible assets have high debt levels in their capital structure. Thus, there is a positive relationship between asset tangibility and leverage in South Africa. Consequently, the authors posit that South African firms with high tangible assets offer high collateral; hence, the creditors are willing to borrow more.

Overall, the evidence presented above indicates that there is a positive relationship between asset tangibility and leverage, in developing countries. This positive relationship is attributed to the fact that creditors are willing to lend more if firms have collateral (tangible assets).

**Conclusion**

In summary, the empirical evidence suggests that the size of the firm, profitability, and asset tangibility and growth opportunities affect firm leverage, in developing countries. In addition, the evidence suggests that firms in developing countries adhere to the pecking order theory when making financing decisions. The next section discusses the effect of large shareholding on capital structure in developing countries.

### 3.3.3 Large shareholding and capital structure

A bulk of research provides evidence to suggest that large shareholders affect capital structure decisions, in developing countries. Driffield *et al.,* (2007) investigate the relationship between large shareholding and capital structure in Indonesia, Malaysia, North Korea and Thailand, over the period 1993 to 1998. The authors find that the large shareholders positively affect capital structure decisions.

In the same trail, Cespedes *et al.,* (2010) investigate how large shareholders affect the firm's capital structure. The study comprises 806 non-financial firms from Latin American countries namely Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela, over the period

1996 to 2005. The authors find that Latin American firms with large shareholders are more levered.

Likewise, Brendea (2014) examines the effect of large shareholders on capital structure in Romania, over the period 2007 to 2011. The research results indicate that Romanian listed firms characterised by large shareholding have more leverage in their capital structure. Huang (2006) find similar results in China, using a sample period between 1994 and 2003. The above evidence suggests that large shareholders prefer to issue debt at the expense of minority shareholders, to avoid losing the control of the firm (Cespedes *et al.,* 2010).

Similarly, Qureshi, Sheikh & Khan (2015). examines the effect of large shareholders on capital structure, in Pakistan. The results of the study indicate that the largest shareholders have a high-risk appetite and enjoy the benefits of controlling the firm at the expense of minority shareholders. As a result, the large shareholders prefer to use debt as opposed to equity to exploit investment opportunities. The preference of debt arises because the large shareholders use debt as a disciplinary device in addition to reducing the dilution of control.

In the same vein, Ahmed Sheikh and Wang (2012) observe a positive relationship between the large shareholders and firm leverage, in Pakistan. The authors contend that the large (dominant) shareholders use debt to protect and maintain their voting power. Abdoli and Royaee (2012) find similar results in Iran. The authors contend that the positive relationship could be due to the impression that institutional shareholders have easier access to external finance (firm leverage). Du and Dai (2005) find similar results in Philippines, Taiwan and Thailand, over the period 1994 to 1996.

Additionally, Ahmed, Ali and Nazrul (2006) take the initiative to investigate the relationship between large shareholding and firm leverage in Malaysia, over the period, 1998 to 2002. The authors postulate that the positive relationship between large shareholding and firm leverage recommends that large shareholders use debt to monitor the actions of managers.

What's more, Ganguli (2013) finds that Indian firms with large shareholding have more leverage in their capital structure. The author argues that debt reduces the expropriation of the wealth of minority shareholders by large shareholders. Furthermore, Agyei and Owusu's (2014) research results designate that there is a positive relationship between large shareholders and capital structure, in Ghanaian firms listed over the period, 2007 to 2011.

On the other hand, Martins and Schiell (2017) conduct a study to test the impact of large shareholding on firm leverage in Brazil; over the period 2008 to 2013. The results of the study suggest that there is a negative relationship between large shareholding and leverage. Correspondingly, Shi (2010) finds that Chinese listed firms characterised by large shareholding and dispersed minority shareholders have low debt levels in their capital structure. The above studies recommend that the disciplinary effect of debt is substituted by the direct monitoring of managers' actions by the large shareholders.

Likewise, Shahar, Adzis and Baderi (2015) find evidence to suggest that Malaysian firms characterised by large shareholding have low debt levels in their capital structure. The authors contend that the low debt financing could be attributed to the impression that large shareholders effectively monitor the actions of managers. In consequence, the large shareholders maintain the control of the firm.

Farooq (2015) examines the impact of large shareholders on capital structure in North African (i.e. Egypt and Morocco), over the period 2005 to 2009. The evidence provided by the research is mixed. Firstly, the results indicate that there is a positive relationship between large shareholders and capital structure. This positive relationship comes about because of the under-development of Egyptian and Moroccan stock markets. Hence, firms resort to debt financing, since they are not able to raise enough external finance. Additionally, Moroccan, and Egyptian firms prefer more debt financing than equity, to avoid the dilution of control.

Secondly, the results indicate that firms characterised by large shareholding have low debt levels in their capital structure. The author contends that large shareholders avoid issuing debt to mitigate the non-diversifiable risk of bankruptcy. In other words, there is a negative relationship between the large shareholders and firm leverage. Abobakr and Elgiziry (2016) find similar results in Pakistan respectively.

Flannery and Rangan (2006) and Hovakimian (2006), evaluate the relationship between large shareholding and firm leverage in Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. The authors observe that there is a negative relationship between the large shareholders and firm leverage. Likewise, Masood & Ashraf, (2012) finds evidence to suggest that Pakistani firms characterised by large shareholders have less leverage in their capital structure. The author contends that this relationship arises owing to several reasons. Firstly, Pakistani firms avoid issuing debt to reduce the monitoring of the firm operations by creditors. Secondly, firms have less debt in their capital structure, since the Pakistani stock market is not well developed. Thirdly, the banks are the major source of external finance in Pakistan. Thus, Pakistani firms issue less debt because the banks have constraining debt covenants which increase the cost of debt, hence, firms borrow less.

Surprisingly, Bodaghi and Ahmadpour (2010) find that there is no significant relationship between the large shareholders and firm leverage, in Iran. Likewise, Obembe, Akinlo and Aiyegbusi (2017) find that large shareholders have no impact on firm leverage, in Nigeria.

To summarise, the evidence documented suggests that firms characterised by large shareholding have high debt levels in their capital structure. However, in exceptional circumstances, firms with large shareholding have low debt levels in their capital structure, owing to the under-development of stock markets in developing countries. The next section reviews evidence on the effect of the size of the BOD on capital structure.

### 3.3.4 Board of Directors and capital structure

Volumes of research find evidence to suggest that the size of the BOD affects the capital structure, in developing countries. Abobakr and Elgiziry (2015) examine the relationship between the size of the board and capital structure, over the period 2007 to 2011. The study comprises 50 listed Egyptian firms. The research results indicate that Egyptian firms with a large board size are under leveraged.

In Nigeria, Ranti (2013) took initiative to examine the influence of the size of BOD on a firm's financing decisions; over the period 2006 to 2011. The results of the study provide evidence of a negative relationship between the size of the board and firm leverage.

Consequently, Nigerian firms with a small board are more levered, to limit the discretion of managers..

Moreover, Abor (2008) and Abor and Biekpe (2005) investigate how the size of the board affects Ghanaian SMEs' capital structure decisions. The results of the study suggest that SMEs with a large board have low debt ratios in their capital structure. Similarly, Chitiavi, Musiega, Alala, Douglas and Christopher (2013) investigate the influence of the size of the board on firms' capital structure decisions in Kenya, over the period 2007 to 2011. The authors observe that the firms controlled by a large board prefer using retained earnings over debt to exploit investment opportunities. Thus, there is a negative relationship between the size of the board and firm leverage in Kenya.

In the same manner, Heng *et al.,* (2012) examine the relationship between the size of the board and the debt ratio in Malaysia, over the period 2005 to 2008. The results of the study suggest that Malaysian firms with a large board the firm have low debt levels in their capital structure. Likewise, Butt and Hassan (2009) find a negative relationship between the size of the board and firm leverage, in 58 non-listed Pakistani firms, over the period 2002 to 2005. Bodaghi and Ahmadpour (2010), find comparable results in Iran. The authors contend that a large board ensures that managers use the cheapest source of capital to maximise profits and enhance the value of the firm.

On the other hand, Rehman *et al.,* (2010) investigate the relationship between the size of the board and firm leverage, in Pakistan. The study period runs from 2005 to 2010. The authors find that firms with a large board have high debt levels in their capital structure. Thus, there is a positive relationship between the size of the board and firm leverage. Correspondingly, Vakilifard, Gerayli, Yanesari and Ma'atoofi (2011) find similar results in Iran.

In Nigeria, Ganiyu and Abiodun (2012) find a positive relationship between the size of the board and capital structure, over the period 2000 to 2009. The research results suggest that the larger the board size, the higher the debt ratio. The authors highlight two reasons that may possibly lead to the above finding. Firstly, the large boards take time to reach a consensus, ensuring high debt levels in the capital structure. Secondly, the large boards use more debt to finance a firm's projects because debt acts as a monitoring device, to align the interests of managers with the shareholders'. Abdul-Qadir *et al.,* (2015) find similar results in Nigeria.

The authors posit that large boards have an appetite for risk; hence, they prefer to use the risky debt to finance their investments.

Additionally, Agyei and Owusu (2014) find a positive relationship between the size of the board and Ghanaian firms corporate D/E ratio. The results of both studies indicate that firms controlled by a large board size have more leverage in their capital structure. The authors posit that this positive relationship between the size of the board and firm leverage may possibly be due to the impression that large boards take a lot of time to reach a consensus when making financing decisions. Ahmed Sheikh and Wang (2011) find similar results in Iran and China respectively.

Nevertheless, there is evidence to suggest that the size of the board does not have an impact on firm leverage. Hewa Wellalage and Locke (2012) examine the effect of the size of the board on leverage in Sri-Lanka; over the period 2006 to 2010. The authors find that the size of the board does not have an impact on firms' capital structure decisions. Shafana (2013); find comparable results in firms listed on the Colombo Stock Exchange.

In sum, the evidence concerning the effect of the size of the BOD in developing countries is mixed. Research shows that there is a positive relationship between the size of the board and capital structure, in developing economies. One of the reasons for the high debt levels is the impression that large boards take time to reach a consensus during the decision-making process. On the other hand, there is evidence to suggest that this relationship is negative. The negative effect implies that large boards effectively monitor the actions of managers. Therefore, the need for debt as a monitoring device is reduced. Surprisingly, there is evidence suggesting that the size of the board does not have a significant impact on firm leverage.

**Conclusion**

Overall, the evidence presented suggests that the largest shareholders and a large BOD have a significant influence on firms' capital structure decisions. In general, the empirical evidence from developing countries suggests that most firms characterised by large shareholding, have high debt levels in their capital structure. In addition, there is evidence to suggest that firms with a large board issue more debt, to limit managerial discretion. The next section discusses the evidence on the SOC.

### 3.2.5 The separation of control rights and cash-flow rights

This section reviews empirical evidence on the separation of ownership and control. Owing to the scarcity of literature, the evidence from developed and developing countries are not separated.

Malan, Salamudin and Ahmad (2012) take initiative to explore the incidence of the separation of control rights from cash flow rights (ultimate ownership). The authors observe that Malaysian firms are characterised by the separation of control rights and cash flow rights. Additionally, the authors posit that a wider the gap between the two rights encourages the controlling shareholders (who own more than 35 percent of shares in the firm) to expropriate the wealth of the minority shareholders. Ishak and Napier (2006) confirm that the expropriation of minority shareholders in Malaysian firms is driven by the excess control rights over cash-flow rights. However, Mohammad and Abdullah (2012) find that the separation of cash flow rights from control rights does not motivate the expropriation of the minority shareholders since it does not affect firm leverage.

Malan, Salamudin and Ahmad (2012) observe that the pyramidal firms protect the controlling shareholders from bearing the costs attached to their poor decisions. In the same line, Banny-Ariffin (2010) finds that pyramidal Malaysian firms have high debt levels in their capital structure. However, Nor and Ariffin's (2005) research results indicate that Malaysian firms are not a pyramidal. Therefore, there is no separation of the cash flow and control rights.

In the same line, Shyu and Lee (2009) find that there is the separation of cash-flow and control rights, in firms listed on the Taiwan Stock exchange, over the period 2002 to 2006. The research results indicate that owing to the separation of cash-flow and control rights, the controlling shareholders expropriate the wealth of the minority shareholders. Correspondingly, Chun-ling, Jie and Hua (2013) find similar results in Chinese pyramidal firms. The authors posit that the controlling shareholders with low cash flow rights depressingly affect the value of the firm. According to Claessens *et al.*, (2000), the reverse is true that the higher the cash flow rights, the higher the value of East Asian firms. In addition,

Bany-Ariffin (2010) finds that most East Asian pyramid firms (characterised by the separation of cash flow rights from control rights) have more leverage in their capital structure.

Moreover, Boubaker (2006) finds that in French pyramid firms, the expropriation of minority shareholders wealth is elevated when the gap between the control and cash-flow rights is wide. The reverse is true that the controlling shareholders have no incentive to expropriate the wealth of minority shareholders if the deviation between the two rights is small. In addition, the author posits that the separation of cash-flow and control rights increases the firm's cost of capital. Therefore, French firms face constraints when sourcing external finance because the new shareholders fear that the existing controlling shareholders will expropriate their rights.

Likewise, Villalonga and Amit (2008) find that US firms are characterised by separation of cash-flow and control rights. The authors contend that the separation of control and cash flow rights is inherent in firms due to the pyramid structure and BOD control. In Mexico, Fairchild and Paulin (2007) find that the misalignment of interests between the controlling and minority shareholders arises owing to the separation of the control and cash-flow rights (through pyramid structures). However, the authors observe that the expropriation of the minority shareholders' wealth by controlling shareholders is low in the UK and the US, owing to the dispersed ownership structures.

Similarly, Faccio and Lang (2002) observe that the separation of cash-flow rights from control rights via pyramid structures is less pronounced in the UK, France and Spain. On the other hand, the authors find that the separation of the two rights is more pronounced in Italy, Japan and Germany. Laeven and Levine (2007) and Lotto (2015) observe that most UK firms are controlled by a single shareholder, suggesting that there is a high degree of the separation of control and cash flow rights. In addition, the research results indicate that UK firms characterised by a wider gap between the control and cash flow rights are more levered.

Nevertheless, Cronqvist and Nilsson (2003) observe that there is no deviation between the cash-flow and control rights, in Swedish firms. Therefore, there is no separation of ownership and control. In addition, Bennedsen and Nielsen's (2009) findings indicate that that separation of cash flow and control rights does not have an impact on firm value. Villalonga and Amit (2006) find similar results in the US.

In conclusion, the above evidence suggests that most firms are characterised by the separation of ownership and control. However, the evidence on the effect of the separation of control and cash-flow rights on firm leverage is mixed. One body of research indicates that firms characterised by the separation of ownership and control have high debt levels in their capital structure (Bany-Ariffin 2010; Lotto, 2015). While another body of research shows that the separation of ownership and control does not affect firm leverage (Mohammad & Abdulla, 2012). Table 3.1 below presents a summary of the empirical evidence discussed above.

**Table 3.1: A summary of empirical studies on the separation of ownership and control and the respective findings**

| STUDY | Country | Incidence of the SOC |
|---|---|---|
| Malan, Salamudin and Ahmad (2012) | Malaysia | Yes. Firms are characterised by pyramid structures. |
| Ishak and Napier (2006) | Malaysia | Yes. SOC is driven by the excess control rights over cash-flow rights. |
| Shyu and Lee (2009) | China | Yes. Controlling shareholders expropriate wealth from minority shareholders. |
| Villalonga and Amit (2008) | US | Yes. Owing to the pyramid structures in firms. |
| Chun-ling, Jie and Huang (2013) | China | Yes. There is the incidence of pyramid structures in firms reduces firm value. |
| Claessens *et al.,* (2000) | East Asia | Yes. Most pyramidal firms are controlled by a large single shareholder. |
| Fairchild and Paulin (2007) | Mexico, US, UK | Yes. Pyramid structures encourage the expropriation of the minority shareholders' wealth. |
| Cronqvist and Nilsson (2003) | Sweden | No. There is no separation of ownership and control in Swedish firms. |
| Faccio and Lang (2002) | Italy Japan and Germany | Yes. Pyramid structures are more pronounced in these countries compared to the US and UK. |
| Leaven and Levine (2007) | UK | Yes.Pyramid firms controlled by a single shareholder. |
| Steyn and Stainbank (2013) | South Africa | Yes. Public listed firms are characterised by the separation of ownership and control. |
| Bennedsen and Nielsen (2009) | Sweden | Yes. However, the separation of ownership and control does not have an impact on firm value. |

## 3.3 CONCLUSION

The emerging picture from empirical framework suggests that the capital structure of a firm is relevant since it affects the value of the firm (Jensen & Meckling, 1976; Myers & Majluf, 1984). The evidence further indicates that there is the incidence of the separation of ownership and control in firms around the globe, including South Africa. Additionally, the research shows that the separation of ownership and control affects firm leverage. However, a few studies have been done, particularly in the UK and Malaysia (Bany-Ariffin, 2010; Lotto, 2015). Owing to the scarcity of studies on this topic, Chapter 4 discusses the data, variables and methodologies to be employed to examine the effect of the SOC on firm leverage in Sub-Saharan Africa.

# CHAPTER 4

# RESEARCH METHODOLOGY

## 4.1 INTRODUCTION

In chapter one, three research hypotheses were formulated based on the statement of the problem. Thus, a proper methodology helps to test these hypotheses. Section 4.2 focuses on the sample period, sample criteria and the sources of data to be used in this study. Section 4.3 focuses on the different separation of ownership and control enhancing mechanisms. Section 4.4 discusses the different measures of leverage and specifies the best measure to be used in this study. Section 4.5 defines the independent variables to be used in this study. Section 4.6 outlines the regression equations to be used in this study. Section 4.7 concludes the chapter.

## 4.2 DATA

In the mandate to examine the effect of separating ownership and control on firm leverage, in Sub-Saharan Africa, the research is grounded on the ensuing guidelines. The sample of this study comprises non-financial firms listed in Kenya, Nigeria and South Africa. The choice of the non-financial firms is based on the impression that financial firms are subject to regulations, which may affect their capital structure decisions (Baker & Wurgler, 2002; Salawu & Awolowo, 2007; Zhu *et al,*. 2010). Where available, the sample period runs from 2006 to 2017. This sample period is large compared to that of a similar study in Malaysia by Abdullah and Pok (2015).

This study focuses on non-financial firms listed in South Africa; Nigeria and Kenya for several reasons. Firstly, the countries' stock markets and financial systems are the most developed in Sub-Saharan Africa (Gwatidzo & Ojah, 2009). Secondly, the separation of ownership and control is most common in public firms (Berle & Means, 1932). Thirdly, Kenya, Nigeria and South Africa are common law countries. Hence, the creditors are highly protected and are willing to borrow more (La Porta *et al,*. 1998). Fourthly, due to data

availability, listed firms have abundant sources of data besides their published financial statements (Pervan, Horak & Vasilj, 2010). Finally, the choice of the countries is based on the impression that these three countries represent the non- financial firms in Sub-Saharan Africa.

Adapting from past studies, the sample of the study comprises the following the criteria for the duration of the study;

- Non-financial firms listed in Kenya, Nigeria and South Africa for the duration of the study (Zhu *et al*,. 2010). The choice of the countries is based on Gwatidzo and Ojah (2009).
- Following Lotto (2015) the non-financial firms should be characterised by majority shareholding of over 10%. According to Laeven and Levine (2007), a shareholder with more than 10% shares has the power to control a firm's decisions and operations.
- Non-financial firms with dispersed ownership and a large board size comprising 10 members or more (Steyn & Stainbank, 2013). According to Lotto (2015), firms characterised by shareholders holding less than 10% firm shares are considered dispersed.

The I-Net Iress database shall be used to collect financial information with regards to all the financial ratios used in the study. In addition, this study relies on data from the sampled individual firms' financial statements. Following the sample criteria of the study, the financial statements make available annual information on all the majority shareholders who hold at least 10 share ownerships (Steyn & Stainbank, 2013; Lotto, 2015). In addition, the financial statements make available the information on dispersed ownership (of less than 10 shareholdings), as well as the size of the boards in non-financial firms listed in Kenya, Nigeria and South Africa (Lotto, 2015).

## 4.3 METHODOLOGY

***Separation of ownership and control mechanisms***

This study seeks to determine the effect of the separation of ownership and control (i.e. the control-ownership wedge ratio) on firm leverage. Besides the pyramid structure discussed in the preceding chapters, there are two additional mechanisms to determine the incidence of the separation of ownership and control in firms (Bebchuck *et al.*, 2000). The two control enhancing mechanisms include the dual-class shares and cross-ownership (Classes *et al.*, 2000). In addition, the control-ownership wedge ratio is calculated to indicate the degree of the separation of control rights from cash-flow rights, in firms (Lotto, 2015). The next section discusses the dual-class shares mechanism.

### 4.3.1 Dual-class shares

As aforementioned, the dual-class share structure enhances the separation of ownership and control in firms (Ararat, Aksu, & Tansel-Cetin, 2015). According to Bebchuk *et al.*,(2000), the dual-class shares structure is widely accepted and is gaining popularity in South Africa. Nonetheless, this type of firm structure has been banned in several countries.

Under the dual-class share structure, firms have more than one class of shares with different cash-flow and control (voting) rights (Bebchuck *et al.*, 2000). The subsequent example demonstrates how the degree of how this mechanism separates the two rights.

Suppose Tools & Tools (Plc.) Ltd. Has about 28 million shares, comprising shares A (10 million shares) and B (18 million shares), with equal nominal value. Class A shares carry 25 voting rights, while each class B share has one voting right. In addition, Tools & Tools (Plc.) Ltd. has two family members, Mr Y Tool and Mr D Tool who are the majority shareholders, while the rest of the dispersed shares are owned by the other shareholders.

Mr Y Tool owns 2 million class A shares and 500000 class B shares, while Mr D Tool owns 3.5 million class A shares and 150 000 class B shares. Additionally, the class A shares are equivalent to 100,000,000 votes while the class B shares equal to 17,000,000 votes, making a total of 117,000,000 votes.

Thus, Mr Y Tool has 8.9% cash flow rights and approximately 18, 8% control rights. Mr D tool's portion of cash-flow and control rights is approximately 12.5% and 32.4% respectively (see calculations below).

**Calculations;**

**Cash flow rights (Y Tool**) = ((2, 5 million shares / 28 million shares)*100) =8.9%

**Control rights (Y Tool)** = (2,000,000.00 class A shares * 25) + (500,000 class B shares *1) / ((10,000,000*25) + (18, 000, 000.*1))*100= 18.8%

**Cash flow rights (D Tool) =** ((3, 5 million shares / 28million shares)*100) =12.5%

**Control rights (D Tool) =** (3,500,000.00 class A shares * 25) + (150,000 class B shares *1) / ((10,000,000*25) + (18, 000, 000.*1))*100= 32.4%

**Control –ownership Wedge =** 51.2 % / 21.4 %=2.39

Founded on the above calculations, the Tool family holds approximately 51.2% control rights and only 21.4 % cash-flow rights at Tools & Tools (Plc.) Ltd. In addition, the control-ownership wedge ratio is approximately 2.39. In consequence, the control-ownership wedge ratio indicates that the majority shareholders (D Tool and Y Tool), use their control rights (51.2%) to make decisions on behalf of minority shareholders, even though they have low cash-flow rights (21.2%) in the firm (Bebchuck *et al.,* 2000).

Furthermore, firm founders averse to using leverage prefer this firm structure as it enables them to maintain their control when the firm expands (Kang, Cheng and Gray, 2007). Consequently, this structure guarantees that the firm's founder(s) (like the Tools) reap most of the rewards, thus, expropriating the wealth of the other minority shareholders.

Nevertheless, this control enhancing structure has gained popularity in South African firms (Bebchuk *et al.,* 2000). The next section discusses the cross-ownership control enhancing mechanism.

### 4.3.2 Cross-ownership

As aforementioned, cross-ownership is one of the three mechanisms to determine the incidence of the separation of ownership and control in firms. Cross-ownership arises when majority shareholder X holds shares in other firms. The following example illustrates how the cross-ownership structure defines the degree of the separation of ownership and control in firms (Bebchuk *et al.,* 2000).

Suppose Fama is a majority shareholder in firm A which owns a majority stake (51%) in firm B. Correspondingly, firm B owns a controlling stake (51%) in firm C. Firm C owns 20% of firm A. From the preceding example, one can notice that Fama indirectly controls firm C, because of his majority shareholding in firm B (Bebchuk *et al.,* 2000). By the same token, Fama controls firm C, because firm C holds only 20% in firm A.

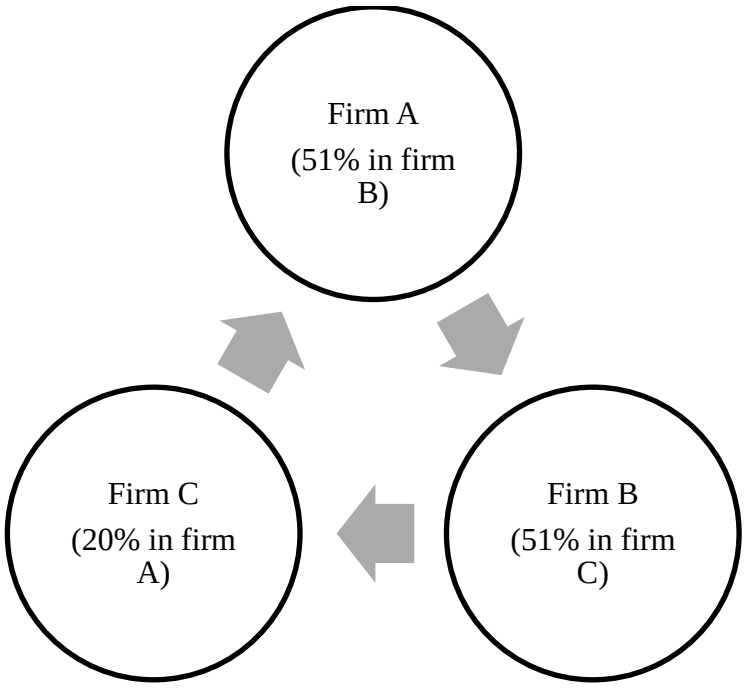



**Figure 4.1: The cross-ownership structure**

According to Bebchuk *et al.* (2000) the cross-ownership structure provides a stable source of funding for the firm, by ensuring that the partners will be stable investors. However, like the dual-class shares structure, the cross-ownership structure encourages the expropriation of the minority shareholders' wealth (firm C) (Bebchuk *et al.,* 2000). Additionally, the shares that are crossly held by a firm are hardly ever listed on the stock exchange (Li & Shinsuke, 2009).

### 4.3.3 Pyramid structures

The pyramid structure in firms can be considered as a control-enhancing mechanism. In pyramidal firms, the controlling shareholder uses his cash-flow rights to indirectly control a firm's subsidiaries (Chun-ling *et al.,* 2013). According to Bebchuk *et al.,* (2000), compared to the dual-class shares and cross-ownership, the pyramid structures are the most common mechanisms for the separation of ownership and control. As a result, this study utilises the pyramid structure as to gauge the degree of the separation of ownership and control in Sub-Saharan firms, particularly, Kenya, South Africa and Nigeria.

Following Edwards and Weichenrieder (2009) and Morck (2009), the firms (X firms) with the largest shareholders (ultimate owner) who hold more than 10 percent of the firms' shares are identified in the sample. Afterwards, the firms (Y) owned by firm X will be identified.

Like Edwards and Weichenrieder (2009), the largest shareholder's control rights are measured by the number of shares the shareholder holds in firm X. Additionally, the cash-flow rights are calculated by multiplying the number of shares the ultimate owner (largest shareholder) holds in firm X and Y. Consequently, the deviation between the control rights and cash flow rights help determine the control-ownership wedge ratio (Lotto, 2015). The control–ownership wedge ratio is calculated (i.e. the control rights to cash-flow rights ratio) and used to measure the effect of the separation of ownership and control on firm leverage, in Sub-Saharan Africa (Edwards & Weichenrieder, 2009).

Overall, the control rights represent the largest shareholder's voting rights (who hold more than 10 percent of shares in firm X). In addition, the cash flow rights refer to shares held

indirectly by the largest shareholders (ultimate owners in firm Y). The next section discusses the dependant, independent and control variables used to achieve this study.

## 4.4 DEPENDANT VARIABLES

### 4.4.1 Leverage

The capital structure of a firm refers to the combination of debt and equity financing (Myers & Maljluf, 1984). In addition, a firm is presumed to be levered if it has debt in its capital structure (Elsas & Florysiak, 2008). The reverse is true that a firm with no debt financing is not levered.

Numerous studies use leverage to measure capital structure (Abor, 2008; Forsberg, 2004; Masnoon & Anwar, 2012). Accordingly, this study uses leverage (as a dependent variable) to measure capital structure.

There are two distinct types of leverage. The first is the operational leverage representing a firm's operating risks and costs (i.e. the trade-off between fixed and variable operational costs in the firm) (Hillier, Ross, Westerfield & Jaffe, 2013). The second is the financial leverage which represents the degree to which a firm uses debt financing to fund its investments. Comparable to the operational leverage, the financial leverage represents the trade-off between the fixed and variable debt costs that firms face. Therefore, summing up these two forms of leverage is equal to the total leverage. Nonetheless, this study utilises the financial leverage, because the operational leverage is not observable using market or accounting data, owing to the unavailability of direct measures (Novy-Marx, 2007).

According to Rajan and Zingales (1995), there are six ways of measuring firm leverage. One can use the total liabilities over total assets ratio. This ratio is used to measure the aggregate assets that the shareholders retain in case of bankruptcy. Nevertheless, this measure is

backward looking since it does not forecast the future default risk. Additionally, this measure overstates leverage since the total liabilities include the accounts payable.

As a result, the total debt to total assets ratio could be used to measure leverage. Unlike the total liabilities to total assets ratio, this measure excludes the accounts payable when computing leverage. Therefore, this ratio is a good measure of leverage. Nonetheless, Rajan and Zingales (1995) argue that this measure is affected by the level of trade credit.

Accordingly, the total debt to net assets ratio is a better method to estimate firm leverage because it does not include trade credit and the accounts payable (Rajan & Zingales, 1995). Nevertheless, this ratio is affected by non-financial factors such as pension liabilities.

Owing to the drawbacks of the total debt to net assets ratio, the earnings before interest (EBIT) and tax to net interest expense ratio can be used to measure leverage (Rajan & Zingales, 1995). Interestingly, the ratio can capture the risk or probability of default on the loan. The drawback of this measure is that it assumes that the creditors will roll over the short-term debt. Consequently, the earnings before interests and tax, depreciation and amortization (EBITDA) to interest expense ratio is used to measure firm leverage. Even so, the EBITDA to interest expense ratio also assumes that the creditors will roll over the short-term debt. Thus, one can use the total debt over capital ratio to measure firm leverage. This method is unique in the sense that it best represents past financing decisions.

According to Rajan and Zingales (1995), researchers have difficulties when it comes to choosing the best measure of leverage. Based on the discussion above, this study uses the total debt to capital ratio to measure leverage, since it has no drawback compared to the other five measures. Equally important, this ratio can capture past financing decisions. For that reason, it captures the firms' capital structure decisions from 2006 to 2017.

## 4.5 INDEPENDENT VARIABLES

This study uses two independent variables, specifically the separation of control rights and cash flow rights and a large board size. Thus, this section discusses how the two variables are measured in the study.

### 4.5.1 Separation of control rights and cash flow rights.

The control wedge ratio is used to measure how the degree of separation of ownership and control affects capital structure (Lotto, 2015). The control rights of ownership represent the majority voting rights, or the percentage of shares held by the largest shareholders in a firm (Chappelle & Szafarz, 2005). The cash-flow rights represent the ultimate ownership of the largest controlling shareholders in subsidiaries (Edwards & Weichenrieder, 2009). As discussed in section 4.3, this study uses the two-tier pyramid structures in firms, to explore the effect of separating ownership from control on firm leverage (Bebchuk *et al.,* 2000).

### 4.5.2 A large board and firm leverage

Badu and Appiah (2017) argue that large firms are characterised by the separation of ownership and control, owing to the dispersed ownership structures. Additionally, the authors posit that large dispersed firms have a large board size. In the same trail, Chepkowny (2015) contends that a large board controls a firm when its shareholders are dispersed. And so, to examine the effect of a large board size on dispersed firms' leverage, this study considers the measures of a large board size from past research.

Pamburai, Chamisa, Abdulla and Smith (2015) observe that most South African boards comprise 10 members. Ogbechie and Koufopoulos (2010) observe that large Nigerian boards comprise approximately 20 members. Founded on the above discussion, this study assumes that a large board comprises 10 members, in order to accommodate South African firms.

Following Chepkowny (2015) and Steyn and Stainbank (2013), this study assumes that the sampled firms with dispersed (minority) shareholders owning less than 10 percent firm shares are controlled by a large BOD comprising a minimum of 10 members. In other words, the large boards make capital structure decisions on behalf of the minority shareholders. Hence, dispersed firms controlled by a minimum of 10 directors are identified and used in this study.

In addition to the independent and dependent variables used in this study, firm and country-specific factors such as profitability, asset tangibility, growth opportunities, tax, firm size, and stock market development are used as the control variables. Thus, the next section provides a summary of how these control variables are measured to achieve this study.

### 4.5.3 Control Variables

As aforementioned, this section presents the control variables used in this study. The control variables are measured based on the methodologies from past research. Table 4.1 below presents a summary of how the control variables will be measured in this study.

Table 4.1: Summary of the control variable measurements.

| VARIABLE | MEASURE | ADAPTED FROM |
|---|---|---|
| **Firm size** | The natural log of total assets | Rajan and Zingales (1995) |
| **Profitability** | The return on assets (ROA) | Lotto (2015) |
| **Growth opportunities** | The market to book ratio | Booth *et al.*,(2001); Mahakud (2006) |
| **Asset Tangibility** | The fixed assets to total assets | Degryse *et al.*, (2012); Skoogh (2015) |
| **Tax** | The average tax paid by businesses as a percentage of the profits earned | Chipeta and Deressa (2016) |
| **Stock Market Development** | The ratio of the stock market capitalization to GDP | Kayo and Kimura (2017) |

In conclusion, this section provides presents the dependent, independent and control variables used to examine the effect of the separation of ownership and control on firm leverage. Firm leverage is used as the dependent variable of this study. This study uses the total debt to capital ratio is used to measure leverage, because it captures the past financing decisions (Rajan & Zingales, 1995).

Additionally, two independent variables (i.e. the control wedge ratio and a large board size) are used to measure the effect of the separation of ownership and control on firm leverage. Lastly, firm and country-specific factors (i.e. size, tax, profitability, growth opportunities, asset tangibility and stock market development) are used as control variables in this study. Using the discussed variables, this study employs panel data regressions to examine the effect of the separation of ownership and control on firm leverage in Sub-Saharan Africa.

## 4.6 REGRESSIONS

To analyse data, panel data regressions are used **(**Gwatidzo & Ojah, 2009). Panel data has been used in numerous studies to examine the effect of the separation of ownership and control **(**Chipeta *et al.,* 2012). According to Gujarati (2003) and Hsiao (2007), a lot of research uses panel data because:

- there is bound to be heterogeneity in the panel data units, which is used for individual-specific variables,
- panel data combines the time series and cross-section observations,
- panel data gives more variability, information, the degree of freedom, efficiency, and less collinearity (i.e. the explanatory variables are either perfectly or imperfectly correlated to each other) amongst variables,
- panel data separate specific and time effects,
- panel data helps minimise the bias in the results of aggregating individuals or firms into broader aggregates for the availability of several thousand units of data.

In sum, this study examines the effect of the separation of ownership and control in different firms, hence, there is bound to be heterogeneity. Therefore, the use of panel data controls for heterogeneity that cannot be captured by using cross-section data (Wooldridge, 2010). The next section reviews the different approaches that can be used to estimate the panel data regression models.

### 4.6.1 Estimation of panel data regression models.

This section discusses the approaches that can be used to estimate panel data regression models. The Fixed effects model, Random effects model, Tobit model and the Generalized method of moments (GMM) (Gujarati, 2003).

**The Fixed effects model**

The fixed effects model assumes that the same individuals (variables) are observed for the span of the study (Torres-Reyna, 2007). In addition, the fixed effect approach assumes that each individual has time-invariant variables which are not correlated with other individual variables (Gujarati, 2003). Thus, each individual has a distinct error term and constant, that is not correlated with the other individuals (Torres-Reyna, 2007). Nevertheless, the fixed effects model does not take into account the time-invariant variables (Gwatidzo & Ojah, 2009). Once more, the fixed effects model suffers from a large loss of the degree of freedom.

**The Random effects model**

The Random effect model assumes that the individual error terms are correlated, thus, the random effects approach is suitable (Gujarati, 2003). Additionally, owing to the uncorrelated error terms, the time-invariant variables become explanatory variables (Torres-Reyna, 2007). Unlike the fixed effects model, the advantage of the random effects model is that it takes account of the time-invariant variables, which are absorbed by the fixed effects model (Hsiao, 2007). In addition, the random effects model moderates the loss of the degree of freedom triggered by the fixed effects model (Gwatidzo & Ojah, 2009).

Nevertheless, one most frequently encountered challenge is the choice between the two models (Towsend, Buckley, Harada & Scott, 2013). Green (2010) suggests that researchers run a Hausman test, in order to choose the most appropriate model (Torres-Reyna, 2007). The null hypothesis is that the random effects model is used if the test output indicates that the unique errors are correlated with the regressors (Torres-Reyna, 2007). The alternative hypothesis is that the fixed effects model is used if the unique errors are uncorrelated with the regressors. One advantage of the two approaches (i.e. the random effects and the fixed effects model) is that they control for the time-invariant omitted variables (Zhu *et al.*, 2010).

**The Censored Tobit Model**

The censored Tobit model is based on the assumption of normality (Wooldridge, 2010). The model is applied to data censoring, where an underlying response variable satisfies the linear model (Aguiar-Moya & Prozzi, 2014). The model comprises a latent variable $y^*$ that does not involve binary dependent variables (Greene, 2010). The following equation is used to estimate the latent variable;

$$y^* = \boldsymbol{x}_{it}\beta + u_i,\ u_i|\boldsymbol{x}_{it} \sim \text{Normal}\ (0,\sigma^2) \quad (1)$$

Where;

$\beta$ = model parameters to be estimated,

$\boldsymbol{x}_{it}$ = independent variables,

$u_i$, = unobserved factors that are not explicitly included in $\boldsymbol{x}_{it}$ but that have an effect on $y_i$

Equally important, the model uses the Maximum likelihood estimate (MLE), to estimate both $\beta$ and $\sigma$ (Greene, 2010). The $\beta$ in the model estimates the effect of $\boldsymbol{x}_{it}$ on $y^*$ and not $y_{it}$. Nevertheless, the researchers are only interested in variable $y_{it}$ ($y_{it}$=max (0, $y^*$)) which denotes a given time observation (Wooldridge, 2010). In addition, the variable $y_{it}$ is not correlated with error term $u_i$, hence it is not exogenous (Greene, 2010).

One advantage of the censored Tobit model is that it accounts for heteroskedasticity, denoting that the variance changes with $\boldsymbol{x}_{it}$ (Aguiar-Moya & Prozzi, 2014). Nevertheless, the shortcoming of the Tobit model is that it is vulnerable to the violations of the OLS model, even though it makes assumptions about the error distributions (Wooldridge, 2010). Moreover, the standard errors in an OLS model with heteroskedastic errors can be very small.

**The GMM model**

The generalized method of moments (GMM) estimation model is used to eradicate endogeneity caused by the explanatory variables (Wooldridge, 2010). Unlike the MLE, the GMM model specifies the moments derived from an underlying model in addition to not considering the probability distribution of the data (Aguiar-Moya & Prozzi, 2014). Furthermore, the GMM model combines the observed data with the information in population moment conditions, to produce estimates of the unknown parameters in a model (Greene, 2010).

One advantage of the GMM estimators is that the non-linearity of the data does not affect the model (Aguiar-Moya & Prozzi, 2014). Correspondingly, the model is robust to heteroskedasticity and distributional assumptions (Greene, 2010). Moreover, the GMM model is flexible since it accounts for the unbalanced panels and multiple endogenous variables (Wooldridge, 2010).

In sum, this section reviews the four approaches that may be used to estimate the panel data regression models. The choice of the model to be employed in this study depends on the nature of the data (Gwatidzo & Ojah, 2009).

***Regression equations***

***The separation of ownership and control on firm leverage***

$$LEV_{i,t} = \alpha_i + \beta_1 OWN_{i,t} + \beta_2 PROF_{i,t} + \beta_3 FSZ_{i,t} + \beta_4 GROW_{i,t} + \beta_5 ASST_{i,t} + \beta_6 TAX_{i,t} + \beta_7 STK_{i,t} + \varepsilon_{i,t} \quad (2)$$

***Large board size and firm leverage***

$$LEV_{i,t} = \alpha_i + \beta_1 LBDSZ_{i,t} + \beta_2 PROF_{i,t} + \beta_3 FSZ_{i,t} + \beta_4 GROW_{i,t} + \beta_5 ASST_{i,t} + \beta_6 TAX_{i,t} + \beta_7 STK_{i,t} + \varepsilon_{i,t} \quad (3)$$

***Where;***

$\alpha_i$ = Alpha of asset or portfolio *i.*

$LEV_{i,t}$ = Leverage at time *t.*

$OWN_{i,t}$ = Cash-flow rights of the largest shareholder, control rights of the largest shareholder or the control-ownership wedge (cash flow right /control rights).

$LBDSZ_{i,t}$ =A large board size with more than 10 members at time *t.*

$PROF_{i,t}$ = Profitability at time *t.*

$FSZ_{i,t}$ = Firm Size at time *t.*

$GROW_{i,t}$ = Growth opportunities at time *t.*

$ASST_{i,t}$ =Asset Tangibility at time *t.*

$TAX_{i,t}$ = The average tax paid by businesses at time *t.*

$STK_{i,t}$ =Stock market development at time *t*

## 4.7 CONCLUSION

In conclusion, this section clarifies the methodology used to examine the separation of ownership and control of capital structure, in detail. Thus, the next chapter discusses regression output from the appropriate estimation models discussed in this chapter.

# CHAPTER 5

# EMPIRICAL RESULTS

## 5.1 INTRODUCTION

This chapter looks at the statistical analysis of the data. The chapter is organised as follows. Section 5.2 looks at the effect of the separation of ownership and control on firm leverage. Section 5.2.1 reports the descriptive statistics generated from the basic statistical tests on the data. Section 5.2.2 reports the correlation tests on all the independent variables used in the study. Section 5.2.3 reports the unit roots test results. Section 5.2.4 reports and discusses the panel data regression results. Section 5.3 looks at the effect of a large board (in dispersed firms) on firm leverage. Thus, Section 5.3.1 reports the descriptive statistics generated from the basic statistical tests on the data. Section 5.3.2 reports the correlation tests on all the independent variables used in the study. Section 5.3.3 reports the unit roots test results. Section 5.3.4 reports and discusses the panel data regression results. Section 5.4 concludes the chapter.

## 5.2 THE SEPARATION OF OWNERSHIP AND CONTROL

### 5.2.1 Descriptive statistics

The descriptive statistics of both the dependent and the independent variables used to test the effect of the separation of cash-flow rights and control rights are presented in Table 5.1 below. The results indicate that on average, Kenyan; Nigerian and South African firms are financed by 26.6%, 38.5% and 25.2% debt respectively. Additionally, Nigeria has the most leveraged firms (with a maximum of 1.759) compared to South African and Kenyan firms (with a maximum of 0.846 and 0.801 respectively). The variance in the countries' debt levels could be explained by the standard deviations. As expected, Nigeria has the highest standard deviation while South Africa has the lowest.

## Table 5.1: Summary statistics for the dependent and all the independent variables

| | | Country | | |
|---|---|---|---|---|
| **Variable** | **Statistic** | **Kenya** | **Nigeria** | **South Africa** |
| **Size** | Mean | 12.83 | 13.40 | 14.47 |
| | Std. Dev. | 1,898 | 1.504 | 1.472 |
| | Min | 10,18 | 11.51 | 11.36 |
| | Max | 16,01 | 15.77 | 16.76 |
| **ROA** | Mean | 0.151 | 0.103 | -0.0829 |
| | Std. Dev. | 0,106 | 0.229 | 1.176 |
| | Min | 0 | -0.654 | -8.683 |
| | Max | 0,354 | 0.598 | 0.606 |
| **Growth opp** | Mean | 426.9 | 36.06 | 2.078 |
| | Std. Dev. | 899,3 | 146.8 | 2.068 |
| | Min | 0 | 0 | 0.128 |
| | Max | 2,948 | 763.2 | 10.38 |
| **Asset Tang** | Mean | 0.508 | 0.463 | 0.360 |
| | Std. Dev. | 0,711 | 0.281 | 0.249 |
| | Min | 0,15 | 0.0732 | 0.00537 |
| | Max | 4,263 | 0.890 | 0.940 |
| **Tax** | Mean | 0.3 | 0.32 | 0.28 |
| | Std. Dev. | 0.52 | 0.41 | 0.21 |
| | Min | -0.34 | -0.09 | -0.97 |
| | Max | 3.06 | 2.52 | 0.56 |
| **STK** | Mean | 33.85 | 15.94 | 207.1 |
| | Std. Dev. | 5,923 | 9.393 | 71.87 |
| | Min | 25,35 | 0.610 | 203 |
| | Max | 45,16 | 35.47 | 255.6 |
| **Leverage** | Mean | 0.266 | 0.358 | 0.252 |
| | Std. Dev. | 0,312 | 0.397 | 0.211 |
| | Min | 0 | 0 | 0 |
| | Max | 0,801 | 1.759 | 0.846 |
| **CW** | Mean | 1.923 | 3.665 | 2.046 |
| | Std. Dev. | 0,589 | 2.048 | 1.021 |
| | Min | 1,018 | 1.185 | 1.011 |
| | Max | 2,528 | 7.463 | 5 |
| **CF** | Mean | 0.246 | 0.156 | 0.160 |
| | Std. Dev. | 0,145 | 0.111 | 0.0918 |
| | Min | 0,0921 | 0.0507 | 0.0446 |
| | Max | 475 | 0.439 | 0.534 |

Notes: **Leverage** is the ratio of total debt to total capital. **CF** is the product of multiplying the control rights by the shares held by the principal firm in subsidiaries. **CW** is the ratio of control rights to cash-flow rights (CF). **Asset Tangibility (Asset Tang)** is calculated as the ratio of fixed assets to total assets. **ROA** (return on assets represents the profits generated by a firm. **Growth** (growth opportunities) is calculated as the ratio of market value of equity to the book value of equity. **Tax** is calculated as the ratio of taxes paid to earnings before tax. **Size** is calculated as the natural log of total assets. The **Stock market development (STK**) is calculated as the ratio of stock market capitalisation to GDP.

A possible reason for the low debt levels in South African firms submits that firms prefer equity than debt finance. Consequently, the descriptive results show that South Africa has the most developed stock market (i.e. a stock market capitalisation to GDP ratio of 207.1) compared to the other two countries (with stock market capitalisation to GDP ratios of 33.5 and 15.94 respectively). These findings are supported by the high standard deviation in South Africa (71.87), indicating that its stock market is more developed than the other sampled countries. The highly developed South African stock market (or high stock market capitalisation) suggests that there is a high supply of low-priced equity that is accessible to all firms. This is consistent with De Jong *et al.,* (2008). The results further confirm that on average, Nigerian firms are highly leveraged due to the underdevelopment of their stock market (with a stock market capitalisation to GDP ratio of 15.94 and a maximum of 35.47). For that reason, the results imply that most Nigerian firms prefer cheaper debt financing. This is consistent with Chipeta *et al.,* (2012) for South African firms.

On average, Kenyan firms are small (i.e. 12.83) compared to the ones in South Africa and Nigeria (i.e. 13.4 and 14.7 respectively). These findings are supported by the almost similar standard deviations for Nigerian and South African firms (i.e. 1.504 and 1.472 respectively). Consequently, the results confirm that the creditors consider the collateral and not the size of a firm when granting loans since the smaller Kenyan and Nigerian firms have more tangible assets (i.e. 51% and 46% respectively) and are more leveraged compared to the bigger South African firms with only 36% tangible assets. These results are consistent with Chadha and Sharma (2015)'s findings in Indian firms.

In addition, the descriptive results show that most leveraged Kenyan and Nigerian firms are more profitable with an ROA of 15% and 10% respectively. It is not surprising that the low leveraged South African firms the less profitable (with a low ROA equal to -8%). These results suggest that the creditors consider profitability when granting loans to SSA firms. This is consistent with Deari (2009). Likewise, the descriptive results recommend that the financial institutions consider firms' growth opportunities when offering loans, further confirming the findings of Deari (2009). On average, Kenyan firms have the highest growth opportunities (i.e. a market to book value ratio (MB/BV) of 426.9, with a maximum of 2,948) followed by Nigerian firms (with a maximum MB/ BV ratio of 763.2). As expected the

underleveraged South African firms have the lowest growth opportunities. This implies that SSA growth firms have high debt levels in order to expand. This is consistent with Ganiyu and Abiodun's (2012) findings for Nigerian firms.

Furthermore, the results indicate that, on average, Nigerian firms are taxed about 2 to 4 percent more than the other sampled countries. The high levels of tax indicate that Nigerian firms are highly leveraged to take advantage of the of tax deductibility. This is consistent with Mutenheri and Green (2003) and Gwatidzo and Ojah (2009)'s findings for firms in Zimbabwe and South Africa.

Most importantly, the descriptive results suggest that all the sampled countries are characterised by the separation of ownership and control. The control wedge ratio (CW) indicates that most Nigerian firms are the highly separated (i.e. 3.665 control rights to 1 cash-flow right) followed by South African and Kenyan firms with an average control ownership ratio of 2.046 and 1.923 respectively. These results confirm the first hypothesis that Sub-Saharan firms are characterised by the separation of ownership and control and corroborates the findings of Steyn and Stainbank (2013) that South African firms are characterised by the SOC. In addition, the results indicate that the most and least separated firms are found in Nigeria and Kenya respectively. Adapted from Lotto (2015), these findings imply that the least separated Nigerian and Kenyan firms are underleveraged. In other words, there is bound to be a positive relationship between the separation of ownership and control (control-ownership wedge ratio) and firm leverage in most SSA firms.

The descriptive results further indicate that, on average, the large controlling shareholders have low cash-flow rights in subsidiaries (i.e. 24.6%, 15.6% and 16% in Kenya, Nigeria and South Africa respectively). These findings imply that the Nigerian firms' subsidiaries are the most leveraged for the reason that the large controlling shareholders use debt to satisfy their private interests at the expense of the minority shareholders. This finding is consistent with Lotto (2015)'s findings in UK firms. Furthermore, the results indicate that the largest Kenyan shareholder has more than 100% cash-flow rights (i.e. 476%) in subsidiaries, whilst a large shareholder with the lowest cash-flow rights (i.e. 4.46%) is found in South African (i.e. 5%

cash-flow rights). The results imply that the large Kenyan shareholders with high cash-flow rights do not use debt to expropriate the wealth of the minority shareholders. This evidence confirms the findings of Claessens *et al.,* (2002) for East Asian corporations.

### 5.2.2 Correlation tests

In order to assess the extent to which the independent variables are correlated, a correlation matrix of all the independent variables for each country is constructed. The correlation results are presented in Table 5.2. As expected, the correlation for the cash-flow rights (CF) and the control-ownership ratio (CW) variable is negative. The results designate that, the lower the cash-flow rights, the higher the control ownership wedge ratio. This is consistent with Lotto (2015).

Additionally, the correlations for CF, CW, tax, growth and size are positive for all the countries. As predicted by the trade-off theory, the results suggest that the largest controlling shareholders exert pressure on the large sampled firms (or subsidiaries) to borrow more, in order to exploit the firms' high growth opportunities. The reverse is true for large controlling shareholders in small firms (Bebchuk *et al.,* 2000). As expected the large sampled firms are taxed less because the large controlling shareholders exert pressure on the subsidiaries to borrow more, in order to take advantage of the interest tax deductibility. This result is consistent with the findings of Mutenheri and Green (2003) and Gwatidzo and Ojah (2009) for firms in Zimbabwe and South Africa.

The correlation between the profitability (ROA) and cash-flow rights variables is negative for Nigeria and South Africa, and it is positive for Kenya. The results from the two countries (i.e. negative correlation between profitability and cash-flow rights) suggest that the large controlling shareholders with low cash-flow rights maximise the value of SSA firms (as well as their profits). This finding is inconsistent with Yeh *et al.,* (2001) s' findings for firms in China. On the other hand, the coefficient for the profitability and separation of ownership and control variable (CW) is positive for South Africa and Kenya and negative for Nigeria. The results suggest that the firms characterised by the separation of ownership and control are profitable and perform well, hence, the creditors are willing to lend more. This corroborates

the findings of Lotto (2015) that the bigger the gap between the cash-flow rights and control rights, the more debt finance.

**Table 5.2: Correlation matrices for variables used**

**Panel A: Correlation matrix for Kenya variables**

| | ROA | Tax | Growth | CF | CW | Size | AT | STK |
|---|---|---|---|---|---|---|---|---|
| **ROA** | 1 | | | | | | | |
| **Tax** | 0.743*** | 1 | | | | | | |
| **Growth** | 0.573*** | 0.855*** | 1 | | | | | |
| **CF** | 0.69*** | 0.771** | 0.821*** | 1 | | | | |
| **CW** | 0.688*** | 0.711*** | -0.77*** | -0.747 | 1 | | | |
| **Size** | 0.705*** | 0.882*** | 0.714*** | 0.798*** | 0.615*** | 1 | | |
| **AT** | 0.117 | -0,.02 | 0,.027 | -0.1 | -0.979 | -0.144 | 1 | |
| **STK** | -0.172 | -0.05 | -0.456** | -0.221 | 0.445 | -0.0144 | 0.135 | 1 |

**Panel B: Correlation matrix for South Africa variables**

| | AT | CF | CW | Growth | ROA | STK | Size | Tax |
|---|---|---|---|---|---|---|---|---|
| **AT** | 1 | | | | | | | |
| **CF** | 0,658*** | 1 | | | | | | |
| **CW** | -0,592*** | -0,505*** | 1 | | | | | |
| **Growth** | -0,0322 | 0,042 | 0,063 | 1 | | | | |
| **ROA** | -0,182 | -0,086 | 0,147 | 0,152 | 1 | | | |
| **STK** | -0,120 | -0,023 | 0,102 | -0,142 | 0,141 | 1 | | |
| **Size** | 0,421*** | 0,138 | 0,0352 | -0,337*** | -0,120 | 0,192 | 1 | |
| **Tax** | 0,126 | 0,245*** | 0,120 | 0,132 | 0,183 | 0,134 | 0,440*** | 1 |

**Panel C: Correlation matrix for Nigeria variables**

| | AT | CF | CW | Growth | ROA | STK | Size | Tax |
|---|---|---|---|---|---|---|---|---|
| **AT** | 1 | | | | | | | |
| **CF** | -0,075*** | 1 | | | | | | |
| **CW** | 0,609*** | -0,621*** | 1 | | | | | |
| **Growth** | 0.037 | 0,051 | 0,12 | 1 | | | | |
| **ROA** | -0,666*** | -0,006 | -0.516* | -0.066** | 1 | | | |
| **STK** | -0,326 | -0,224 | -0.382* | -0,215 | 0,208 | 1 | | |
| **Size** | 0,771*** | 0,165 | 0,176 | -0,352* | -0,363 | -0.073 | 1 | |
| **Tax** | 0,056 | 0,582*** | -0.421*** | 0,217 | 0,191 | 0,432 | 0,158*** | 1 |

Notes: The tables in Panel A, B and C report the country by country correlation matrix results for all the variables used in this study. The variables are as defined in the notes to Table 5.1. P-values are in parentheses and ***, **,* specify levels of significance at the 1%, 5% and 10% levels respectively.

The highest correlation is between size and the tax variable in Nigeria. Nevertheless, the VIF test depicts that there is no multicollinearity between all the variables. In addition, the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity indicates that multicollinearity is not a problem (see Appendix A).

### 5.2.3 Unit root tests

This section discusses the results captured by the Augmented Dickey-Fuller (ADF) Unit Root tests on all the dependent and independent variables used in this study. The null hypothesis of the ADF test depicts that the variables have a unit root, whilst the alternative hypothesis is that the variables have no unit root.

**Table 5.3: Unit root tests**

| | ***t-statistic*** | | |
|---|---|---|---|
| **Variable** | **Kenya** | **Nigeria** | **South Africa** |
| **Leverage** | -2.47 ** | -5.51*** | -6.42 *** |
| **Asset Tang.** | -3.01** | -4.48*** | -4.83*** |
| **CF Rights** | -3.56** | -4.42*** | -3.13*** |
| **CW-Ratio** | -3.47** | -4.64*** | -3.65*** |
| **Growth opp.** | -2.14** | -4.72*** | -5.33*** |
| **Profitability** | -5.02*** | -4.49*** | -8.06*** |
| **Size** | -4.64*** | -3.32** | -6.55*** |
| **Tax** | -2.86*** | -3.48*** | -2.25** |
| **Stock Market** | -13.97*** | -12.65*** | 15.60*** |

Notes: This table reports the Augmented Dickey-Fuller unit root test results. The variables are as defined in the notes to Table 5.1. *t-statistics* are in parentheses and ***, **,* specify levels of significance at the 1%, 5% and 10% levels respectively.

The results in Table 5.3 indicate that the ADF test, *t-statistics* are significant at the 95 percent level. As a result, the null hypothesis that the variables have a unit root is rejected. Thus, the data is stationary. In addition, the above results indicate that the data is stationary with no differencing for all the countries, except for leverage and ROA which is stationary at the 1$^{st}$ level differencing.

Using the stationary data, panel data regressions are run to determine the effect of separating control rights from cash-flow rights on firm leverage in Sub-Saharan Africa. The next section discusses the empirical results.

### 5.2.4 Empirical results

This section mainly presents the regression results for the effect of separating ownership and control on firm leverage, in SSA. As mentioned in the methodology, the study utilises the best method based on the data set. Thus, both the Random and Fixed Effects models are run. Essentially, the Hausman test is conducted to determine the most appropriate model to use. The results of the Hausman test presented in Table 5.4 indicate that the Random Effects model is the most appropriate model to use, to examine both the effect of the separation of ownership and control and a large board on firm leverage.

As in previous studies such as Chipeta *et al.*, (2012), the Arellano and Bond (1991) Generalised Method of Moments (GMM) procedure is used to perform the robustness checks. The Sargan test of overidentifying restrictions is used to test the validity of instrumental variables. The null hypothesis is that the residuals are not correlated with the exogenous variables, assuming that the variables are actually exogenous. If the p-value is higher, the null hypothesis is accepted specifying that the instruments are valid. In addition, the Arellano and Bond (1991) test for zero correlation in the residuals is used to test for the lack of first and second order correlation. To confirm that there is no autocorrelation in the residuals, the null hypothesis should not be rejected in favour of the alternative hypothesis. Interestingly, Table 5.4 shows that the Sargan test of overidentifying restrictions and the test for the first order autocorrelation are satisfied. This suggests that the instruments are valid, thus, the GMM model is correctly specified. Consequently, Table 5.4 presents the regression output from the random effects model and the GMM model. It is interesting to note that the random effects model captures better results than the GMM model, therefore, this section discusses the random effects model regression output.

**Table 5.4: Regression results for the effect of the separating ownership and control on firm leverage**

| Variables | Random Effects Model | Difference GMM Model |
|---|---|---|
| **CF** | 2.68859*** | 2.72962** |
| | (4.38428e-01) | (0.672) |
| **CW** | 0.17603*** | 0.15268* |
| | (2.13753e-02) | (0.048) |
| **Size** | -0.07377*** | -0.07625** |
| | (1.63284e-02) | (0.013) |
| **STK** | 0.00059** | 0.00015 |
| | (2.41700e-04) | (0.000) |
| **ROA** | -0.00408 | -0.00502 |
| | (2.47424e-02) | (0.010) |
| **Tax** | 0.00000* | 0.00000 |
| | (1.58289e-07) | (0.000) |
| **Asset Tang** | -0.01717 | -0.06396 |
| | (4.95501e-02) | (0.048) |
| **Growth** | 0.00006 | 0.00008 |
| | (5.82133e-05) | (0.000) |
| **Constant** | 0.79982*** | |
| | (2.00899e-01) | |
| **Observations** | 113 | 105 |
| **R-squared** | 0.5048 | |
| **Number of countries** | 3 | 3 |
| **Prob >Chi2** | 0.00 | 0.00 |
| **Wald** | 109.1 | |
| **Hausman Test:** | | |
| **chi2(7)** | 3.49 | |
| **Prob> chi2** | 0.8363 | |
| **No. of instruments** | | 103 |
| **AR1 p-value** | | 0.12307 |
| **AR2 p-value** | | 0.30162 |
| **Sargan p-value** | | 0.2414 |

Notes: This table reports the Random effects model and Arellano-Bond difference GMM results for the effect of the separation of ownership and control on firm leverage. The variables are as defined in the notes to Table 5.1. P-values are in parentheses and ***, **,* specify levels of significance at the 1%, 5% and 10% levels respectively.

Table 5.4 reports the estimates for panel data regressions of the dependent variable leverage (total debt over total capital) on nine independent variables. As mentioned in the methodology, the sample comprises non-financial firms in Kenya, Nigeria and South Africa. Owing to the small samples, the data is aggregated to run regressions representing all the sampled firms in SSA. Equally important, the regressions are run on firms with large controlling shareholders owning 10 percent (or more) firm shares. The sample period is 2006 to 2017.

Table 5.4 reports that there is a positive and significant relationship between a large shareholder's cash-flow rights and firm leverage, at the 1 percent level. This finding implies that the lower the controlling shareholders' cash-flow rights, the higher the degree of the separation of ownership and control. In other words, an increase in the gap between the control rights and cash-flow rights (i.e. the control-ownership wedge ratio) results in an increase of debt finance in SSA firms.

In addition, the regression reports a positive significant relationship between the control-ownership wedge ratio (CW) and firm leverage. The relationship is statistically significant at the 1 percent significant level. Consequently, the positive relationship between the control-ownership wedge ratio (CW) and firm leverage confirms the second hypothesis that the separation of ownership and control positively affects firm leverage.

The coefficient of the firm size variable is negative and statistically significant, at the 1 percent significant level. These results postulate that the large sampled firms follow the pecking order when making financing decisions. This evidence suggests that SSA firms find it easier to issue fairly priced equity from their stock markets, thus reducing the need for debt (Sogorb-Mira, 2005; Rajan & Zingales, 1995). Consequently, these findings do not support the capital structure theory that the large less risky firms borrow more than small firms due to the low interests charged on debt by the creditors (Chipeta *et al.*, 2012). Another possible reason for the positive relationship between firm size and leverage could be that as SSA firms grow larger, they become more profitable and prefer internal financing. This preference of internal financing supports the findings of Kinyua and Muriu (2017) in Kenyan firms.

Interestingly, the regression results confirm a negative but insignificant relationship between profitability and firm leverage. Nonetheless, these findings confirm the pecking order theory postulating that Sub-Saharan creditors do not consider a firm's profits when granting loans. This finding is not consistent with Deari (2009). Another argument that arises from the evidence documented here is that SSA firms maximise profits which encourage them to rely more on internal financing (Elsas and Florysiak, 2008). There are several possible reasons why the sampled SSA firms would prefer internal financing (Gwatidzo and Ojah, 2009). Firstly, the use of retained earnings upholds a flexible financial structure. Secondly, internal finance deprives the outsiders of the firm's information. Thirdly, the use of internal financing reduces the monitoring of the firms' activities by the market. Lastly, the preference of

internal finance could be tied to the not so developed SSA bond markets. As a result, profitable SSA firms use less debt. These findings are consistent with Gwatidzo and Ojah (2009) for firms in Kenya and South Africa.

From the preceding discussion, one could argue that most SSA firms seek to retain profits in order to fund a firm's investment opportunities (Wahome, 2015). Consequently, the firms borrow more to shield their profits from the high taxes (Chipeta *et al.,* 2012). As anticipated, the regression results report a positive and statistically significant at 10 percent significant level coefficient of tax. These findings confirm the trade-off theory predictions (Elsas and Florysiak, 2008). As suggested earlier, the evidence proposes that in the mandate to retain most of the profits, the sampled SSA firms borrow more to avoid the high tax deductions. This finding is consistent with Mutenheri and Green (2003) results for Zimbabwean firms. Another argument on the positive relationship between corporate taxes and firm leverage is that the use of more debt finance ensures that an additional cost of financial distress is compensated by the value of an additional interest tax shield (Brealey *et al.,* 2003).

An argument arises from the preceding discussion that SSA firms borrow more to protect their profits from the high taxes. One possible reason for the high debt finance could be linked to the development of stock markets. Table 5.4 shows a positive significant relationship between the development of the stock market (STK) and firm leverage, at the 5 percent significance level. Founded on the descriptive results, the above findings were anticipated. One possible reason could be that the sampled SSA firms find it costly to raise equity financing through their developed stock markets. In consequence, the firms acquire debt finance from their highly developed financial systems associated with the development of stock markets (Demirguc-Kunt and Levine, 1996). The above finding is consistent with Chipeta *et al.,* (2012) for firms in South Africa.

In addition, the results indicate a negative insignificant relationship between asset tangibility (Asset Tang) and firm leverage. These findings suggest that the sampled countries are bank oriented implying that the firm-bank relations and not the tangible assets are considered when creditors offer loans (Booth *et al.,* 2001). This evidence corroborates the findings of Abor and

Biekpe (2005) in Ghanaian firms. However, these findings do not support Jensen and Meckling's (1976) argument that high tangible assets mitigate the agency costs of debt.

As predicted by the pecking order theory, Table 5.4 shows that the growth opportunities variable has a positive but insignificant relationship with firm leverage. This finding implies that the creditors in SSA do not consider a firm's growth opportunities when granting loans. These results corroborate the findings of Nunkooa and Boateng (2010) and Cassar and Holmes' (2003) for firms in Canada and Australia firms respectively. Nonetheless, the results do not support most of the empirical evidence in developing countries (Abor, 2008; Farooq, 2015; Ramjee and Gwatidzo, 2012).

Overall, the above results provide evidence to suggest that the large controlling shareholders use debt finance to expropriate the wealth of the minority shareholders for their private benefit as well as maintain the control of a firm. This finding is consistent with Lotto (2015) who finds a positive relationship between the control-ownership wedge ratio and firm leverage in UK firms. Therefore, one could argue that the use of debt financing by the large controlling shareholders with low cash-flow rights depressingly affects the value of the sampled SSA firms (Chun-ling, Jie and Huang, 2013; Watanabe, 2010). In other words, the above findings endorse that it is not advisable for the minority investors to invest in SSA pyramid firms because their interests are not protected (Laporta *et al.*, 1998).

As aforementioned, the Arellano and Bond (1991) Generalised Method of Moments (GMM) regression is employed to check for the robustness of the above results. Interestingly, the GMM regression results presented in Table 5.4 are consistent with the results generated by the Random effects model. The next section discusses the empirical results of the effect of a large board (in dispersed firms) on firm leverage.

## 5.3 THE EFFECT OF A LARGE BOARD ON FIRM LEVERAGE

This section deliberates on the empirical results of the effect of a large board (in widely held firms) on firm leverage. It is important to note that the Kenyan firms did not meet the sample

criteria discussed in the methodology. For that reason, this investigation comprises non-financial firms in South Africa and Nigeria.

### 5.3.1 Descriptive statistics

The descriptive statistics of both the dependent and the independent variables used to test the effect of a large board (in dispersed firms) on firm leverage are presented in Table 5.5 below. The results indicate that on average, Nigerian and South African dispersed firms are financed by 24%, and 11% debt respectively. A possible reason for these low debt levels could be that the minority shareholders prefer dividends as opposed to making the interests payments on debt (Rocca, Rocca & Gerace, 2008). Another argument for the low debt finance is that the large Nigerian firms have a high reputation which enables them to borrow more. The reverse is true that South African firms follow the pecking order by the use of internal finance to fund their investment opportunities. This finding is consistent with Gwatidzo and Ojah (2009)'s findings in Nigerian and South African firms.

Founded on the descriptive results, one could also argue that the South African sampled firms are underleveraged since they are able to access cheaper equity from their developed stock markets (STK) (with the stock market capitalisation to GDP ratio reaching as high as 255). On the contrary, it is safe to suggest that Nigerian firms are highly leveraged owing to their under-developed stock markets (with a maximum stock market capitalisation to GDP ratio of 35.47) which have a low supply of overpriced equity. The standard deviations further confirm that the sizes of the sampled countries stock markets are different (i.e. a standard deviation of 8.67 and 20.86 for Nigeria and South Africa respectively). The above results substantiate the findings of Farooq (2015) in Egyptian and Moroccan firms.

## Table 5.5: Summary statistics for all the dependent and independent variable.

| Variable | Country | | |
|---|---|---|---|
| | **Statistic** | **Nigeria** | **South Africa** |
| **Size** | Mean | 14.00 | 16.46 |
| | Std. Dev. | 2.91 | 11.58 |
| | Min | 12.96 | 9.92 |
| | Max | 14.78 | 20.39 |
| **ROA** | Mean | 0.29 | 0.21 |
| | Std. Dev. | 0.47 | 0.31 |
| | Min | -0.99 | -0.91 |
| | Max | 0.90 | 1.05 |
| **Growth opp** | Mean | 19.82 | 6.01 |
| | Std. Dev. | 32.96 | 4.53 |
| | Min | 0 | 0 |
| | Max | 120.66 | 17.68 |
| **Asset Tang** | Mean | 0.51 | 0.19 |
| | Std. Dev. | 0.31 | 0.21 |
| | Min | 0.05 | 0.087 |
| | Max | 0.88 | 0.82 |
| **Tax** | Mean | 0.32 | 0.30 |
| | Std. Dev. | 0.41 | 0.25 |
| | Min | -0.09 | -0.85 |
| | Max | 2.52 | 0.66 |
| **STK** | Mean | 17.82 | 226.0 |
| | Std. Dev. | 8.67 | 20.86 |
| | Min | 10.33 | 203 |
| | Max | 35.47 | 255.6 |
| **Leverage** | Mean | 0.24 | 0.11 |
| | Std. Dev. | 0.38 | 0.09 |
| | Min | 0 | 0 |
| | Max | 0.54 | 0.34 |
| **Large Board** | Mean | 13.92 | 11.03 |
| | Std. Dev. | 1.32 | 1.021 |
| | Min | 11 | 10 |
| | Max | 15.56 | 16 |

Notes: Leverage is the e ratio of total debt to total capital. Large Board represents a board of directors comprising more than 10 members. Asset Tangibility (Asset Tang) is calculated as the ratio of fixed assets to total assets. ROA (return on assets represents the profits generated by a firm. Growth (growth opportunities) is calculated as the ratio of market value of equity to the book value of equity. Tax is calculated as the ratio of taxes paid to earnings before tax. Size is calculated as the natural log of total assets. The Stock market development (STK) is calculated as the ratio of stock market capitalisation to GDP. t-statistics are in parentheses and ***, **,* specify levels of significance at the 1%, 5% and 10% levels respectively.

On average, South African dispersed firms are large (i.e. 16.46) compared to the ones in Nigeria (i.e. 14). In addition, the descriptive results indicate that the largest firms are found in South Africa (with a maximum natural log of total assets of 20.39). Surprisingly, it is in the same South Africa where the smallest firms are found (with a minimum natural log of total assets of 9.9). Moreover, the standard deviations further confirm the variation of the sampled firms' sizes (with a standard deviation of 2.91 and 11.58 for Nigerian and South African firms respectively). Overall, the descriptive results are inconsistent with the capital structure theory that large firms borrow more than small risky firms since the large South African firms have less leverage compared to smaller Nigerian firms. Another argument for these results could be that the large South African firms follow the pecking order, by their use of internal finance and cheaper equity from their developed stock markets. The evidence documented above corroborates the findings of Gwatidzo and Ojah (2009) for firms in Nigeria and South Africa.

Table 5.5 also reports that the creditors consider the asset structure of a firm when granting loans. On average, the more leveraged Nigerian firms are characterised by high tangible assets (i.e. a fixed assets to total assets ratio of 51%) compared to South African firms. In addition, the firms with the most concentrated asset structure are found in Nigeria. These results are consistent with Gwatidzo and Ojah's (2009) findings in Nigerian and South African firms.

In addition, the descriptive results document an ROA of 29% and 21% for South African and Nigerian firms respectively. Table 5.5 further shows that some South African firms generate more than 100 percent profits (with a maximum of 105%). Nonetheless, these findings are inconsistent with Gwatidzo and Ojah (2009) who find that South African firms can only generate up to 50 percent profits. Moreover, the results recommend that the creditors consider the profitability of firms when issuing loans since the most profitable Nigerian firms are highly leveraged (Deari, 2009).

The descriptive results further recommend that creditors also consider firm's growth opportunities when offering loans to SSA firms. This is consistent with Deari (2009). On average, the highly leveraged Nigerian firms have high growth opportunities (i.e. with

MB/BV ratios of 19.2, with a maximum of 120.66) compared to the large South African dispersed firms (with a maximum MB/BV ratio of 17.68). This variation of growth opportunities in the sampled countries is further supported by the different standard deviation (i.e. 32.96 and 4.53 for Nigeria and South Africa respectively). The evidence documented above proposes that Nigerian growth firms borrow more in order to expand (or exploit their growth opportunities), confirming the findings of Abor (2008) in Ghanaian firms.

Table 5.5 also reports that the Nigerian dispersed firms are taxed more (i.e. 2% more than South African firms). One possible explanation for this finding could be that Nigerian firms are highly leveraging in order to shield their profits from the high tax deductions.This finding confirms the trade-off theory and is consistent with (Modigliani and Miller, 1963).

Most importantly, the descriptive results suggest that on average Nigerian and South African dispersed firms are controlled by a large board comprising approximately 14 and 11 members respectively. The results further indicate that the sampled firms can be controlled by up to 16 board members. This evidence could imply that large boards effectively protect the interests of the minority shareholders when making capital structure decisions. Therefore, the need for debt finance (as a disciplinary device) is reduced. This finding is consistent with Heng and Azrbaijani (2012) findings for UK firms. The next section discusses the correlation tests for the sampled countries.

### 5.3.2 Correlation tests

In order to assess the extent to which the independent variables are correlated, a correlation matrix of all the independent variables for each country is constructed. The results are presented in Table 5.6. As expected, the coefficient for a large board and stock market development and growth opportunities variable is positive in all the sampled countries. The correlation between the stock market development and a large board variable is high in South Africa, due to its developed stock market (as indicated in the descriptive statistics). These results designate that large boards source cheaper equity from the stock markets. By so doing, the large boards satisfy the interests of the minority shareholders who are opposed to the

interest payment on debt. Therefore, one could argue that Nigerian and South Africa dispersed firms with large boards use low debt finance to protect the interests of the minority shareholders who expect dividend payments (Khan *et al.*, 2012).

Additionally, the positive relationship between a large board, growth opportunities and stock market development implies that a large board use the equity finance from the stock market to exploit growth opportunities. Similarly, the large board and profitability (ROA) and tax coefficients are positive in all the sampled countries. The results propose that Nigerian and South African dispersed firms controlled by a large board generate high profits; hence, they are taxed more due to the low debt levels required by the minority shareholders. This outcome confirms the trade-off theory and is consistent with Mutenheri and Green (2003)'s findings in Zimbabwean firms.

Furthermore, the results illustrate that the asset tangibility and large board coefficient is negative in the sampled countries. This finding suggests that SSA firms with large boards have a lower asset structure, implying that they have less collateral to source debt finance. Nonetheless, there is empirical evidence to suggest that large boards effectively monitor the actions of managers, thus, reducing the need for debt financing (Hussainey and Aljifri, 2012; Masood, 2013; Shahar, Adzis and Baderi, 2016). In other words, the role served by tangible assets is not significant when dispersed SSA firms are controlled by large boards. This finding is consistent with Abobakr and Elgiziry (2015) and Ogbulu and Emeni's (2012) findings in Nigerian and Egyptian firms respectively.

Furthermore, the coefficient for a large board and firm size is negative for the Nigerian firms. The reverse is valid for South African firms (as illustrated by the positive coefficient for a large board and firm size). Interestingly, the correlation results support the descriptive results that on average, Nigerian (dispersed) firms have larger boards compared to large South African firms. This evidence implies that most Nigerian sampled firms have high debt levels owing to the large boards which take time to reach a consensus (see descriptive results in Table 5.5). This evidence corroborates with findings of Anderson and Reeb (2003) for US firms.

**Table 5.6: Correlation matrices for variables used**

**Panel A: Correlation matrix for South Africa variables**

| | AT | Large Board | Growth | ROA | Size | STK | Tax |
|---|---|---|---|---|---|---|---|
| **AT** | 1 | | | | | | |
| **Large Board** | -0,237389 | 1 | | | | | |
| **Growth** | 0,38815* | 0,394613* | 1 | | | | |
| **ROA** | 0,048891 | 0,127338 | 0,193913 | 1 | | | |
| **Size** | 0,019341 | 0,700162*** | 0,615796*** | 0,243797 | 1 | | |
| **STK** | -0,188119 | 0,181258 | 0,250168 | -0,23995 | 0,184093 | 1 | |
| **Tax** | -0,262875 | 0,710387*** | 0,547062*** | 0,163602 | 0,817913*** | 0,134006 | 1 |

**Panel B: Correlation matrix for Nigeria variables**

| | AT | Large Board | Growth | ROA | Size | STK | Tax |
|---|---|---|---|---|---|---|---|
| **AT** | 1 | | | | | | |
| **Large Board** | -0,779289*** | 1 | | | | | |
| **Growth** | -0,397195 | 0,290778 | 1 | | | | |
| **ROA** | -0,275971 | 0,110782 | -0,04548 | 1 | | | |
| **Size** | 0,558716** | -0,548178** | -0,41585 | -0,261 | 1 | | |
| **STK** | 0,215275 | 0,005756 | -0,41919 | -0,2229 | 0,565164*** | 1 | |
| **Tax** | 0,491081* | 0,734751*** | -0,3264 | 0,28017 | 0,615575*** | 0,026329 | 1 |

Notes: The tables in Panel A and B report the country by country correlation matrix results for all the variables used in this study. The variables are as defined in the notes to Table 5.5. P-values are in parentheses and ***, **,* specify levels of significance at the 1%, 5% and 10% levels respectively.

Interestingly, the VIF test depicts that there is a multicollinearity problem between the firm and tax variable in both sampled countries (see Appendix B). However, the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity indicates that this multicollinearity problem does not affect the regression results (see Appendix B). The next section deliberates on the unit root tests.

### 5.3.3 Unit root tests

This section discusses the results captured by Augmented Dickey-Fuller (ADF) tests on all the dependent and independent variables used in this study. The null hypothesis depicts that the variables have a Unit Root, whilst the alternative hypothesis is that the variables have no unit root.

The results Table 5.7 results show that the ADF test, *t-statistics* are significant at the 95 percent level. Thus, the null hypothesis that the variables have a Unit Root is rejected. As a result, the data is stationary. In addition, the above results indicate that the data stationary at with no differencing, except for leverage.

**Table 5.7: Unit Root Tests**

| | ***t-statistic*** | |
|---|---|---|
| **Variable** | **Nigeria** | **South Africa** |
| Leverage | -6.01*** | -4.98*** |
| Asset Tang. | -3.87*** | -9.84*** |
| Board Size | -5.56*** | -6.27*** |
| Growth opp. | -8.82*** | -8.47*** |
| Profitability | -5.61*** | -7.10*** |
| Size | 6.67*** | 6.89*** |
| Tax | -3.47*** | -6.02*** |
| Stock Market | 14.17*** | 13.67*** |

Notes: This table reports the Augmented Dickey-Fuller unit root test results. The variables are as defined in the notes to Table 5.5. *t-statistics* are in parentheses and ***, **,* specify levels of significance at the 1%, 5% and 10% levels respectively.

Using the stationary data, panel data regressions are run to determine the effect of a large board (BOD) on firm leverage in Sub-Saharan Africa. The next section discusses the empirical results.

### 5.3.4 Empirical results

This section mainly presents the regression results for the effect of a large board (in dispersed firms) on firm leverage, in Sub-Saharan Africa. As mentioned in the methodology, the study utilises the best method based on the data set. Thus, both the random and fixed effects models are run. Essentially, the Hausman test is conducted to determine the most appropriate model to use. The results of the Hausman test presented in Table 5.8 below indicate that the random effects model is the most appropriate model to use to examine the effect of a large board (in dispersed firms) on firm leverage.

Following studies such as Chipeta *et al.,* (2012), the Arellano and Bond (1991) Generalised Method of Moments (GMM) procedure is used to perform the robustness checks. The Sargan test of overidentifying restrictions specifies that the instruments are valid (see section 5.2.4

for the null and alternative hypothesis). In addition, the Arellano and Bond (1991) test for zero correlation in the residuals confirms that there is no autocorrelation in the residuals (see section 5.2.4 for the null and alternative hypothesis). Accordingly, the validity of the instruments and lack of autocorrelation postulates that the GMM model is correctly specified.

Table 5.8 below presents the regression output from the random effects model and the GMM model. It is interesting to note that the random effects model captures better results than the GMM model, therefore, this section discusses the random effects model regression output. Nonetheless, the analysis report highlights the instance where the difference GMM model captures better results.

Additionally, Table 5.8 below reports the estimates for panel data regressions of the dependent variable leverage (total debt over total capital) on seven independent variables. As mentioned in the descriptive results, the sample comprises non-financial firms in Nigeria and South Africa. Due to the small samples, the data is aggregated to run regressions representing all the sampled firms. Equally important, the regressions are run on firms with large boards comprising a minimum of 10 members. The sample period is 2006 to 2017.

Table 5.8 reports that there is a negative but insignificant relationship between a large board and firm leverage. This evidence is consistent with Hewa Wellalage and Locke (2012) in Sri-Lankan firms. Interestingly, the robustness checks (i.e. the difference GMM) provide the same but significant results concerning the relationship between a large board and firm leverage, at the 1 percent level. The results recommend that firms with large boards have low debt levels, for the reason that a large board exerts pressure on managers to issue less debt in order to maximise a firm's value, thus, satisfying the interests of all the shareholders. In addition, the results could imply that large boards in the SSA firms take time to reach a consensus when making financing decisions, ensuring high debt levels in the capital structure. This is consistent with and Agyei & Owusu (2014) and Ganiyu and Abiodun's (2012) findings for Nigerian and Ghanaian firms.

As anticipated, Table 5.8 shows that the stock market development variable is positive and significant at the 1 percent level. This finding suggests that the sampled SSA's banking systems

are advanced owing to their developed stock markets (Demirguc-Kunt and Levine, 1996). As a result, SSA firms borrow more from banks as it is expensive to raise equity financing through their stock markets (Chipeta *et al.*, 2012). The evidence documented at this point confirms the pecking order theory prediction that SSA firms prefer the cheapest form of financing (Elsas and Florysiak, 2008). Nonetheless, the results are not consistent with Farooq (2015) who finds a negative relationship between the development of the stock market and leverage in Egyptian and Moroccan firms.

**Table 5.8: Regression results for the effect of a large board size (in dispersed firms) on firm leverage**

| Variables | Random Effects Model | Difference GMM Model |
|---|---|---|
| **Large Board** | -0.00517 | -0.01157** |
| | (1.42971e-02) | (0.002) |
| **STK** | 0.01557*** | 0.00638 |
| | (4.82898e-03) | (0.005) |
| **Growth** | 0.00416** | 0.00303 |
| | (1.89435e-03) | (0.002) |
| **AT** | -0.17228 | 0.31103 |
| | (1.71989e-01) | (0.112) |
| **Size** | 0.05268* | 0.00587*** |
| | (3.00573e-02) | (0.000) |
| **ROA** | -0.02776 | 0.07772 |
| | (1.04969e-01) | (0.171) |
| **Tax** | 0.00000 | 0.00000 |
| | (8.78568e-09) | (0.000) |
| **Constant** | -0.34837 | |
| | (4.15562e-01) | |
| **Observations** | 39 | 33 |
| **R-squared** | 0.3796 | |
| **Number of countries** | 2 | 2 |
| **Prob >Chi2** | 0.00 | 0.00 |
| **Wald** | 22.73 | |
| **Hausman Test:** | | |
| **chi2(7)** | 0.66 | |
| **Prob> chi2** | 0.9954 | |
| **No. of instruments** | | 33 |
| **AR1 p-value** | | 0.17098 |
| **AR2 p-value** | | 0.19465 |
| **Sargan p-value** | | 0.8280 |

Notes: This table reports the Random effects model and Arellano-Bond difference GMM results for the effect of a large board size (in dispersed firms) on firm leverage. The variables are as defined in the notes to Table 5.5. P-values are in parentheses and ***, **,* specify levels of significance at the 1%, 5% and 10% levels respectively.

The growth opportunities variable is positively correlated to leverage, at the 5 percent significant level. The results confirm the pecking order theory and are consistent with Ramjee and Gwatidzo (2012) who argue that Sub-Saharan firms use debt to exploit growth opportunities. In addition, these findings support the theory that firms with high growth opportunities have the capacity to increase in value, hence, the creditors lend more. This finding is consistent with Abor and Biekpe's (2005) results for Ghanaian firms. Empirical evidence suggests that high growth firms have more intangible assets; hence, they borrow less (Myers, 1977). Nevertheless, the regression results in Table 5.8 suggest that there is a positive insignificant relationship between the asset tangibility variable and firm leverage.

This finding suggests that the creditors do not consider the asset structure of firms when granting loans to SSA firms. This evidence corroborates the findings of Ogbulu and Emeni (2012) that creditors do not consider the asset structure when granting loans to Nigerian firms.

From the preceding discussion, one could argue that the creditors possibly consider the size of a firm when issuing loans to SSA firms. As expected, the regression results confirm the trade-off theory by showing that the size variable is positively correlated to firm leverage, at the 10 percent level. These findings imply that the large SSA firms are highly leveraged owing to their good reputation, high levels of diversification and the condition that they are less susceptible to bankruptcy. This finding is consistent with Borojeni (2013), Chepkowny (2015) and Jaradat (2015), among others. Another possible reason for the high debt levels in large SSA firms could be that they are more profitable. As a result, the creditors are confident that the firms will be able to make the interest payments on the loan (Bokpin and Arko, 2010). Surprisingly, Table 5.8 shows that the ROA (profitability) variable is positively but not significantly correlated with firm leverage. These results corroborate the findings of Hewa Wellalage and Locke (2012) that the creditors do not consider the profitability of Chinese listed firms when issuing loans. Nonetheless, the results confirm the pecking order theory predictions that firms will use the safe internal financing as opposed to external financing. This outcome is consistent with Choi *et al.,* (2014) and da Silva (2016)'s findings in South Korean and German firms respectively.

Table 5.8 further shows that the tax coefficient is positive but not significantly related to leverage. Nevertheless, the results support the pecking order theory predictions. This finding is anticipated from the preceding discussion that the creditors do not consider a firm's profits when granting loans to SSA firms. Therefore, one could argue that the creditors are not concerned about the amount of taxes that are charged on the profits when issuing loans to SSA firms. This finding is consistent with Gwatidzo and Ojah's (2009) findings in Kenyan firms.

Overall, the results confirm the third hypothesis that a large board negatively affects firm leverage, in Sub-Saharan Africa. The next section concludes this chapter.

## 5.4 CONCLUSION

In conclusion, the descriptive statistics results confirm the first hypothesis that there is the incidence of the separation of ownership and control in SSA. The evidence suggests that the least separated SSA firms have a control wedge ratio of 1.01 while the most separated firms have a control wedge ratio equal to 7.46.

As in a previous UK study by Lotto (2015), the (control-wedge ratio) positively affects firm leverage in SSA. This positive effect implies that the largest controlling shareholders with high cash-flow rights issue more debt to satisfy their private interests, at the expense of the minority shareholders in subsidiaries. Accordingly, the above findings confirm the second hypothesis that the separation of ownership and control affects positively firm leverage, in SSA. In addition, the random effects model regression results report that a large board does not affect firm leverage. However, the robustness checks (GMM) indicate that a negative relationship between a large board and firm leverage in SSA. These findings imply that large boards effectively monitor the actions of the managers. The disciplinary effect of large boards reduces the need for debt financing and guarantees the payment of dividends to the minority shareholders. Subsequently, the robustness checks confirm the third hypothesis that a large board negatively affects firm leverage, in Sub-Saharan Africa.

Turning to the determinants of capital structure, the evidence is mixed. The determinants support both capital structure relevancy theories (i.e. the trade-off and pecking order theory). Nonetheless, most of the sampled firms SSA firms adhere to the pecking order theory when making capital structure decisions. Furthermore, the results indicate that the profitability and asset structure do not significantly affect firm leverage. This evidence corroborates the findings of Ogbulu and Emeni (2012) for Nigerian firms. The next chapter concludes the overall study.

# CHAPTER 6

# SUMMARY, CONCLUSION AND RECOMMENDATIONS.

## 6.1 INTRODUCTION

The preceding chapter discusses in detail, the statistical analysis of the data. The analysis indicates that the separation of ownership and control affects capital structure, in Sub-Saharan Africa. Thus, this chapter seeks to summarise by way of concluding the theoretical framework and the empirical findings of this study. Section 6.2 summaries the study. Section 6.3 concludes and recommends for further research.

## 6.2 SUMMARY

The purpose of this study was to examine the effect of separating ownership from control on capital structure in Sub-Saharan Africa, specifically, Kenya, Nigeria and South Africa. It was aimed at examining whether the control-wedge ratio and a large board (in dispersed firms) affect capital structure. This study was based on the argument by Chepkowny (2015) that the separation of ownership and control is alienated two distinct levels. The first level comprises the majority controlling shareholders and minority shareholders who are not part of the control of a firm. The second level comprises a board of directors who represent the minority shareholders, in dispersed firms.

It can be argued that the large controlling shareholders exert pressure on management to issue high levels of debt, in order to satisfy their private benefits, at the expense of the minority shareholders. If this premise were true, one would expect a board of directors to monitor the actions of the managers, thus, reducing the need for debt (Abobakr & Elgiziry, 2015). This reduction of debt financing satisfies the interests of the minority shareholders who expect dividend payments from the profits generated (Khan *et al.*, 2012).

The findings from the study indicate that non-financial firms in Kenya, Nigeria and South Africa are characterised by the separation of ownership and control. According to the descriptive statistics results, the control-ownership wedge ratio ranges from a low 1.01 to maximum of 7.46. Interestingly, the results confirm the findings of Steyn and Stainbank (2013), who posit that South African firms are characterised by the separation of ownership and control. Equally important, this study contributes to the literature by confirming that there is the incidence of the SOC in Kenya and Nigeria. Overall, the results are in line with the hypothesis that there is the incidence of the separation of ownership and control in Sub-Saharan Africa.

The study also shows that the separation of ownership and control positively affects firm leverage. The results conclude the evidence of a statistically significant positive relationship between the control-ownership wedge ratio and firm leverage. This finding concurs with a similar study conducted by Lotto (2015) in the UK. The findings indicate that the large controlling shareholders (with high cash-flow rights) exert pressure on subsidiaries to issue more debt, to avoid the dilution of control. In consequence, one could argue that the large controlling shareholders use the debt issued to expropriate the wealth of the minority shareholders (through private benefits). Thus, there is a positive relationship between a large shareholder's cash-flow rights and firm leverage. This is consistent with Atanasov *et al.,* (2009) and confirms the hypothesis that the separation of ownership and control positively affects firm leverage, in Sub-Saharan Africa. The study further shows that there is a negative relationship between firms' large controlling shareholders and leverage. One could argue that the large controlling shareholders issue less debt to maintain the reputation of their company as well as reduce the likelihood of bankruptcy (Cheng & Tzeng, 2011; Khan *et al.,* 2012).

Looking at the effect of a large board on firm leverage, the panel data Random effects regression results show that large boards (in dispersed firms) have no significant influence on firm leverage. This testified to the notion that a large board does not affect a firm's financing decision. The evidence validates the findings of Hewa Wellalage and Locke (2012) for Chinese listed firms. Nevertheless, the robustness checks (GMM model results) designate that a large board negatively affects firm leverage (in dispersed firms). Owing to that the best

method is favoured; the GMM results approve the third hypothesis that a large board negatively affects firm leverage. In general, SSA firms that are characterised by large boards have low debt levels in their capital structure.

The results of the random effects and GMM model indicate a significant relationship between profitability and firm leverage. The same goes for the asset structure of a firm. This finding, therefore, brings into question the idea that creditors consider the profitability and asset structure (collateral) of a firm when granting loans (Deari, 2009). If the profitability and assets tangibility is considered by lenders in Sub-Saharan Africa, one would expect that there would be a significant negative relationship between the profitability and firm leverage (Abdul-Qadir *et al.,* 2015; da Silva, 2016). As a result, firms would use the profits generated to finance investments opportunities, thus, there is would be no need to use collateral to borrow from banks. As has been proffered above, however, the profitability and asset structure of a firm does not affect firm leverage, in Sub-Saharan Africa. Nevertheless, the results support Myers and Majluf (1984)'s pecking order theory.

Looking at the other independent variables used in the study, one finds that in Sub-Saharan Africa, an increase in corporate tax will result in a significant increase in firm leverage. What is interesting is that firms issue high levels of debt to benefit from the interest tax shield (Brealey *et al.,* 2004). However, these results do not apply to board controlled dispersed firms. A possible explanation for this could be that large controlling shareholders issue more debt to avoid the dilution of control (Shoaib & Yasushi, 2016). Thus, in the process, the firms benefit from the interest tax shield. On the other hand, the results indicate that a large board effectively monitors the actions of managers; hence, there is less need for debt financing (Heng *et al.,*, 2012; Steyn & Stainbank 2013). As a consequence, the board controlled (widely held firms) in Sub-Saharan Africa are interested in value maximisation as opposed to the corporate tax deductions when making financing decisions. This is consistent with (Ganiyu & Abiodun, 2012).

As far as the examination shows, findings indicate that firms with high growth opportunities are more levered, confirming the pecking order theory. This is in line with the Ramjee and Gwatidzo (2012) who find that South African growth firms prefer to use debt financing to

expand. However, Ogbulu and Emeni (2012) argue that growth opportunities do not affect firm leverage in Nigeria.

The findings also demonstrate that Sub-Saharan stock markets are developed. As a result, firms borrow more owing to the developed financial systems (or banks). A possible explanation for this is that most of the sampled Sub-Saharan firms are large, and have easier access to external debt financing since bank (creditors) believe that they are less susceptibleto bankruptcy (Frank & Goyal, 2009). This concurs with Chepkowny (2015) who place that there is a positive relationship between firm size and leverage. Thus, confirming the Myers (1977)'s pecking order theory. Table 6.1 compares the results of this study with the theoretical as well as the empirical findings conducted in developed and developing economies. Interestingly, this study's findings are consistent with numerous findings from other studies.

**Table 6.1: A comparison of this study's findings and other studies.**

| Explanatory variable | Expected sign | Positive | Negative | SOC findings | BOD findings |
|---|---|---|---|---|---|
| **Profitability** | Negative | | Abor and Biekpe (2005), Forte, Barros and Nakamura (2013),da Silva (2016) | Negative | Negative |
| | Positive | Nunkooa and Boateng (2010), Ganiyu and Abiodun (2012) | | | |
| **Asset Tangibility** | Negative | | Deari (2009), Choi *et al.* (2014) | Negative | Negative |
| | Positive | (Abor, 2008), Chadha and Sharma (2015), Farooq (2015) | | | |
| **Growth opportunities** | Negative | | Nunkooa and Boateng (2010), Alghamdi (2016) | | |
| | Positive | Al Najjar (2011), Ramjee and Gwatidzo (2012) | | Positive | Positive |
| **Corporate Tax** | Negative | | Abor and Biekpe (2005) | | |
| | Positive | Mutenheri and Green (2003),Chipeta *et al.* (2012) | | Positive | Positive |
| **Stock Market development** | Negative | | De Jong et al. (2008) ,Kayo and Kimura, 2017 | | |
| | Positive | Demirguc-Kunt and Maksimovic (1995), Chipeta *et al*. (2012) | | Positive | Positive |
| **Firm size** | Negative | | Nunkooa and Boateng (2010),Kinyua and Muriu (2017) | Negative | |
| | Positive | López-Gracia and Sogorb-Mira (2008), da Silva (2016) | | | Positive |
| **C-W** | Negative | | Shyu and Lee (2009) | | |
| | Positive | Ariffin (2010), Lotto(2015) | | Positive | |
| **CF** | Negative | | | | |
| | Positive | Lotto(2015) | | Positive | |
| **Large Board** | Negative | | Farooq's (2015), Shahar ,Adzis and Baderi (2016) | | Negative |
| | Positive | Driffield *et al.* (2007), Brendea (2014) | | | |

## 6.3 CONCLUSION AND RECOMMENDATIONS FOR FURTHER RESEARCH.

In conclusion, the findings of this study do not support the Modigliani and Miller (1958) capital structure irrelevancy theory. Overall, the study showed that firms in Sub-Saharan Africa adhere to the pecking order theory when making financing decisions. This is consistent with Kinyua and Muriu (2017).

The study challenges the hypothesis that there is the incidence of the separation of ownership and control in Sub-Saharan Africa, particularly, Kenya, Nigeria and South Africa. Interestingly, it turns out that most of the sampled firms are characterised by the SOC. Subsequently, the study shows that the large controlling shareholders positively affect firm leverage, in subsidiaries. A possible explanation could be that the large controlling shareholders want to maintain and keep control in the subsidiary companies (Lotto, 2015). Accordingly, the study approves the hypothesis that the separation of ownership and control (control-wedge ratio) positively affects firm leverage, in Sub-Saharan Africa.

The study further shows that large boards (in dispersed firms) have a negative impact on a firm leverage, in Sub-Saharan Africa. One possible explanation could be that the board is hands-on in monitoring the decisions of managers (Lorca *et al.,* 2011). Hence, there is less need to issue debt financing as a monitoring device or a source of funds, since the managers are forced to generate high profits to exploit investment opportunities or pay-out dividends (Heng *et al.*, 2012). In consequence, the study approves the third hypothesis that a large board negatively affects firm leverage, in Sub-Saharan Africa.

Overall, the above findings suggest that the research gap concerning the effect of the separation of ownership on firm leverage has been filled. Accordingly, there is a positive and significant effect of separating ownership (cash-flow rights) and control (control rights) on firm leverage, in Sub-Saharan Africa. Thus, there is a need to enforce a law that protects the interests of the shareholders in Sub-Saharan Africa.

Finally, owing to the fact that this study is limited to Sub-Saharan Africa, there is room to further investigate this topic in North Africa. Likewise, only one study has been done in the UK to investigate the effect of the separation of ownership and control on dividends (Lotto, 2011). Thus, there is a gap that needs to be filled in the African context.

## REFERENCES


Abdoli, M. R., & Royaee, R. (2012). Board Monitoring and Earnings Quality: an Empirical Study in Iran. *African Journal of Business Management*, *6*(11), 4179-4184.

Abdullah, N., & Pok, W. C. (2015). Separation of Cash Flow Rights and Control Rights and Debt Among Malaysian Family Firms. *Journal of Accounting in Emerging Economies*, *5*(2), 184-201.

Abdul-Qadir, A. B., Yaroson, E. V., & Abdu, M. (2015). Institutional Investors, Board Size and Capital Structure Decisions: Empirical Evidence from Non-Financial Firms in Nigeria

Abeysekera, I. (2010). The Influence of Board Size on Intellectual Capital Disclosure by Kenyan Listed Firms. *Journal of Intellectual Capital*, *11*(4), 504-518.

Abobakr, M. G., & Elgiziry, K. (2015). The Effects of Board Characteristics and Ownership Structure on the Corporate Financial Leverage. *Accounting and Finance Research*, *5*(1), 1.

Abor, J. (2008). Determinants of the Capital Structure of Ghanaian Firms. Nairobi: African Economic Research Consortium.

Abor, J., & Biekpe, N. (2005). What Determines the Capital Structure of Listed Firms in Ghana?. *African Finance Journal, 7*(1), 37-48.

Abor, J., & Biekpe, N. (2005, September). Does Corporate Governance Affect the Capital Structure Decisions of Ghanaian Smes. In *Biennial Conference of the Economic Society of South Africa, Durban, South Africa, September*.

Aguiar-Moya, J. P., & Prozzi, J. A. (2014). Accounting for Censoring and Unobserved Heterogeneity in Pavement Cracking. *Journal of Infrastructure Systems*, *21*(2), 04014044.

Aguilera, R. V. (2005). Corporate Governance and Director Accountability: An Institutional Comparative Perspective. *British Journal of Management*, *16*(S1).

Agyei, A., & Owusu, A. R. (2014). The Effect of Ownership Structure and Corporate Governance on Capital Structure of Ghanaian Listed Manufacturing Companies. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 4*(1), 109-118.

Ahmed Sheikh, N., & Wang, Z. (2011). Determinants of Capital Structure: An Empirical Study of Firms in the Manufacturing Industry of Pakistan. *Managerial Finance*, *37*(2), 117-133.

Ajanthan, A. (2013). The Relationship between Dividend Payout nd Firm Profitability: A Study of Listed Hotels and Restaurant Companies in Sri Lanka. *International Journal of Scientific and Research Publications*, *3*(6), 1-6.

Alagathurai, A. (2013). Determinants of Capital Structure: Evidence from Hotel and Restaurant Companies in Sri Lanka.

Alghamdi, M. S. M. (2016). Family Business Corporate Performance and Capital Structure*: Evidence from Saudi Arabia* (Doctoral Dissertation, University Of Hull).

Almeida, H., & Philippon, T. (2007). The Risk-Adjusted Cost of Financial Distress. *The Journal of Finance*, *62*(6), 2557-2586.

Al-Najjar, B. (2011). Empirical Modelling of Capital Structure: Jordanian Evidence. *Journal of Emerging Market Finance*, *10*(1), 1-19.

Alnodel, A., & Hussainey, K. (2010). Corporate Governance and Financing Decisions by Saudi Companies. *Journal of Modern Accounting And Auditing*, *6*(8), 1.

Anderson, R. C., & Reeb, D. M. (2003). Founding-Family Ownership, Corporate Diversification, and Firm Leverage. *The Journal of Law and Economics*, *46*(2), 653-684.

Ararat, M., Aksu, M., & Tansel Cetin, A. (2015). How Board Diversity Affects Firm Performance in Emerging Markets: Evidence On Channels In Controlled Firms. *Corporate Governance: An International Review*, *23*(2), 83-103.

Arellano, M. & Bond, S. 1991. Some Tests of Specification for Panel Data: Monte Carlo Evidence and An Application to Employment Equations. *Review of Economic Studies, 58(2).*

Atanasov, V., B. Black, C. S. Ciccotello and S. Gyoshev. (2009), "How Does Law Affect Finance: An Examination of Equity Tunnelling in Bulgaria", *Journal of Financial Economics* Vol.96, No.4

Attig, N., & Gadhoum, Y. (2003). The Governance of Canadian Traded Firms: An Analysis of the Ultimate Ownership Structure.

Attig, N., Fong, W. M., Gadhoum, Y., & Lang, L. H. (2006). Effects of Large Shareholding on Information Asymmetry and Stock Liquidity. *Journal Of Banking & Finance*, *30*(10), 2875-2892.

Baek, H. Y., Cho, D. D., & Fazio, P. L. (2016). Family Ownership, Control and Corporate Capital Structure: An Examination of Small Capitalization Public Firms. *Journal of Family Business Management*, *6*(2), 169-185.

Baker, M. & Wurgler, J. 2002. Market Timing and Capital Structure. *The Journal of Finance, 57(1)*: 1-52.

Balasubramanian, B. N., & Anand, R. V. (2013). Ownership Trends in Corporate India 2001-2011: Evidence And Implications.

Balogun, O. A., Nazeem, A., & Agumba, J. N. (2016). Determinants Predicting Credit Accessibility Within Small And Medium-Sized Enterprises in The South African Construction Industry. *Procedia Engineering*, *164*, 473-480.

Bany-Ariffin, A. N. (2010). Disentangling Tthe Driving Force of Pyramidal Firms' Capital Structure: A New Perspective. *Studies in Economics and Finance*, *27*(3), 195-210.

Bany-Ariffin, A. N., Nor, F. M., & Mcgowan Jr, C. B. (2010). Pyramidal Structure, Firm Capital Structure Exploitation and Ultimate Owners' Dominance. *International Review of Financial Analysis*, *19*(3), 151-164

Barbosa, E. G., & Moraes, C. D. C. (2004). Determinants of the Firm's Capital Structure: The Case of the Very Small Enterprises. *Economics Working Paper Archive At WUSTL, Finance, 302001*.

Barclay, M. J., & Smith, C. W. (1999). The Capital Structure Puzzle: Another Look at the Evidence. *Journal of Applied Corporate Finance*, *12*(1), 8-20.

Bebchuk, L. A., Kraakman, R., & Triantis, G. (2000). Stock Pyramids, Cross-Ownership, and Dual Class Equity: The Mechanisms and Agency Costs of Separating Control from Cash-Flow Rights. In *Concentrated Corporate Ownership* (Pp. 295-318). University Of Chicago Press.

Beck, T., Demirgüç-Kunt, A. S. L. I., & Maksimovic, V. (2005). Financial and Legal Constraints to Growth: Does Firm Size Matter?. *The Journal of Finance*, *60*(1), 137-177.

Benito, A. (2003). The Capital Structure Decisions of Firms: Is There A Pecking Order?.

Bennedsen, M., & Nielsen, K. M. (2009). Generationsskifter Og Det Danske Familieejerskab. In *Design Og Styring Af Institutioner* (Pp. 235-243). Handelshøjskolens Forlag.

Berger, A. N., & Di Patti, E. B. (2006). Capital Structure and Firm Performance: A New Approach to Testing Agency Theory and An application to the Banking Industry. *Journal of Banking & Finance*, *30*(4), 1065-1102.

Berle, A. A. & Means, G.C. (1932) .The Modern Corporation and Private Property, 204-5.

Bertrand, M., & Schoar, A. (2003). Managing with Style: The Effect of Managers on Firm Policies. *The Quarterly Journal of Economics*, *118*(4), 1169-1208.

Bhaduri, S. N. (2002). Determinants of Capital Structure Choice: A Study of the Indian Corporate Sector. *Applied Financial Economics*, *12*(9), 655-665.

Bodaghi, A., & Ahmadpour, A. (2010). The Effect of Corporate Governance and Ownership Structure on Capital Structure of Iranian Listed Companies. In *7th International Conference on Enterprise Systems, Accounting And Logistics (7th ICESAL 2010)* (Pp. 28-29).

Bokpin, G. A., & Arko, A. C. (2009). Ownership Structure, Corporate Governance and Capital Structure Decisions Of Firms: Empirical Evidence From Ghana. *Studies in Economics and Finance*, *26*(4), 246-256.

Booth, L., Aivazian, V., Demirguc-kunt, A. & Maksomovic, V. 2001. Capital Structures in Developing Countries. *The Journal of Finance*, 56(1): 412-430.

Boubaker, S. (2006). Four Essays on the Ownership Structure of French Listed Firms. Proquest.

Brealey, R. A., Myers, S. C., & Allen, F. (2003). Principles of Corporate Finance. Mcgraw-Hill: NY.

Brendea, G. (2014). Financing Behaviour of Romanian Listed Firms in Adjusting to the Target Capital Structure. *Finance A Uver*, *64*(4), 312.

Brennan, N. (2006). Boards Of Directors and Firm Performance: Is There an Expectations Gap?. *Corporate Governance: An International Review*, *14*(6), 577-593.

Brennan, N. M., & Solomon, J. (2008). Corporate Governance, Accountability and Mechanisms of Accountability: An Overview. *Accounting, Auditing & Accountability Journal*, *21*(7), 885-906.

Bunkanwanicha, P., & Wiwattanakantang, Y. (2008). Allocating Risk Across Pyramidal Tiers: Evidence from Thai Business Groups.

Butt, S. A., & Hasan, A. (2009). Impact of Ownership Structure and Corporate Governance on Capital Structure of Pakistani Listed Companies.

Caprio, L., Croci, E., & Del Giudice, A. (2011). Ownership Structure, Family Control and Acquisition Decisions. *Journal of Corporate Finance*, *17*(5), 1636-1657.

Cassar, G., & Holmes, S. (2003). Capital Structure and Financing of SMEs: Australian Evidence. *Accounting & Finance*, *43*(2), 123-147.

Céspedes, J., González, M., & Molina, C. A. (2010). Ownership and Capital Structure in Latin America. *Journal Of Business Research*, *63*(3), 248-254.

Chadha, S., & Sharma, A. K. (2015). Determinants of Capital Structure: An Empirical Evaluation from India. *Journal of Advances in Management Research*, *12*(1), 3-14.

Chapelle, A., & Szafarz, A. (2005). Controlling Firms through the Majority Voting Rule. *Physica A: Statistical Mechanics And Its Applications*, *355*(2), 509-529.

Charalambakis, E. C., & Psychoyios, D. (2012). What Do We Know About Capital Structure? Revisiting the Impact of Debt Ratios on Some Firm-Specific Factors. *Applied Financial Economics*, *22*(20), 1727-1742.

Chen, J. J. (2004). Determinants of Capital Structure of Chinese-Listed Companies. *Journal of Business Research*, *57*(12), 1341-1351.

Cheng, M. C., & Tzeng, Z. C. (2011). How Does Ownership Structure Effect Capital Structure and Firms Performance? Evidence from Taiwan. *Global Review of Accounting and Finance*, *2*(2), 68.

Chepkwony, H. (2015). Effect Of Corporate Governance On Capital Structure of Firms Listed at The Nairobi Securities Exchange.

Chipeta, C., Wolmarans, H. P., & Vermaak, F. N. (2012). Financial Liberalization and the Dynamics of Firm Leverage in a Transitional Economy: Evidence from South Africa. *South African Journal of Economic and Management Sciences*, *15*(2), 171-189.

Chipeta, C.,,& Deressa, C. (2016). Firm and Country-Specific Determinants of Capital Structure in Sub Saharan Africa. *International Journal of Emerging Markets*, *11*(4), 649-673.

Chitiavi, M. S., Musiega, M. G., Alala, O. B., Douglas, M., & Christopher, M. O. (2013). Capital Structure and Corporate Governance Practices. Evidence from Listed Non-Financial Firms on Nairobi Securities Exchange Kenya. *Journal of Business and Management*, *e-ISSN: 2278-487X, p-ISSN: 2319-7668*, *10*(2), 08-16.

Choi, J. K., Yoo, S. K., Kim, J. H., & Kim, J. J. (2014). Capital Structure Determinants Among Construction Companies In South Korea: A Quantile Regression Approach. *Journal of Asian Architecture and Building Engineering*, *13*(1), 93-100.

Chun-ling, S. H. A. N. G., Jie, G. A. O., & Hua, Z. H. A. N. G. (2013). The Impact of Separation of Control and Cash Flow Rights on Diversification—Evidence from China. *International Journal of Finance and Accounting Studies*, *1*(2), 9-16.

Claessens, S., & Fan, J. P. (2002). Corporate Governance in Asia: A survey. *International Review of Finance*, *3*(2), 71-103.

Claessens, S., Djankov, S., & Lang, L. H. (2000). The Separation of Ownership and Control in East Asian Corporations. *Journal of Financial Economics*, *58*(1), 81-112.

Coles, J. L., Daniel, N. D., & Naveen, L. (2008). Boards: Does One Size Fit All?. *Journal of Financial Economics*, *87*(2), 329-356.

Cronqvist, H., & Nilsson, M. (2003). Agency Costs of Controlling Minority Shareholders. *Journal of Financial And Quantitative Analysis*, *38*(4), 695-719.

Da Silva, A. L. C., & Leal, R. P. C. (2006). Ownership, Control, Valuation and Performance of Brazilian Corporations. *Corporate Ownership & Control*, *4*(1), 300-308.

da Silva, M. A. V. (2016). The Determinants of Capital Structure: Evidence from Non-financial Listed German Companies.

Dalton, D. R., Hitt, M. A., Certo, S. T., & Dalton, C. M. (2007). 1 The Fundamental Agency Problem and Its Mitigation: Independence, Equity, and the Market for Corporate Control. *The Academy of management annals*, *1*(1), 1-64.

Daskalakis, N., & Thanou, E. (2010). Capital Structure Of Smes: To What Extent Does Size Matter?.

De Jong, A; Kabir, R. & Nguyen, T.T. 2008. Capital Structure Around the World: The Roles of Firm And Country Specific Determinants. *Journal of Banking and Finance,* 32(9): 1954-

Deangelo, H., & Deangelo, L. (2000). Controlling Stockholders and The Disciplinary Role of Corporate Payout Policy: A Study of the Times Mirror Company. *Journal of Financial Economics*, *56*(2), 153-207.

Deari, F. (2009). The Determinants of Capital Structure: Evidence from Macedonian Listed and Unlisted Companies. *Analele Stiintifice Ale Universitatii" Alexandru Ioan Cuza" Din Iasi-Stiinte Economice*, *56*, 91-102.

Degryse, H., De Goeij, P., & Kappert, P. (2012). The Impact of Firm and Industry Characteristics on Small Firms' Capital Structure. *Small Business Economics*, *38*(4), 431-447.

Delves, D., & Patrick, B. (2008). Agency Theory Summary. *Retrieved March*, *24*, 2016

Demirgüç-Kunt, A., & Levine, R. (1996). Stock Markets, Corporate Finance and Economic Growth: An Overview. *The World Bank Economic Review*, *10*(2), 223-239.

Denis, D. K., & Mcconnell, J. J. (2003). International Corporate Governance. *Journal of Financial and Quantitative Analysis*, *38*(1), 1-36.

Driffield, N., Mahambare, V., & Pal, S. (2007). How Does Ownership Structure Affect Capital Structure and Firm Value? Recent Evidence from East Asia. *Economics of Transition*, *15*(3), 535-573.

Du, J., & Dai, Y. (2005). Ultimate Corporate Ownership Structures and Capital Structures: Evidence from East Asian Economies. *Corporate Governance: An International Review*, *13*(1), 60-71.

Edwards, J. S., & Weichenrieder, A. J. (2009). Control Rights, Pyramids, and the Measurement of Ownership Concentration. *Journal of Economic Behavior & Organization*, *72*(1), 489-508.

Ellul, A. (2008). Control Motivations and Capital Structure Decision.

Elsas, R., & Florysiak, D. (2008). Empirical Capital Structure Research: New Ideas, Recent Evidence and Methodological Issues.

Etudaiye-Muhtar, O. F., & Ahmad, R. (2014). Banking Sector Development and Corporate Leverage: Empirical Evidence from South African Firms. *International Journal of Economics and Finance*, *6*(8), 278.

Faccio, M., & Lang, L. H. (2002). The Ultimate Ownership of Western European Corporations. *Journal of financial economics*, *65*(3), 365-395.

Fairchild, R., & Paulin, A. G. (2007). Seperation of Control Rights and Cash-Flow Rights in Emerging Economies: Theory and Mexican Evidence. *Corporate Ownership &Control*, *5*(1), 38-56.

Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *The journal of law and Economics*, *26*(2), 301-325.

Fan, J. P., & Wong, T. J. (2002). Corporate Ownership Structure and the Informativeness of Accounting Earnings in East Asia. *Journal of Accounting and Economics*, *33*(3), 401-425.

Farooq, O. (2015). Effect of Ownership Concentration on Capital Structure: Evidence from the MENA Region. *International Journal of Islamic and Middle Eastern Finance and Management*, *8*(1), 99-113.

Flannery, M. J., & Rangan, K. P. (2006). Partial Adjustment Toward Target Capital Structures. *Journal of Financial Economics*, *79*(3), 469-506.

Forte, D., Barros, L. A., & Nakamura, W. T. (2013). Determinants of the Capital Structure of Small and Medium-Sized Brazilian Enterprises. *BAR-Brazilian Administration Review*, *10*(3), 347-369.

Fosberg, R. H. (2004). Agency Problems and Debt Financing: Leadership Structure Effects. *Corporate Governance: The International Journal of Business in Society*, *4*(1), 31-38.

Frank, M. Z., & Goyal, V. K. (2009). Capital Structure Decisions: Which Factors Are Reliably Important?. *Financial Management*, *38*(1), 1-37.

Frias-Aceituno, J. V., Rodriguez-Ariza, L., & Garcia-Sanchez, I. M. (2013). The Role Of The Board In The Dissemination Of Integrated Corporate Social Reporting. *Corporate Social Responsibility and Environmental Management*, *20*(4), 219-233.

Ganguli, S. K. (2013). Capital Structure–Does Ownership Structure Matter? Theory and Indian Evidence. *Studies in Economics and Finance*, *30*(1), 56-72.

Ganiyu, Y. O., & Abiodun, B. Y. (2012). The Impact Of Corporate Governance On Capital Structure Decision Of Nigerian Firms. *Research Journal in Organizational Psychology & Educational Studies*, *1*(2), 121-128.

Ganzeboom, C. (2014). The Influence Of Ownership Concentration And The Board Structure On The Capital Structure. *Evidence from Dutch listed companies* (Bachelor's Thesis, University of Twente).

Gitman, L. J. (2003). Principles of Managerial Finance, International Editions Financial Series.

González, V. M., & González, F. (2012). Firm Size and Capital Structure: Evidence Using Dynamic Panel Data. *Applied Economics*, *44*(36), 4745-4754.

Green, C.J., Murinde, V. & Suppakitjarak, J. 2003. Corporate Financial Structures in India. *South Asia Economic Journal*, 4(2): 245-273.

Greene, W. H. (2010) *Econometric Analysis.* New York, NY: Pearson.

Grossman, S. J., & Hart, O. D. (1982). Corporate Financial Structure and Managerial Incentives. *The Economics Of Information And Uncertainty* (pp. 107-140). University of Chicago Press.

Gugler, K., & Yurtoglu, B. B. (2003). Corporate Governance and Dividend Payout Policy in Germany. *European Economic Review*, *47*(4), 731-758.

Gujarati, D.N. 2003. *Basic Econometrics*. 4th ed. Boston: McGraw Hill.

Gwatidzo, T. & Ojah, K. 2009. Corporate Capital Structure Determinants: Evidence from Five African Countries. *African Finance Journal,* 11(1): 1-23.

Halim Ahmad, A., & Adiana Hiau Abdullah, N. (2013). Investigation of Optimal Capital Structure in Malaysia: A Panel Threshold Estimation. *Studies in Economics and Finance*, *30*(2), 108-117.

Hall, G. C., Hutchinson, P. J., & Michaelas, N. (2004). Determinants of the Capital Structures of European SMEs. *Journal of Business Finance & Accounting*, *31*(5-6), 711-728.

Harris, M., & Raviv, A. (1991). The Theory of Capital Structure. *the Journal of Finance*, *46*(1), 297-355.

Harvey, C. R., Lins, K. V., & Roper, A. H. (2004). The Effect of Capital Structure When Expected Agency Costs Are Extreme. *Journal of Financial Economics*, *74*(1), 3-30.

Heng, T. B., Azrbaijani, S., & San, O. T. (2012). Board Of Directors And Capital Structure: Evidence From Leading Malaysian Companies. *Asian Social Science*, *8*(3), 123.

Hewa Wellalage, N., & Locke, S. (2012). Capital Structure and Its Determinants in New Zealand Firms.

Heyman, D., Deloof, M., & Ooghe, H. (2008). The Financial Structure of Private Held Belgian firms. *Small Business Economics*, *30*(3), 301-313.

Hillier, D., Ross, S., Westerfield, R., Jaffe, J., & Jordan, B. (2013). Corporate Finance. McGraw Hill.

Hommel, U., Fabich, M., Schellenberg, E., & Firnkorn, L. (Eds.). (2011). The Strategic CFO: Creating Value in a Dynamic Market Environment. Springer Science & Business Media.

Hovakimian, A. (2006). Are Observed Capital Structures Determined by Equity Market Timing?. *Journal of Financial and Quantitative Analysis*, *41*(1), 221-243.

Hsiao, C. (2007). Panel Data Analysis-Advantages and Challenges. *Test*, *16*(1), 1-22.

Huang, G. (2006). The Determinants of Capital Structure: Evidence from China. *China Economic Review*, *17*(1), 14-36.

Hussainey, K., & Aljifri, K. (2012). Corporate Governance Mechanisms and Capital Structure in UAE. *Journal of Applied Accounting Research*, *13*(2), 145-160.

Ingley, C. B., & Van Der Walt, N. T. (2004). Corporate Governance, Institutional Investors and Conflicts of Interest. *Corporate Governance: An International Review*, *12*(4), 534-551.

Ishak, Z., & Napier, C. (2006). Expropriation of Minority Interests and Corporate Diversification in Malaysia. *Asian Academy of Management Journal of Accounting and Finance*, *2*(1), 85-113.

Jackling, B., & Johl, S. (2009). Board Structure and Firm Performance: Evidence From India's Top Companies. *Corporate Governance: An International Review*, *17*(4), 492-509.

Jahankhani, A., & Kanani, A. M. (2006). Presentation of The Model To Determine The Capital Expenditures Of Listed Companies In TSE Using Accounting Information.

Jaradat, M. S. (2015). Corporate Governance Practices and Capital Structure: A Study with Special Reference to Board Size, Board Gender, Outside Director and CEO Duality. *International Journal of Economics, Commerce and Management*, *3*(5), 264-273.

Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance and Takeovers. *The American Economic Review*, *76*(2), 323-329.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behaviour, Agency Costs And Ownership Structure. *Journal of Financial economics*, *3*(4), 305-360.

Jiang, H., Habib, A., & Smallman, C. (2009). The Effect of Ownership Concentration On CEO Compensation-Firm Performance Relationship in New Zealand. *Pacific Accounting Review*, *21*(2), 104-131.

*Journal of Political Economy, 106(6):* 1113 -1155.

Jung, K., & Kwon, S. Y. (2002). Ownership Structure and Earnings Informativeness: Evidence from Korea. *The International Journal of Accounting*, *37*(3), 301-325.

Kanagaretnam, K., Lobo, G. J., & Mathieu, R. (2004). Earnings Management to Reduce Earnings Variability: Evidence From Bank Loan Loss Provisions. *Review of Accounting and Finance*, *3*(1), 128-148.

Kang, H., Cheng, M., & Gray, S. J. (2007). Corporate Governance and Board Composition: Diversity and Independence of Australian Boards. *Corporate Governance: An International Review*, *15*(2), 194-207.

Kangarlouei, S. J., Abbaszadeh, S., & Motavassel, M. (2012). Comparative Investigation of the Difference between Ownership Structure and Cost of Capital in Capitalized and Levered Companies of Tehran Stock Exchange (TSE).

Karadeniz, E., Yilmaz Kandir, S., Balcilar, M., & Beyazit Onal, Y. (2009). Determinants of Capital Structure: Evidence from Turkish Lodging Companies. *International Journal of Contemporary Hospitality Management*, *21*(5), 594-609.

Kasbi, S. (2009). Ownership Concentration and Capital Structure Adjustments. *Paris-Dauphine University, Working Paper*.

Kassim, A. A. M., Ishak, Z., & Manaf, N. A. A. (2013). Board Effectiveness and Company Performance: Assessing the Mediating Role Of Capital Structure Decisions. *International Journal of Business and Society*, *14*(2), 319.

Khan, A., Kaleem, A., & Nazir, M. S. (2012). Impact of Financial Leverage on Agency Cost of Free Cash Flow: Evidence from the Manufacturing Sector of Pakistan. *Journal of Basic and Applied Scientific Research*, *2*(7), 6694-6700.

Khanna, T., & Palepu, K. (2000). Is Group Affiliation Profitable in Emerging Markets? An Analysis of Diversified Indian Business Groups. *The Journal of Finance*, *55*(2), 867-891.

King, T. H. D., & Wen, M. M. (2011). Shareholder Governance, Bondholder Governance, and Managerial Risk-Taking. *Journal of Banking & Finance*, *35*(3), 512-531.

Kinyua, J. B., & Muriu, P. W. (2017). Determinants of Capital Structure of Agricultural Firms in Kenya. *European Scientific Journal, ESJ*, *13*(7).

Kuznetsov, P., & Muravyev, A. (2001). Ownership Concentration and Firm Performance in Russia: The Case Of Blue Chips of the Stock Market. *Acta Oeconomica*, *51*(4), 469-488.

La Porta, R., Lopez-de-Silanes, A., Shleifer, A. & Vishny, R. W. 1998. Law and Finance,

La Rocca, M., La Rocca, T., & Gerace, D. (2008). A Survey of the Relation Between Capital Structure and Corporate Strategy. *Australasian Accounting Business & Finance Journal*, *2*(2), 0_1.

Laeven, L., & Levine, R. (2007). Complex Ownership Structures and Corporate Valuations. *The Review of Financial Studies*, *21*(2), 579-604.

Leary, M. T., & Roberts, M. R. (2005). Do Firms Rebalance Their Capital Structures?. *The journal of Finance*, *60*(6), 2575-2619.

Lemmon, M. L., & Lins, K. V. (2003). Ownership Structure, Corporate Governance and Firm Value: Evidence from the East Asian Financial Crisis. *The Journal of Finance*, *58*(4), 1445-1468.

Lemmon, M. L., Roberts, M. R., & Zender, J. F. (2008). Back To The Beginning: Persistence and the Cross-Section Of Corporate Capital Structure. *The Journal of Finance*, *63*(4), 1575-1608.

Lie, E. (2002). Do Firms Undertake Self-Tender Offers to Optimize Capital Structure?. *The Journal of Business*, *75*(4), 609-639.

Lin, C., Ma, Y., Malatesta, P., & Xuan, Y. (2011). Ownership Structure and The Cost Of Corporate Borrowing. *Journal of Financial Economics*, *100*(1), 1-23.

López-Gracia, J., & Sogorb-Mira, F. (2008). Testing Trade-Off and Pecking Order Theories Financing SMEs. *Small Business Economics*, *31*(2), 117-136.

Lorca, C., Sánchez-Ballesta, J. P., & García-Meca, E. (2011). Board Effectiveness and Cost of Debt. *Journal of Business Ethics*, *100*(4), 613-631.

Lotto, J. (2015). The Effect of Separating Ownership from Control on Corporate Leverage. *Business Management Review*, *16*(1).

Malan, I. N. B. B., Salamudin, N. B., & Ahmad, N. B. (2012). The Impact of Pyramid Structure Towards Corporate Value Among Malaysian Firms. In *Business, Engineering and Industrial Applications (ISBEIA), 2012 IEEE Symposium on* (pp. 68-73).

Margaritis, D., & Psillaki, M. (2010). Capital Structure, Equity Ownership and Firm Performance. *Journal of Banking & Finance*, *34*(3), 621-632.

Masnoon, M., & Anwar, F. (2012). Capital structure Determinants of KSE Listed Pharmaceutical companies.

Masood, O., & Ashraf, M. (2012). Bank-Specific and Macroeconomic Profitability Determinants of Islamic Banks: The Case of Different Countries. *Qualitative Research in Financial Markets*, *4*(2/3), 255-268.

Meyer, E., & de Wet, J. (2013). The Impact of Board Structure on the Financial Performance of Listed South African Companies.

Mgudlwa, N. (2010). Size and Other Determinants of Capital Structure in South African Manufacturing Listed Companies (Doctoral dissertation).

Michaely, R., & Vincent, C. (2012). Do Institutional Investors Influence Capital Structure Decisions. *Available at SSRN*, *2021364*.

Modigliani, F. & Miller, M.H. 1963. Corporate Income Tax and the Cost Of Capital: A Correction. *American Economic Review*, 53(3): 433-443.

Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, *48*(3), 261-297.

Modugu, K. P. (2013). Capital Structure Decision: An Overview. *Journal of Finance and Bank Management*, *1*(1), 14-27.

Mohamad, N. E. A. B., & Abdullah, F. N. (2012). Reviewing Relationship between Capital Structure And Firm's Performance in Malaysia. *International Journal of Advances in Management and Economics*, *1*(4), 151-156.

Mohammadzadeh, M., Rahimi, F., Rahimi, F., Aarabi, S. M., & Salamzadeh, J. (2013). The Effect of Capital Structure on the Profitability of Pharmaceutical Companies in the Case of Iran. *Iranian Journal of Pharmaceutical Research: IJPR*, *12*(3), 573.

Morck, R. (2009). The Riddle of the Great Pyramids. *National Bureau of Economic Research.*

Morellec, E., & Wang, N. (2004). Capital Structure, Investment and Private Benefits of Control.

Mujahid, M., & Sorin, V. (2009). A Review of the Capital Structure Theories.

Mutenheri, E. & Green, C.J. (2003). Financial Reform and Financing Decisions of Listed Companies in Zimbabwe. *The Journal of African Business*, 4(2): 155-170.

Mwangi, L. W., Makau, M. S., & Kosimbei, G. (2014). Relationship Between Capital Structure and Performance of Non-Financial Companies Listed in The Nairobi Securities Exchange, Kenya. *Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics*, *1*(2), 72-90.

Mwangi, L. W., Makau, M. S., & Kosimbei, G. (2014). Relationship between Capital Structure and Performance of Non-Financial Companies Listed in The Nairobi Securities Exchange, Kenya. *Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics*, *1*(2), 72-90.

Myers, S. C. (1977). Determinants of Corporate Borrowing. *Journal of Financial Economics*, *5*(2), 147-175.

Myers, S. C., & Majluf, N. S. (1984). Corporate Financing and Investment Decisions when Firms have Information that Investors Do Not Have. *Journal of Financial Economics*, *13*(2), 187-221.

Nam, J., Ottoo, R. E., & Thornton Jr, J. H. (2003). The Effect of Managerial Incentives to Bear Risk On Corporate Capital Structure and R&D Investment. *Financial Review*, *38*(1), 77-101.

Nenova, T. (2003). The Value of Corporate Voting Rights and Control: A Cross-Country Analysis. *Journal of Financial Economics*, *68*(3), 325-351.

Nicholson, G. J., & Kiel, G. C. (2004). A Framework for Diagnosing Board Effectiveness. *Corporate Governance: An International Review*, *12*(4), 442-460.

Nor, F. M., & Ariffin, B. (2005). Does Pyramiding Have An Impact on Firm's Capital Structure Decision among Malaysian Distress Companies?. *Corporate Ownership and Control*, *2*(4), 93-106.

Novy-Marx, Robert. "An Equilibrium Model of Investment Under Uncertainty." *The Review of Financial Studies* 20, no. 5 (2007): 1461-1502.

Nunkoo, P. K., & Boateng, A. (2010). The Empirical Determinants of Target Capital Structure and Adjustment to Long-Run Target: Evidence from Canadian Firms. *Applied Economics Letters*, *17*(10), 983-990.

Obembe, O. B., Akinlo, A. E., & Aiyegbusi, O. O. (2017). Impact of Large Bulk Shareholders on Debt Financing of Listed Non-Financial Firms in Nigeria. *International Journal of Economics and Business Research*, *13*(2), 134-154.

Ogbechie, C., & Koufopoulos, D. N. (2010). Board Effectiveness in the Nigerian Banking Industry.

Ogbulu, O. M., & Emeni, F. K. (2012). Determinants of Corporate Capital Structure in Nigeria. *International Journal of Economics and Management Sciences*, *1*(10), 81-96.

Pamburai, H., Chamisa, E., Abdulla, C., & Smith, C. (2015). An analysis of corporate governance and company performance: A South African perspective. *South African Journal of Accounting Research*, *29*(2), 115-131.

Pastusiak, R., Bolek, M., Malaczewski, M., & Kacprzyk, M. (2016). Company Profitability Before and After IPO. Is it a Windows Dressing or Equity Dilution Effect?. *Prague Economic Papers*, *25*(1), 1-13.

Paulo Esperança, J., Matias Gama, A. P., & Azzim Gulamhussen, M. (2003). Corporate Debt Policy of Small Firms: An Empirical (Re) Examination. *Journal of Small Business and Enterprise Development*, *10*(1), 62-80.

Pervan, I., Horak, H., & Vasilj, M. (2010). Financial Reporting Regulation for The Listed Companies: Analysis for Selected Eastern European Transitional Countries in The Process of EU Enlargement. *Ekonomska Misao I Praksa*, (2), 277-309.

Pindado, J., & de la Torre, C. (2005). A Complementary Approach to the Financial and Strategy Views Of Capital Structure: Theory and Evidence from the Ownership Structure.

Psillaki, M., & Daskalakis, N. (2009). Are The Determinants Of Capital Structure Country Or Firm-Specific?. *Small Business Economics*, *33*(3), 319-333.

Pye, A., & Pettigrew, A. (2005). Studying Board Context, Process and Dynamics: Some Challenges for The Future. *British Journal of Management*, *16*(s1).

Qureshi, M. A., Sheikh, N. A., & Khan, A. A. (2015). A Revisit of Pecking Order Theory Versus Trade-Off Theory: Evidence From Pakistan. *Pakistan Journal of Commerce and Social Sciences*, *9*(2), 344.

Rajan, R. G., & Zingales, L. (1995). What Do We Know About Capital Structure? Some Evidence from International Data. *The Journal of Finance*, *50*(5), 1421-1460.

Ramjee, A., & Gwatidzo, T. (2012). Dynamics in Capital Structure Determinants in South Africa. *Meditari Accountancy Research*, *20*(1), 52-67.

Ranti, U. O. (2013). The Effects of Board Size and CEO Duality on Firms' Capital Structure: A Study of Selected Listed Firms in Nigeria. *Asian Economic and Financial Review*, *3*(8), 1033.

Rehman, M. A., Rehman, R. U., & Raoof, A. (2010). Does Corporate Governance Lead to a Change in the Capital Structure. *American Journal of Social and Management Sciences*, *1*(2), 191-195.

Richardson, A. J., & Welker, M. (2001). Social Disclosure, Financial Disclosure and the Cost of Equity Capital. *Accounting, Organizations and Society*, *26*(7), 597-616.

Rungani, E., & Fatoki, O. (2010). Determinants of Capital Structure of Small and Medium Enterprises in the Buffalo City Municipality, Eastern Cape Province, South Africa. *African Journal of Business Management*, *4*(18), 3968.

Saad, N. M. (2010). Corporate Governance Compliance and the Effects to Capital Structure in Malaysia. *International Journal of Economics and Finance*, *2*(1), 105-114.

Salawu, R. O. (2007). The Determinants of the Capital Structure of Financial Firms in Nigeria: The Financial Managers' Perspectives.

Schilling, F. (2004), "Board Performance and Board Review", Socius Corporate Governance Solutions Network, Available at Www.Socius.Si/File/4039/File.Html (Accessed 31 July 2005). [Google Scholar]

Şener, İ., & Karaye, A. B. (2014). Board Composition and Gender Diversity: Comparison Of Turkish And Nigerian Listed Companies. *Procedia-Social and Behavioral Sciences*, *150*, 1002-1011.

Shafana, N. (2016). Board of Directors' Characteristics Impact on Capital Structure Decisions.

Shah, A., Hijazi, T., & Javed, A. Y. (2004). The Determinants of Capital Structure of Stock Exchange-Listed Non-Financial Firms in Pakistan . *The Pakistan Development Review*, 605-618.

Shahar, H. K., Adzis, A. A., & Baderi, N. (2016). The Relationship between Ownership Structure, Firm Specific Characteristics and Capital Structure: Evidence From Malaysian Middle-Capital Public Listed Firms. *International Journal of Economics and Financial Issues*, *6*(3S), 36-43.

Short, H., Keasey, K., & Duxbury, D. (2002). Capital Structure, Management Ownership and Large External Shareholders: A UK Analysis. *International Journal of the Economics of Business*, *9*(3), 375-399.

Shyu, Y. W., & Lee, C. I. (2009). Excess Control Rights and Debt Maturity Structure in Family-Controlled Firms. *Corporate Governance: An International Review*, *17*(5), 611-628.

Skoogh, J., & Swärd, P. (2015). The Impact of Tangible Assets on Capital Structure-An analysis of Swedish Listed Companies.

Sogorb-Mira, F. (2005). How SME Uniqueness Affects Capital Structure: Evidence from A 1994–1998 Spanish Data Panel. *Small Business Economics*, *25*(5), 447-457.

Spieler, A. C., & Murray, A. S. (2008). Management Controlled Firms V. Owner Controlled Firms: A Historical Perspective of Ownership Concentration in the US, East Asia and the EU. *J. Int'l Bus. & L.*, *7*, 49.

Steyn, B., & Stainbank, L. (2013). Separation of Ownership and Control in South African-Listed Companies. *South African Journal of Economic and Management Sciences*, *16*(3), 316-345.

Suhaila, M. K., Mahmood, W., & Mansor, W. (2008). Capital Structure and Firm Characteristics: Some Evidence from Malaysian Companies.

Torres-Reyna, O. (2007). Panel Data Analysis Fixed and Random Effects Using Stata (v. 4.2). *Data & Statistical Services, Priceton University*.

Townsend, Z., Buckley, J., Harada, M., & Scott, M. A. (2013). The Choice between Fixed and Random Effects. *The SAGE Handbook of Multilevel Modeling. SAGE*.

Tsipouri, L., & Xanthakis, M. (2004). Can Corporate Governance be Rated? Ideas Based on the Greek Experience. *Corporate Governance: An International Review*, *12*(1), 16-28.

Vakilifard, H. R., Gerayli, M. S., Yanesari, A. M., & Ma'atoofi, A. R. (2011). Effect of Corporate Governance on Capital Structure: Case of the Iranian Listed Firms. *European Journal of Economics, Finance And Administrative Sciences*, *35*, 165-172.

Villalonga, B., & Amit, R. (2008). How are US Family Firms Controlled?. *The Review of Financial Studies*, *22*(8), 3047-3091.

Wahome, M. N., Memba, F., & Muturi, W. (2015). The Influence of Firm-Specific Factors on Capital Structure of Insurance Industry in Kenya. *International Journal of Scientific and Research Publications*.

Weller, C. E., & Scher, M. (2001). Multinational Bank Credit in Less Industrialized Economies. *Journal of International Business Studies*, *32*(4), 833-851.

Wen, Y., Rwegasira, K., & Bilderbeek, J. (2002). Corporate Governance and Capital Structure Decisions of the Chinese Listed Firms. *Corporate Governance: An International Review*, *10*(2), 75-83.

Wooldridge, J. M. (2010). Econometric Analysis of Cross Section and Panel Data. MIT press.

Xin, W. Z. (2014). The Impact of Ownership Structure and Capital Structure On Financial Performance Of Vietnamese Firms. *International Business Research*, *7*(2), 64.

Yang, Z., & Zhang, H. (2013). Optimal Capital Structure with An Equity-For-Guarantee Swap. *Economics Letters*, *118*(2), 355-359.

Yeh, Y. H., Lee, T. S., & Woidtke, T. (2001). Family Control and Corporate Governance: Evidence from Taiwan. *International Review of Finance*, *2*(1-2), 21-48.

Zhu, Y., Tian, G. G., & Zhao, S. (2010). How Does the Separation of Ownership and Control Affect Corporate Performance: The Impact of Earnings Management in China.

Zuo-Ping, X. I. A. O. (2010). Does Corporate Governance Affect the Type of Debt Maturity Structure? Empirical Evidence from Chinese Listed Companies [J]. *Journal of Industrial Engineering and Engineering Management*, *1*, 020.

## APPENDIX A

## THE SEPARATION OF CASH-FLOW AND CONTROL RIGHTS ON FIRM LEVERAGE

### DESCRIPTIVE STATISTICS FOR ALL THE SAMPLED SUB-SAHARAN FIRMS

| Variables | N | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| Leverage | 119 | 0.280 | 0.290 | 0 | 1.759 |
| CF | 119 | 0.182 | 0.117 | 0.0446 | 0.534 |
| CW | 119 | 2.381 | 1.426 | 1.011 | 7.463 |
| Growth | 118 | 117.9 | 488.1 | 0 | 2,948 |
| Tax | 119 | 0.31 | 0.42 | -0.52 | 1.38 |
| ROA | 115 | 0.0238 | 0.840 | -8.683 | 0.606 |
| Size | 119 | 13.80 | 1.741 | 10.48 | 16.76 |
| Asset Tang | 119 | 0.422 | 0.426 | 0.00537 | 4.263 |
| STK | 119 | 117.9 | 104.8 | 0 | 255.6 |

### CORRELATION MATRIX FOR ALL THE SAMPLED SUB-SAHARAN FIRMS

```
*****************Correlation Matrix***************
corr $xlist_1
obs=113)
```

| | CONTROL | CF | GROWTH | CW | TAX | ROA | SIZE | AT | STK |
|---|---|---|---|---|---|---|---|---|---|
| CONTROL | 1.0000 | | | | | | | | |
| CF | 0.6630 | 1.0000 | | | | | | | |
| GROWTH | 0.2122 | 0.5562 | 1.0000 | | | | | | |
| CW | -0.0486 | -0.4937 | -0.1595 | 1.0000 | | | | | |
| TAX | 0.3159 | 0.4731 | 0.5011 | -0.2037 | 1.0000 | | | | |
| ROA | 0.0930 | 0.0203 | 0.0688 | 0.0451 | 0.1615 | 1.0000 | | | |
| SIZE | 0.0518 | 0.3221 | 0.2424 | -0.0883 | 0.5389 | -0.0926 | 1.0000 | | |
| AT | -0.1016 | 0.1122 | 0.0822 | 0.0076 | 0.0392 | -0.0628 | 0.1421 | 1.0000 | |
| STK | -0.2461 | -0.2019 | -0.1989 | -0.2148 | 0.1028 | -0.0923 | 0.2870 | -0.1496 | 1.0000 |

### The VIF TEST

```
. estat  vif
```

| Variable | VIF | 1/VIF |
|---|---|---|
| CF | 6.48 | 0.154340 |
| CONTROL | 3.28 | 0.305131 |
| CW | 2.39 | 0.418106 |
| TAX | 2.14 | 0.466669 |
| GROWTH | 2.09 | 0.478756 |
| SIZE | 2.05 | 0.487726 |
| STK | 1.59 | 0.627714 |
| AT | 1.16 | 0.864352 |
| ROA | 1.09 | 0.916436 |
| Mean VIF | 2.47 | |

```
. estat  hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
          Ho: Constant variance
          Variables: fitted values of LEVERAGE

          chi2(1)       =      7.22
          Prob > chi2   =    0.0072
```

## HAUSMAN TEST

```
-------------+----------------------------------------------------------------
     CONTROL |   -1.542063    -1.598599        .0565361        .0711355
          CF |    2.654421     2.688591       -.0341706         .102698
      GROWTH |     .000084     .0000591         .000025        .0000228
          CW |     .182919     .1760255        .0068935        .0099581
         TAX |    2.65e-07     2.72e-07       -7.16e-09        9.63e-09
         ROA |   -.0016343    -.0040823         .002448               .
        SIZE |   -.0821188    -.0737657       -.0083531        .0054696
          AT |   -.0014111    -.0171702        .0157592        .0109172
         STK |    4.95e-06     .0005879        -.000583        .0003114
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        3.49
                Prob>chi2 =      0.8363
                (V_b-V_B is not positive definite)

. * If Prob> ch2 <0.05 (i.e significant) use Fixed effects
. *Model One: Hausman Test
. qui xtreg $ylist $xlist_2,fe
```

**THE REGRESSION OUTPUT FOR THE THREE MODELS**

| Variables | Fixed Effects Model | Random Effects Model | Difference GMM |
|---|---|---|---|
| CF | 2.65442*** | 2.68859*** | 2.72962** |
| | (4.50295e-01) | (4.38428e-01) | (0.672) |
| GROWTH | 0.00008 | 0.00006 | 0.00008 |
| | (6.25219e-05) | (5.82133e-05) | (0.000) |
| CW | 0.18292*** | 0.17603*** | 0.15268* |
| | (2.35811e-02) | (2.13753e-02) | (0.048) |
| TAX | 0.00000* | 0.00000* | 0.00000 |
| | (1.58582e-07) | (1.58289e-07) | (0.000) |
| ROA | -0.00163 | -0.00408 | -0.00502 |
| | (2.46285e-02) | (2.47424e-02) | (0.010) |
| SIZE | -0.08212*** | -0.07377*** | -0.07625** |
| | (1.72202e-02) | (1.63284e-02) | (0.013) |
| AT | -0.00141 | -0.01717 | -0.06396 |
| | (5.07385e-02) | (4.95501e-02) | (0.048) |
| STK | 0.00000 | 0.00059** | 0.00015 |
| | (3.94199e-04) | (2.41700e-04) | (0.000) |
| Constant | 0.94430*** | 0.79982*** | |
| | (2.23168e-01) | (2.00899e-01) | |
| Observations | 113 | 113 | 105 |
| R-squared | 0.518 | | |
| Number of countrynynum | 3 | 3 | 3 |
| F | 12.06 | | |
| Wald | | 109.1 | |
| Countries | | | 3.00000 |
| No. of instruments | | | 103.00000 |
| AR1 p-value | | | 0.12307 |
| AR2 p-value | | | 0.30162 |
| Sargan p-value | | | 0.2414 |

**APPENDIX B**
**THE EFFECT OF A LARGE BOARD ON CAPITAL STRUCTURE**

## DESCRIPTIVE STATISTICS FOR ALL THE SAMPLED SUB-SAHARAN FIRMS

| VARIABLES | (1) N | (2) mean | (3) sd | (4) min | (5) max |
|---|---|---|---|---|---|
| YEAR | 40 | 2,011 | 2.759 | 2,006 | 2,016 |
| BOD | 40 | 15.73 | 4.273 | 11 | 25 |
| TAX | 40 | 4.798e+06 | 9.042e+06 | 0 | 2.808e+07 |
| LEVERAGE | 40 | 0.496 | 0.272 | 0 | 0.878 |
| SIZE | 40 | 15.65 | 2.664 | 9.921 | 20.39 |
| ROA | 40 | 0.251 | 0.365 | -0.993 | 1.053 |
| GROWTH | 39 | 10.65 | 19.99 | 0 | 120.7 |
| AT | 40 | 0.287 | 0.284 | 0.00680 | 0.883 |
| STK | 40 | 6.829 | 10.69 | 0 | 35.47 |

## CORRELATION MATRIX FOR ALL THE SAMPLED SUB-SAHARAN FIRMS

```
. **************************************************
. *****************Correlation Matrix***************
. corr $xlist_1
(obs=39)

             |      BOD   GROWTH      TAX      ROA     SIZE       AT      STK
-------------+---------------------------------------------------------------
         BOD |   1.0000
      GROWTH |   0.0230   1.0000
         TAX |   0.7574  -0.0265   1.0000
         ROA |   0.0591   0.0256   0.0535   1.0000
        SIZE |   0.7243  -0.0894   0.8522   0.0702   1.0000
          AT |  -0.3757  -0.0075  -0.3429  -0.0472  -0.1903   1.0000
         STK |  -0.2652   0.0859  -0.3447   0.0015  -0.3667   0.5134   1.0000
```

## VIF TEST

```
. estat  vif

    Variable |       VIF        1/VIF
-------------+----------------------
        SIZE |      4.70     0.212782
         TAX |      4.63     0.216107
         BOD |      2.75     0.363073
          AT |      1.73     0.576636
         STK |      1.60     0.625725
      GROWTH |      1.03     0.968813
         ROA |      1.01     0.989097
-------------+----------------------
    Mean VIF |      2.49
```

```
. estat  hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of LEVERAGE

         chi2(1)       =      1.81
         Prob > chi2   =    0.0290
```

## THE HAUSMAN TEST

```
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re         Difference          S.E.
-------------+----------------------------------------------------------------
         BOD |   -.0062867    -.0051721       -.0011146        .0020389
      GROWTH |    .0034248     .0041644       -.0007397        .0009327
         TAX |    1.84e-09     2.27e-09       -4.29e-10        1.07e-09
         ROA |   -.0462964    -.0277616       -.0185348        .0253707
        SIZE |    .0597915     .0526814        .0071101        .0093134
          AT |   -.1988016    -.1722758       -.0265258        .0373672
         STK |    .0105358     .0155662       -.0050305        .0062169
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

  Test:  Ho:  difference in coefficients not systematic

                chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                        =          0.66
              Prob>chi2 =        0.9954

* If Prob> ch2 <0.05 (i.e significant) use Fixed effects
```

**THE REGRESSION OUTPUT FOR THE THREE MODELS**

| Variables | Fixed Effects Model | Random Effects Model | Difference GMM |
|---|---|---|---|
| BOD | -0.00629 | -0.00517 | -0.01157** |
| | (1.44418e-02) | (1.42971e-02) | (0.002) |
| GROWTH | 0.00342 | 0.00416** | 0.00303 |
| | (2.11151e-03) | (1.89435e-03) | (0.002) |
| TAX | 0.00000 | 0.00000 | 0.00000 |
| | (8.85016e-09) | (8.78568e-09) | (0.000) |
| ROA | -0.04630 | -0.02776 | 0.07772 |
| | (1.07991e-01) | (1.04969e-01) | (0.171) |
| SIZE | 0.05979* | 0.05268* | 0.00587*** |
| | (3.14671e-02) | (3.00573e-02) | (0.000) |
| AT | -0.19880 | -0.17228 | 0.31103 |
| | (1.76001e-01) | (1.71989e-01) | (0.112) |
| STK | 0.01054 | 0.01557*** | 0.00638 |
| | (7.87205e-03) | (4.82898e-03) | (0.005) |
| Constant | -0.38960 | -0.34837 | |
| | (4.20939e-01) | (4.15562e-01) | |
| Observations | 39 | 39 | 33 |
| R-squared | 0.390 | | |
| Number of countrynynum | 2 | 2 | 2 |
| Wald | | 22.73 | |
| Countries | | | 2.00000 |
| No. of instruments | | | 33.00000 |
| AR1 p-value | | | 0.17098 |
| AR2 p-value | | | 0.19465 |
| Sargan p-value | | | 0.8280 |