

**AN ANALYSIS OF CAPITAL STRUCTURES OF LISTED INDUSTRIAL COMPANIES  
IN SOUTH AFRICA**



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**Date : AUGUST 2016**

## **DECLARATION**

I declare that this research project is my own work. It is submitted in fulfilment of the requirement for the degree Magister Technologiae in Cost and Management Accounting at the Vaal University of Technology, South Africa. This dissertation has not previously been submitted for a degree or examination in any other tertiary institution.

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## **ABSTRACT**

This study examines the capital structure theories, specifically the trade-off theory and the pecking order theory. It also analyses the influence of the capital structures choice among 72 listed industrial companies on the Johannesburg Stock Exchange Ltd (JSE) in South Africa from 2005-2013 to determine whether these firms follow the trade-off theory or the pecking-order theory.

The external database (INET BFA) was used to obtain the data needed for the statistical analysis. From the database, annual standardised financial statements, statement of comprehensive income, cash flow statements, financial ratios, statement of change in equity and the retained earnings to debt ratio of all the listed industrial companies in South Africa from 2005- 2013 were extracted in order to enable the conducted research. A multiple regression and correlation analysis were carried out the with leverage ratio (trade-off theory) and the retained earnings to debt ratio (pecking order theory) as the independent variables and share price as the dependent variable, in order to examine which of the two theories is closely related to share prices in South Africa.

Furthermore, a multiple regression and correlation analysis was also done with common shares issued, retained earnings, long-term debt and weighted average cost of capital as the independent variables and share price as dependent variable, to determine if there is a relationship between the capital structure and share prices of the listed industrial company.

The results indicated that there were little or no influence of capital structure theory on share prices, the financing practices and the performance of listed companies in South Africa. This indicated that industrial companies in South Africa rarely practice capital structure in accordance with the capital structure theories. Moreover, retained earnings and long-term debt have a positive influence on the performance of listed industrial companies in South Africa from 2005-2013, while common shares issued and weighted average cost of capital have little or no influence on the performance of listed industrial companies in South Africa from 2005-2013.

**Keywords:** capital structure; common shares issued; long-term debt; pecking-order theory; retained earnings; share price; trade-off theory; weighted average cost of capital.

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## **ABBREVIATIONS**

GDP	Gross domestic product
JSE	Johannesburg Stock Exchange
M & M	Modigliani and Miller
NPV	Net Present Values
NS	Not Significant
S	Significant
SSPS	Statistical Package for Social Sciences
WACC	Weighted Average Cost of Capital

# CHAPTER ONE: INTRODUCTION

## 1.1 INTRODUCTION AND BACKGROUND

Management is persistently in search of an optimal mix of debt to equity, or capital structure that maximises the value of the firm and decreases its risk profile; capital structure can thus be described as the mix of debt and equity that a firm or organisation uses to finance its operations (Gitman 2003:398). Capital structure practices are critical to the survival and financial well-being of companies. One of the reasons for companies' failure is a result of poor management decisions regarding the choice of alternative funding sources (Addae, Nyarko-Baasi & Hughes 2013:215). The usefulness of capital structure in an organisation would increase the firm's value and maximise the value of the shareholders' ownership. Previous research shows that capital structure decisions are determined by a complex set of factors (Chen 2004:135; Bhabra, Liu & Tirtiroglu 2008:342; Frank & Goyal 2009:5) and the significant set of factors that influence capital structure decision are proportion of tangible assets, size, profitability, and growth opportunities (Bhabra *et al.* 2008:345).

One of the primary goals for all companies is to maximise shareholder's value (Annalien 2010:1). To achieve this, firms need to determine the optimum capital structure by taking into consideration the internal and external environment (Milken 2009:21). According to Ross, Westerfield, Jaffe and Jordan (2009:432), the goal of financial decisions is to maximise the market value of existing owners' equity and opines that good financial decisions increase the market value and poor financial decisions decrease it. Capital structure decisions increase profitability and firm value through, for example, the present value of tax savings from the use of debt (Johannes & Dhanraj 2007:28).

Furthermore, the capital structure has attracted a great deal of academic research attention on the relationship between a firm's cost of capital, its value and its capital structure (David & Olorunfemi 2010:170). However, Correia, Flynn, Uliana and Wormald (2007:14-1) state that it is unclear whether differing capital structures can lead to differing costs of capital. If this relationship holds, financial managers should determine the capital structure, which leads to the lowest cost of capital and which consequently maximises the value of the company. According to Correia *et al.* (2007:14-2), the lower the firm's cost of capital, the higher the value of the firm because this capital structure will be most beneficial to the firm's shareholders.

The literature in the area of finance indicates that over the years, academics have not been successful in developing a model to explain decision making in an important area such as capital structure (Larson & Harmon 2007:312). The manner in which firms take capital structure decisions has been one of the most extensively researched areas in corporate finance (Ezeoha & Okafor 2009:250). Previous research has provided some insights into the determinants of capital structure (Welch 2004:107; Chazi, Terra & Zanella 2010:195). The evaluation of capital structure practices raises the need for this study to critically analyse and determine whether capital structure practices among the listed industrial companies on Johannesburg Stock Exchange Ltd (JSE) in South Africa are in line with the capital structure theories.

## **1.2 THEORETICAL FRAMEWORK**

The trade-off theory and the pecking order theory will be used for the purpose of this study. The key factors that influence the capital structures will be examined and discussed. Modigliani and Miller (1958:261; 1963:433) argue that there must be a link between the cost of equity and capital structure. This is most clearly articulated in the many studies (Myers 1984:576; Gitman 2003:544; Adeyemi & Oboh 2011:131; Thimmaiah 2015) that develop trade-off theories of capital structure. From these studies, it can be argued that an optimal capital structure is determined by trading the net cost of equity against the net cost of debt. The net cost of debt is determined principally by the contrasting benefits of debt tax shield, disciplinary role of debt, reduction of free cash flow problems and the fact that debt suffers less from informational costs than outside equity (Myers, 1984:575).

As stated by Vries (2010:1), the existence of an optimal or target capital structure has been questioned and challenged ever since Modigliani and Miller's article on capital structures in 1958. The principal alternative is that capital structure represents the simple accumulation of individual capital-raising choices (Adeyemi & Oboh 2011:132). The pecking order theory, modified by Myers and Majluf (1984:188), suggests that due to adverse selection, firms will prefer internal equity financing to debt, and debt to external equity. Jibrán, Wajid, Waheed and Muhammad (2012:86) considered the pecking order theory as one of the most influential financial theories and it remains an essential part of corporate finance. Abanis, Sunday, Burani and Eliabu (2013:2), are of the opinion that pecking order theory suggests that there is no well-defined optimal capital structure of a firm, instead the debt ratio is the result of hierarchical financing over time. The authors further observe that companies have preference to choose



internal financing before external financing. Therefore, when a firm is forced to use external financing sources, it will select the least risky and demanding source first, and when it is necessary, to issue external sources. Debt issuance is preferred to new equity and the key prediction of pecking order theory is the strict ordering of financing the company (Frank & Goyal 2005:24).

### **1.3 PROBLEM STATEMENT**

Listed South African industrial companies face the challenge for survival in the current economic climate; in essence, companies should be watchful of the impact of the capital structure practices on firm value (OECD 2013:11). Most research on capital structure indicates that, despite the theories that govern financing decision making activities in practice, capital structure policy decisions are often not in line with the developed theories (Bancel & Mittoo 2004:105; Graham, Harvey & Rajgopal 2005:5; Brounen, De Jong & Koedijk 2006:1410).

However, for decades there has been enormous debate regarding the capital structure of firms and the determination of an optimal capital structure in order to select capital structure in a manner more consistent with optimal trade-off or with pecking order (Bokpin & Isshaq 2008:210). Empirical studies show that certain company finance practices deviate from finance theory and point to conflicting interpretations (Ryan & Ryan 2002:355; Leary & Roberts 2010:333). For a company to survive, it must have sound capital structure practices, as this is essential to the survival and growth of a firm (Arnold 2005:3). Given this backdrop, this study will examine the capital structure practices and share price among listed industrial companies on the JSE in South Africa and ascertain whether the capital structure practices are in line with the capital structure theories, specifically the trade-off theory and pecking order theory.

### **1.4 RESEARCH QUESTIONS**

The following research questions were formulated:

- Are capital structure practices of industrial companies in South Africa in accordance with the financing theories?
- Does capital structure practice have an influence on the performance of listed industrial companies on the JSE in South Africa?

- What is the impact of debt and equity in the financing of listed industrial companies on the JSE in South Africa?

## **1.5 RESEARCH OBJECTIVES**

### **1.5.1 Primary objective**

The primary research objective of this study is to analyse capital structure practices and the influence on the share price among industrial companies on the JSE in South Africa.

### **1.5.2. Theoretical objectives**

In order to achieve the primary objective, the following theoretical objectives are formulated for the study:

- To review literatures on capital structure theories;
- To conduct a literature study on capital structure practices;
- To examine the importance of capital structure practices; and
- To review the literature on the influence of debt and equity in financing operations of listed industrial companies on the JSE, South Africa.

### **1.5.3 Empirical objectives**

In order to achieve the primary objective, the following empirical objectives were formulated for the study:

- To investigate the influence of capital structure theories (the trade-off theory and pecking order theory) on share price among listed industrial companies in South Africa; and
- To ascertain whether capital structure decisions have had an influence on the share price performance of South African listed industrial companies.

## **1.6 RESEARCH DESIGN AND METHODOLOGY**

The research design provides the link that holds the research project together and it is used to structure the research. According to Babbie and Mouton (2009:72), a research design is a plan or structured framework of how one intends to conduct research, solve a research problem or answer a research question, while methodology refers to the methods, techniques and procedures employed in the process of implementing the research plan or design.

### **1.6.1 Empirical study**

For the purpose of this study, secondary data was obtained and quantitative analysis was carried out. A quantitative study seeks to explain and quantify data with the application of statistical analysis (Creswell 2009:214). In order to achieve the objectives of the study, the information relating to the capital structure of listed industrial companies on the JSE in South Africa and other financial data was obtained from the former McGregor Bureau of Financial Analysis now known as INET BFA online database.

### **1.6.2 Target population**

Welman, Kruger and Mitchell (2005:52) define population as “the study object, consisting of individuals, groups, organisations, consumer products and events or the conditions to which they are exposed”. The population encompasses the total collection of all units of analysis about which the researcher wishes to make specific conclusions. The population of this study is all the listed industrial companies on the JSE in South Africa for the period 2005-2013, therefore no sampling method will be used. This date range was selected to show the impact of the economic crisis on company capital structure.

### **1.6.3 Data collection**

The standardised annual financial statement data of listed industrial companies was obtained from the INET BFA database and was used to collate the required information.

### **1.6.4 Data analysis**

Data analysis is the process of evaluating data using analytical and logical reasoning to examine each component of the data provided and this form is one of the steps of analysis that must be completed when conducting research. To analyse the relationship between the variables, both multiple regression and correlation analysis was used in order to examine the financing behaviour of listed industrial companies on the JSE in South Africa during the period. These analyses were conducted using the Statistical Package for Social Sciences (SPSS) version 16.0 analysis tool.

## **1.7 ETHICAL CONSIDERATIONS**

Ethics refer to commonly accepted standards of right and wrong behaviour (Cant, Gerber-Nel, Nel & Kotze 2011:301). It is the responsibility of the researcher to consider whether any type of harm could occur as part of this study and needs to ensure that mechanisms are instituted to eliminate this potential harm. The researcher ensured that all secondary data and published data collected from INET BFA were used only for statistical purposes and the truth was not compromised.

## **1.8 OUTLINE OF THE STUDY**

This dissertation was divided into the following chapters:

### **Chapter 1: Introduction**

This chapter was outline the background of the study, the problem statement, objectives of the study and the research methodology and design to be used.

### **Chapter 2: Literature review**

This chapter contains the literature review of capital structure practices, and also examined and discuss the relevant theories of the capital structure as well as the importance of the capital structure as related to the listed industrial companies on the JSE in South Africa.

### **Chapter 3: Research methodology**

The chapter described the research design and methods were used in detail.

### **Chapter 4: Result analyses interpretation**

This chapter focused on the statistical analyses and the interpretations of research results were presented.

### **Chapter 5: Summary, recommendations and conclusions**

A summary of the findings and conclusions drawn on the analysis of capital structure practices among listed industrial companies on JSE in South Africa were presented. The recommendations and limitations were highlighted as well as suggestions for future research opportunities were made.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 INTRODUCTION**

Capital structure is a replication of a firm's borrowing policy and it can be referred to as the mix of long-term debt and equity financing (Brealey, Myers & Marcus 2009:441). According to Abor (2005:438), capital structure of a firm is a mix of different securities issued by firms to finance their operations. In general, firms can choose among many alternative capital structures and issue different securities to find the actual combination that minimises the cost of capital and thus maximises firm value (Kebede 2011:2). Capital structure of an establishment refers to the kinds of securities and the proportionate amounts that make up capitalisation; this is the mix of different sources of long-term resources such as equity shares, preference shares, debentures, long-term loans and retained earnings (Paramasivan & Subramanian 2009:47).

Thus, the term capital structure refers to the relationship between the various long-term sources of financing such as equity capital, preference share capital and debt capital and determining the suitable capital structure is one of the most important decisions of the financial management because it is closely related to the value of the firm (Richard, Stewart & Franklin 2011:524). Capital structure is the permanent financing of the company represented primarily by long-term debt and equity. According to Brigham and Daves (2004:5), the principal goal for most companies is to create value for shareholders and maximise the overall value of the business. To achieve this, firms need to determine their target capital structure by considering their internal and external environment.

For a company to evaluate its financial performance, it is important to put into consideration all interest bearing borrowings as loan capital regardless of whether they are short term or long-term loans (Ward & Price 2008:59). Firms manage their capital structure by issuing new debt and equity and by settling old debt or repurchasing issued shares. The financing decision, therefore, obliges the financial manager to decide on whether to fund projects that the firm undertakes through retained earnings, debt or equity or other hybrid funding instruments and the funding mixture chosen will affect both the risk and value of the firm (Firer, Ross, Westerfield & Jordan 2008:100).

## **2.2 SOURCES OF FINANCE**

Sources of finance refer to the ways of mobilising various terms of finance to the industrial concern and financial requirements in order to meet the company's goals and objectives. The capital structure of a firm consists of different sources, which are presented in the equity and liability side of the statement of financial position. According to Brigham and Daves (2004:296) firms have three main sources of financing, which can also be referred to as capital components, at their disposal to fund new investment opportunities and these include the use of retained earnings (internal equity), issuing new shares (external equity) or borrowing money through debt instruments (debt capital). The sources of financing constitute the capital structure of a firm and reflect the ownership structure of the firm (Huang & Vu Thi 2003:20). Internal and external equity represents ownership by the shareholders, while debt capital represents contributions by debt holders. The following are the likely sources of finance:

### **2.2.1 Debt**

According to Zietlow, Hankin and Seidner (2013:271) debt is one of the important items in the capital structure of companies and it provides a medium for corporate financing as firms borrow money in order to obtain the capital they require for capital expenditure. The main characteristic of debt financing is that the amount borrowed, plus interest, must be paid back to the providers of debt over a given period of time. Berger and Black (2011:725) indicate that debt secured by fixed assets may provide an especially strong incentive to make scheduled debt payments because a firm could be crippled without access to such assets. Debt financing includes both secured and unsecured loans. Security involves a form of collateral, as an assurance that the loan will be repaid. Secured debt gives lenders rights to collateral in the event of debtor default (Berk & DeMarzo 2007:758).

If the debtors default or do not fulfil their obligations set out in the loan contract, the collateral will be forfeited to satisfy payment of debt and this can negatively impact on the company's credit rating, making it more difficult to obtain loans in the future and it can also lead to financial failure. Even if a firm suffers financially and is not able to make the scheduled payments, they still have an obligation towards the debt providers. Therefore, any form of debt must be recorded in the balance sheet of a firm, because if bankruptcy occurs, the debt provider must be paid back with the remaining assets of the firm (Gamba & Triantis 2013:24).

According to Vries (2010:24), debt financing offers different advantages and disadvantages to the firm, namely:

#### **2.2.1.1 Advantages of debt financing**

- The institution that lends the money to the firm does not gain an ownership interest in the business; the firm retains ownership and control.
- The lenders of debt do not share in the profits of a firm. A firm's only obligation is to make payments in a timely manner. Once the borrowed money is paid back, there are no more obligations toward the lenders.
- Debt funding is quick to obtain, thus acquisitions or major projects tend to be funded by debt, if possible.
- Debt financing offers a tax advantage, because the interest payments on the loan are deductible for tax purposes.
- Except in the case of variable rate loans, principal and interest obligations are known amounts, which can be forecast and planned.
- A lender is entitled only to repayment of the agreed-upon principal of the loan plus interest, and has no direct claim on future profits of the business. If the company is successful, the owners reap a larger portion of the rewards than they would if they had sold stock in the company to investors in order to finance the growth.
- The company is not required to send periodic mailings to large numbers of investors, hold periodic meetings of shareholders or seek the vote of shareholders before taking certain actions.
- Using the debt financing has signalling effects due to asymmetric information. Issuing debt may be a signal for the company's strength because managers are confident that they will not go into bankruptcy and do not want to dilute existing shares. It can also signal a commitment to increase output to rival firms.

### **2.2.1.2 Disadvantages of debt financing**

- A firm is obliged to make timely payments on the debt as set out in the contract. If the firm does not fulfil this obligation, it can negatively influence the credit rating of the firm and make future borrowing more difficult.
- Sometimes financial institutions seek security for their funds, which means a firm can lose business or personal assets if they default on their payments.
- A firm always is exposed to the risk of bankruptcy when they make use of debt financing.
- Using debt financing increases the company's risk level. The company is more sensitive to economic downturns, interest rate variability, and changes in market conditions.
- Cash flow is required for both principal and interest payments and must be budgeted for.
- Taking on more debt increases agency costs (and potential agency conflict) between debt holders and equity holders. If a firm takes on more debt and eventually becomes insolvent, equity holders will want to take on more risk. Because equity holders do not really get paid in case of a bankruptcy, they benefit from high upsides and do not care about high downsides.
- Debt instruments often contain restrictions on the company's activities, preventing management from pursuing alternative financing options and non-core business opportunities.
- The company is usually required to pledge assets of the company to the lender as collateral, and owners of the company are in some cases required to guarantee repayment of the loan personally.

Based on the aforementioned advantages and disadvantages, it can be deduced that debt financing offers numerous advantages to a firm, but when considering the likely disadvantages, it is apparent that in capital structure, a firm cannot make use of only debt. The management needs to integrate other financing sources in order to be able to lower their risk, especially in terms of insolvency or liquidation. Outside investors might probably reject that company as a possible investment due to the large risk it carries, if a firm uses only debt in its capital structure.



### **2.2.2 Equity**

Equity enables the firm to obtain funds without incurring debt. This means that the funds obtained through equity do not have to be repaid at a particular time. The investors who purchase shares in the firm hope to reclaim their investment out of future profits. According to Correia *et al.* (2007:14-2), the equity of a company is the funds supplied by the shareholders, and the rewards for these funds are the dividend paid to the shareholders and the capital growth in the value of the shares. According to Sibilkov (2009:1173), the shareholders have the privilege to share in the profits of the firm in the form of dividends and/or future capital gains; the risk to the company is low because, in the event of economic hardship, the dividend need not be paid. Furthermore, if the firm suffers a loss, the shareholders have limited liability, which means that the only loss they face is the amount that they had invested in the firm. On the other hand, when there is no economic meltdown, the shareholders will benefit greatly as the dividend is higher or the capital growth is higher.

According to Aamir (2013:4), equity financing offers different advantages and disadvantages to the firm, namely:

#### **2.2.2.1 Advantages of equity finance**

The following are the advantages of equity finance:

- The funding is committed to the business and the company's intended projects. Investors only realise their investment if the business is doing well, for instance, through stock market flotation or a sale to new investors.
- The firm will not have to keep up with costs of servicing bank loans or debt finance, allowing the firm to use the capital for business activities.
- Outside investors expect the business to deliver value, helping the firm to explore and execute growth ideas.
- The right business and venture capitalists can bring valuable skills, contacts and experience to the business. They can also assist with strategy and key decision making.
- In common with the firm's objective, the investors have a vested interest in the business' success, that is, its growth, profitability and increase in value.
- Investors are often prepared to provide follow-up funding as the business grows.

### **2.2.2.2 Disadvantages of equity finance**

The following are the principal disadvantages of equity finance:

- Raising equity finance is demanding, costly and time consuming, and may take management focus away from the core business activities.
- Potential investors will seek comprehensive background information on the company as a whole. They will look carefully at past results and forecasts and will probe the management team. Many businesses find this process useful, regardless of whether or not any fundraising is successful.
- The shareholders become part owners of a firm and thus gain a say in business decisions. This can cause ownership interest to become diluted, which means that management faces a loss of control over the firm.
- Depending on the investor, the firm might lose a certain amount of power to make management decisions.
- The firm will have to invest management time to provide regular information for the investor to monitor.
- At first, the firm will have a smaller share in the business - both as a percentage and in absolute monetary terms. However, the reduced share may become worth a lot more in absolute monetary terms if the investment leads to the business becoming more successful.
- There can be legal and regulatory issues to comply with when raising finance, for instance, when promoting investments.

Based on the aforementioned advantages and disadvantages, it can be deduced that equity might seem to be a very good financing option, especially since a firm has no obligation to repay the funds to the shareholders. However, when considering the disadvantages of equity, the use of equity as a single source of finance will not be a very wise decision by management.

## **2.3 COST OF CAPITAL COMPONENT**

Cost of capital is an integral part of investment decision making as it is used to measure the worth of investment proposal provided by the business concern. It is used as a discount rate in determining the present value of future cash flows associated with capital projects. According to Hampton (2011:254), cost of capital is the rate of return the firm required from investment in

order to increase the value of the firm in the market place, and a firm's capital consists of equity (retained earnings and funds from issuing stock) and debt (borrowed funds). Brealey, Myers and Allen (2008:240) stated that the firm's company cost of capital reflects an opportunity cost; the expected return that is forgone by investing in particular projects instead of the relative financial securities, and is used as the discount rate for a firm's projects. Cost of capital can also be referred to as cut-off rate, target rate, hurdle rate or required rate of return. When the firms are using different sources of finance, the finance department must take careful decision with regard to the cost of capital because it is closely associated with the value of the firm and the earning capacity of the firm (Bhanvadia, Ganeriwal, Mehta & Modi 2010:8).

According to Brigham and Daves (2004:296), the one common feature in all these capital components is that the investors who provide funds expect to receive a return on their investment. This is in consonance with the firm's overall object of wealth maximisation. The retained earnings of listed firms are that portion of its distributable profit that is not paid out to shareholders in the form of dividends; it is the amount reinvested in the firm. This will incur an opportunity cost for the shareholders since those retained earnings could have been paid out as dividends, and if they had been paid dividends, the shareholders could have reinvested that money in other investments.

According to Paramasivan and Subramanian (2009:66), the cost of capital is based on certain assumptions, which are closely associated while calculating and measuring the cost of capital. It is to be considered that there are three basic concepts:

- It is not a cost as such, but merely a hurdle rate.
- It is the minimum rate of return.
- It consists of three important risks, namely zero risk level, business risk and financial risk.

Cost of capital can be measured with the help of the following equation.

$$K = r_j + b + f.$$

Where:

K = Cost of capital.

$r_j$  = The riskless cost of the particular type of finance.

b = The business risk premium.

f = The financial risk premium.

Source: Paramasivan and Subramanian (2009:66)

### **2.3.1 Importance of cost of capital**

The computation of the cost of capital is a very important part of the financial management to decide the capital structure of the business concern. According to Paramasivan and Subramanian (2009:67), the following are the importance of cost of capital:

- Capital budget decisions largely depend on the cost of capital of each source. According to the net present value method, the present value of cash inflows must be more than the present value of cash outflows. Hence, cost of capital is used for capital budgeting decisions.
- Capital structure is a mix or proportion of the different kinds of long-term securities. A firm uses particular types of sources if the cost of capital is suitable. Hence, cost of capital helps to take decisions regarding structure.
- Cost of capital is one of the important determinants factors, which affect the capital budgeting, capital structure and value of the firm. Hence, it helps to analyse the financial performance of the firm.
- Apart from the abovementioned, cost of capital is used in some other areas, such as market value of shares and earning capacity of securities, hence; it plays a major part in the financial management of the firm.

## **2.4 WEIGHTED AVERAGE COST OF CAPITAL**

The weighted average cost of capital (WACC) is the common way in which the cost of capital is expressed and has two main components, namely debt and equity, and their relative weightings. Where tax calculations are applicable, WACC will be affected (Mgudlwa 2009:18). Firms often use WACC to determine the cost of capital in their evaluation calculations (Idialu & Arowosegbe 2013:112). Put simply, a company's assets are financed by either debt or equity, and WACC is simply the average of these costs of financing. It is the economic yield (return) a company would give up by investing in a particular investment instead of alternative

investments of the same risk and characteristics (Pricewaterhouse Coopers Corporate Finance 2010:27). Therefore, WACC is used often to determine the economic feasibility of specific opportunities, such as expansion.

According to Ryan (2002:6), WACC has been noted as the favoured approach to determine cost of capital and is the superior method in determining the cost of capital. In order to determine WACC, a firm will make use of its cost of equity, cost of debt, the tax rate and values of debt and equity in the capital structure (Cohen 2002:12).

According to Brigham and Houston (2004:371), the following equation is used to determine WACC:

$$\text{WACC} = w_d k_d (1-T) + w_p k_p + w_c k_s$$

Where:

$w_d$ ,  $w_p$  and  $w_c$  are the weights used for debt, preferred equity and common equity (retained earnings and common stock), respectively;

$k_d = (1-T)$  is the after-tax cost of debt;

$k_p$  = the cost of preferred equity, and

$k_s$  = the cost of common equity.

Various factors influence WACC, and some of these factors are beyond the control of a firm, such as interest rates and tax rates. According to Vigario (2006:69), the following are the factors that influence WACC:

- Use of market values of the various components when weights are determined and in the absence of market values, book values should be used. Vigario (2006:69) notes that WACC calculated at book value has little value.
- There are instances where a target structure (that is, the sequence and the proportion in which each company proposes the structure) is suggested, it is recommended that such target structure be fulfilled.
- When the WACC is used as a discount rate in incremental projects, the assumption is that the new project has the same risk profile as existing projects.
- Lower WACC means higher value, whereas a higher WACC is equal to lower value.
- WACC technique may be the most relevant approach for gearing purposes.

- WACC can be used as a cut-off or discount rate for calculating the net present values (NPVs) of projected cash flows for new investments provided.
- The capital structure is reasonably constant and unchanged.
- If the capital structure changes, the WACC calculation will change, as this will alter the required return characteristics due to the change in risk.
- The new investment is marginal (relatively small in relation to the total capital structure) to the entity.

According to Chowdhury and Chowdhury (2010:112), the objective of most listed companies is to maximise their value, and this objective can be achieved by choosing the correct combination of debt and equity and the right combination can minimise its WACC, and consequently, maximise the firm's value.

## **2.5 CAPITAL STRUCTURE THEORIES**

The Modigliani and Miller (M & M) (1958; 1963) model being the pioneer of the theories has been repeatedly referred to when researching the capital structure theories, by the likes of Bokpin and Isshaq (2008:210), Salawu and Agboola (2008:76), Adeyemi and Oboh (2011:131), and Mohohlo (2013:10). Pagano (2005:238) reviewed most theorems based on the Modigliani and Miller model and their relevance. An understanding of capital structure theory will enable management to make the best decision on the financing of the firm. Myers (1984; 2001; 2003), one of the researchers on capital structure, states that there is no universal theory of the debt-equity choice and no reason to expect one. There are numerous theories on the subject and although the theory does not provide all the needed answers, it provides useful insights, which will aid management in their decision making process (De Wet 2013:766). Although there are numerous theories, for the purpose of this study the trade-off theory and the pecking order theory will be discussed because they are not mutually exclusive in explaining the capital structure decisions.

### **2.5.1 Trade-off theory**

The theoretical foundation for the trade-off theory originates from M and M's model (1958; 1963), which suggests that the optimal capital structure is all debt because of the tax deductibility of interest expense. Firer *et al.* (2008:524) also stated that the value of the levered

firm would be equal to the value of the unlevered firm plus the value of the tax deductibility of debt at the firm's corporate income tax rate. Therefore, trade-off theory states that there is an optimal capital structure that maximises the value of a firm and management will set a target leverage ratio to work towards. The target leverage ratio is being influenced by three factors, namely tax, financial distress costs and agency costs. Hence, managers will choose the combination of debt and equity that achieves a balance between the benefits of debt and the various costs associated with debt (De Wet 2006:4).

Hennessy and Whited (2005:65), Leary and Roberts (2005:619), and Strebulaev (2007:1787) analysed the implications of the trade-off theory for leverage ratios, showing that the theory can be reconciled with existing empirical evidence. The trade-off theory suggests that there is an optimum capital structure in which the benefit of debt is offset by the cost of debt. The optimum capital structure can be achieved when the marginal benefit of an incremental unit of debt is equally offset by the marginal cost of an incremental unit of debt (Fama & French 2005:550; Gwatidzo 2008:76). The purpose of the trade-off theory of capital structure is to explain the fact that corporations usually are financed partly with debt and partly with equity.

According to Odeleye (2014:57), the advantage to financing with debt is the tax benefits of debt and the cost of financing with debt is the costs of financial distress including bankruptcy costs of debt and non-bankruptcy costs. Odeleye (2014:57) further notes that, the marginal benefit of further increases in debt declines as debt increases, while the marginal cost increases, so that a firm that is optimising its overall value will focus on this trade-off when choosing how much debt and equity to use for financing.

The trade-off theory attempts to incorporate the costs of financial distress into the capital structure decision. According to Myers (2003:221), the value of the firm per the trade-off theory can be calculated as follows:

$$V = V_u + PV_t + PV_{fd}$$

Where:

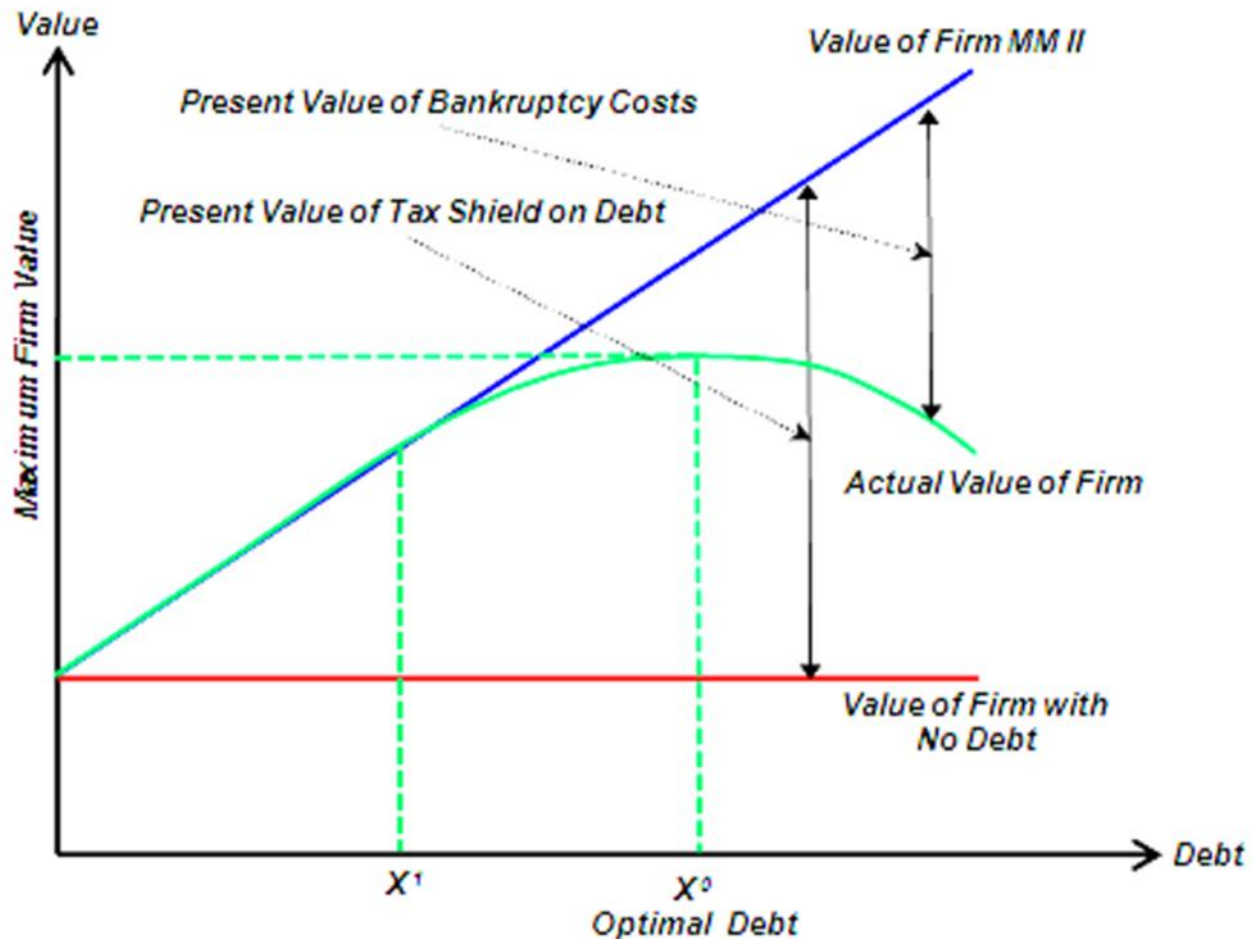
$V$  = value of the firm

$V_u$  = value of an unlevered firm

$PV_t$  = present value of interest tax shields

PVfd = present value of the cost of financial distress.

**Figure 2.1: Trade off theory's value of the firm**



Source: Ross, Westerfield, Jaffe and Jordan (2008:465)

According to Figure 2.1, the debt equity ratio (i.e. leverage) increases, there is a trade-off between the interest tax shield and bankruptcy, causing an optimum capital structure, debt. According to the trade-off theory, a firm must decide on a target debt ratio, which maximises its value and then slowly moves towards that target debt ratio. The optimal capital structure is found when the marginal benefit of each incremental unit of debt (i.e. interest tax shield) is equal to marginal cost of each incremental unit of debt (i.e. financial distress costs) (Gwatidzo 2008:76).



Hackbarth, Hennessy and Leland (2007:1425) arrived at the conclusion that the trade-off theory is sufficient to explain broad generalisations regarding capital structure. In addition, Kayhan and Titman (2007:28) conclude that over time, capital structures of firms tend to move toward target debt ratios that are consistent with the trade-off theories of capital structures.

### **2.5.2 Pecking order theory**

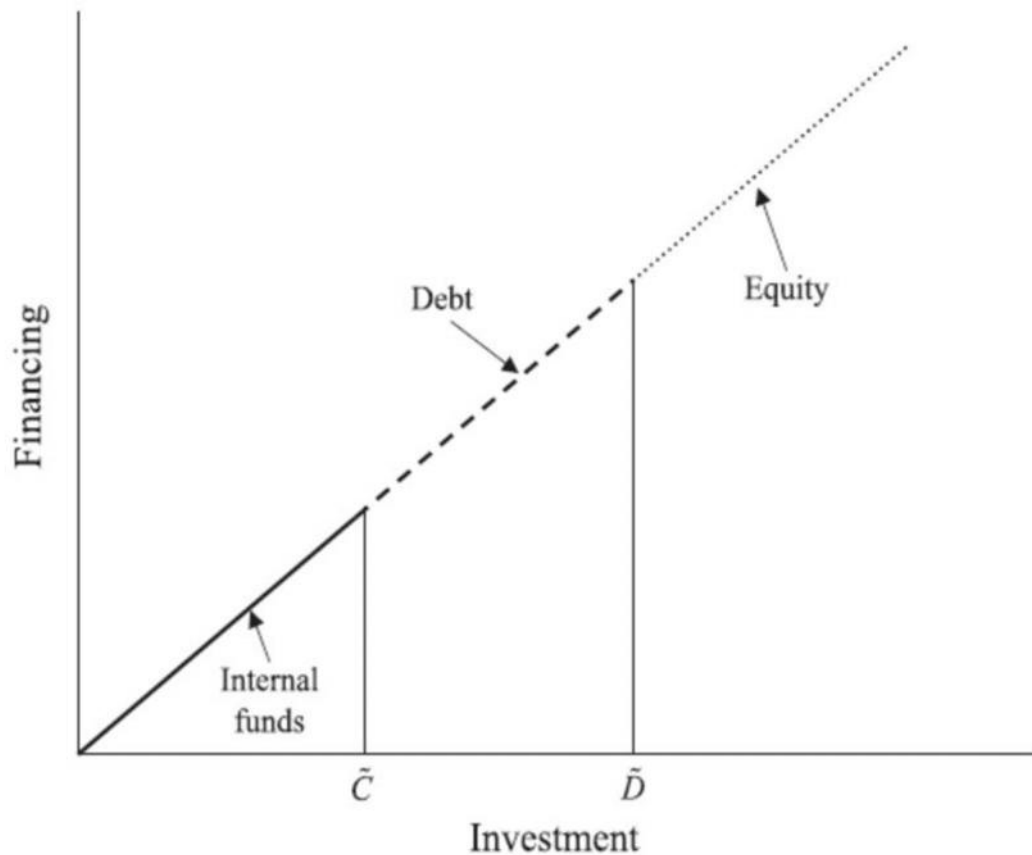
The pecking order theory is another method to the optimal capital structure. The pecking order theory of capital structure is among the influential theories of capital structure and its concept is that firms follow a certain hierarchy of preferences for different types of finance, reflecting their relative costs with the ranking being internal finance first, then, the safest security (debt), and equity as a last option (Myers, 1984; Kebede 2011:2). According to Brealey *et al.* (2009:445), in applying the pecking order theory, management prefers internally generated funds to externally generated ones. If external debt is ever required, debt finance is preferred to equity finance. In other words, managers rank their order of financing in order of internally generated finance, and then externally generated finance with debt ranking before equity. Managers use this order or ranking in an attempt to preserve the value of the firm and more importantly to counter the wrong signals of issuing equity in the first place (Addae *et al.* 2013:219).

In pecking order theory, internal financing is preferred because it incurs no flotation costs and requires no disclosure of the firms' financial information that may include firms' potential investment opportunities and gains that are expected to accrue as a result of undertaking such investments (Serrasqueiro, Nunes & Da Silva 2012:363). According to Frank and Goyal (2003:220), and Smart, Megginson and Gitman (2007:770), this theory is influential because it fits naturally with certain facts relating to how firms obtain and use external financing, and also explains certain financing patterns in firms unlike the trade-off theory. Therefore, this theory suggests that profitable firms, firms with significant amounts of retained earnings, tend to maintain low levels of debt in their capital structure.

The pecking order theory arises if the costs of issuing risky securities such as transactions costs and the costs created by management's superior information about the value of the firm's risky securities overwhelm the costs and benefits proposed by the trade-off model (Fama & French 2005:555). Although, the pecking order theory is based on the adverse selection based on

information asymmetry, it has been proven that information asymmetry does not need to exist for a financing hierarchy to arise. However, it has been shown that other factors such as incentive conflicts could generate pecking order theory behaviour (Leary & Roberts 2010:335). Furthermore, pecking order theory explains and suggests that the profitability of a firm influences its financing decisions (Kyereboah-Coleman 2007:271).

**Figure 2.2: Illustration of the pecking order theory**



Source: Leary and Roberts (2010:334)

According to Figure 2.2, the pecking order theory illustration, firms will first finance new investments with retained earnings, then with safe debt, then risky debt and finally, but only under duress, with outside equity in order to lessen adverse selection costs (Fama & French 2005:550).

According to Ibrahima, Nor, Ibrahim, Alias and Haron (2011:27), a firm generally will choose to finance an investment with internal funds such as retained earnings first, followed by new debt and finally with new equity. Shivdasani and Zenner, (2005:26) espouse that another reason

firms might choose to maintain a debt capacity would be to maintain their credit ratings and opine that debt capacity also enhances the firm's ability to endure periods of poor performance and allows for the execution of a recovery plan. According to Naidu (2011:30), the pecking order theory implicates the following arise:

- A firm may not have a target capital structure. Rather, a firms' capital structure is as a result of a series of short-term financing choices viewed over the long-term. The short-term financing choices are merely deciding which item on the pecking order is more desirable at a particular point in time.
- Highly profitable firms make less use of debt. As a profitable firm is most likely to have large retained earnings, its need for external financing is minimal.
- Firms prefer financial capacity. As the pecking order theory is based on the costs of obtaining financing, it stands to reason that the marginal costs of financing of new projects does not become an issue if the financial capacity were available in advance to fund future projects. Firms will be able to make use of funds immediately available to pursue opportunities when they arise rather than waste time and incur additional cost in approaching the capital markets. However, management must exercise caution as excess availability of cash can lead to temptation for investing in projects that do not necessarily add value to the firm.

The pecking order theory assumes that management behaviour and actions are in the best interests of existing shareholders and any equity issues are due to current equity being overvalued and such value is to be transferred to existing shareholders upon the new issue (Myers 2003:223).

### **2.5.3 Trade-off vs pecking order theory**

The trade-off theory has the most support, although the pecking order theory has undergone a strong revival (De Wet 2006:5). Each theory provides a different explanation for the financing behaviour of firms. The financial study shows that the trade-off model is useful for explaining corporate debt levels, while the pecking order model is superior for explaining capital structure changes. According to Huang and Vu Thi (2003:19) and Liesz (2008:7), the following are the comparisons between the trade-off and pecking order theories:

**Table 2.1: Trade-off vs pecking order theories**

<b>Trade-off theory</b>	<b>Pecking order theory</b>
The trade-off theory implies a static approach to financing decisions based upon a target capital structure.	Pecking order theory allows for the dynamics of the firm to dictate an optimal capital structure for a given firm at any particular.
The trade-off theory conforms with value maximising construct.	The pecking order theory considers managerial motivations.
It considers the influences of taxes, transaction costs and financial distress.	The pecking order theory considers the influence of financial slack and availability of positive NPV projects.
It disregards the impact of capital market signals.	It recognises capital market signals.
It disregards concerns regarding proprietary data.	It recognises proprietary data concerns.
It cannot explain many real-world practices.	It explains many real-world practices.

Source: Huang and Vu Thi (2003:19); Liesz (2008:7)

## **2.6 ASSUMPTIONS OF CAPITAL STRUCTURE**

Paramasivan and Subramanian (2009:58) cited that M and M states that the financing decisions of a firm do not affect the market value of a firm in a perfect capital market. According to M and M (1958; 1963), capital structure theories are based on the following assumptions in order to analyse in a single and convenient manner:

- There are only two sources of funds used by a firm: debt and shares.
- The firm pays 100 percent of its earnings as dividends.
- The total assets are given and do not change.
- The total finance remains constant.
- The operating profits (EBIT) are not expected to grow.
- The business risk remains constant and is independent of capital structure and financial risk.
- The firm has a perpetual life.

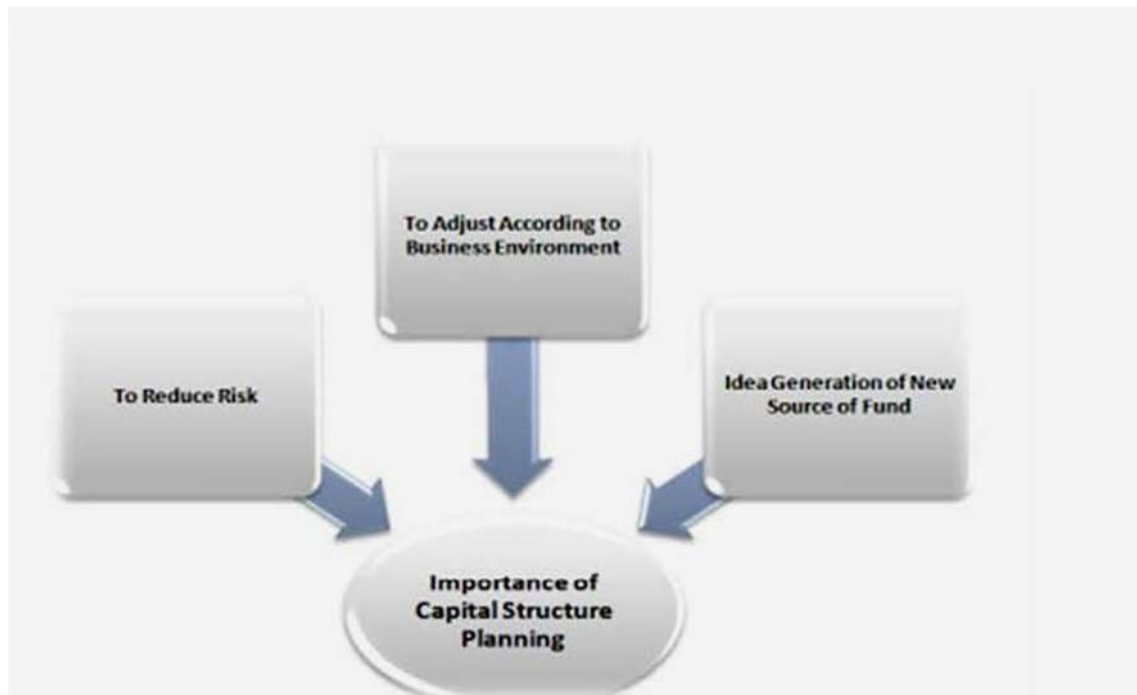
- All investors have the same subjective probability distribution of the future expected operating earnings for a given firm.

## **2.7 IMPORTANCE OF CAPITAL STRUCTURE**

The objective of any company is to mix the permanent sources of funds utilised in a manner that will maximise the company's market price and it is a significant managerial decision, which influences the risk and return of the investors (Sindhu & Kumar 2014:16). The company will have to plan its capital structure at the time of promotion itself and, subsequently, whenever it has to raise additional funds for various new investment decisions. Wherever, the company needs to raise finance, it involves a capital structure decision because it has to decide the amount of finance to be raised as well as the source from which it is to be raised. This decision will involve an analysis of the existing capital structure and the factors, which will govern the decision at present (Thimmaiah 2015:127).

Furthermore, Frank and Goyal (2008:140) found that industry is one of the most reliable factors explaining the capital structure choices and that industry subsumes a number of factors that are of lesser importance. Cost of capital which refers to the amount of debt and equity capital being utilised to fund utility operations, also reflects the relevance or importance of capital structure within organisations as it effectively illustrate or give an overview of the types of claims different players have on the businesses (McDermott 2012:10). The debt owners hold these claims in the form of a lump sum of cash owed to the principal and accompanying interest payments, while the equity owners hold these claims in the form of access to a certain percentage of that firm's future profit (Zhu 2014:5). In addition, it is analysed heavily when determining how risky it is to invest in a business and, therefore, how expensive the financing should be. Specifically, capital providers look at the proportional weighting of different types of financing used to fund the company's operations. The importance of capital structure can be summarised in the following diagram.

**Figure 2.3: Illustration of the importance of capital structure**



Source: Kumar (2010:2)

According to Figure 2.3, when a company plans its capital structure before actually receiving any funds from money suppliers or clients, it will be possible for the company to make adjustments for reducing its overall risk and also to adjust the amounts expected from different sources according to the business environment. Moreover, proper planning of capital structure of future sources will assist in enlarging the source of getting more finance and capital structure will make it easier for finance managers to obtain finance from new sources at a low risk.

## **2.8 CAPITAL STRUCTURES IN PRACTICE**

The M and M (1958) theory has criticised the traditional view of capital structure choice (Samuels, Wilkes & Brayshaw 1997:649; Brigham & Ehrhardt 2008:575; Brealey *et al.* 2009:450). This theory found that in well-functioning capital markets, the market value of a company does not depend on its capital structure. M and M demonstrated that it was the income generated by the firm from its business operations and the risk from its principal assets that determined value, rather than the way this income was split between the providers of

capital (Samuels *et al.*, 1997:650; Ross *et al.* 2008:447). However, Strebulaev (2007:1749) and Ferrão (2011:19) are of the opinion that firms seem to be using debt financing too conservatively.

In contrary to the claim of the traditional approach, financial managers may not be able to increase firm value by manipulating the mix of securities used to finance the company. However, the argument advanced by M and M on capital structure practice and firm value could not go without criticism since it was made under conditions that assumed a “frictionless” and, therefore, unrealistic world (Kasozi 2009:17). Nevertheless, the notable contributions of the above-mentioned author’s works indicated the conditions under which capital structure was irrelevant. M and M provided researchers and practitioners with clues as to the requirements for capital structure to be relevant and to have effect on a firm’s value (Brigham & Ehrhardt 2008:575). Brigham and Ehrhardt’s (2008:575) work marked the beginning of modern capital structure research, which today focuses on relaxing some of their original assumptions in order to develop a more realistic theory on capital structure practice.

Deesomak, Paudyal and Pescetto (2004:10) stated that higher volatility of earnings increases the probability of financial distress, since firms may not be able to fulfil their debt-servicing commitments. Thus, firm’s debt capacity decreases with increases in earnings volatility leading to an expected inverse relation with leverage. Graham and Leary (2011:18) suggest that many firms can increase their debt levels and still not reach the point of financial distress. Since the potential tax benefits would result in increased shareholder value. Cheng and Shiu (2007:34) were of the opinion that highly levered firms, as they are more likely to pass up good investment opportunities compared to their counterparts with less debt. According to Eriotis Vasiliou and Ventoura-Neokosmidi (2007:325), the growth of a firm is measured in terms of the change in annual earnings, whilst Mazur (2007:501) advances average growth rate of total assets, average growth rate of revenues from sales and long-term investment to total assets as proxies of growth opportunities.

## **2.9            VARIABLES IN THE STUDY**

The study consists of six variables, i.e., only one dependent variable (share price) and five independent variables (common shares issued, retained earnings, long-term debt, leverage ratio

and retained earnings to debt ratio). In accordance with the argument of Myers (1984:576), some of these variables are measured based on book value.

### **2.9.1 Share price**

According to the Investor Dictionary (2014), in economics and financial theory, analysts use random walk techniques to model behaviour of asset prices, in particular share prices on stock markets, currency exchange rates and commodity prices. This practice has its basis in the presumption that investors act rationally and without bias, and that at any moment they estimate the value of an asset based on future expectations and under these conditions, all existing information affects the price, which changes only when new information comes out (Meena & Malyadri 2013:333). By definition, new information appears randomly and influences the asset price randomly. Therefore, empirical studies have demonstrated that prices do not completely follow random walk. Low serial correlations (around 0.05) exist in the short term and slightly stronger correlations over the longer term (James 2012:12). Their sign and the strength depend on a variety of factors, but transaction costs and bid-ask spreads generally make it impossible to earn excess returns.

Stevens (2008:10) is of the opinion that the popularity of event studies over measurements, which rely on the study of accounting, can be attributed to the fact that share prices are much less prone to manipulation by companies than accounting profit and are hence viewed as a more reliable measure. Therefore, the movement of share prices can be an indicator of the general trend in the economy.

### **2.9.2 Leverage ratio**

Voulgaris, Asteriou and Agiomirgianakis (2010:1380) define leverage as the amount of foreign capital (liabilities) reflected on a company's balance sheet, which is expected to grow as the company grows, particularly if the lender is no security risk and will be able to repay debt. Correia, *et al.* (2007:534) maintains that leverage/gearing is the relative use of debt in the capital structure, intended to increase the return on shareholder funds in exchange for greater financial risk.



The total debt ratio is considered as a proxy for leverage because it is impossible to split total debt of the capital structure into long-term and short-term. The leverage ratio is computed by dividing total debt to the total assets of the firm. In equation, it can be expressed as below:

$$\text{Leverage} = \frac{\text{Total debts}}{\text{Total asset}}$$

The total debt ratio is employed to explain the amount of leverage being used by a firm. A high percentage reveals that the firm is highly leveraged while low percentage represents the inverse. In general, the higher the ratio, the higher the risk that the firm might default on payment of debt, thus tends to face financial distress and possible bankruptcy.

### **2.9.3 Common shares issued**

According to Cassim and Cassim (2005:285), the issued share capital of a company is seen as a guarantee fund or permanent fund intended for the payment of claims of the creditors of a company. The issued share capital of a company may not be reduced, nor may it be returned to shareholders except where the companies' policy or the common law authorises it. Issued shares include the stock that a company sells publicly in order to generate capital and the stock given to insiders as part of their compensation packages, unlike shares that are held as treasury stock, shares that have been retired are not included in this figure (Kaplan & Warren 2009:136). The amount of issued shares can be all or part of the total amount of authorised shares of a corporation.

Issuing common shares in the financial markets is an alternative to issuing debt. Rather than adding more debt to a company's balance sheet, which is a financial statement, and budgeting for the servicing of debt, a company can take a less expensive route and issue common stock (Terzo 2015). With stock, an organisation does not need to make obligatory interest payments to investors and instead can make discretionary dividend payments when it has extra cash. According to the Business Writing Organization (2015), the following are the advantages and disadvantages of common share issued:

### **2.9.3.1 Advantages of common shares issued**

- Since common shares have no maturity date, the company has no liability for cash outflow associated with the redemption of common shares. Therefore, it is a permanent capital, which is available for the firm's use as long as the firm remains a going concern.
- The issue of common shares increases the company's financial base and thus its borrowing limit increases, since lenders usually provide capital in proportion to the company's equity.
- A company is not legally obliged to pay dividends and, therefore, in times of financial difficulties, it can reduce or suspend common dividends.

### **2.9.3.2 Disadvantages of common shares issued**

- Common shares have a higher cost because:
  - Dividends are not tax deductible as is debt interest;
  - Flotation costs on equity are higher than on debt; and
  - Common shares are more risky from the investors' point of view due to uncertainty regarding dividends and capital gain. They, therefore, require a higher rate of return.
- The issue of new shares dilutes the shareholders earnings per share usually because profit does not increase immediately in proportion to the increase in the number of common shares.
- The issue also dilutes the ownership and control of existing shareholders.
- Once a greater number of common stocks are sold in the market, an existing shareholder's ownership stake and voting influence diminishes.

### **2.9.4 Retained earnings**

According to Paramasivan and Subramanian (2009:35), retained earnings are another method of internal sources of finance, it is not a method of raising finance, but it is called an accumulation of profits by a company for its expansion and diversification activities. Retained earnings are called different names, namely self-finance, inter-finance and plugging back of profits. According to the Companies Act 2008, a certain percentage (not exceeding 10%) of the net profits after tax of a financial year has to be transferred to a reserve by a company before declaring dividends for the year. The retained earnings sources of finance is a part of the total

profits that is transferred to various reserves, namely general reserve, reserve funds, replacement fund, reserve for repairs and renewals and secret reserves.

According to Paramasivan and Subramanian (2009:36) the following are the advantages and disadvantages of retained earnings:

#### **2.9.4.1 Advantages of retained earnings**

The retained earnings have the following advantages:

- **Useful for expansion and diversification:** Retained earnings are most useful for expansion and diversification of the business activities.
- **Economical sources of finance:** Retained earnings are one of the least costly sources of finance since it does not involve any flotation cost such as raising funds by issuing different types of securities.
- **No fixed obligation:** If the companies use equity finance, they have to pay dividends and if the companies use debt finance, they have to pay interest. However, if the companies use retained earnings as sources of finance, they need not pay any fixed obligation regarding the payment of dividends or interest.
- **Flexible sources:** Retained earnings allow the financial structure to remain completely flexible. The company need not raise loans for further requirements, if it has retained earnings.
- **Increase the share value:** When the company uses the retained earnings, as the source of finance for their financial requirements, the cost of capital is much cheaper than the other sources of finance; hence the value of the shares will increase.
- **Avoid excessive tax:** Retained earnings provide opportunities for avoiding the payment of excessive tax in a company when it has a small number of shareholders.
- **Increase earning capacity:** Retained earnings consist of least cost of capital and it is most suitable to those companies who go for diversification and expansion.

#### 2.9.4.2 Disadvantages of retained earnings

Retained earnings also have the following disadvantages:

- **Misuses:** Management are able to manipulate the value of the shares in the stock market.
- **Leads to monopolies:** Excessive use of retained earnings leads to a monopolistic attitude of the company.
- **Over capitalisation:** Retained earnings lead to over-capitalisation, because if the company uses more and more retained earnings, it leads to insufficient sources of finance.
- **Tax evasion:** Retained earnings lead to tax evasion. Since, the company reduces tax burden through the retained earnings.
- **Dissatisfaction:** If the company uses retained earnings as sources of finance, dividends will not be declared and paid. This may lead to dissatisfaction amongst the shareholders.

#### 2.10. CAPITAL STRUCTURE AND SHARE PRICE

Determination of share prices has been a complex and conflicting task. According to the theory of economics, as cited by Buigut, Soi, Koskei and Kibet (2013:29) the price of any asset usually is determined by the market forces and in case of shares prices it emerges by trading between the investors in stock markets. Major forces working in this case include the firm's key performance indicators, market efficiency, investor's perception, and some macroeconomic variables like gross domestic product GDP, inflation and oil prices (Malik, Qureshi & Azeem 2012:98). According to Nirmala, Sanju and Ramachandran (2011:125), the more debt content in the capital structure of a firm decreases, its share price rises and vice versa, which indicates that investors prefer firms with lower debt content, since increased use of debt by a firm lowers the earnings available for equity shareholders, and investors become apprehensive about their returns.

Modugu (2013:16) states that the issuing of new shares generally consists of ordinary share capital and preference share capital, and a firm has to raise external equity when its internal equity (retained earnings) is not sufficient for the required investment opportunity. According

to Narayanan (2008:40), when a firm raises too much capital through equity issues, it could be interpreted as a signal to the market that it does not have sufficient reserves or cash flows, and this could result in the undervaluation of the firm's shares. When investments are financed with external equity, the share prices of firms sometimes fall. Therefore, it is better to build up reserves so that a higher proportion of capital needs can be supplied from internal sources.

Furthermore, share prices change over the course of time. Some can increase rapidly, and make investors a fortune, whereas others can lose a lot of value quickly and bankrupt investors. Share prices change because of the economics of market forces and the supply and demand for the share. If there is any certainty that a company will perform better in the future, this will raise the demand and price of the stock. If there is any certainty that the company will perform worse, this will lower the demand and price of the stock (Afrinvest 2011; James 2012:11). Hence, it is essential to note that the share price is not directly determined by the company's earnings and performance but by the forces of demand and supply. It would be noticed that when the company reports a good annual profit, the price would go up. However, if there were unkind news or negative earnings, the price would drop (James 2012:11).

## **2.11 CONCLUSION**

From the review of the related literature, it shows that capital structure theories advanced to explain the financing behaviour and performance of firms fall short of the company's objective and it can be suggested logically that there are numerous variables that the theories do not incorporate, which might have an influence on the observed capital structure patterns. Graham and Harvey (2001:233) and Kasozi (2009:62), contend that the relatively weak support for many of the capital structure theories indicates that it is time to re-examine the assumptions and implications of these theories. Alternatively, perhaps the theories are valid descriptions of what firms should do, but most organisations ignore the theoretical advice (Graham & Harvey 2001:233).

Companies' assets are financed by either internal or external capital. It is obligatory on the firm's management to determine which source best suits the firm at any point in time. In deciding whether to finance the firm's assets with equity, debt or both, certain conditions must be put into consideration. A wrong composition of a firm's capital structure can result in

liquidity and solvency problems. In taking this strategic decision, managers must apply caution in ensuring that a right mixture of equity and debt are used to harness the benefits accruable from such a combination. Against this observation, it is important to analyse the capital structure theories of listed industrial companies on the JSE in South Africa in order to check for any variations or consistencies in the capital structure with what has so far been presumed from theory. The next chapter will entail the research design and methods to be used in detail.

## **CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY**

### **3.1 INTRODUCTION**

The research design and methodology used in this study will be presented in this chapter. Research is well known as an endeavour to increase a body of knowledge through the innovation and discovery of new facts and relationships by a method of systematic enquiry (Gerrish & Lathlean 2015:4). The research inquiry has to be logical, systematic, scientific and concerned with seeking solutions to research problems and answering research questions (Rajasekar, Philominathan & Chinnathambi 2013:5). As a result, choosing appropriate research designs and methods is the key to good research study. Therefore, conducting high quality detailed research is governed by a well-defined research methodology based on scientific principles. Such methodologies are considered structures of explicit rules and procedures, upon which research is based, and against which claims for knowledge are evaluated.

Research design is a plan or a blue print of how the research is to be conducted and guides the researcher on how to obtain data about the research phenomenon from the focus group participants or respondents (Welman, *et al.* 2005:55). Research methodology refers to systematic methodological and accurate execution of a design (Babbie & Mouton 2010:74; Nieuwenhuis 2007:70). The research methodology was designed to examine the analysis of capital structures of listed industrial companies in South Africa on the JSE by determining whether it has an influence on the listed industrial companies.

### **3.2 OBJECTIVES OF THE RESEARCH**

Research for this study involved gaining an understanding of the analysis of capital structure practices and the influence of share prices among the listed industrial companies in South Africa. In achieving this, however, the following objectives are:

- To review literature on capital structure theories;
- To conduct a literature study on capital structure practices;
- To examine the importance of capital structure practices;
- To review the literature on the influence of debt and equity in financing operations of listed industrial companies on JSE South Africa;

- To investigate the influence of capital structure theories (the trade-off theory and pecking order theory) on share price among listed industrial companies in South Africa; and
- To ascertain whether capital structure theories have an influence on the performance and value of South African listed industrial companies.

Based on the aforementioned research objectives, it is imperative to describe the method and design used for the study.

### **3.3 RESEARCH METHODOLOGY AND DESIGN**

The kind of the research problem to be investigated informs the type of research method to be engaged as well as the design to be used for the research (Ellis & Levy 2009:324). The research problem identifies what is required to be investigated while the method used can be regarded as constraints within which solutions are derived (Knight & Spink 2008:210). Research methods and approaches vary and this can be prejudiced by the nature of the problem to be researched as well as the area the research is being conducted (Sandberg & Alvesson 2011:25). The main reason for conducting research is to find solutions to the research problems and expatiate understanding, which means it has to be conducted carefully and scientifically. Research is a careful investigation or inquiry, especially through search for new facts in any branch of knowledge. Against this background, Redman and Mory (2009:25) define research as a systematic effort to gain new knowledge.

Research design can be referred to as a plan that shows how the researcher wishes to continue with the study and how to safeguard against internal and external factors that may hinder the research processes. It is a plan that enhances the validity of the research and this improves its acceptability as a knowledge base within the discipline in which it is rooted (Nsingo 2004:73). Research design involves developing strategies for executing scientific inquiry (Babbie & Mouton 2010:33). It involves specifying exactly what you want to find out and determine the most efficient and effective strategies for doing so. Appropriate research designs, however, enable the social scientist to make observations and interpret the results.

Research within certain sciences, for instance social science or natural science, will determine whether the research should be qualitative, quantitative or a combination of the two (Waller 2009:49). The use of the correct research methodology is essential to the validity of the



research study. Therefore, Industrial Research Institute (2010) is of the opinion that a researcher faces many problems that can be effectively resolved by using the correct research methodology. Making a choice between qualitative and quantitative research methodologies is determined by the aims of the specific research study, the concept and the context of the study as well as the type of research, therefore, for the purpose of this study, the quantitative method will be adopted and this will be expatiated and discussed in Section 3.4.

### **3.4 QUANTITATIVE RESEARCH**

A quantitative research is a study that seeks to explain and quantify the collected data with the application of statistical analysis (Creswell 2012:214). The main purpose of quantitative analysis is to validate an objective description on phenomena and efforts were made by the researcher to show how phenomena can be made by manipulating variables. These attempts lead in the long run to discover principles and laws, which can be applied to a larger population. According to Liamputtong (2013:13), quantitative research is known as the science of numbers, and it also is referred to as positivist science. For quantitative researchers, the need to be objective and structured is crucial, as quantitative research attempts to measure things and avoid any bias that could influence the findings (Bryman 2012:405). Quantitative research is a research strategy that emphasises numbers in data collection and analysis and the main focus of quantitative research is on the testing of theories.

According to Sulaiman and Balarabe (2012:12), the following are the features of quantitative research:

- It aims to classify features, count them, and construct a statistical model in an attempt to explain what is observed;
- A researcher knows exactly what he or she is looking for and where to get it;
- It is employed during latter stages of research;
- All stages of the research are carefully designed before data are collected;
- It employs instruments such as questionnaires, or equipment to collect numerical data;
- Data are in the form of numbers and statistics;
- It seeks precise measurement and analysis of target concepts, such as use of survey;
- Quantitative data are more efficient. It helps to test hypothesis accurately;

- It is value-free and objective; and
- There is one reality and, therefore, its focus is concise and narrow.

Based on the abovementioned, a quantitative research methodology was used in this study to gather numerical data through systematic and empirical investigation via statistical computation. Additionally, the methods used in quantitative research applicable to this study are elaborated below.

### **3.4.1 Correlation research**

Correlational research comprises of collecting data to determine whether, and to what extent, a relationship exists between two or more quantifiable variables. Correlational research uses numerical data to explore relationships between two or more variables. These variables are classified as positive or negative and tend to show strong or weak relationships. These relationships assist the researcher in explaining, controlling and predicting phenomena. According to Creswell (2010:338), correlational research provides an opportunity for a researcher to predict scores and explain the relationship among variables. In correlational research, researchers use the correlation statistical test such as the t-tests to describe and measure the degree of association between two or more variables or sets of scores.

Furthermore, correlational research is aimed at determining the nature, degree and direction of relationships between variables or using these relationships to make predictions (Asamoah 2014:46). Correlational studies typically investigate a number of variables expected to be related to a major, complex variable. Those variables, which are not found to be related to this major, complex variable, are omitted from further analysis. On the other hand, those variables, which are found to be related to this major, complex variable are further analysed in a causal-comparative or experimental study to determine the exact nature of the relationship between them. In a correlational study, research questions are stated in the study in order to find solutions or suggestions.

According to Oluyole, Emaku, Aigbekaen and Oduwale (2013:11), the following is the correlation model:

$$\partial_{XYc} = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n \sum X^2 - (\sum X)^2} \sqrt{n \sum Y^2 - (\sum Y)^2}}$$

Where :

$\partial$  = Correlation coefficient

Y = Dependent variable

X = Independent variables

N = No of observations

The correlation for this study was done in two classifications; firstly, share price as dependent variable while the independent variables are trade off theory, pecking order theory. Secondly, common shares issued, retained earnings, long-term debt and WACC as the independent variables and share price as the dependent variable.

### 3.4.2 Regression analysis

A number of SAGE publications on linear and multiple regression analysis (Field 2009:198; Kahane 2008:260; Menard 2008:202), explained the use of quantitative analysis in determining the relationship(s) between a dependent variable and an independent or multiple independent variable(s). According to these publications, a t-test can be conducted to test the null hypothesis that the regression coefficient b is zero; if the given results of the test is significant with a p-value below .05, the null hypothesis that b is zero is rejected and it is accepted that b is significantly different from zero. In essence, the independent variable X significantly contributes to the value of the dependent variable.

Multiple regression analysis as described in these publications includes more than one independent variable taking multiple factors into consideration. It examines the effect of each independent variable on the dependent variable while holding the effect of other variables constant; multiple regression analysis thus, identifies the unique contribution of individual independent variables, while controlling the effects of other independent variables.

According to Bello, Salau, Galadima and Ali (2013:110) the following is the regression model:

$$Y = a + b_1X_1 + b_2X_2 + \dots + b_iX_i + \dots = U$$

Where :

Y = Dependent variable

a = Constant

$b_1 - b_i$  = Regression coefficients

$X_1 - X_i$  = Independent variables

U = Error term

The regression analysis for this study was done in two classifications; firstly, share price as dependent variable while the independent variables are trade off theory, pecking order theory. Secondly, common shares issued, retained earnings, long-term debt and WACC as the independent variables and share price as the dependent variable.

### **3.5 POPULATION OF RELEVANCE**

The target population of relevance to this study were all the listed industrial companies on the main board of the JSE, South Africa, over the period of nine years from 2005-2013, which provided the useful information that was needed for the purpose of this study. The main criteria for choosing the industries were the availability of financial data during the selected period of nine years. The main source of data was the INET BFA online database. The database comprises of standardised financial statements for publicly traded industrial companies from the JSE. By the end of the selected period 2013, all the listed industrial companies on the JSE would have been considered for the study. The industrial sector, however, is representative of the immense majority of industries operating in the South African business environment and these industrial companies comprise of the following sectors: construction and materials, electronic and electrical equipment, general industrials, industrial engineering, industrial transportation and support services. The financial, oil and gas, technology, telecommunications, utilities, health care, consumer services, consumer goods, and basic materials companies are all excluded from this research. Therefore, this study focused on the listed industrial sector of the JSE. Variables of interest for the purpose of this study are collected on each of these companies, which is in line with previous empirical studies conducted on capital structure theory.

### **3.6 DATA COLLECTION**

Data collection is one of the important aspects of any type of research study because inaccurate data collection can impact the results of a study and eventually lead to invalid results. According to Marczyk, De Matteo and Festinger (2005:117), there are certain broad categories that encompass data collection techniques. The research question and the nature of the variables under investigation usually drive the choice of data collection. The data used in this study can be classified as secondary data, because the data used was the standardised financial figures generated from INET BFA and the secondary data obtained was converted into a usable format.

The research methodology finally can be put into practice at this stage of the research process of the actual collection of data. To express capital structure, multiple regression analysis with leverage ratio (financial ratios) was used as measurement instruments. Several instances may occur where data were missing from a firm's financial data and this could be the result of unpublished information. Another obstacle was that the denominators of certain ratios equalled zero, since it does not signify a true zero. To overcome this obstacle, these years and/or ratios were deleted from the data set. To get an accurate result, a firm had to provide complete financial data for at least five years of the selected nine years to be included in the study. The statement of comprehensive income, statement of financial position and sundry data items were obtained from the financial statements of all the listed industries included in the study. An external database, INET BFA, was used to gain access to these financial statements in a standardised format. The year-end share prices of all the firms included in the study were also obtained from the INET BFA database.

### **3.7 DATA PREPARATION**

It is essential to direct attention towards processing the data once the data have been obtained through the use of the secondary data, during data processing, the data are firstly prepared and then analysed (Cant *et al.* 2011:354). Data preparation is the process of converting the raw data to a reduced form, which is appropriate for analysis and interpretation (Coldwell & Herbst 2004:96). The data obtained from the external database (INET BFA) from 2005-2013, were in raw form and needed to be converted into financial ratios to suit the analysis purposes, which was done through Microsoft Excel (2010). After the data were prepared and the accuracy of the

data ensured, it was captured into a computer and analysed using the Statistical Package for Social Sciences (SSPS) version 16.0.

Furthermore, the data entered into the computer were used for the purpose of data analysis and to generate meaning from the raw data that were collected (Coldwell & Herbst 2004:92). From the database (INET BFA), statements of financial position report, statement of comprehensive income, cash flow statements, pre-defined standardised general ratios from which ratio of debt/asset and ratio of debt/equity was drawn. The statement of change of equity of all the listed industrial companies in South Africa from 2005-2013 were extracted in order to enable the conducted research to derive the data for the dependent variable (share price) and five independent variables (common share issues, retained earnings, long-term debt, leverage ratio and retained earnings to debt ratio). Critical to this study, the data were collected for each of the listed industrial companies and the electronics files were converted into a spread sheet on Microsoft excel, after which the data were collated yearly for each company. Consolidation of data was done showing all the data for the listed industrial companies from 2005-2013, using SSPS for the purpose of analysis and interpretation.

In order to determine the retained earnings on debt ratio, WACC was used for all the listed industrial companies in South Africa from 2005-2013. The financial report ratio from the database, the debt/assets ratio and debt/equity ratio were derived and used to compare with the share price in order to see if there is any correlation from 2005-2013. The common shares issued, retained earnings and long-term debt data were also computed from the statement of financial position standardised for the purpose of the study in order to determine the correlation with the share price.

### **3.8 CONCLUSION**

The driving force of this research study is to solve problems and expand knowledge, which necessitates its being conducted carefully and systematically. Research is required to find solutions to problems in society or organisations and validate procedures, which can be replicated. Against this background, this chapter expounds on the research method and design applied in this study, different types of scientific research used were also discussed and the collection method elaborated on as well. In addition, the preparation of the data was discussed in order to elaborate on both the dependent (share price) and independent variables (common

share issues, retained earnings, long-term debt, leverage ratio and retained earnings). The chapter further elucidates the statistical analysis used for the research and highlights its application.

The next chapter elaborates on data collected, multiple regression analysis, correlation analysis and the Statistical Packaging for Social Sciences (SPSS) version 16.0, each section of the variables (dependent and independent) will be analysed. A table representing the relationship between data sets will also be presented, while the diagrams illustrating the variables are provided therein.

## **CHAPTER FOUR: ANALYSIS OF DATA**

### **4.1 INTRODUCTION**

The purpose of this study is to analyse the capital structures of listed industrial companies on the JSE South Africa during the period 2005- 2013. One of the objectives was to determine whether the listed industrial companies in South Africa apply the trade-off theory and the pecking order theory when financing their business activities. Therefore, this chapter describes the detailed empirical approach and findings which helped to answer the research questions and objectives. In this study, standardised financial statement data drawn from INET BFA alongside with the annual financial reports of the 72 industrial listed companies; also emphasis on the results obtained from the INET BFA online database and consequent statistical procedures were applied to analyse these findings. The data was collected from 72 listed industrial companies listed during the period (2005-2013). In this chapter a review and analysis of the empirical investigation is provided; the significance of findings will be revealed in the context of the overall aims of the research. Furthermore, the empirical findings will be continuously cross-referenced with the literature relevant to the study.

The data collection instrument aimed to address the research objectives which were formulated at the beginning of the study. Different sections of the collected data were drawn up, each exploring separate constructs on the topic of an analysis of capital structures of listed industrial companies in South Africa. The secondary data used for this study was expected to answer the research questions as well as enlightening the characteristics of the businesses under investigation; SPSS version 16.0 for Windows was used to evaluate and to perform all the data analysis. Data analysis was undertaken in two phases; firstly dependent variable: share price, while predictors: (constant), WACC, retained earnings, common share issued, long-term debt, to discern if there is a relationship between capital structure and share prices. Secondly, dependent variable: share price while the predictors: (Constant), pecking order theory and trade-off theory, to discern which of the two theories is closely related to share prices in South Africa.

The collected data were analysed with a view to addressing the objectives of the study. In order to ensure high quality analysis, all the data were considered and the interpretations were carried out. Some of the evidence contained categorical data and the analysis of these data were



descriptive (nominal). Values were counted to establish which category had the most common values and whether or not cases were spread evenly across different categories.

## 4.2 DEMOGRAPHICS

Table 4.1 illustrates the breakdown of the used industrial companies.

**Table 4.1 Breakdown of the 72 industrial listed companies used for the analysis**

<b>Sector</b>	<b>Sub Sector</b>	<b>Numbers of companies</b>
Construction & Materials	Building Materials & Fixtures, Heavy Construction	20
Electronic & Electrical Equipment	Electrical components & Equipment, Electronic Equipment	12
General Industrials	Containers & Packaging, Diversified Industrial	8
Industrial Engineering	Commercial Vehicles & Trucks, Industrial Machinery	9
Industrial Transportation	Marine Transportation, Transportation Services, and Trucking	8
Support Services	Business Support Services, Business Training & Employment Agencies, Financial Administration , and Waste & Disposal Services	15
<b>TOTAL</b>		<b>72</b>

As shown in Table 4.1, this study focused on the industrial companies, sectors and the sub - sectors of all 72 companies listed on the South Africa JSE from 2005 – 2013.

## 4.3 THE ANALYTICAL PROCEDURE

According to the theories discussed earlier in Chapter 2, the independent and dependent variables were used as proxies to explain industrials' financing behaviour. This analysis was

devoted to identifying those variables, which are assigned from the empirical literature and are important for abating financing behaviour according to these theories.

The main data analysis indicated the use of a standard multiple regression approach in which all the independent variables in the chosen model were initially regressed with the dependent variable influence. Thereafter, correlations and multiple regressions were conducted to ensure a model fit. The nine years' data of the variables (2005-2013) was used in conducting the correlations and multiple regression procedure in which the trade-off and pecking order theory as well as firms' debt, retained earnings, common shares and WACC were analysed. The procedure and output of the multiple regressions and correlation are detailed later in this chapter.

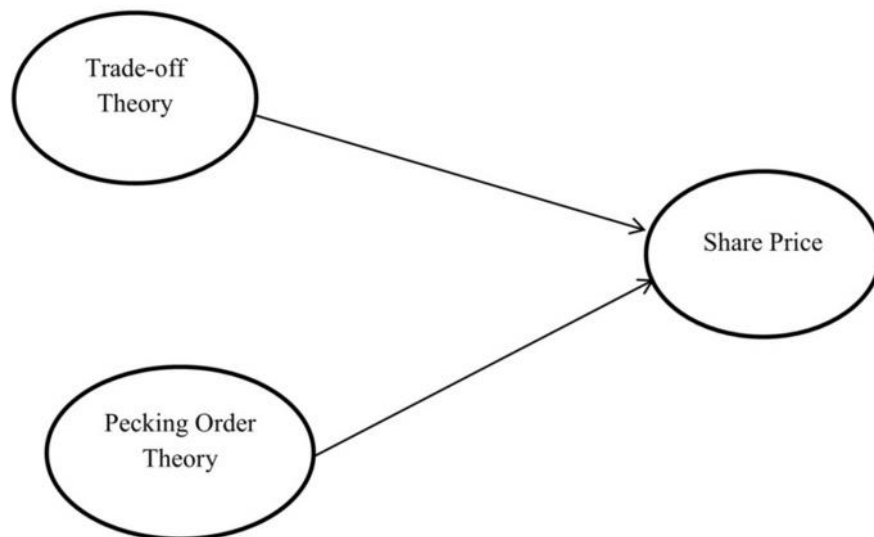
#### **4.4 ANALYSIS AND OVERVIEW OF THE DATA COLLECTED**

At the outset of any regression study, one formulates some proposition about the relationship between the variables of interest. This study complements the previous studies conducted by Kasozi (2009), Vries (2010), and Mohohlo (2013), by comparing the explanatory power of the pecking order theories and the trade-off theory on South African based companies introduced on the stock exchange and belonging to the JSE between 2005 and 2013. Regression analysis and correlation were conducted on yearly data that were collected. Regression analysis was conducted to establish whether causality exist between these predictors and their relative measurement response (share price).

Initially, the Durbin-Watson test statistic was assessed for autocorrelation in the residuals prior to conducting the regression analysis procedure (Durbin & Watson 1950:412). As a rough rule of thumb, if Durbin-Watson is very small ( $d \leq 1$ ) there may be cause for alarm; small values ( $1 < d < 2$ ) indicate that successive error terms are close in value to one another or positively correlated, and large values ( $d > 2$ ) suggest that successive error terms are very different in value from one another, i.e. negatively correlated. Therefore, the data were considered suitable for linear regression analysis using the enter method. The enter method was chosen since it allows all independent variables in the study to be entered into the equation in one step.

#### 4.4.1 Results of regression model 1

The main purpose of doing the multiple regression analysis with trade-off theory and the pecking order theory as the independent variables and share price as the dependent variable is to determine which of the two theories is related closely to share prices in listed industrial companies in South Africa as illustrated in figure 4.1.



**Figure 4.1 Conceptual model 1**

Beta value is a standardised coefficient which measure of how strongly each independent influences the dependent variable and this is measured in units of standard deviation. “ $\beta$ ” refers to the number of standard deviation changes that is expected in the outcome variable for 1 standard deviation change in the independent variable. “ $R^2$ ” is a number that indicates the proportion of variance in the dependent variable that is predictable from independent variable. The t-statistic is the coefficient divided by standard error. The standard error is an estimate of the standard deviation of the coefficient, the amount it varies across cases. It can be thought of as a measure of the precision with which the regression coefficient is measured. The p-value in the statistical analysis shows the level of significance of the independent variables. A p-value equal to or lower than 0.05 ( $\leq 0.05$ ) indicates that the capital structure theories have a significant (S) impact on the share price of the South African listed industrial companies while a p-value greater than 0.05 ( $> 0.05$ ) implies that the capital structure theories do not have a significant (NS) impact on the share price of the South African listed industrial companies.

The following are the results of the regression analysis conducted from 2005-2013

**Table 4.2 Result interpretation for year 2005**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	3436.575	1546.986		2.221	0.032	
	Trade-off theory	-1010.479	1933.062	-0.082	-0.523	0.604	NS
	Pecking order theory	-78.327	259.986	-0.047	-0.301	0.765	NS

NS = Not significant

S = Significant

$R^2 = 0.009$

- Dependent variable: Share price
- Predictors: (constant), pecking order theory, trade-off theory

The  $R^2$  of 0.009 implies that only 0.9 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the year 2005, indicating that the capital structure theories had little or no influence on the performance and value of the listed industrial companies in South Africa.

**Table 4.3 Result interpretation for year 2006**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	3871.176	2343.733		1.652	0.106	
	Trade-off theory	-1079.805	3057.437	-0.055	-0.353	0.726	NS
	Pecking order theory	220.465	292.744	0.118	0.753	0.456	NS

NS = Not significant

S = Significant

$R^2 = 0.019$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.019 implies that only 1.9 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the year 2006 indicating that, the capital structure theories had little or no influence on the performance and value of the listed industrial companies in South Africa.

**Table 4.4 Result Interpretation for Year 2007**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	5174.857	1893.423		2.733	0.009	
	Trade-off theory	-3005.758	2849.082	-0.150	-1.055	0.297	NS
	Pecking order theory	0.803	10.453	0.011	0.077	0.939	NS

NS = Not significant

S = Significant

$R^2 = 0.023$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.023 implies that only 2.3 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the year 2007 indicating that, the capital structure theories had little or no influence on the performance and value of the listed industrial companies in South Africa.

**Table 4.5 Result Interpretation for Year 2008**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	3040.614	1106.373		2.748	0.008	
	Trade-off theory	-1532.719	1650.009	-0.117	-0.929	0.356	NS
	Pecking order theory	4.074	37.776	0.014	0.108	0.914	NS

NS = Not significant

S = Significant

$R^2 = 0.014$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.014 implies that only 1.4 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the year 2008 indicating that, the capital structure theories had little or no influence on the performance and value of the listed industrial companies in South Africa.

**Table 4.6 Result Interpretation for Year 2009**

<b>Variables</b>		<b>Unstandardised Coefficients</b>		<b>Standardised Coefficients</b>	<b>t</b>	<b>p</b>	<b>Decision</b>
		<b><math>\beta</math></b>	<b>Std. Error</b>	<b>Beta</b>			
1	(Constant)	7944.114	4185.533		1.898	0.062	
	Trade-off theory	-8109.481	6493.437	-0.154	-1.249	0.216	NS
	Pecking order theory	21.158	300.571	0.009	0.070	0.944	NS

NS = Not significant

S = Significant

$R^2 = 0.023$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.023 implies that only 2.3 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the year 2009 indicating that, the capital structure theories had little or no influence on the performance and value of the listed industrial companies in South Africa.



**Table 4.7 Result Interpretation for Year 2010**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	5186.365	4667.430		1.111	0.271	
	Trade-off theory	-3128.483	8007.598	-0.051	-0.391	0.697	NS
	Pecking order theory	-29.021	243.278	-0.015	-0.119	0.905	NS

NS = Not significant

S = Significant

$R^2 = 0.003$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.003 implies that only 0.3 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the year 2010 indicating that, the capital structure theories had little or no influence on the performance and value of the listed industrial companies in South Africa.

**Table 4.8 Result Interpretation for Year 2011**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	2169.841	1104.775		1.964	0.054	
	Trade-off theory	-124.347	1916.944	-0.008	-0.065	0.948	NS
	Pecking order theory	7.338	85.187	0.011	0.086	0.932	NS

NS = Not significant

S = Significant

$R^2 = 0.000$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.000 implies that none of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value does not contribute to the explanation of the response variable and does not provide a required prediction; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the year 2011 indicating that, the capital structure theories had little or no influence on the performance and value of the listed industrial companies in South Africa.

**Table 4.9 Result Interpretation for Year 2012**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	2087.745	1513.605		1.379	0.172	
	Trade-off theory	1265.115	2673.936	0.065	0.473	0.638	NS
	Pecking order theory	-54.073	70.135	-0.106	-0.771	0.443	NS

NS = Not significant

S = Significant

$R^2 = 0.009$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.009 implies that 0.9 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the year 2012 indicating that, the capital structure theories had little or no influence on the performance and value of the listed industrial companies in South Africa.

**Table 4.10 Result Interpretation for Year 2013**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	3172.397	2498.506		1.270	0.209	
	Trade-off theory	209.937	5331.605	0.008	0.039	0.969	NS
	Pecking order theory	-87.457	409.034	-0.042	-0.214	0.831	NS

NS = not significant

S = significant

$R^2 = 0.001$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.001 implies that 0.1 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research

can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the year 2013 indicating that, the capital structure theories had little or no influence on the performance and value of the listed industrial companies in South Africa.

#### 4.4.2 Results of regression model 2

In the discussion on the results of the listed industrial companies in South Africa, the regression model 2 was done per sector. This was done to observe whether the results would differ from model 1 and to know the sectors that observe the trade-off theory and the pecking order theory during the study period. The following are the results of the regression analysis conducted per sector from 2005 – 2013.

**Table 4.11 Result interpretation: building materials and fixtures sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	3050.481	1162.883		2.623	0.010	
	Trade-off theory	-1185.474	2195.606	-0.064	-0.540	0.591	NS
	Pecking order theory	8.040	290.671	0.003	0.028	0.978	NS

NS = Not significant,

S = Significant,

$R^2 = 0.004$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.004 implies that only 0.4 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the

building materials and fixtures sector; indicating that the application of the capital structure theories in this sector has been minimal and has slight influence on the performance and value of the industries.

**Table 4.12 Result interpretation: business support services sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	2319.679	2139.589		1.084	0.285	
	Trade-off theory	1403.304	2843.208	0.079	0.494	0.624	NS
	Pecking order theory	199.311	152.580	0.209	1.306	0.199	NS

NS = not significant

S = significant

$R^2 = 0.042$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.042 implies that only 4.2 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in business support services; indicating that the application of the capital structure theories in this sector has been minimal and has slight influence on the performance and value of the sector.

**Table 4.13 Result interpretation: business training and employment agencies sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	-543.267	1256.984		-.432	0.670	
	Trade-off theory	2199.117	1627.728	0.294	1.351	0.192	NS
	Pecking order theory	0.679	2.958	0.050	0.230	0.821	NS

NS = Not significant

S = Significant

$R^2 = 0.084$

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.084 implies that only 8.4 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the business training and employment agencies; indicating that the application of the capital structure theories in this sector has been minimal and has slight influence on the performance and value of the industry.

**Table 4.14 Result interpretation: commercial vehicles and trucks sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	-41653.848	26678.870		-1.561	0.169	
	Trade-off theory	174771.188	103245.247	6.231	1.693	0.141	NS
	Pecking order theory	-42817.183	24721.713	-6.375	-1.732	0.134	NS

NS = Not significant

S = significant

$R^2 = 0.343$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.343 implies that only 34.3 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is marginally low, this implies that its contribution to the explanation of the response variable may not provide a much more precise prediction as a higher  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the commercial vehicles and trucks sector; indicating that the application of the capital structure theories in this sector has been minimal and has slight influence on the performance and value of the industry.

**Table 4.15 Result interpretation: containers and packaging sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	745.978	498.052		1.498	0.144	
	Trade-off theory	-1865.921	2543.731	-0.422	-0.734	0.468	NS
	Pecking order theory	1276.861	750.047	0.978	1.702	0.098	NS

NS = not significant

S = significant

$R^2 = 0.336$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.336 implies that only 33.6 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is marginally low, this implies that its contribution to the explanation of the response variable may not provide a much more precise prediction as a higher  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the containers and packaging sector; indicating that the application of the capital structure theories in this sector has been minimal and has slight influence on the performance and value of the industry.



**Table 4.16 Result interpretation: diversified industrials sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	14426.917	1965.706		7.339	0.000	
	Trade-off theory	-27134.046	9139.323	-1.155	-2.969	0.006	S
	Pecking order theory	3398.715	2322.929	0.569	1.463	0.153	NS

NS = Not significant

S = significant

$R^2 = 0.424$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.424 implies that 42.4 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is acceptable, this implies that its contribution to the explanation of the response variable is considerable but may not provide a much more precise prediction as a higher  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that of the independent variables in the model, trade-off theory ( $\beta = -1.155$ ,  $p = 0.006$ ) has an effect on the share price. This means the application of the trade-off theory in the diversified industrials sector leads to about 116 percent decrease in the share price indicating that the application of the trade-off theory in this sector has an adverse negative effect on the performance of the industry. The pecking order theory has no significant effect on the share price.

**Table 4.17 Result interpretation: electrical components and equipment sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	-1039.206	1179.002		-0.881	0.382	
	Trade-off theory	6407.613	3106.869	0.449	2.062	0.044	S
	Pecking order theory	-412.792	435.925	-0.206	-0.947	0.348	NS

NS = not significant

S = significant

$R^2 = 0.095$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.095 implies that only 9.5 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. The result reveals that of the independent variables in the model, the trade-off theory ( $\beta = 0.449$ ,  $p = 0.044$ ) has an effect on the share price. This means the application of the trade-off theory in the electrical components and equipment sector leads to about 44.9 percent increase in the share price indicating that the application of the trade-off theory in this sector has a considerable positive effect on the performance of the industry. The pecking order theory has no significant effect on the share price.

**Table 4.18 Result interpretation: electronic equipment sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	116.296	143.012		0.813	0.430	
	Trade-off theory	282.212	272.414	0.379	1.036	0.318	NS
	Pecking order theory	54.098	45.515	0.435	1.189	0.254	NS

NS = Not significant

S = significant

$R^2 = 0.096$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.096 implies that only 9.6 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the electronic equipment sector; indicating that the application of the capital structure theories in this sector has been minimal and has slight influence on the performance and value of the industry.

**Table 4.19 Result interpretation: financial administration sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	157571.989	32978.315		4.778	0.041	
	Trade-off theory	- 137723.219	82260.130	-0.739	-1.674	0.236	NS
	Pecking order theory	-2676.980	4748.904	-0.249	-0.564	0.630	NS

NS = Not significant

S = significant

$R^2 = 0.952$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.952 implies that 95.2 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is high, this implies that it contributes significantly to the explanation of the response variable and provides a much more precise prediction than a low  $R^2$  value. This result, however, reveals that none of the independent variables in the model contributed significantly to the share price in the financial administration sector; indicating that the application of the capital structure theories in this sector has been minimal and has slight influence on the performance and value of the industry.

**Table 4.20 Result interpretation: heavy construction**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	1035.661	1272.940		.814	0.418	
	Trade-off theory	2830.575	2124.915	0.171	1.332	0.186	NS
	Pecking order theory	-109.628	132.530	-0.106	-0.827	0.410	NS

NS = Not significant

S = significant

$R^2 = 0.021$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.021 implies that only 2.1 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the heavy construction sector; indicating that the application of the capital structure theories in this sector has been minimal and has little or no influence on the performance and value of the industry.

**Table 4.21 Result interpretation: industrial machinery sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	9287.023	3128.791		2.968	0.007	
	Trade-off theory	-6526.211	4037.641	-0.315	-1.616	0.119	NS
	Pecking order theory	-11.761	40.647	-0.056	-0.289	0.775	NS

NS = Not significant

S = significant

$R^2 = 0.108$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.108 implies that only 10.8 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the industrial machinery sector; indicating that the application of the capital structure theories in this sector has been minimal and has little or no influence on the performance and value of the industry.

**Table 4.22 Result interpretation: industrial suppliers sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	2179.802	1373.038		1.588	0.121	
	Trade-off theory	-1235.030	3001.389	-0.108	-0.411	0.683	NS
	Pecking order theory	-163.211	352.894	-0.121	-0.462	0.647	NS

NS = Not significant

S = significant

$R^2 = 0.047$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.047 implies that only 4.7 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the industrial suppliers sector; indicating that the application of the capital structure theories in this sector has been minimal and has little or no influence on the performance and value of the industry.

**Table 4.23 Result interpretation: marine transportation sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	5686.384	960.222		5.922	0.000	
	Trade-off theory	-6662.342	1408.344	-0.960	-4.731	0.000	S
	Pecking order theory	22.065	22.098	0.203	0.999	0.335	NS

NS = Not significant

S = significant

$R^2 = 0.695$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.695 implies that 69.5 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is high, this implies that it contributes significantly to the explanation of the response variable and provides a much more precise prediction than a low  $R^2$  value. The result reveals that of the independent variables in the model, the trade -off theory ( $\beta = -0.960$ ,  $p = 0.000$ ) has an effect on the share price. This means the application of the trade-off theory in the marine transportation sector leads to about 96.0 percent decrease in the share price indicating that the application of the trade-off theory in this sector has an adverse negative effect on the performance of the industry. The pecking order theory has no significant effect on the share price.



**Table 4.24 Result interpretation: transportation services sector**

Variables		Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
		$\beta$	Std. Error	Beta			
1	(Constant)	3759.048	1646.191		2.283	0.027	
	Trade-off theory	-1078.560	2175.317	-0.070	-0.496	0.622	NS
	Pecking order theory	-15.451	33.180	-0.065	-0.466	0.643	NS

NS = not significant

S = significant

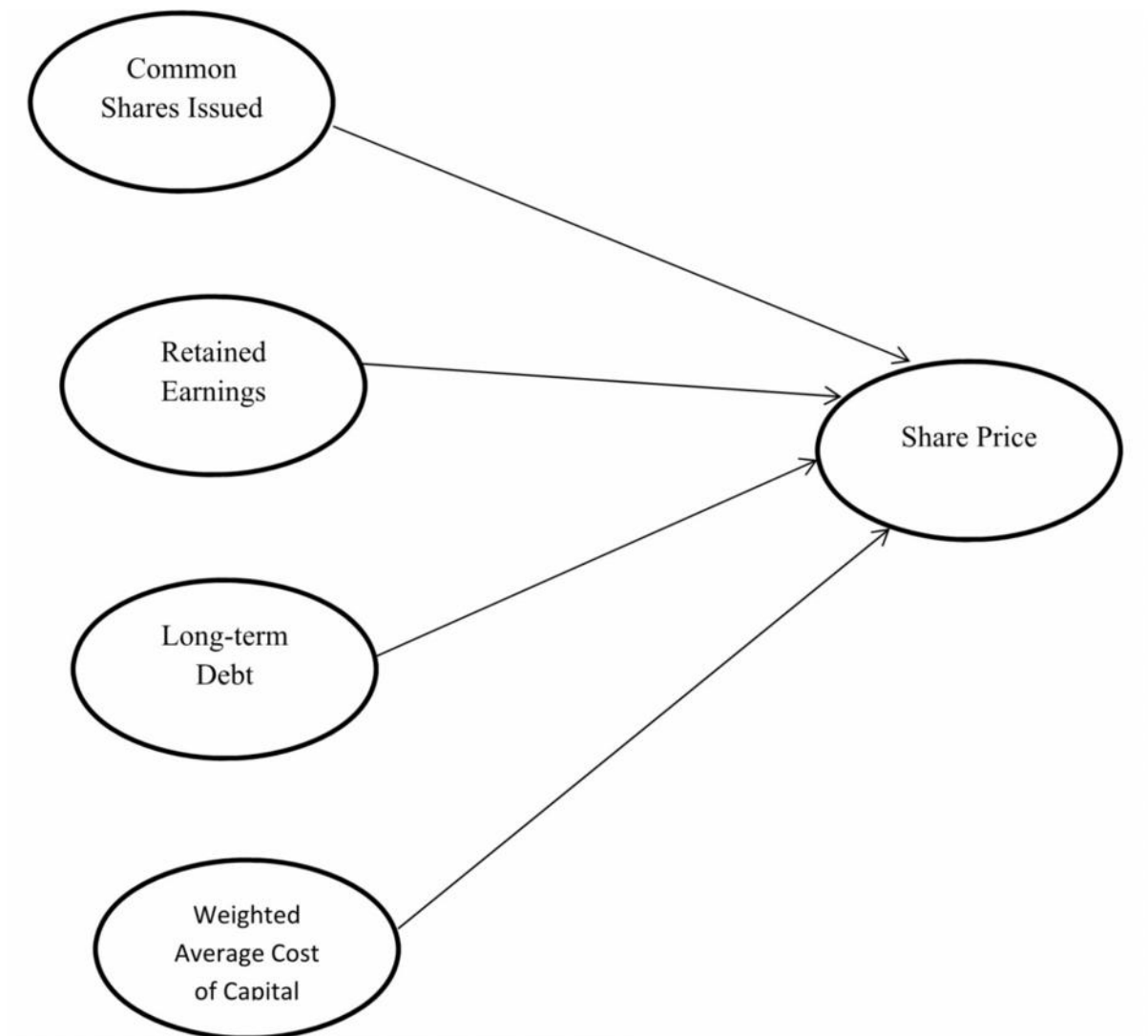
$R^2 = 0.010$ ;

- Dependent variable: Share price
- Predictors: (Constant), pecking order theory, trade-off theory

The  $R^2$  of 0.010 implies that only 1 percent of the total variance in the dependent variable is explained by the model. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. This result reveals that none of the independent variables in the model contributed significantly to the share price in the transportation services sector; indicating that the application of the capital structure theories in this sector has been minimal and has little or no influence on the performance and value of the industry.

#### 4.4.3 Results of regression Model 3

The main purpose of doing the multiple regression analysis with common shares issued, retained earnings, long-term debt and WACC as the independent variables and share price as the dependent variable, as indicated in Figure 4.2 and also discussed in Chapter 2.9. The purpose of doing this is to see if there is a relationship between capital structure and share prices. In addition, to see if this is the case, and if so, to determine the independent variable(s) that has the strongest relationship in listed industrial companies in South Africa.



**Figure 4.2: Conceptual Model 2**

The following are the results of the regression analysis conducted on a yearly basis from 2005-2013.

**Tables 4.25 Result interpretation for year 2005**

Variables	Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
	$\beta$	Standard error				
Constant	1678.559	1503.559		1.116	0.271	NS
Common shares issued	0.001	0.001	0.204	1.218	0.231	NS
Retained earnings	0.001	0.000	0.472	2.613	0.013	S
Long term debt	1.725E-6	0.001	0.000	0.002	0.998	NS
WACC	-42.658	118.584	-0.051	-0.360	0.721	NS

NS = not significant

S = significant

$R^2 = 0.231$ ;

- Dependent variable: Share price
- Predictors: (constant), WACC, retained earnings, common shares issued, long-term debt

The  $R^2$  of 0.231 implies that only 23.1 percent of the total variance in the dependent variable is accounted for by the model i.e. by all the independent variables. The resultant  $R^2$  value is marginally low, this implies that its contribution to the explanation of the response variable may not provide a much more precise prediction as a higher  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. The result further reveals that of all the independent variables in the model, only retained earnings in 2005 contributed significantly to the share price. This means that for a unit increase in retained earnings, there is 47.2 percent increase in share price. This also indicates that the application of the common shares issued, long-term debt and WACC in the year 2005 has been minimal and has little or no influence on the performance and value of the listed industrial companies in South Africa.

**Tables 4.26 Result interpretation for year 2006**

Variables	Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
	$\beta$	Standard error				
Constant	1974.005	1818.878		1.085	0.284	NS
Common shares issued	0.004	0.003	0.193	1.377	0.176	NS
Retained earnings	0.001	0.000	0.400	2.451	0.019	S
Long term debt	0.000	0.001	0.099	0.607	0.547	NS
WACC	-67.052	145.865	-0.064	-0.460	0.648	NS

NS = not significant

S = significant

$R^2 = 0.241$ ;

- Dependent variable: Share price
- Predictors: (constant), WACC, retained earnings, common shares issued, long-term debt

The  $R^2$  of 0.241 implies that only 24.1 percent of the total variance in the dependent variable is explained by the model. i.e. by all the independent variables. The resultant  $R^2$  value is marginally low, this implies that its contribution to the explanation of the response variable may not provide a much more precise prediction as a higher  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. The result further reveals that of all the independent variables in the model, only retained earnings contributed significantly to the share price in 2006. This means that for a unit increase in retained earnings, there is 40.0 percent increase in share price. This also indicates that the application of the common shares issued, long-term debt and WACC in the year 2006 has been minimal and has little or no influence on the performance and value of the listed industrial companies in South Africa.

**Tables 4.27 Result interpretation for year 2007**

Variables	Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
	$\beta$	Standard error				
Constant	2209.642	1167.165		1.893	0.065	NS
Common shares issued	-0.001	0.001	-0.101	-0.903	0.371	NS
Retained earnings	0.001	0.000	0.570	4.328	0.000	S
Long term debt	0.001	0.000	0.178	1.489	0.143	NS
WACC	-31.740	99.848	-0.032	-0.318	0.752	NS

NS = Not significant

S = significant

$R^2 = 0.538$ ;

- Dependent variable: Share price
- Predictors: (constant), WACC, retained earnings, common shares issued, long-term debt

The  $R^2$  of 0.538 implies that only 53.8 percent of the total variance in the dependent variable is explained by the model i.e. by all the independent variables. The resultant  $R^2$  value is high, this implies that it contributes significantly to the explanation of the response variable and provides a much more precise prediction than a low  $R^2$  value. The result further reveals that of all the independent variables in the model, only retained earnings contributed significantly to the share price in 2007. This means that for a unit increase in retained earnings, there is 57.0 percent increase in share price. There is no significant contribution of other variables: common shares issued, long term debt and WACC to share price.

**Tables 4.28 Result interpretation for year 2008**

Variables	Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
	$\beta$	Standard error				
Constant	970.406	789.310		1.229	0.224	NS
Common shares issued	0.001	0.000	0.092	1.138	0.259	NS
Retained earnings	0.001	0.000	0.891	9.997	0.000	S
Long term debt	0.000	0.000	-0.100	-1.191	0.238	NS
WACC	-8.879	65.038	-0.010	-0.137	0.892	NS

NS = Not significant

S = Significant

$R^2 = 0.668$ ;

- Dependent variable: Share price
- Predictors: (constant), WACC, retained earnings, common shares issued, long-term debt

The  $R^2$  of 0.668 implies that only 66.8 percent of the total variance in the dependent variable is explained by the model i.e. by all the independent variables. The resultant  $R^2$  value is high, this implies that it contributes significantly to the explanation of the response variable and provides a much more precise prediction than a low  $R^2$  value. The result further reveals that of all the independent variables in the model, only retained earnings contributed significantly to the share price in 2008. This means that for a unit increase in retained earnings, there is 89.1 percent increase in share price. There is no significant contribution of other variables: common shares issued, long term debt and WACC to share price.

**Tables 4.29 Result interpretation for year 2009**

Variables	Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
	$\beta$	Standard error				
Constant	-4709.874	4886.313		-0.964	0.339	NS
Common shares issued	0.000	0.003	0.007	0.053	0.958	NS
Retained earnings	0.000	0.000	0.055	0.381	0.705	NS
Long term debt	3.382E-5	0.001	0.004	0.030	0.976	NS
WACC	653.023	410.670	0.204	1.590	0.117	NS

NS = Not significant

S = significant

$R^2 = 0.047$ ;

- Dependent variable: Share price
- Predictors: (constant), WACC, retained earnings, common shares issued, long-term debt

The  $R^2$  of 0.047 implies that only 4.7 percent of the total variance in the dependent variable is explained by the model i.e. by all the independent variables. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. The result further reveals that none of all the independent variables in the model, contributed significantly to the share price in 2009. This indicates that the application of the common shares issued, retained earnings, long term debt and WACC has been minimal and has little or no influence on the to share price.

**Tables 4.30 Result interpretation for year 2010**

Variables	Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
	$\beta$	Standard error				
Constant	3532.292	4319.482		.818	0.417	NS
Common shares issued	-0.003	0.002	-0.171	-1.324	0.190	NS
Retained earnings	0.000	0.000	0.160	1.118	0.268	NS
Long term debt	-0.001	0.001	-0.067	-0.455	0.651	NS
WACC	28.139	357.001	0.010	0.079	0.937	NS

NS = Not significant

S = significant

$R^2 = 0.041$ ;

- Dependent variable: Share price
- Predictors: (constant), WACC, retained earnings, common shares issued, long-term debt

The  $R^2$  of 0.041 implies that only 4.1 percent of the total variance in the dependent variable is explained by the model i.e. by all the independent variables. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. The result further reveals that none of all the independent variables in the model, contributed significantly to the share price in 2010. This indicates that the application of the common shares issued, retained earnings, long term debt and WACC has been minimal and has little or no influence on the to share price.



**Tables 4.31 Result interpretation for year 2011**

Variables	Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
	$\beta$	Standard error				
Constant	1637.974	676.876		2.420	0.018	
Common shares issued	-0.001	0.000	-0.258	-2.907	0.005	S
Retained earnings	0.000	0.000	0.646	6.960	0.000	S
Long term debt	0.000	0.000	0.187	2.042	0.045	S
WACC	-15.673	55.236	-0.024	-0.284	0.778	NS

NS = Not significant

S = Significant

$R^2 = 0.544$ ;

- Dependent variable: Share price
- Predictors: (constant), WACC, retained earnings, common shares issued, long-term debt

The  $R^2$  of 0.544 implies that only 54.4 percent of the total variance in the dependent variable is explained by the model i.e. by all the independent variables. The resultant  $R^2$  value is high, this implies that it contributes significantly to the explanation of the response variable and provides a much more precise prediction than a low  $R^2$  value. The result further reveals that of the independent variables in the model, retained earnings has the greatest effect on the share price. The result means a unit increase in the retained earnings leads to about 65 percent increase in the share price. The study further showed that the second variable with the highest influence on share price is the common shares issued. This means that a unit increase in the common shares issued leads to about 25.8 percent decrease in the share price. The third most important effect is the long-term debt. This means a unit increase in the long-term debt leads 18.7 percent increase in the share price. WACC does not have a significant effect on the share price in 2011.

**Table 4.32 Result interpretation for year 2012**

Variables	Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
	$\beta$	Standard error				
Constant	2231.871	1033.453		2.160	0.035	
Common shares issued	-0.001	0.000	-0.218	-2.474	0.016	S
Retained earnings	0.000	0.000	0.625	6.761	0.000	S
Long term debt	0.000	0.000	0.203	2.197	0.032	S
WACC	-58.522	105.022	-0.050	-0.557	0.579	NS

NS = not significant

S = Significant

$R^2 = 0.526$ ;

- Dependent variable: Share price
- Predictors: (constant), WACC, retained earnings, common shares issued, long-term debt

The  $R^2$  of 0.526 implies that only 52.6 percent of the total variance in the dependent variable is explained by the model i.e. by all the independent variables. The resultant  $R^2$  value is high, this implies that it contributes significantly to the explanation of the response variable and provides a much more precise prediction than a low  $R^2$  value. The result further reveals that of the independent variables in the model, retained earnings has the greatest effect on the share price. The result means a unit increase in the retained earnings leads to about 62.5 percent increase in the share price. The study further showed that the second variable with the highest influence on share price is the common shares issued. This means that a unit increase in the common shares issued leads to about 21.8 percent decrease in the share price. The third variable with the most influence is the long-term debt. This means a unit increase in the long-term debt leads 20.3 percent increase in the share price. WACC does not have a significant effect on the share price for 2012.

**Table 4.33 Result interpretation for year 2013**

Variables	Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
	$\beta$	Standard error				
Constant	1607.579	1112.899		1.444	0.154	
Common shares issued	-0.001	0.000	-0.197	-2.427	0.018	S
Retained earnings	0.001	0.000	0.697	7.654	0.000	S
Long term debt	0.000	0.000	0.152	1.670	0.100	NS
WACC	30.654	107.395	-0.023	-0.285	0.776	NS

NS = Not significant

S = Significant

$R^2 = 0.608$ ;

- Dependent variable: Share price
- Predictors: (constant), WACC, retained earnings, common shares issued, long-term debt

The  $R^2$  of 0.608 implies that only 60.8 percent of the total variance in the dependent variable is explained by the model i.e. by all the independent variables. The resultant  $R^2$  value is high, this implies that it contributes significantly to the explanation of the response variable and provides a much more precise prediction than a low  $R^2$  value. The result further reveals that of the independent variables in the model, retained earnings has the greatest effect on the share price. The result means a unit increase in the retained earnings leads to about 70 percent increase in the share price. The study further showed that the second variable with the highest influence on share price is the common shares issued. This means that a unit increase in the common shares issued leads to about 19.7 percent decrease in the share price. Long-term debt and WACC do not have a significant effect on the share price for 2013.

**Table 4.34 Consolidated result interpretations**

Variables	Unstandardised Coefficients		Standardised Coefficients	t	p	Decision
	$\beta$	Standard error				
Constant	1589.24	776.094		2.048	0.041	
Common shares Issued	-0.001	0.000	-0.077	-1.900	0.058	NS
Retained earnings	0.000	0.000	0.293	6.544	0.000	S
Long term debt	0.000	0.000	0.065	1.448	0.148	NS
WACC	37.783	66.673	0.023	0.567	0.571	NS

NS = not significant

S = significant

$R^2 = 0.112$ ;

- Dependent variable: Share price
- Predictors: (constant), WACC, retained earnings, common shares issued, long-term debt

The  $R^2$  of 0.112 implies that only 11.2 percent of the total variance in the dependent variable is explained by the model i.e. by all the independent variables. The resultant  $R^2$  value is extremely low, this implies that it contributes marginally to the explanation of the response variable and may not provide a much more precise prediction as a high  $R^2$  value would; therefore, areas for further research can lead us to some other variables that could better explain the response variable. The result further reveals that of all the independent variables in the model, only retained earnings contributed significantly to the share price. This means that for a unit increase in retained earnings, there is 29.3 percent increase in share price. There is no significant effect of others such as common shares issued, long term debt and WACC to share price.

#### **4.4.4 Results of correlation Model 1**

The main purpose of doing the correlation with trade-off theory and pecking order theory as the independent variables and share price again as the dependent variable, is to determine which of the two theories is correlated closely to share prices in listed industrial companies in South Africa. The following are the results of the correlation conducted from 2005-2013.

**Table 4.35 Result interpretation for year 2005**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Trade-off theory	-0.083	0.597	NS
Pecking order theory	-0.049	0.757	NS

**Significant at  $p \leq 0.05$** \* \* Significant at 1 percent when  $p \leq 0.01$ \* Significant at 5 percent when  $p \geq 0.01$ 

The result reveals that neither the trade-off theory nor pecking order theory contributed significantly to the share price in the year 2005 as trade-off theory ( $r = -0.083$ ,  $p = 0.597$ ) and pecking order theory ( $r = -0.049$ ,  $p = 0.757$ ) have a level of significance greater than the acceptable significance level of  $\leq 0.05$ . This implies that the capital structure theories had little or no influence on the performance and value of the 72 South African listed industrial companies.

**Table 4.36 Result interpretation for year 2006**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Trade-off theory	-0.076	0.622	NS
Pecking order theory	0.128	0.407	NS

**Significant at  $p \leq 0.05$** \* \* Significant at 1 percent when  $p \leq 0.01$ \* Significant at 5 percent when  $p \geq 0.01$ 

The result reveals that neither the trade-off theory nor pecking order theory contributed significantly to the share price in the year 2006 as trade-off theory ( $r = -0.076$ ,  $p = 0.622$ ) and pecking order theory ( $r = 0.128$ ,  $p = 0.407$ ) have a level of significance greater than the acceptable significance level of  $\leq 0.05$ . This implies that the capital structure theories had little or no influence on the performance and value of the South African industrial companies.

**Table 4.37 Result interpretation for year 2007**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Trade-off theory	-0.151	0.287	NS
Pecking order theory	0.024	0.886	NS

**Significant at  $p \leq 0.05$** \* \* Significant at 1 percent when  $p \leq 0.01$ \* Significant at 5 percent when  $p \geq 0.01$ 

The result reveals that neither the trade-off theory nor pecking order theory contributed significantly to the share price in the year 2007 as trade-off theory ( $r = -0.151$ ,  $p = 0.287$ ) and pecking order theory ( $r = 0.024$ ,  $p = 0.886$ ) have a level of significance greater than the acceptable significance level of  $\leq 0.05$ . This implies that the capital structure theories had little or no influence on the performance and value of the South African industrial companies.

**Table 4.38 Result interpretation for year 2008**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Trade-off theory	-0.115	0.356	NS
Pecking order theory	0.000	1.000	NS

**Significant at  $p \leq 0.05$** \* \* Significant at 1 percent when  $p \leq 0.01$ \* Significant at 5 percent when  $p \geq 0.01$ 

The result reveals that neither the trade-off theory nor pecking order theory contributed significantly to the share price in the year 2008 as trade-off theory ( $r = -0.115$ ,  $p = 0.356$ ) and pecking order theory ( $r = 0.000$ ,  $p = 1.000$ ) have a level of significance greater than the acceptable significance level of  $\leq 0.05$ . This implies that the capital structure theories had little or no influence on the performance and value of the South African industrial companies.

**Table 4.39 Result interpretation for year 2009**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Trade-off theory	-0.153	0.213	NS
Pecking order theory	-0.007	0.954	NS

**Significant at  $p \leq 0.05$**

\* \* Significant at 1 percent when  $p \leq 0.01$

\* Significant at 5 percent when  $p \geq 0.01$

The result reveals that neither the trade-off theory nor pecking order theory contributed significantly to the share price in the year 2009 as trade-off theory ( $r = -0.153$ ,  $p = 0.213$ ) and pecking order theory ( $r = -0.007$ ,  $p = 0.954$ ) have a level of significance greater than the acceptable significance level of  $\leq 0.05$ . This implies that the capital structure theories had little or no influence on the performance and value of the South African industrial companies.

**Table 4.40 Result interpretation for year 2010**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Trade-off theory	-0.055	0.654	NS
Pecking order theory	-0.031	0.804	NS

**Significant at  $p \leq 0.05$**

\* \* Significant at 1 percent when  $p \leq 0.01$

\* Significant at 5 percent when  $p \geq 0.01$

The result reveals that neither the trade-off theory nor pecking order theory contributed significantly to the share price in the year 2010 as trade-off theory ( $r = -0.055$ ,  $p = 0.654$ ) and pecking order theory ( $r = -0.031$ ,  $p = 0.804$ ) have a level of significance greater than the acceptable significance level of  $\leq 0.05$ . This implies that the capital structure theories had little or no influence on the performance and value of the South African industrial companies.

**Table 4.41 Result interpretation for year 2011**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Trade-off theory	-0.005	0.970	NS
Pecking order theory	0.008	0.945	NS

**Significant at  $p \leq 0.05$** \* \* Significant at 1 percent when  $p \leq 0.01$ \* Significant at 5 percent when  $p \geq 0.01$ 

The result reveals that neither the trade-off theory nor pecking order theory contributed significantly to the share price in the year 2011 as trade-off theory ( $r = -0.005$ ,  $p = 0.970$ ) and pecking order theory ( $r = -0.008$ ,  $p = 0.945$ ) have a level of significance greater than the acceptable significance level of  $\leq 0.05$ . This implies that the capital structure theories had little or no influence on the performance and value of the South African industrial companies.

**Table 4.42 Result interpretation for year 2012**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Trade-off theory	0.018	0.886	NS
Pecking order theory	-0.077	0.531	NS

**Significant at  $p \leq 0.05$** \* \* Significant at 1 percent when  $p \leq 0.01$ \* Significant at 5 percent when  $p \geq 0.01$ 

The result reveals that neither the trade-off theory nor pecking order theory contributed significantly to the share price in the year 2012 as trade-off theory ( $r = 0.018$ ,  $p = 0.886$ ) and pecking order theory ( $r = -0.077$ ,  $p = 0.531$ ) have a level of significance greater than the acceptable significance level of  $\leq 0.05$ . This implies that the capital structure theories had little or no influence on the performance and value of the South African industrial companies.



**Table 4.43 Result interpretation for year 2013**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Trade-off theory	-0.024	0.846	NS
Pecking order theory	-0.036	0.774	NS

**Significant at  $p \leq 0.05$**

\* \* Significant at 1 percent when  $p \leq 0.01$

\* Significant at 5 percent when  $p \geq 0.01$

The result reveals that neither the trade-off theory nor pecking order theory contributed significantly to the share price in the year 2013 as trade-off theory ( $r = -0.024$ ,  $p = 0.846$ ) and pecking order theory ( $r = -0.036$ ,  $p = 0.774$ ) have a level of significance greater than the acceptable significance level of  $\leq 0.05$ . This implies that the capital structure theories had little or no influence on the performance and value of the South African industrial companies.

#### **4.4.5 Results of correlation Model 2**

The main purpose of doing the correlation with common shares issued, retained earnings, long-term debt and WACC as the independent variables and share price again as the dependent variable, is to determine and see which of the variables that is closely correlated to share prices in listed industrial companies in South Africa. The following are the results of the correlation conducted yearly from 2005 – 2013.

**Table 4.44 Result interpretation for year 2005**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Common shares issued	0.109	0.487	NS
Retained earnings	0.433**	0.004	S
Long term debt	0.300	0.051	NS
WACC	-0.086	0.585	NS

**Significant at  $p \leq 0.05$**

\* \* Significant at 1 percent when  $p \leq 0.01$

\* Significant at 5 percent when  $p \geq 0.01$

The result reveals that the retained earnings ( $r = 0.433$ ,  $p = 0.004$ ) has significant relationship with share price; level of significance is at 1 percent indicating that there is a strong relationship between retained earnings and share price in the year 2005. This also indicates that the application of the common shares issued, long-term debt and WACC in the year 2005 has been minimal and has little or no influence on the performance and value of the listed industrial companies in South Africa.

**Table 4.45 Result interpretation for year 2006**

<b>Independent variable</b>	<b>Correlation coefficient</b>	<b>p</b>	<b>Decision</b>
Common shares issued	0.163	0.289	NS
Retained earnings	0.436**	0.003	S
Long term debt	0.308*	0.042	S
WACC	-0.078	0.614	NS

**Significant at  $p \leq 0.05$**

\*\* Significant at 1 percent when  $p \leq 0.01$

\* Significant at 5 percent when  $p \geq 0.01$

Retained earnings ( $r = 0.436$ ,  $p = 0.003$ ) and long-term debt ( $r = 0.308$ ,  $p = 0.042$ ) have significant relationship with share price while common shares issued and WACC do not. There is, however, a stronger relationship between retained earnings and share price because the level of significance is at 1 percent while the level of significance between long-term debt and share price is at 5 percent indicating that the relationship is not as strong. This also indicates that the application of the common shares issued, and WACC in the year 2006 has been minimal and has little or no influence on the performance and value of the listed industrial companies in South Africa.

**Table 4.46 Result interpretation for year 2007**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Common shares issued	-0.402**	0.003	S
Retained earnings	0.713**	0.000	S
Long term debt	0.516**	0.000	S
WACC	0.041	0.773	NS

**Significant at  $p \leq 0.05$** \*\* Significant at 1 percent when  $p \leq 0.01$ \* Significant at 5 percent when  $p \geq 0.01$ 

The result reveals that the common shares issued ( $r = -0.402$ ,  $p = 0.004$ ), retained earnings ( $r = 0.713$ ,  $p = 0.000$ ) and long-term debt ( $r = 0.516$ ;  $p = 0.000$ ) have significant relationship with share price in 2007. The level of significance of all three variables is at 1 percent indicating a very strong relationship with share price. WACC does not have a relationship with share price. This indicates that WACC has been minimal and has little or no influence on the performance and value of the listed industrial companies in South Africa.

**Table 4.47 Result interpretation for year 2008**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Common shares issued	-0.250*	0.043	S
Retained earnings	0.808**	0.000	S
Long term debt	0.275*	0.026	S
WACC	0.098	0.432	NS

**Significant at  $p \leq 0.05$** \*\* Significant at 1 percent when  $p \leq 0.01$ \* Significant at 5 percent when  $p \geq 0.01$ 

The result reveals that the common shares issued ( $r = -0.250$ ,  $p = 0.043$ ), retained earnings ( $r = 0.808$ ,  $p = 0.000$ ) and long-term debt ( $r = 0.275$ ;  $p = 0.026$ ) have significant relationships with share price. Retained earnings, however, have a stronger relationship with share price (significant at 1%) than common shares issued and long-term debt (significant at 5%). WACC

does not have a significant relationship with share price in 2008. This indicates that WACC has been minimal and has little or no influence on the performance and value of the listed industrial companies in South Africa.

**Table 4.48 Result interpretation for year 2009**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Common shares issued	0.031	0.803	NS
Retained earnings	0.075	0.541	NS
Long term debt	0.018	0.885	NS
WACC	0.221	0.085	NS

**Significant at  $p \leq 0.05$**

**\*\*** Significant at 1 percent when  $p \leq 0.01$

**\*** Significant at 5 percent when  $p \geq 0.01$

The result reveals that none of the variables was significant. Common shares issued, long term debt, retained earnings and WACC have not contributed significantly to the share price in the year 2009 as common shares issued ( $r = 0.031$ ,  $p = 0.803$ ), long term debt ( $r = 0.075$ ,  $p = 0.541$ ), retained earnings ( $r = 0.018$ ,  $p = 0.885$ ) and WACC ( $r = 0.221$ ,  $p = 0.085$ ) have a level of significance greater than the acceptable significance level of  $\leq 0.05$ . This implies that all the variables had little or no influence on the performance and value of the South African industrial companies.

**Table 4.49 Result interpretation for year 2010**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Common shares issued	-0.145	0.237	NS
Retained earnings	0.120	0.329	NS
Long term debt	0.044	0.719	NS
WACC	0.014	0.912	NS

**Significant at  $p \leq 0.05$**

**\*\*** Significant at 1 percent when  $p \leq 0.01$

\* Significant at 5 percent when  $p \geq 0.01$

The result reveals that none of the variables was significant. Common shares issued, long term debt, retained earnings and WACC have not contributed significantly to the share price in the year 2010 as common shares issued ( $r = -0.145$ ,  $p = 0.237$ ), long term debt ( $r = 0.120$ ,  $p = 0.329$ ), retained earnings ( $r = 0.044$ ,  $p = 0.719$ ) and WACC ( $r = 0.014$ ,  $p = 0.912$ ) have a level of significance greater than the acceptable significance level of  $\leq 0.05$ . This implies that all the variables had little or no influence on the performance and value of the South African industrial companies.

**Table 4.50 Result interpretation for year 2011**

Variable	Correlation Coefficients	p	Decision
Common shares issued	-0.147	0.224	NS
Retained earnings	0.654**	0.000	S
Long term debt	0.441**	0.000	S
WACC	-0.043	0.726	NS

**Significant at  $p \leq 0.05$**

\*\* Significant at 1 percent when  $p \leq 0.01$

\* Significant at 5 percent when  $p \geq 0.01$

The result reveals that retained earnings ( $r = 0.654$ ,  $p = 0.000$ ) and long-term debt ( $r = 0.441$ ;  $p = 0.000$ ) have significant relationship with share price and at 1 percent level of significance showing a strong relationship with share price. Common shares issued and WACC are not significantly related to share price in 2011. This implies that common shares issued and WACC had little or no influence on the performance and value of the South African industrial companies.

**Table 4.51 Result interpretation for year 2012**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Common shares issued	-0.137	0.263	NS
Retained earnings	0.656**	0.000	S
Long term debt	0.407**	0.001	S
WACC	-0.060	0.623	NS

**Significant at  $p \leq 0.05$** \*\* Significant at 1 percent when  $p \leq 0.01$ \* Significant at 5 percent when  $p \geq 0.01$ 

The result reveals that retained earnings ( $r = 0.656$ ,  $p = 0.000$ ) and long-term debt ( $r = 0.447$ ;  $p = 0.001$ ) have significant relationship with share price. The level of significance is at 1 percent for both variables indicating a strong relationship with share price. Common shares issued and WACC do not have a significant relationship with share price in 2012. This implies that common shares issued and WACC had little or no influence on the performance and value of the South African industrial companies.

**Table 4.52 Result interpretation for year 2013**

<b>Variables</b>	<b>Correlation Coefficients</b>	<b>p</b>	<b>Decision</b>
Common shares issued	-0.104	0.405	NS
Retained earnings	0.742**	0.000	S
Long term debt	0.458**	0.000	S
WACC	0.014	0.912	NS

**Significant at  $p \leq 0.05$** \*\* Significant at 1 percent when  $p \leq 0.01$ \* Significant at 5 percent when  $p \geq 0.01$ 

Retained earnings ( $r = 0.742$ ,  $p = 0.000$ ) and long-term debt ( $r = 458$ ,  $p = 0.000$ ) have a significant relationship with share price and at 1 percent level of significance showing a very strong relationship with share price. Common shares issued and WACC do not have a

significant relationship with share price in 2013. This implies that common share issued and WACC had little or no influence on the performance and value of the South African industrial companies.

#### **4.5 CONCLUSION**

In conclusion, this study identified the essentials of capital structure choice among listed firms on the JSE while at the same time explored whether these firms follow either the trade-off theory or the pecking order theory when financing their business activities. This study also examined which of the variables; common shares issued, retained earnings, long-term debt and WACC, that is correlated closely to share prices in listed industrial companies in South Africa from 2005-2013. The findings indicate that listed firms exhibited financing behaviour according to the trade-off model during the period under evaluation of 2005-2013.

Evidence according to this study provides useful insights into the level of significance of share price on the independent variables and influence on the performance of the South African industrial companies. The following chapter outlines and discusses the main findings, identifies the limitations of the study and suggests areas where it might be fruitful to focus future research.

## **CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND SUGGESTIONS FOR FURTHER RESEARCH**

### **5.1 INTRODUCTION**

This study examined the capital structure theory practice among South Africa's 72 listed industrial companies by analysing two theories of capital structure, the trade-off theory and the pecking order theory during the period of 2005-2013. The chapter also summarises the findings and interpretation of data analysed for the purpose of this research as explicated in the previous chapter and provides information on the conclusions drawn from the findings, the limitations of the study and recommendations for areas of further research.

The application of capital structure theories (trade-off theory and pecking order theory) in the South African industries and the influence of these theories on their performances and values were studied according to the theoretical and empirical research objectives. Thus, the relationship between the theories and share price were regressed to obtain the level of significance of the theories on the industries. Data analysis was also undertaken to discern the relationship between the capital structures (WACC, retained earnings, common shares issued, and long-term debt) and share prices (as the predictor variable) using both the correlations and multiple regressions analysis to ensure a model fit.

### **5.2 SUMMARY OF FINDINGS**

#### **5.2.1 Primary objective**

The primary objective of this study was aimed at analysing capital structure practices and the influence of share price among industrial companies in South Africa. This objective has been carried out and achieved through the research conducted both in the theoretical and empirical objectives of this study as summarised in the following sub-sections of this chapter.

The theoretical objectives captured the analysis of capital structure practices from the reviews of significant literatures. Important concepts were covered in the reviews, which include capital structure practices, theories and importance or value on the financial performances of



South African industrial firms. The empirical objectives dealt with the quantitative analysis of the primary data obtained for the purpose of this research to investigate the actual application of capital structure practices among industrial companies in South Africa and its level of influence on their performances and values.

### **5.2.2 Theoretical objectives**

In line with this study's theoretical objectives, a number of peer reviewed literature sources were examined critically for the fundamental purpose of understanding capital structure as a construct, its practices, theories and importance of the financial performances of South Africa industrial companies. These themes, alongside the influence of debt and equity in financing operations of the industries, were discussed extensively in the second chapter of this dissertation. The following are the summarised reviews of the four theoretical objectives of this research:

#### **5.2.2.1 Investigation of capital structure theories**

Reviews on capital structure theories established that theories are critical or key to the management of any industry in making crucial decisions on firm financing. Amongst numerous existing theories, the study was streamlined to two basic influential theories, namely trade-off theory and pecking order theory. The trade-off theory explains the financing of industrial firms with debt and part equity to create a balance, while the pecking order theory postulates the ranking of a firm's order of finance from internally generated finance to externally generated finance with debt ranking before equity to preserve the value of the firm. In other words, if external debt is ever required, debt finance is preferred to equity finance. It surmises that firms follow a certain hierarchy of preferences for different types of finance, reflecting their relative costs with the ranking being: internal finance is preferred first, then, the safest security (debt), and equity as a last option.

#### **5.2.2.2 Investigation of capital structure practices**

To recapitulate, the concept of capital structure as established from the preceding literature revolves around financing the firm operations; its axis is thus, on firms sources of financing like equity, debt, and retained earnings amongst other recognised firm funding mechanisms. In this context, the decision to take up one or more source(s) of funds over other sources given

certain conditions thus rests heavily on the management, as it is critical to maximising the firm's value. In essence, capital structure practices play a vital decision-making role that influences the risks taken and returns of investors.

#### **5.2.2.3 Investigating the importance of capital structure practices**

The practice of capital structure among industries cannot be over-emphasised, as it is most significant in managerial decisions, which influence the risk and return of any given investor. It deals with crucial analysis of firm financing when determining how risky it is to invest in a business and how expensive the financing should be. Capital structure practices allow firms the benefits of making financial adjustments for reducing overall risks and regulating fund sources according to the business environments. It is existent to reduce risks, expand the possibilities of obtaining more finance, aid firms to adjust according to the business environments and generate ideas of new sources of funds.

#### **5.2.2.4 Investigating the influence of debt and equity in company's operations**

It is further understood from the reviews that both the equity and debt capitals as tools of firm financing, have respective influences on firm performances, which could be positive or negative taking into consideration certain business conditions. The firm's decision to utilise either or both source(s) rests on estimated potential risks and value attached to them; thus, the benefits and drawbacks associated with each capital theory were detailed in the review chapter with an inference drawn that equity is a better financing option than the debt capital. Firms, however, should not rely solely on equity as their source of finance, as it could be detrimental to their performances.

### **5.2.3 Empirical objectives**

#### **5.2.3.1 Investigating the influence of capital structure theories**

One of the empirical objectives of this study is to investigate the influence of capital structure theories (the trade-off theory and pecking order theory) among listed industrial companies in South Africa. This empirical objective was achieved with the use of regression analysis. Table 5.1 shows the summary of results of the regression analysis conducted to establish the relationship between the capital structure theories (trade-off theory and the pecking order

theory) as the independent variables, and share price as the dependent variable from year 2005-2013. A multiple regression analysis was carried out to determine which of the two theories was most significant in influencing share price of the listed industrial companies.

**Table 5.1 Summarised result interpretations using a regression analysis**

Period	Trade-off theory		Pecking order theory	
	p	Decision	p	Decision
2005	0.604	NS	0.765	NS
2006	0.726	NS	0.456	NS
2007	0.297	NS	0.939	NS
2008	0.356	NS	0.914	NS
2009	0.216	NS	0.944	NS
2010	0.697	NS	0.905	NS
2011	0.948	NS	0.932	NS
2012	0.638	NS	0.443	NS
2013	0.969	NS	0.831	NS

This summarised finding indicates that none of the capital structure theories (trade-off theory and the pecking order theory) had a significant influence on the share price of the examined industrial companies in South Africa from year 2005-2013. The analysis also revealed that the resultant  $R^2$  values of the models were extremely low, ranging from 0.000 to 0.023 and may not have provided a much more precise prediction needed for the explanation of the response variables. Therefore, it can be deduced from this study's findings, based on its empirical objectives, that the application of capital structure theories (the trade-off theory and pecking order theory) among the examined industrial companies in South Africa is yet to be exploited maximally such it that can bring about a significant impact on the share price of these industries, which could signify that the capital structure theories have considerable contributions to the value of the industries.

A correlation analysis was carried out according to the same objective to further test the relationship between the capital structure theories (trade-off theory and the pecking order theory) as the independent variables and share price as the dependent variable from year 2005-2013. Table 5.2 shows the summarised correlation results.

**Table 5.2 Summarised result interpretations using a correlation analysis**

<b>Period</b>	<b>Trade-off theory</b>		<b>Pecking order theory</b>	
	<b>p</b>	<b>Decision</b>	<b>p</b>	<b>Decision</b>
2005	0.597	NS	0.757	NS
2006	0.622	NS	0.407	NS
2007	0.287	NS	0.886	NS
2008	0.356	NS	1.000	NS
2009	0.213	NS	0.954	NS
2010	0.654	NS	0.804	NS
2011	0.970	NS	0.945	NS
2012	0.886	NS	0.531	NS
2013	0.846	NS	0.774	NS

As with the summarised findings from the regression analysis (Table 5.1), a further test of the relationship between the capital structure theories and the share price, using a correlation analysis, agrees with the regression analysis, which indicates that none of the capital structure theories had a significant influence on the performance and value of the examined industrial companies in South Africa from year 2005-2013.

A further investigation was carried out to determine the influence of the capital structure theories among the different industrial sectors within South Africa. Table 5.3 shows the summary of results, indicating which of the sectors applied the trade-off theory and the pecking

order theory within the periods 2005-2013 and the level of significance of these theories on the sector's performances.

**Table 5.3 Summarised result interpretations per industrial sector.**

Sectors	Trade-off theory		Pecking order theory	
	p	Decision	p	Decision
Building materials and fixtures	0.591	NS	0.978	NS
Business support services	0.624	NS	0.199	NS
Business training and employment	0.192	NS	0.821	NS
Commercial vehicles and trucks	0.141	NS	0.134	NS
Containers and packaging	0.468	NS	0.098	NS
Diversified industrials	0.006	S	0.153	NS
Electrical components and Equipment	0.044	S	0.348	NS
Electronic equipment	0.318	NS	0.254	NS
Financial administration	0.236	NS	0.630	NS
Heavy construction	0.186	NS	0.410	NS
Industrial machinery	0.119	NS	0.775	NS
Industrial suppliers	0.683	NS	0.647	NS
Marine transportation	0.000	S	0.335	NS
Transportation services	0.622	NS	0.643	NS

This summary of result reveals that three of the sectors (diversified industrials, electrical components and equipment and marine transportation) showed some significant level in the application of the trade-off theory in its businesses, which had an effect on its share prices. In the case of the diversified industrials and marine transportation sectors, the application of the trade-off theory led to a significant decrease in its share price, indicating a negative effect on the performance of the industries, while the application of the same theory in the electrical components and equipment sector led to an increase in the share price indicating that the application of the trade-off theory had a considerable positive effect on the performance of the

industrial companies. The trade-off theory, however, had no significant impact on other industries, while the pecking order theory had no significant impact on any of the industries.

#### **5.2.3.2      Ascertaining the influence of capital structure decisions**

Another empirical objective of this study is to ascertain whether capital structure decisions have had an influence on the performance and value of South African industrial companies. The influence of debt and equity in financing operations of industrial companies was examined and this was carried out using the regression analysis. As shown in Table 5.4, multiple regression analysis was carried out to find the relationship between the capital structures (common shares issued, retained earnings, long-term debt and WACC) as the independent variables and share price as the dependent variable and to determine which of the independent variable(s) has the strongest relationship with the share prices of these examined listed industrial companies in South Africa.

This summarised result in table 5.4 reveals that of the independent variables in the model, retained earnings has the greatest significant relationship with an effect on the share price with its significance running through years 2005-2008 and 2011-2013. The common shares issued and long-term debts recorded some level of significance with share prices in years 2011-2013 and 2011-2012 respectively, while the WACC had no significant relationship with share price. This indicates that a unit increase in retained earnings, common shares issued and long-term debts leads to a considerable percentage increase or decrease in the share prices of the industries.

**Table 5.4 Summarised result interpretations on performance**

<b>Period</b>	<b>Common shares issued</b>		<b>Retained earnings</b>		<b>Long term debt</b>		<b>WACC</b>	
	<b>p</b>	<b>Decision</b>	<b>p</b>	<b>Decision</b>	<b>p</b>	<b>Decision</b>	<b>p</b>	<b>Decision</b>
2005	0.231	NS	0.013	S	0.998	NS	0.721	NS
2006	0.176	NS	0.019	S	0.547	NS	0.648	NS
2007	0.371	NS	0.000	S	0.143	NS	0.752	NS
2008	0.259	NS	0.000	S	0.238	NS	0.892	NS
2009	0.958	NS	0.705	NS	0.976	NS	0.117	NS
2010	0.190	NS	0.268	NS	0.651	NS	0.937	NS
2011	0.005	S	0.000	S	0.045	S	0.778	NS
2012	0.016	S	0.000	S	0.032	S	0.579	NS
2013	0.018	S	0.000	S	0.100	NS	0.776	NS

To verify the regression analysis findings as shown in Table 5.4 of the relationship between the capital structures (common shares issued, retained earnings, long -term debt and WACC) as the independent variables and share price as the dependent variable, a correlation analysis was used to support the regression results. Table 5.5 shows the summary of the correlation results.

**Table 5.5 Summarised result interpretations on performance**

Period	Common shares issued		Retained earnings		Long term debt		WACC	
	p	Decision	p	Decision	p	Decision	p	Decision
2005	0.487	NS	0.004	S	0.051	NS	0.585	NS
2006	0.289	NS	0.003	S	0.042	S	0.614	NS
2007	0.003	S	0.000	S	0.000	S	0.773	NS
2008	0.043	S	0.000	S	0.026	S	0.432	NS
2009	0.803	NS	0.541	NS	0.885	NS	0.085	NS
2010	0.237	NS	0.329	NS	0.719	NS	0.912	NS
2011	0.224	NS	0.000	S	0.000	S	0.726	NS
2012	0.263	NS	0.000	S	0.001	S	0.623	NS
2013	0.405	NS	0.000	S	0.000	S	0.912	NS

This summarised correlation result revealed retained earnings and long-term debts as independent variables in the model with the highest significant relationship with share price, their significance running through years 2005-2008 and 2011-2013. The common shares issued also recorded some level of significance with share prices in years 2007-2008 while the WACC still had no significant relationship with share price.

### 5.3 CONCLUSION

The study examined the capital structure choice and designed two models, which were used to establish whether listed firms follow the trade-off theory where they trade-off the benefits of debt financing against the costs of financial distress, and appear to gradually adjust to the pecking order theory, where firms' external financing is driven purely by the firm's internal finance



deficit so that firms do not necessarily maintain the optimal debt-to-equity ratio in their capital structures. These results are similar to earlier studies. The studies by Nguyen and Ramachandran (2006:192), Ortqvist, Masli, Rahman and Selvarajah. (2006:290), Chen and Strange (2005:29), and Frank and Goyal (2003:219; 2009:29) all reported inconsistencies and low sensitivities with the measures of debt or its influence on the several explanatory variables used in their respective studies.

However, it could be argued that the results of analysis summarised above are mostly inconsistent with the recent literature and economic theory from across the world, including South Africa. There is substantial literature that has shown a relationship between share price and the capital structure of a firm. This outcome, perhaps, corresponds with Myers (2002:215) and Mohohlo (2013:72) who state that there is no universal theory of capital structure, which means that the factors that might be significant in one context may be insignificant in another.

In answering to the research questions, it was concluded that there is little or no influence of capital structure theory on the share price and the performance of listed firms in South Africa. This indicated that industrial companies in South Africa rarely practice capital structure in accordance with the financing theories.

Hence, based on the summary of regression and correlation analysis, it showed that retained earnings and long-term debt have a positive influence on the financing of listed industrial companies in South Africa from 2005-2013, while common shares issued and WACC has little or no influence on the financing of listed industrial companies in South Africa from 2005-2013.

#### **5.4 LIMITATIONS, RECOMMENDATIONS AND SUGGESTIONS FOR FUTURE RESEARCH**

The intention of this study is to create new or advance knowledge on the capital structure practices of listed firms but this is not without some limitations. The following are the limitations to the study:

- Some of the listed industrial companies used for the purpose of this study were not registered for the full period of 2005-2013.

- The results of this study might not be generally applicable to understanding the capital structure theories because it was specifically only on the listed industrial companies on JSE.
- The result of the study is restricted and only covered a given period from 2005-2013, however, these findings represented some distinctiveness in the capital structure practices of listed firms in South Africa, which can warrant further discussion and future research.

The following are the recommendations and suggestions for future research:

- Company's management should know the suitable source for the firm at any point in time either financing by internal or external capital.
- In taking strategic decision, managers must of necessity apply caution in ensuring that a right mixture of equity and debt are used to harness the benefits accruable from such combination because a wrong composition of a firm's capital structure can result in liquidity and solvency problems.
- The future research on capital structure could also focus on small enterprises and other companies in South Africa apart from only listed industrial companies on JSE to examine if there will be any significant influence on the company's performance.
- The future research on capital structure can also compare the South African companies with other African companies to examine if there will be any significant influence on the company's performance.
- The areas for further research are deemed necessary for the discovery of other variables that could better explain the response variable.
- Another future suggestion is that qualitative methods, with the use of questionnaires, can be used to investigate the application of capital structure practices among the listed industrial companies in South Africa.

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