Choice of capital structure: a study of Libyan companies a comparison with UK companies

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Abstract

Capital structure has been one of the most contentious issues in the finance literature since Modigliani and Miller introduced their capital structure irrelevance propositions in their seminal article in 1958. Since then, several theories have been developed suggesting a number of factors that might determine a firm's capital structure decision. However, three theories of capital structure have established prominence in the literature. They are the static trade-off theory, asymmetric information (pecking order theory), and agency cost theory. Capital structure theories differ in terms of their emphases on taxes (the trade-off theory), differences in information (the asymmetric information theory) and agency problems (The agency cost theory). Despite considerable theoretical progress, the understanding of the determinants of a firm's capital structure remains incomplete and there are still numerous empirical issues to be resolved.

Much of the literature and many empirical studies over the past five decades have tested these theories in the context of both developed and developing countries. However, Libya as a developing and transitional economy has institutional structures and political, economic and social structures that distinguish it from developed as well as many developing countries. Libyan companies operate in a society with distinctive features compared with others: (1) Libya is in transition from a command economy to a market economy ;(2) Libya does not have a bond market, and only an emergent stock market, and (3) a high proportion of Libyan companies are ,or until recently have been in public ownership.

This study provides comparative evidence about how the three dominant capital structure theories pertain to Libyan and UK companies. The Libyan business environment differs from that of the UK in terms of company ownership; regulation and enforcement of law; and in corporate governance. Some of the differences between Libya and the UK are pertinent when comparing corporate capital structure in the two countries. The stock market in Libya was established only in 2007, so the range of financing options available to companies is more limited than in a country with a well established secondary stock market, which in the UK potentially switches the focus of company financing from short-term investment to long-term investment. The number of determinants of capital structure identified by theoretical reasoning continues to increase, and as a result their analysis has become increasingly complex. The primary contribution of this thesis is to provide some empirical tests of hypotheses suggested by theoretical models and reasoning. In the search for the most important determinants of capital structure, the main objective of this research is to examine empirically the determinants of the capital structure of Libyan and UK firms.

This study investigates the determinants of leverage of Libyan and UK companies, utilizing data from two different sources, two each with its own aim, : (a) data from Libyan corporate financial statements between 2000-2004,to examine the determinants of leverage of Libyan companies; and (b) data from Libya and the UK (data stream), to analyze whether institutional differences in the Libyan business environment induce Libyan companies to display financing behaviour different to that of UK companies.

This study uses data from 65 UK firms and 65 Libyan companies, to compare capital structure by using cross sectional regression (OLS). Multiple regression analysis was employed to find the determinants of the extent of leverage in the capital structure of companies, using various account data items.

Leverage differs between the two countries; the regression results of the models show that leverage in Libyan companies has a positive correlation with tangible assets, firm size and profitability, and negatively correlates to growth opportunity and risk. In the UK the regression results of the models confirmed that leverage in UK companies has a positive relationship with tangible assets, firm size and growth opportunity, and negatively links to profitability and risk.

The descriptive statistics indicate that there are differences between Libya and the UK in terms of using short –term and long –term debt, and profitability. The extensive use of short-term debt compared to long-term debt by Libyan companies, on the other hand, is attributable to the underdeveloped state of the stock market, which was only established in 2007; many of the Libyan companies are unlisted on the stock market and there is no secondary stock market. The evidence of this study suggests that the static trade-off theory and the agency cost theory have explanatory power in relation to the determinants of capital structure of Libyan companies, whereas there is little evidence to support the pecking order theory. The companies in the UK seem to follow the agency cost theory and the pecking order theory of capital structure.

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Chapter One

Introduction of the Research

1.1 Introduction

Many factors are believed to influence the capital structure decisions of firms. Most studies on capital structure have been based on firms in US and the UK and have concentrated mainly on firms that are quoted on the stock market. The main reason for this is easy data availability. Although very few studies have examined the capital structure of firms in other countries.

The determination of capital structure has been one of the most contentious issues in the finance literature since Modigliani and Miller introduced their capital structure irrelevance propositions in their seminal article in 1958. Since then, several theories have been developed suggesting a number of factors that might determine a firm's capital structure decision. However, three theories of capital structure have become central to modern thinking on capital structure. They are: the static trade-off theory; asymmetric information (pecking order theory); and agency cost theory.

Static trade-off assumes that there are benefits and costs associated with the use of debt. In the beginning, the theory was limited to the trade off between the tax advantages of debt and bankruptcy costs. Then, it was extended to include benefits and costs of debt associated with agency conflicts (Brigham and Houston, 2004).

By contrast pecking order theory states that, under information asymmetry between insiders and outsider, firms will first resort to internally generated funds to finance their growth, but when external financing is needed, firms prefer to raise debt before issuing equity (Myers and Majluf, 1984).

Finally agency cost theory suggests that a firm's capital structure is determined by minimizing agency costs, (costs related to conflicts of interests between various groups which have claims on the firm's resources). The theory is based on the assumption that there are conflicts of interest between corporate insiders, such as managers, on the one hand, and outsiders, such as shareholders and debt holders, on the other hand. Therefore, managers may conduct actions according to their own self-interest which may not always be beneficial for shareholders and debt holders (Jensen and Meckling, 1976).

Empirically, numerous studies have been conducted to investigate the determinants of capital structure on the basis of these theories. However, Harris and Raviv (1991) and Delcoure (2007) conclude that it is necessary for empirical research to be directed to test determinants of capital structure in various contexts. Motivated by Harris and Raviv's (1991) and Delcoure (2007) conclusion, this study investigates the determinants of capital structure in a different context. The primary aim of this study is to analyse the capital structure of firms in Libya. Specifically, this study attempts to explain and understand financing behaviour in Libya. Furthermore the study tries to identify the determinants of leverage and to assess which capital structure theory provides a better explanation for Libyan financing behaviour.

The first part of this study aims to identify the determinants of leverage and to assess which capital structure theories provides a better explanation of the financing behaviour of Libyan companies. It should be noted that most capital structure theories have been developed to explain the capital structure of firms and to provide a better explanation of the financing behaviour in large and small companies.

The second part of this study investigates the factors that affect cross-sectional variability of capital structure in the UK, and factors which have a similar effect on companies' capital structure in Libya. It also investigates if Libyan companies and UK companies have the same financing behaviour. Therefore, the second purpose of this study is to investigate the extent to which the capital structure of Libyan companies is similar to the capital structure of companies in the UK.

The main contribution of this study to the literature is mainly empirical. It will investigate the financing behaviour of firms in two countries, namely the UK and Libya. These are two different financial systems, the UK having a very well-developed and mature financial system, while Libya is a developing transition economy.

As mentioned earlier most research on financing has mainly focussed on companies in the UK and US. This study will look at the UK and Libya as this provides an interesting comparison in this area. By focusing a major part of its investigation on the financing behaviour of Libyan companies, this study gives a new dimension to research in this area. Empirical research on Libya is a very challenging task, especially as data availability is a serious issue. In UK the availability of good quality financial data enables the examination of leverage and the decisions of these firms, and provides some understanding related to how companies make their financing decisions. Such high quality data is not always available in Libya. The rest of this chapter is divided into four parts:

1.2- Background of capital structure theory

1.3 - The rationale of the study

1.4- The study aims and objectives

1.5 - The structure of the study

1.2 - Background of capital structure theory

Capital structure theories have developed from the publication of capital structure irrelevancy framework by Modigliani and Miller (1958). They argued that a firm couldn't change the value of its outstanding securities by changing the proportions of its capital structure without tax. Modigliani and Miller concluded that in a world without taxes, the value of the firm and also its overall costs of capital were independent of its choice of capital structure. A later study in 1963 by MM concluded that by incorporating corporate tax, the market value of a firm is increased and the overall cost of capital is reduced to the point of interest being tax deductible by issuing debt.

Since Modigliani and Miller's publications in 1958 and 1963, many financial economists have studied a number of leverage relevant theories to explain the variation in debt ratios across firms. Baxter (1967) dropped MM's (1958) assumption of the absence of bankruptcy costs, arguing that high levels of debt increase the probability of financial stringency, and even bankruptcy. Thus a static trade-off theory was established; the trade-off theory explained the relevance of debt with the existence of taxes and bankruptcy costs (DeAngelo and Masulis, 1980 and Harjeet et al., 2004).

The general result from this theory is that the combination of debt costs and tax advantages of debt produces an optimal capital structure below 100% of debt financing. The reason for this is that the tax advantage of debt is traded against the likelihood of incurring bankruptcy costs. The Pecking order model is another important theory in the study of corporate capital structure; it explains the relevance of debt and optimal capital structure. This theory was developed by Steward Myers in 1984 in his paper, "Capital Structure Puzzle". Myers (1984) presented two sides of the capital structure issue, which are called static trade-off theory and pecking order hypothesis.

The static trade-off theory holds that the capital structure choices may be explained by the trade-off between benefits and costs of debt versus equity. A firm is regarded as setting a target debt level and gradually moving towards it. The pecking order hypothesis contends, on the other hand, that there is no well defined target debt ratio, and firms have an ordered preference for financing. Accordingly firms prefer retained earnings as a main source of funds for investment, followed by debt, then external equity financing. The reason for this ranking was that internal funds were regarded as 'cheap' and not subject to any outside interference.

External debt was ranked next as it was cheaper and has fewer restrictions compared to issuing equity. The issuance of external equity is seen as the most expensive and dangerous as it can lead to potential loss of control of the enterprise by the original owner and managers; hence, it was ranked the last. Another perspective of capital structure is agency theory. This theory was developed by Jensen and Meckling in their 1976 publication. It considers debt to be a necessary factor in creating the conflict between shareholders and the managers. They recommended that, due to increasing agency costs with both the shareholders and debt-holders, there would be an optimum combination of outside debt and equity to reduce total agency costs. They identified two types of conflict: one is between shareholders and managers, and the other is between shareholders and debt holders. This theory states that optimal capital structure is determined by minimizing the costs arising from the two conflicts. Ross (1977) popularized the signaling theory of capital structure that states the managers of the firm possess inside information and they only reveal it by the method of financing. The managers will issue more debt if the future prospect is positive as they are willing to incur higher risk of bankruptcy and other relevant costs of higher debt.

Ever since Myers article on the determinants of corporate borrowing in 1977, the literature on capital structure has grown steadily, trying to explain factors affecting capital structure behaviour. Many capital structure studies have concentrated on the determinants of the level of debt or observed debt ratios of firms and explain the cross-sectional regularities in the level of debt.

1.3 The rationale of the study

(1)- Firms are the engines of growth in any economy. It is therefore important to study how firms finance themselves as this has a direct impact on the overall growth rate of an economy. A firm can choose whether to finance its activities with internally generated funds, debt, equity or a combination of these resources. The various means of financing represent the financial structure of an enterprise. According to Modigliani and Miller (1958), capital structure is irrelevant in the sense that internal and external finance can be regarded as perfect substitutes. Despite extensive research over five decades, the theory of capital structure remains one of the most controversial issues in modern corporate finance subject and Myer's (1984, p575) twenty-five year old question; "How do firms choose their capital structure"? Still remains unanswered.

(2)-Myers (1984) argues that there is no precise answer for the two key issues relating to capital structure theory. These are (1) choosing the capital structure of a company, and (2) identifying the major determinants of companies' choice of capital structure.
The question of what determines a firm's choice of capital structure has been a major field in the literature of corporate finance.

A number of factors have been suggested to have an influence on a firm's capital structure decision. However, while there is a wide and growing body of empirical studies investigating the influence of these factors on the capital structure of firms, the findings of these studies are not always consistent in terms of the direction and strength of the relationship between leverage and its determinants. Given the large number of studies, it is perhaps surprising that no one has yet undertaken the important test of summarising the empirical evidence in a systematic manner. This would enable a clearer understanding of the current state of knowledge.

(3)- Another issue is that the capital structure theories have very little to say about inter-country differences in corporate financing patterns. No existing theory explains how country-specific factors affect a firm's capital structure. Empirical studies (e.g. Rajan and Zingales, 1995; Booth et al., 2001; Giannetti, 2003; Fan et al., 2004; Hall et al., 2004; De Jong et al., 2008) assert that the influence of institutional characteristics is as important as the influence of a firm's characteristics on corporate leverage level. However, knowledge of capital structure has mostly been derived from a large volume of research conducted in developed countries with very little from developing countries. Therefore, it is important to know how capital structure theories work in different environments, especially those with different traditions and institutional factors.

(4)- Moreover, a significant gap in the research has been in the determinants of capital structure in developing countries, probably due to the lack of reliable data for those companies in those countries (Hall et al., 2004). Although a significant amount of literature has been produced on capital structure in the developed nations over the last five decades, very few studies have focused on developing countries.

According to Deesomsak et al. (2004), the empirical study of capital structure determinants of developing countries is still limited, despite the economic importance of these countries. To date, there is less concrete empirical evidence to answer the questions like, (i) what is the capital structure adopted by companies? (ii) What are the factors affecting the capital structure choices of these firms? (iii) Do the factors affecting the capital structure in developed countries (such as the UK) also have a similar effect on companies' capital structure in developing countries? Studying capital structure by comparing the financing behaviour of companies in developing and developed countries is motivated in part by the institutional differences between the two countries. Libya differs from the UK in terms of investors' protection, enforcement of law, and corporate governance. The number of capital structure studies examining developing countries is relatively small compared to those examining developed countries, and, there is a lack of capital structure studies which compare financing behaviour in developing and developed countries. This study has been selected because most capital structure studies are conducted in developed countries, such as, Bevan and Danpolt, (2002);Antoniou et al. (2002);Gleason et al. (2000); Deesomsak et al. (2004); Hall, Hutchinson and Michaelas,(2004); Daskalakis and Psillaki,(2007); Feidakis and Rovolis, (2007); among others . On the other hand there are few studies which have investigated developing economies these include, Pandey, (2001); Al-Sakran, (2001); Sukkari, (2003); and Abor, (2008). As a result this study attempts to reduce the gap of capital structure existent in developing countries, such as Libya.

Libya differs from the developing countries previously studied in not having an effective secondary capital market. Also, this study provides further evidence to capital structure theories pertaining to under developing countries and examines the explanatory power of capital structure theories (determinants) applicable to Libyan companies, and how the Libyan managers of these companies choose an appropriate amount of debt for their firms.

The empirical analysis of this study consists of two parts. Firstly, regression analysis models were employed in an attempt to analyse financial behavioural factors that affect Libyan firms' capital structure. Secondly, a comparison was made between the UK and Libya. The aims of this comparison were :(1) to assess whether institutional differences in the Libyan business environment induce Libyan companies to display financing behaviour different from that of companies in the UK, and (2) to put Libyan companies' financing behaviour into perspective.

(5)-The lack of previous research on finance in general, and capital structure in particular, in Libya has motivated this study. In studying the capital structure of Libyan companies, it is necessary to investigate how Libyan companies overcome the problem of a lack of a secondary capital market in their business environment.

1.4 Research Objectives

The study provides a systematic and comprehensive review of the empirical literature on the determinants of capital structure; this will provide a sound basis from which to address several objectives. The over-riding aim of this study is to test empirically the determinants of capital structure in Libya and UK. This study aims to investigate empirically the extent to which the three theories of capital structure (Static trade –off, Agency costs, and Asymmetric information (Pecking order) theories) appear to explain the behaviour of firms in Libya and UK. To achieve this aim, the following three objectives are formulated:

1-To examine the factors affecting the capital structure decision of companies in Libya and the UK. For this purpose, five firm-specific factors or determinants including (Tangibility; profitability; growth; risk; and firm size) are tested to examine their relationship with leverage ratios.

2- To assess which theory or theories of capital structure explain the financing behaviour of Libyan and UK companies. Among the capital structure theories specifically tested here are static trade-off theory, agency cost theory and pecking order hypothesis.

3-To compare the financial factors that affect cross-sectional variability of capital structure of companies in the UK with those that affect capital structure of Libyan companies.

1.5 Thesis Outline

The thesis is structured into nine chapters as illustrated in Figure 1.1. Following this introductory Chapter, **Chapter two** reviews the Libyan economy and provides a discussion of the features of the Libyan institutional environment, including the financing policy and the components of the finance sector in the Libyan environment, which are likely to have an impact on capital structure. The study also discusses the transition and reform process in Libya, finance and growth in the Libyan context and provides a detailed description of the Libyan financial system which focuses on the development of the stock market and the finance sector. This background is important as it provides a framework within which the study observations are to be interpreted and understood.

Chapter three The first part of chapter 3 provides a review of literature and surveys studies that have investigated the capital structure of companies across various countries. In particular, it focuses on the Static Trade- off Theory, Pecking Order and agency theory of capital structure. In the second part, the focus is on the capital structure studies in both developed (developed market) and developing countries and address recent directions in capital structure research and strategic capital structure decisions are reviewed.

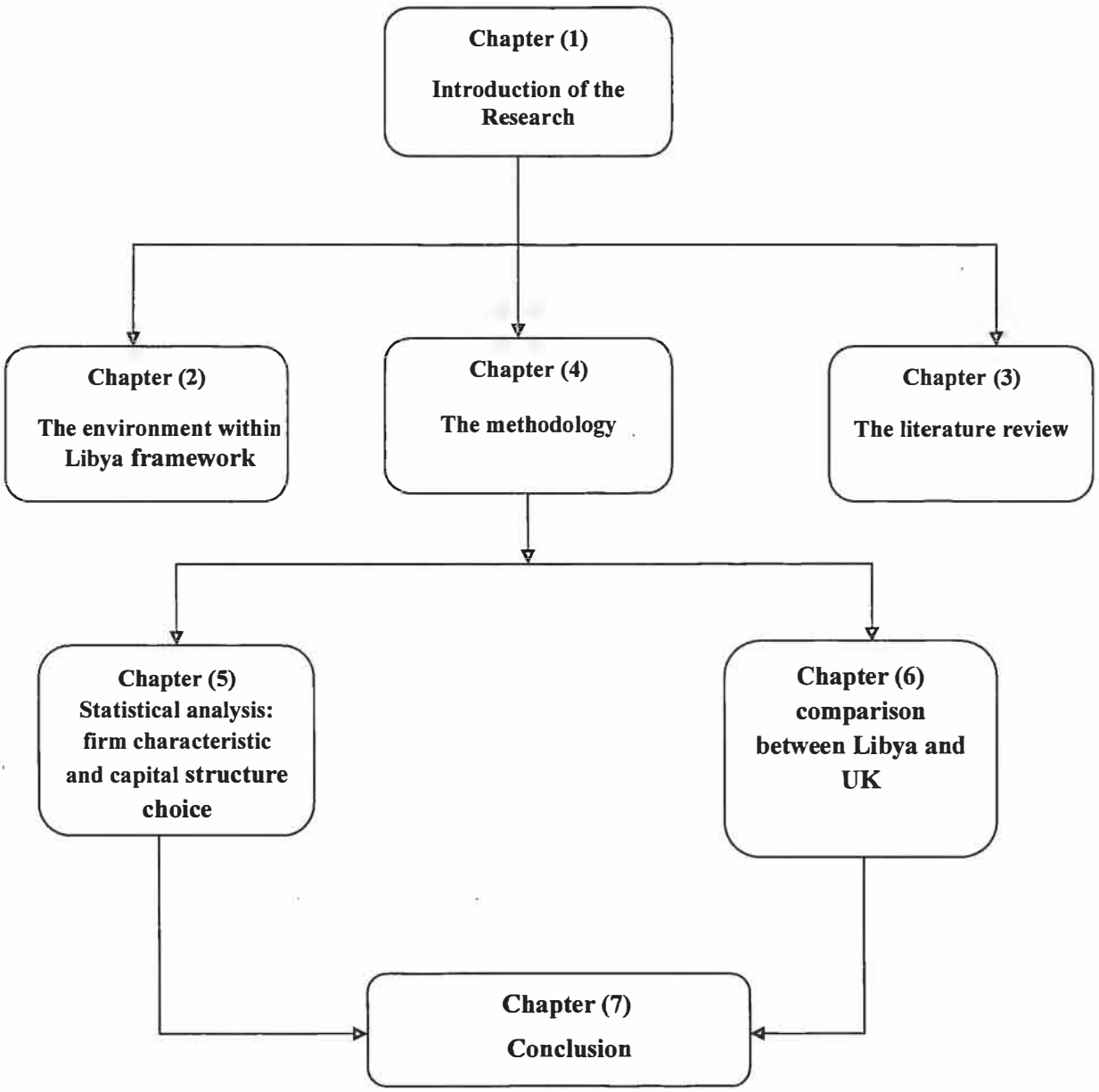
Chapter four: presents and explains the research philosophy; research approach, which includes deductive element; research strategies, which include survey; research choices, which include mono method; time horizons, which include a cross-sectional approach, methodology and the methods of data collection and analysis of this study. The sample used in the study is described in this chapter. The regression analysis technique and the dependent and independent variables are discussed in this chapter. The hypotheses are presented and the statistical techniques for testing the hypotheses are explained and discussed.

Chapter five: presents the determinants of leverage in the Libyan business environment. The regression analysis techniques are used to test the financial hypotheses by regressing three leverage ratios (total debt, short term debt and long term debt) against five explanatory variables (growth, tangibility, profitability, firm risk and company size). The explanatory variables derived from the theories described in the previous chapters, and the results concluded by the multiple regression analysis, are set out in this chapter.

Chapter six: analyses the capital structure in developing and developed countries, identifying similarities and differences across companies between Libya and the UK.

Chapter seven: summarises of the main findings, the contribution made by the study, Limitations of the study, recommendations for further research in the area.

Figure (1.1): The Organization of the Thesis



Chapter Two

Libya Background and Economic Review

2.1 Introduction

In this chapter, some aspects related to capital structure in the Libyan environment are reviewed in order to provide a framework within which the study's observations are to be interpreted and understood and, also, to identify the effect of some institutional aspects, such as the absence of a secondary capital market aspects on capital structure choices.

Booth et al., (2001) point out that the debt ratios in developing countries seem to be affected by the same company-specific variables that are significant in developed countries. Similarly country –specific factors (such as GDP growth rate, inflation rate, and the development of the capital market) are likely to play a vital role in the capital structure decisions in developing countries.

This chapter summarizes the characteristics of the Libyan economy. This summary is essential, as capital structure cannot be studied in isolation from the surrounding environment. The surrounding environment consists, inter alia, of the legal environment, the characteristics of the capital market, the GDP growth rate, the Influence of commercial and tax laws, and the effectiveness accounting and auditing profession. The chapter is organized as follows: section 2.2 gives a description of the country's geography and population while section 2.3 sets out Libya's recent economic development. Section 2.4 explains the characteristics of the Libyan economy while section 2.5 deals with Libyan economic reforms. The Libyan financial sector is illustrated in the sixth section 2.6. Section 2.7 explains the commercial and tax codes, while laws affecting the accounting and auditing profession are illustrated in section 2.8. The policy of giving credit is explained in section 2.9. Section 2.10 presents conclusions.

2.2 Libyan Geography and Population

Libya is located in the middle of North Africa with a total area of approximately 1,775,500 sq km (685,524 sq miles), which means that it is the fourth-largest country in Africa, one- half the size of Europe and nearly seven times bigger than Great Britain and Northern Ireland. It has a Mediterranean coastline of almost 2000 km (1250 miles). Nevertheless, over 90 per cent of the land is desert or semi-desert and the fertile region represents merely 1.5% of the country's total area. The climate of the coastal strip is Mediterranean in nature whereas the climate of the rest of the country is affected by the Sahara desert (Attir and Al- Azzabi, 2002).The country is bordered by Algeria and Tunisia to the west; Egypt and the Sudan to the east; and Niger, Chad and the Sudan to the south. This location accords the country a strategic position, as it links North eastern and North Western Africa and Southern Europe with the rest of Africa.

A recent (central bank of Libya 2010) estimate numbered the population of Libya at approximately 6.100 million in habitants. This population is heavily concentrated in the North West and the North East coastal districts, where the two biggest cities (Tripoli and Benghazi) are located. Almost 50 per cent of the population are under 20 years old and 86 per cent live in urban areas (one of the highest urbanization rates in the world). For most of its recent history, the country has been subject to foreign control, the last of which was the Italian occupation (1911-1945) and British administration (1945-1951). In November 1949, the United Nations General Assembly passed a resolution stating that Libya should become independent before January 1, 1952. Consequently, on December 24, 1951, Libya was declared an independent monarchy and became the first country to achieve its independence through the United Nations. The Islamic religion and the Arabic language are two elements that characterize Libyan culture.

In comparison with many Arab countries that have more than one religion and more than one rite, all Libyans are Sunni Muslims of the Malikite rite and they are emotionally attached to their Islamic faith. Religion therefore permeates all aspects of life. However, there are more than one million foreigners living in Libya, many of whom belong to different Christian sects and to many Indo and Chinese religions (Attir and Al-Azzabi, 2002). There are churches and places of worship for the majority of these religious groups.

2.3 Libyan Economic Development

Before 1959 Libya was one of the poorest countries in the world. The population was mostly engaged in agriculture and animal husbandry. Italian expatriates controlled the few relatively large enterprises in the country. In contrast to neighbouring Algeria, Tunisia or Egypt, the colonial economy in Libya did not create clear domestic financial, commercial, capitalist or agriculture firms that had a close economic relationship with the colonial powers. Industries which had been established before the discovery of oil, mainly focused on processing the local agricultural products, which included flour, textiles, tobacco, footwear and clothing. The country's economy was suffering from a budget deficit and was based on the limited productivity of a primitive agricultural sector and a few small industries. It was American and British money, in return for the use of military bases in Libya, and aid from the UN and other organizations that helped the country to survive and overcome the economically difficult years of the fifties.

The Libyan economic situation changed after the discovery of oil in 1959 and the subsequent inflow of foreign capital. After 1959, the need for direct foreign subsidies declined as international oil companies began to invest in Libya. Investment in the oil industry brought surplus to the country's economy in general. During the period from independence (1951) to the revolution (1969), the Libyan economic system was mainly capitalist. Private ownership existed with minimum governmental interference. State-controlled ownership existed only in sectors that required large-scale investment. The government initiated three key measures to encourage competition and the establishment of private businesses. These included (1) Issuance of import and export laws demanding that the importation of competitive foreign goods be subject to licence; (2) the establishment of the Industrial and Real Estate Bank of Libya to provide loans to Libyan entrepreneurs to build local industries and (3) the establishment the Industrial Research Centre to help implement the country's development plans by providing technical and economic services to both the public and private sectors. After the discovery of oil, the country changed from having, a gross international deficit to being a trade surplus nation (Abusnina and Shameya, 1997). Following the Gaddafi revolution of 1969, the nation changed from a capitalist to a socialist state. State intervention in the economy was increased and the government started to expand the public sector and restrict the private sector. The State ownership of businesses which started in the early 1970s, gained momentum in the mid-1970s, and reached its peak in the 1980s when most businesses became owned or controlled by the State. The State came to dominate all manufacturing activities, foreign and domestic retail trade, and banking and insurance services.

The Libyan government began to move towards a more open and liberal regime from 1987. Whilst the Libyan economy has typically been characterised by its central control and authoritarian policies, some private companies emerged and started to operate in Libya in the 1990s. This was mainly due to the crises the Libyan economy faced in the late 1980s and early 1990s, as economic conditions and standards of living worsened as a result of a slump in world oil prices. In response to these crises, the state introduced a series of liberalisation measures, which included a more significant role for the private sector. In the 1990s the government also introduced a privatisation law to control the process of transferring projects from governmental to private ownership. The law sought to improve the role of individuals and the private sector in investments' clarifying the activities that they were able to participate in. In addition, in the 1990s the government issued Act No. 5 that permitted the entry of foreign investors, who are not subject to the same governmental rules, to join the economic activities of Libya. The Act aimed to motivate foreign investors to participate, by their experience, knowledge and modern technology, in promoting the national income and developing local production, enabling them to join the international market.

2.4 Libyan Economic Characteristics

In its Human Development Report the United Nations Development Programme (UNDP), , classified Libya as a medium-developed country, ranked 59th out of 162 countries in the human development index in 2001 as 61st out of 175 in 2003 ,and 64th out of 159 in 2004 (UNDP, 2002 and 2006). Table 2-1 illustrates key Libyan Economic Indicators, including Libyan per Capita incomes in the decades between 1970 and 2010.

Table 2-1 Key Economic and Monetary Indicators in Libya

Year		1970	1980	1990	2000	2010
Population (In Thousand)		1,963	3,246	4,844	5,640	6,100
G.D.P in M.LD·		1,288	10,554	7,750	16,773	
(At Current Prices)						86,288
G.D.P in M.LD		*	*	*	14,480	
(At Constant Prices 2003)						49,854
Per capita income (LD)		656	3,251	1,600	2,974	
						14,145
Exchange Rate	L D. / 1 U.S. $	2.796	3.369	3.525	0.769	1.268
	L D./ £1	1.170	1.448	1.978	0.417	1.923

Sources: Central Bank of Libya (1981, 1991, 2001 and 2010).

*The Central Bank of Libya did not publish Constant Prices data before 1997.

In general, the five main economic characteristics of the Libyan economy are:

- Relatively small private sector and a tradition of strong public sector ownership of
- Heavy dependence on the exports of crude oil for export receipts and government revenue; more than 97% of exports (see Table(2-2) and about 59 % of the GDP (see Table 2-3);

the means of production as a main driving force in the domestic economy;

- Limited availability of natural resources other than hydrocarbons, and inadequacy of natural water supply (see Table 2-2);
- Very low degree of self-sufficiency in most requirements except hydrocarbons;
- Limited domestic labour force and its low involvement in most basic production activities because of cultural and social mores and constraints.

Table 2-2 Trade Balance (in Libyan Million Dinars)

	1970	1980	1990	2000	2003	2004	2005	2010
Exports&Re-exports	856	6,489	3,744	5,221	14,807	20,848	31,148	46,630
Oil Sector	841	6,486	3,535	4,992	14,052	20,077	NA	44,931
Oil Sector (%)	98.25	99.96	94.41	95.61	94.9	96.3	NA	96.4
Imports	263	3,070	2,145	1,911	5,598	8,255	7,954	27,622
Trade Balance	593	3,419	1,599	3,310	9,209	12,593	23,194	19.007

Sources: Central Bank of Libya (1981, 1991, 2001, 2005 and 2009)

Table 2-3 Libya Gross Domestic Products by Sector (%) (At Current Prices 2003)

Sector / year	1970	1980	1990	2000	2003	2004	2005	2008	2010
Agriculture, Forestry & Fishing	2.6	2.2	5.1	9.6	8.8	3.5	2.9	3.4	3.5
Oil,& Natural Gas	63.6	62.3	37.4	30.2	30.9	65.5	70	82.8	85.0
Mining, Quarrying &Manufacturing industry	1.8	2.5	8.5	5.8	6.6	2.8	2.5	4.9	5.1
Construction Housing	11.4	12.4	9.8	7.8	7.0	6.8	7.6	6.6	7.2
Restaurant Hotels	3.7	4.9	10.2	13.5	12.6	12.4	12.3	12.5	12.7
Transport& Communication	3.4	4	8.3	8.2	9.6	4.2	3.7	6.8	7.3
Banks & Insurance	1	2.3	3.7	3.3	2.4	1.2	1.1	11.9	12.3
Other Services	12.5	9.4	17.0	21.6	22.1	12.2	10.1	15.2	15.5

Sources: Central Bank of Libya (1981, 1991, 2001, 2005 and 2010)

2.5 Libyan Economic Reforms

The Libyan economy suffers from many negative aspects; The Libyan government has thus introduced a series of reforms in order to restructure the economic sectors to allow expansion of the base of ownership and allow the direct participation of the private sector economic activities. From the beginning of the 1990's, the State issued a number of laws which regulated economic operations. This began with the unification of exchange rates which stopped the informal market and smuggling of foreign currency. The next financially significant statute cancelled the requirement for Import and Export Licenses in order to facilitate individuals, corporate bodies and companies undertaking economic activities. This lead to an enlargement of the role of banks in economic activities and increased the size of commercial operation and competition. In a bid to spur trade and make the country trade area, Libya lifted all duties (except for those on cigarettes) in August 2005 and duties were replaced by a 4% tax called Service Import Taxes.

In more specific terms, the Secretariat of the General Peoples Congress (the Parliament) enacted, for example, the following economic laws:

- Law 5/ 1997 - Encouragement of Foreign Capital Investment (subsequently amended Law 7, 2003);
- Law 9/2000 - Regulation of Transit Commerce and Free Zones;
- Law 21/ 2001 - Practice of Economic Activities for Individuals and Public Companies;
- Law 1/2005 – Concerning Banking;
- Law 2/2005 - Combating Money Laundering.

In addition, the General Peoples' Committee (the Libyan government) issued Economic regulations, such as:

- GPC decision 178/ 2001 - Organizing the work of agencies;

- GPC decision 2/ 2002 - Organizing of Import and Export;
- GPC decision 21/ 2002 - Organizing of Foreign Capital Investment;
- GPC decision 8/ 2005 - Organizing the opening of representatives' offices for foreign companies in Libya;
- GPC decision 737/ 2005 - Organizing arrangements of registration of branches and offices for representing foreign companies.

2.5.1 Libyan Privatisation Programmes

As in most developing countries, privatisation is a much-debated subject in Libya. However, while many developing countries have moved fast, despite such debates, to privatise state-owned enterprises, Libya has been relatively slow in privatisation. Further laws and regulations covering privatisation are likely to be enacted. In June 2003, in a speech to The Libyan Parliament, Colonel Moamar Al-Gaddafi called for the wholesale privatisation of the country's vital oil and other industries, which were nationalised when he came to power in 1969. He said the public sector had failed and it should all be privatized, including the oil industry; as the public sector needed people with a high level of expertise, patriotism, and unshakeable morality. In addition, he called for companies to be formed "which would not be the property of the State but of Libyans, who could call on foreign experts to help run them, in order to develop the oil industry, from prospecting to production and marketing". Similar measures should apply to the country's banks, airports, roads, and other public enterprises. Gaddafi criticised the "irresponsibility" of civil servants, accusing the public sector of wasting billions of dollars and warning that the economy would collapse if such waste were sustained.

Meanwhile, trade and economy minister Shukri Ghanem, (who has a PhD in Economics from the USA and worked at OPEC as Acting Secretary General and Director of the Research Division), was appointed prime minister to start a new privatisation policy in all sectors (Alexander's Gas & Oil Connections, 2003). Although interest in investment in the oil and gas sectors is high, these are also the areas in which there is the least economic pressure to privatise. The National Oil Company (NOC) and its affiliates tend to encourage maintaining, rather than changing, the status quo. However, many of the public enterprises in other sectors, that could most benefit from privatisation, are unattractive to investors. The government agency so far tasked with privatisation and investment planning, the Foreign Investment Promotion Board has, for more than ten years, been soliciting investment in a range of industries in Libya, but with little success.

Many of Libya's factories are run-down and over-staffed. A few years ago the Foreign Investment Promotion Board publicised some of the country's agricultural projects as available for private investment, including projects at Kufra, Sarir, and Wadi Barjuj (Indian Embassy, 2003), but these projects were widely perceived to have been expensive and obscure (Indian Embassy, 2003). Proposals to privatise Libya's banking sector have also been fruitless, principally because the banks mooted for privatisation were said to have high levels of non-performing loans (Indian Embassy, 2003). Beyond these obstacles, privatisation is hampered by the extensive red tape and bureaucratic practices that have become entrenched in Libya (IMF, 2006). In its efforts to attract foreign investment, the government has already taken some steps to reduce these barriers.

The (LFIB) Libyan Foreign Investment Board is a government body formed in 1997 with the aim of attracting and helping foreign investors. In 1987, the Libyan General People's Committee (LGPC) issued decision no 447, the concerning transfers of ownership of government plants to employees that was the first step of the Libyan privatisation programmes. In 1994, 145 plants were transferred to the private sector with immediate effect. In 1995 a further 295 plants were transferred to the employees. In October 2003, the government of Libya announced its intention to privatise a further 360 plants in the industrial and agricultural sectors (see Table 2-4). It executed this in three stages: The ownership of 260 factories was to be transferred from the public sector to the private sector immediately in the first stage (by the end of 2005). The second stage included 46 factories, which were to be privatised by the end of June 2007. The factories in these stages were transformed into shareholding companies in which employees and others were able to own shares. The third stage aimed to privatise 54 factories during the period 2007/2008. The government also decided (by the decision no 313, for the year 2003) to exempt these privatised institutions from income and export taxes for five years. During the grace period, these factories would be able to import equipment and raw materials needed for their production without paying any fees.

Table 2-4 Libyan Privatized Plants by Sectors

Sector	Phase 1	Phase 2	Phase 3	Total
Industrial sector	145	41	18	204
Agricultural sector	28	4	24	56
Animalism Fortune Sector	71	0	11	82
The Sea Fortune sector	16	1	1	18
Total	260	46	54	360

Source: The Libyan General Peoples Committee decision no (313) for the year 2003.

2.6 Libyan Financial Sector

Libya's financial sector may be divided into banking and other financial institutions. The banking sector is composed of the Central Bank; commercial banks; and specialized banks. The Central Bank of Libya (CBL) was established in 1951 and was originally called the Monetary Authority under the supervision of the Ministry of Finance. However, in 1956 the name of the Monetary Authority was changed to the Central Bank of Libya (CBL, 2005).

The CBL is wholly owned by the State .It is the monetary authority and enjoys the status of an autonomous corporate body in Libya. The head office of the CBL is in Tripoli and the bank has three branches in Benghazi, Sabha and Sirte. At the end of 31/3/2010, the capital of the CBL was LD 500 million and the total assets recorded were as LD 139653 billion (CBL, 31/3/2010).

The Libyan Banking law (1/ 2005) specified that the functions of the CBL shall be (1) issuing and regulating banknotes and coins (2) maintaining and stabilizing the Libyan currency (3) managing the official reserves of gold and foreign exchange (4) regulating the quantity, quality and cost of credit(5) acting as a supervisor to the commercial banks (6) acting as a banker and fiscal agent to the state and public entities (?)supervising foreign exchange; and advising the State on the formulation and implementation of financial and economic policy (Law 1/2005: Article 5).

At the end of 2010, there were fifteen commercial banks in Libya including two state-owned banks and thirteen private banks (CBL, 2010).

The specialized banks include five banks owned fully by the state:

- Libyan Foreign Bank (deals with all international banking operations);
- Agricultural Bank (aims to provide financial facilities to people engaged in agriculture and animal activities particularly in the drought seasons) ;
- Development Bank (aims to provide loans to productive projects in the industrial, agriculture, and tourist sectors) ;
- Rural Bank: aims to improve the level of individuals incomes;
- Saving and Real Estate Investment Bank (aims to provide loans for building and buying houses for the citizens. (Alqadhafi, 2002).

Other financial institutions include the Libyan Stock Market; the Libyan Social Security Fund; the Foreign Exchange & Financial Services Company, three public investment companies (Libyan Arab African Investment Company; National Investments Company; Libyan Arab Foreign Investment Company); and one public insurance company (Libya Insurance Company) and three private insurance companies (United Insurance Company; Africa Insurance Company; and Sahara Insurance Company) (CBL, 2010).

The stock exchange market functions as a place where companies and other institutions that are in need of funds to finance their activities can come together with individuals and institutions which have money to invest. The existence of an efficient capital market helps in improving financing resources allocation, allows investors to assess investment opportunities, diversify their portfolios and more importantly, liquidate shares when required (Borda and McLeay 1996). In the main, there are two types of stock exchange market; a primary market and a secondary market.

The primary market is a market where shares are issued. Banks usually play a major role in primary markets. A secondary market is a place where shares already in circulation, are traded. In Libya, only a primary market is currently available. This may present a major barrier to Libyan companies raising the capital needed for investment. Financial economists emphasize the importance of a secondary capital market. They point out that the benefits resulting from a secondary capital market include:

(1) Encouraging innovation and private enterprises

(2) Efficiently allocating resources

(3) Smoothing the progress of privatization.

The creation of a secondary capital market is an important priority, as it will encourage and facilitate privatization programmers and attract foreign investors to trade shares in Libya. Firms in Libya can obtain funds by issuing new shares, as well as credits mainly from banks. The non-existence of a secondary stock exchange in Libya, in contrast, deters the extent of firms' ability to raise funds when needed for various purposes. Libyan companies tend, consequently, to rely on external and internal finance from banks, and their retained earnings respectively, to finance their investment opportunities.

2.7 The Influence of the Commercial and Tax Laws

The Libyan Commercial Code (LCC) was enacted on November 28, 1953 in order to regulate business activities and has been amended from time to time in order to satisfy the changing needs of society (El-Sharif, 1980). This Code consists of seven books.

It has a major impact upon many aspects of accounting in Libya. It discusses matters of accounting such as: accounting records and other records; valuation rules; invested capital; legal reserve and distribution of profits. According to LCC: Articles 58-60 and 64 every businessman must keep at least the following accounting records: the Journal which should include all daily transactions; the Inventory and Balance Sheet Book; files containing copies of letters and telegrams received or sent out in relation to conducting its business activities.

All of these books must be numbered and signed by an Official from the Court of First Instance before any entries can be made. These books must be kept free from blank spaces, marginal notes, erasures, and insertions between lines. In addition to maintaining the accounting records it is a requirement to keep the following additional records: Registers of Shareholders and Bondholders; Registers of Minutes of the following meetings: the General Meeting; the Directors' Meeting; the Board of Auditors; the Executive Committee's; and the Bondholders' Meeting. Every corporation has to follow specific rules in the valuation of its assets and liabilities. Whenever these valuation rules cannot be followed, reasons should be disclosed in the annual report for the shareholders. Some of the important rules based on LCC: Articles 574, 575 and 576 are as follows:

- Fixed Assets: Valued at original cost: each year reduced by related depreciation and the accumulated depreciation reported as a liability;
- Inventory: valued at the 'lower of cost or market' rule;
- Debts: Valued at their estimated realizable value;
- Goodwill: cannot be recorded unless it is purchased.

The legal capital of any corporation can be increased or decreased in accordance with specified conditions. For example: new shares cannot be issued until those that have already been issued are fully paid up; capital can be decreased in cases where the capital exceeds the needs of the company, or the company has suffered an accumulated loss of more than one-third of its legal capital. In both cases, the action must be approved by the General Assembly of Shareholders or by a Court decision. However, creditors have the right to object to capital reduction through the courts (LCC: Articles 586; 593 and 594). La Porta et al. (1998) argue that legal systems around the world can be divided into a few legal families or traditions. Furthermore, they argue that commercial laws come from two traditions: common law, which is English in source, and civil law, which derives from Roman law. The civil tradition has three major families: French, German, and Scandinavian. La Porta et al argue that the civil legal tradition is the oldest, the most influential and the most dominant tradition around the world.

According to La Porta et al. (1998), most Arab countries, particularly the Northern African countries, adopted French law principles in their commercial law. Also, Kilani (1988) also argues that Libyan commercial law has been based on the principles of the French law. La Porta et al. (1998) argue that a legal system based on common law offers investors better protection than laws based on civil law, and that the French civil-law countries generally have the weakest legal protection of investors in terms of shareholders rights, debtholders rights, and the enforcement of law. In Libya, the LCC divides the businesses into four types, which are: general partnership, simple limited partnership, limited partnership with shares, and joint stock companies.

According to Articles 445-451 of the commercial law, general partnership companies are defined as those companies which are owned by partners who are jointly legally responsible for their business debt, while simple partnership companies are to be operated by one or more active partners, who have unlimited liability for their company's debt, and by one or more inactive partners whose liability does not exceed their contributions to the capital. Limited partnership companies are defined as those companies where liability is limited to the full payment of their shares (see, for example, Saleh, 2001).

According to the LCC, Libyan companies are required to have three bodies: a Board of Directors, a General Meeting and a Monitoring Committee. The Board of Directors runs the company in the light of the general policy, which should be adopted by the General Meeting, while the Monitoring Committee is required to make sure that the company's management carries out its activities in accordance with these rules. The General Meeting consists of a company's shareholders, and it is usually considered as the place where the shareholders can exercise their rights, such as, voting for directors and on major company issues. Brealey and Myers (2003) argue that companies usually have one type of share and each share has one vote, but sometimes a company has different types of shares, which differ in their rights to vote. In other words, the basic principle for voting is one-share-one-vote, but there are many ways to get round this principle. Incidentally, La Porta et al. (1998) state that companies can issue shares with non-vote, low-and-high vote, founders' share with high voting rights, and shares whose power of vote increases when they are held longer.

In Libya, there is another way out of the one-share-one-vote principle; it can be argued that it is one-person-one-vote, as companies may restrict any given shareholders to one vote on any matter arising at the General Meeting, regardless of how many shares he or she has. The most basic right of debtholders is to claim against collateral. This right is hampered in some countries. In this context, La Porta et al. (1998) state that claims against collateral might lead to the liquidation of the borrowing firm, which might be viewed as socially undesirable. This would be especially true when economies have adopted the socialist ideology that aims, inter alia, to provide job opportunities, and these job opportunities would be lost if the company were liquidated.

A legal reserve is considered to be the most common debtholders' right in all civil law Countries (Libya among them). Accordingly, companies are required to maintain a certain level of capital to avoid triggering liquidation. In Libya, companies are required to maintain an equity item under the title: "legal reserve". This reserve is accumulated with 5 % of annual net profit before tax until it reaches one fifth of paid-in capital (see, for example, Mahmud, 1997). La Porta et al. (1997) argue that the legal environment influences the size of the capital market, which, in turn, affects capital structure decisions. Incidentally, La Porta et al. (1998) state that the legal protection to investors, which includes the content of the law and the quality of its enforcement, is one of the most important treatments to mitigate agency problems. Libya, a French-civil-law country, may have inadequate protection for investors compared to other civil-law traditions and, as a result, Libyan companies may be more vulnerable to agency problems.

This may imply that Libyan companies are more likely to use short-term debt, because the shorter maturity limits the potential expropriation of debtholders' rights. Fan et al. (2006) suggests the companies are less likely to use equity. La Porta et al. (1998) argue that the concentration of ownership of shares in a company indicates the investor's protection, as more concentrated ownership of shares leads to poor investor's protection. In Libya, for example, Article 5 of Act No 9 of 1992 indicates that the maximum individual share ownership, in companies with less than LD 0.5 million, less than LD 1.0 million, less than LD 20 million, and more than LD 20 million, should not exceed 12, 10, 8, 5 percent of the total shares respectively. This can be viewed as more protection to the small investors but at the same time, it can be also viewed as a bias in law against to investors.

Tax systems differ, inter alia, in terms of whether the interest and dividends payments are tax-deductible and whether the interest and dividends payments are taxed at both the corporate and personal level (see, for example, Fan et al., 2003). According to the Libyan Tax Law No. 7, interest payments on debt are tax-deductible, but dividends on equity are not tax-deductible at the company level. This tax treatment of interest payments on debt might affect capital structure choice of Libyan companies, and renders debt financing more attractive than equity financing, in accordance with the suggestion of Fan et al. (2006).

2.8 The Regulation of the Accounting and Auditing Profession Law in Libya

Law 116, 1973 was the first legislation to regulate the accounting profession in Libya (Bait El-Mal, et al., 1973). This law was divided into eight chapters: (Chapter 1) establishment of the Libyan Certified and Public Accountants Union (LCPAU); (Chapter 2) about registration of accountants; (Chapter 3) exercise of the profession; (Chapter 4) fees; (Chapter 5) pension and contribution; (Chapter 6) obligations of accountants and auditors; (Chapter 7) penalties; and (Chapter 8) general and transitional provisions. A general review of the law Nr 116 reveals that the most significant developments were:

- The establishment of the organisation of Libyan Certified and Public Accountants Union to accomplish its many objectives. The most important objective is to organise and develop all matters related to accounting provision and to enhance the professional ability of its members (Article 3); the classification of members of the LCPAU organisation into lists of working and non-working accountants. Each group is further divided into accountants and assistant accountants. Any accountant who wants to be registered in the list of working accountants must, by Articles 23-28:

- Have Libyan nationality (non-Libyans cannot establish public accounting firms in Libya);
- Have a Bachelor degree in accounting and five years of experience in accounting;
- Have good conduct, reputation and respectability required for the profession;
- Be engaged and entitled to full political and civil rights.

- Members of the LCPAU organisation cannot combine their practice of the accounting profession with the following activities:

- Any public service; any commercial business;

- Any activities contrary to the integrity of the profession (Article 25).

In addition it is illegal for members to use advertising techniques to promote their own organisation in Libya (Article 26);

- All members of the organisation should undertake all obligations that may be imposed on them by law and the Code of Ethics of the Profession (Article 49). However, a Professional Code of Ethics has not yet been established. Kilani (1988) argues that Libyan companies follow accounting practices consistent with North American Generally Accepted Accounting Principles (GAAP). This is partly because foreign firms in Libya were mainly from the UK and the USA and partly because American accounting textbooks and methods are used in the accounting education system in the faculties of economics and commerce at the Libyan universities. Accounting and Auditing Profession Law No 116 (issued in 1973), established the Libyan Chartered Accountants and Auditors Union.

Law No 116 aims, as stated by Saleh (2001), to regulate the accounting profession and to follow up the international developments in accounting and auditing professions through organising, and participating in national and international seminars and conferences.

The Libyan Chartered Accountants and Auditors Union have been criticised, because it has done little work on issuing or adopting accounting standards in Libya. Incidentally, Bait Elmal et al. (1988), surveyed the accounting standards and principles applied by Libyan companies and they reported that those differ from company to company. They attributed the differences to those in the accountants' professional and educational backgrounds.

Perhaps this is not surprising as the aim of accounting systems in most socialist orientated economies, as stated by Garrod and McLeay (1996), is to provide financial statistics for use in higher-level budgets rather than providing information to outsiders at the level of firm.

Another drawback is that Libyan accountants are not required to pass a qualifying exam to be authorised as charter accountants and auditors. In fact, the law No 116 of 1973 requires accountants to have at least a BSc in accounting to be allowed to practice accounting and auditing services. Charter accountants and auditors play a vital role in certifying the company's accounts in order to enhance the account reliability, which mitigates the asymmetric information problems between the parties involved (see, for example, Fan et al. 2003). Furthermore, Fan and Wong (2002) state that auditors play a vital monitoring role to mitigate agency conflicts between controlling owners and minority shareholders. With regard to capital structure choices, Fan et al. (2006) state that in countries that have a strong audit function, companies are more likely to have lower leverage and longer maturity debt than companies with weaker audit function. In the light of the above-mentioned drawbacks of the Accounting and Auditing Profession Law and the weaknesses of accounting practices in Libya, one may expect that Libyan companies are more likely to have higher leverage and shorter maturity debt in accordance with suggestion of Fan et al. (2006).

2.9 The policy of giving loans

Given the fact that Libya is a country influenced by French civil law, there is no adequate legal protection to investors, and the banking sector compared with other components of the financial sector is relatively larger, while the insurance sector and other financial institutions are relatively small. In terms of the capital structure policies that Libyan companies have taken to finance their new investments, the absence of a shares and bonds market in Libya and the shortage in cash flow in most Libyan companies have forced these firms to depend more on external resources (bank loans) than their internal resources in order to finance their current operations and establish new projects.

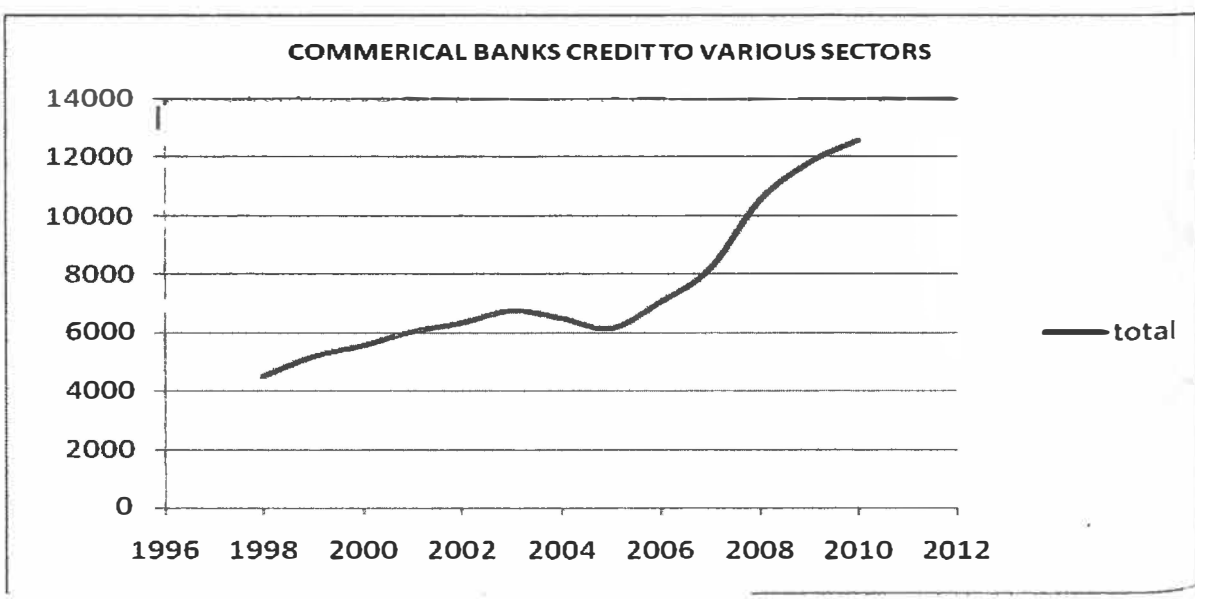
As can be seen in table (2-5), the total amount of loans given by the Libyan banks for economic and social purposes increased approximately three times, from just over 4530 million LD in 1998 to approximately 12578 million LD in 2010. Also, the loans for economic and social purposes increased from approximately 2291 and just over 506 m LD in 1998 respectively, to more than 7970 and approximately 3355 in 2010 respectively. This increased level of loans referred to the policy that the government implemented for giving loans to several activities that aim to decrease governmental expenses and subsidies. The Libyan economy is in a transition period and during this economic transition, the capital structure of Libyan companies might be affected due to shortage of financing from the state. As a result, the Libyan economy is gradually moving towards a more market oriented economy. Consequently, there is a need to study the capital structure of Libyan companies in the light of the restructuring of the economy and the absence of a secondary capital market.

Table (2-5): Libyan Banks' loans for economic and social purpose 1998-2010 (LD Million)

year	Loans to Economic purpose	Loans for Social purpose	Total Loans
1998	2290.8	506.2	4530.2
1999	2647.9	723.0	5203.6
2000	2802.9	939.2	5584.0
2001	3156.0	1091.7	6057.6
2002	3269.8	1316.9	6357.8
2003	3549.0	1381.0	6775.1
2004	3194.2	1486.9	6510.3
2005	2701.6	1665.7	6166.6
2006	3589.9	1709.9	7067.2
2007	4544.0	1899.9	8191.3
2008	6596.8	2473.3	10544.9
2009	7341.8	3192.1	11812.7
2010	7970.4	3354.7	12577.6

Source: Central Bank of Libya (2010)

Figure (2-1) Libyan banks' loans for economic and social purpose 1998-2010 (LD millio



2.10 Summary

The first part of this chapter included some background information about Libya, such as location, size, population, religion, and language and characteristics of the Libyan culture. In the second part the characteristics and the developments of the Libyan economy have been reviewed since 1959 with the aim of providing a framework within which the study' observations are to be interpreted and understood. Fan et al. (2006) indicated that the characteristics of the companies and the institutional environment are considered to be the most important factors for explaining and understanding the capital structure decisions in different contexts.

The chapter also described the restructuring programs of the Libyan economy, as they marked the beginning of a period that changed Libyan state-owned companies from the states of not-for-profit companies to profit-maximizing companies. A review of the legal system, the tax system and the accounting and auditing profession law highlighted the legal determinants of capital structure in Libya.

Chapter Three

Reviews the Theoretical Literature

3.1 Introduction

This chapter reviews the various theories that have been proposed in the literature to try to provide some explanation for the capital structure of firms. In particular, it focuses on and tries to explain how firms choose their capital structure and to determine how firms make decisions about the mix of internal and external finance in their capital structure.

Over the past five decades, much of the corporate finance literature has rotated around different theories that try to fully explain factors behind financing policy and capital structure. These theories cover various aspects of the firm that can explain how firms choose their capital structure.

The current chapter presents a comprehensive theoretical and empirical literature review over the capital structure theme Section 3.2 reviews the theoretical literature. Section 3.3 discusses the main determinants of the firm's capital structure. Section 3.4 covers theoretical prediction of variables that have been found by a large number of studies. Section 3.5 reviews studies of capital structure in developed markets (developed countries) and emerging markets (developing countries).

3.2 Theoretical literature review

3.2.1Modigliani and Miller propositions

When reviewing the theoretical literature related to capital structure, one must start with the paper of Modigliani and Miller (1958). The authors assume a perfect capital market to derive their very well known propositions (1)*. The Proposition 1 states that the firm's average cost of capital and hence the value of the firm (V) is independent of its capital structure. Therefore, there is no optimal capital structure that maximises the value of the firm (i.e. any level of leverage is as good as any other). Accordingly, in a perfect world, the value of the levered firm is equal to the value of an un-levered firm. Proposition (2) states that the rate of return required by shareholders increases as more debt is used. In another word, any benefits from using debt would be offset by the corresponding higher cost of equity. However, in reality, a perfect world clearly does not exist. Issues such as taxes, financial distress, asymmetric information, and conflicts between economic agents associated with the firm have an effect on the firm's capital structure. Subsequent theoretical works, thus, focus on these factors associated with market imperfections and their effects on capital structure. Modigliani and Miller suggested in 1958 that the market value of any firm and its cost of capital are completely independent of its capital structure providing that there are no taxes, transaction costs, information asymmetry, and bankruptcy costs. Accordingly, there is no optimal capital structure. Since then, many financial economists have followed the same direction of the MM (1958) study. However, MM's (1958) propositions have been criticized due to their unrealistic assumptions.

*(1)Perfect market assumptions include: 1. Firms with the same degree of business risk are in homogenous risk class, 2. Investors have homogenous expectations about future corporate earnings and heir levels of riskiness, 3. Securities are traded in perfect capital markets, 4. Interest rate on debt is the risk-free rate and 5. All cash flows are perpetuities.

Since then, many researchers have attempted to expand the MM propositions by relaxing the 1958 assumptions. Mustafa (1997) argues that the assumptions arising from MM's (1958) paper have established the foundations of capital structure theory, and have motivated a large number of capital structure studies that attempt to explain and understand the financing behaviour of companies. Weston (1989) argues that studies such as Baxter (1967), Ross (1977), Myers and Majluf (1984) and Myers (1984), which have been guided by the MM propositions, attempt to relax imperfections of the assumptions in the MM's model. He summarises the imperfections as the absence of transaction cost, taxes, agency costs, and information asymmetry.

Several theories have been put forward to explain the capital structure of firms. An optimal structure is that mix of internal and external finance (debt and/or equity) that maximises the value of a firm. Therefore, the question of how to finance becomes a crucial decision. According to Titman and Wessels (1988), firms select capital structures depending on attributes that determine various costs and benefits associated with the forms of financing used. The literature has recognised that there are a number of potential determinants of capital structure.

Capital structure theories have been based on agency costs (Jensen and Meckling, 1976), asymmetric information (Myers 1984) and Myers and Majluf (1984)), and static trade-off theory (Ross 1967). The work of Modigliani and Miller (1958) on capital structure can be seen as pioneering and, following on from it, the theories of static trade-off, asymmetric information and agency cost theories have been developed, each to some extent conflicting with the other two.

All have attempted to provide some explanation for the differences in debt ratios across companies and all have used empirical evidence, which is sometimes complementary and at others is conflicting, to support their explanations. One example of this is that a positive relationship between profitability and leverage is predicted by the static trade off and agency cost theories, whereas a negative relationship between profitability and leverage is predicted by the pecking order theory. Myers (2001) has argued that the financing patterns of all companies cannot be explained by any general capital structure theory but there are a number of theories that are able to explain the different financing packages. It is possible to differentiate between various capital structure theories, according to the emphasis placed on taxes (the trade-off theory), differences in information (the pecking order theory) and problems with agents (the agency cost theory). Similarly Michaelas et al (1999) and Um (2001) partition the theories of capital structure in three categories. These categories are the tax-based theories, the agency cost theories and the asymmetric information (Pecking order theory).

We have noted three broad categories of capital structure theory: tax based theories, agency cost theories and asymmetric information. Agency and tax-based theories cannot be considered separately as they have many factors in common. They each try to explain why firms use debt in their capital structure. Agency cost theories regard debt as having the capacity to minimise conflicts and control managers' behaviour, while tax-based theories show that debt provides a tax shield for income. In essence, they each try to find some explanation for leverage. Therefore, within the category of agency cost and tax-based theories we will mainly focus on the Trade-off theory of capital structure.

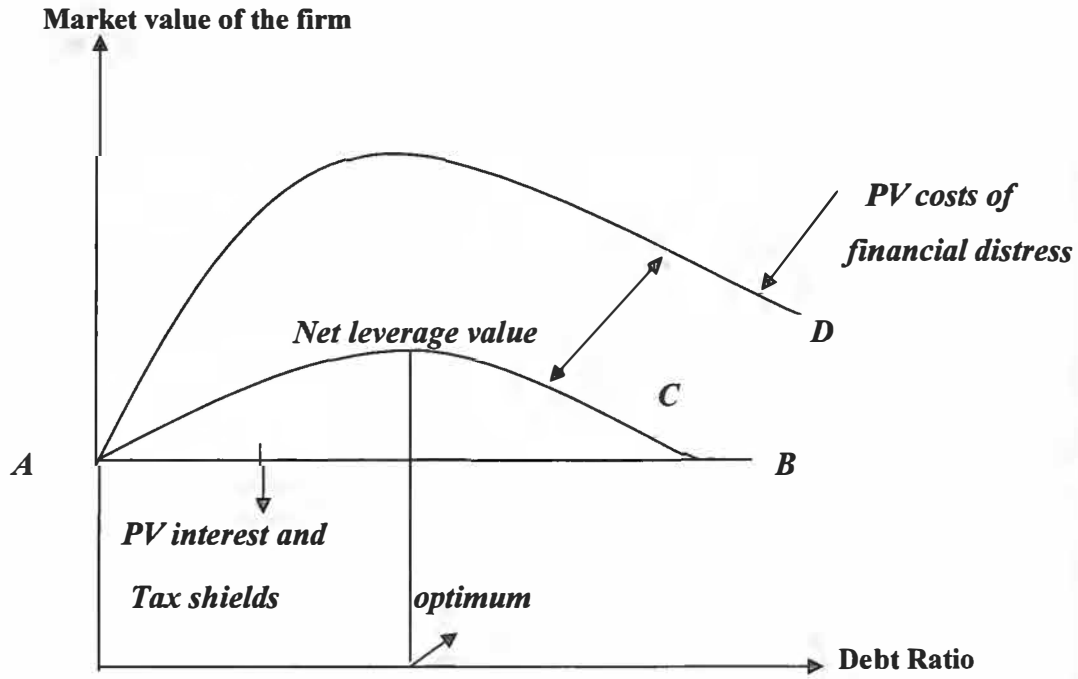
3. 2.2 Static Trade-Off Theory (Target Capital Structure Theory)

Some studies have challenged the assumption of the absence of bankruptcy costs in MM's (1958) propositions which have given rise to the static trade-off theory. The static trade-off theory of capital structure states that optimal capital structure is obtained where the net tax advantage of debt financing balances off leverage related costs such as bankruptcy. In other words, firms should use debt until the marginal benefit of using more debt equals the marginal cost of using more debt, and the optimal capital structure point locates where the net benefit of using debt is zero. According to the Trade-off Theory, an optimal capital structure is achieved by "trading-off" the costs and benefits of debt (Berens and Cuny, 1995, Fama and French, 2002, Shyam-Sunder and Myers, 1999). In the trade-off model, companies equate the costs and benefits of debt and choose a debt level that optimises the value of the firm.

This is illustrated in Figure (3-1) below. Debt provides firms with an interest tax shield as interest payments are usually tax deductible. This gives an incentive to firms to take more debt in their capital structure. However, this does not lead firms to be fully financed with debt. The reason is that since interest payments are fixed payments, the more debt a firms takes the more interest it has to pay. This can be explained by the diagram above. The straight line AB shows the value of a firm under all-equity financing. When a firm undertakes debt it has to pay interest. Interest payments are generally tax deductible. Thus when a firm takes debt; it is able to increase its value. This is called the interest tax shield of debt. Debt almost literally shields the firm from paying out more in taxes. Therefore, as curve AC shows, initially as the firm undertakes more debt, the value of the firm increases.

*(1) Bankruptcy costs are higher for firms with more volatile earnings, which should drive smaller, less diversified firms towards less leverage.

Figure 3.1: The Static Trade-off Theory of Capital Structure.



Source: Myers, 1984 pp 577.

However, after a certain level of debt, (the optimum level), the costs of debt start outweighing the benefits of debt and the value of the firm starts falling as shown by the falling portion of curve AC. The gap between curves AD and AC results the costs of financial distress which rise significantly at higher levels of debt. At higher levels of debt, firms have to pay more interest and if they are unable to repay the debt and interest, then they are likely to go bankrupt.

As costs of financial distress rise, firms would prefer to stick to a 'reasonable' level of debt. This is illustrated in the diagram above where the optimum market value of the firm is achieved where the present value of the interest tax shield is at a maximum. The trade-off theory puts a major emphasis on taxes. It explains why firms that pay taxes would prefer some amount of borrowing (Myers, 2001). Interest payments are tax deductible and thus companies that have debt in their capital structure can benefit from an "interest tax shield."

In the absence of adjustment costs, the Trade-off theory assumes that each firm's observed debt-to-value ratio should be its optimal ratio.However, debt also has the disadvantage that it increases the probability of firms becoming financially distressed. The costs of debt include potential bankruptcy costs. Payment of interest on debt is an obligation that a firm has to fulfill whatever its financial state. Hence, if a firm is unable to meet its debt obligation it will obviously face bankruptcy, as has already been discussed above.

Later MM (1963) argued that an increase in the level of debt would actually increase the value of a company, because of tax shields, thus challenging earlier assumptions relating to the absence of taxes. So, according to this proposition put forward by MM, companies could benefit by increasing their debt, even when debt was increased to almost 100%. However, shareholders would then seek a higher return to compensate for the increased risk that they would carry as a consequence of the company's increased debt. This conclusion reached by MM (1963) can be seen as unrealistic because of potential bankruptcy effects of over-leverage.

Over-leverage can be defined as the situation that occurs when a firm's earnings are decreased to the point where they will eventually cause financial distress to the firm because the firm has too much debt in its capital structure, thus increasing the cost of interest and decreasing the firm's earnings after interest and its capacity to exert further leverage.

Baxter (1967) argues that the cost of capital curve can decline where the amount of debt is low but will rise when leverage becomes more substantial. However, an increase in the debt ratio is not likely to greatly increase the probability of bankruptcy when leverage is very low; although any increase in debt can increase the probability of bankruptcy once it rises above a critical point.

He suggested that a firm's debt related costs, for example bankruptcy costs, can come to exceed its tax advantages as leverage increases to near 100%. Consequently, as he adds, firms should use debt until a point is reached where the tax advantages accruing from the debt is equal to the cost of incurring more debt, including costs from any expected bankruptcy.

Castanias (1983) investigated whether the probability of failure has a negative relationship to leverage in order to define the relationship between them. In order to examine evidence of the relationship between leverage and probability of failure, linear regression analysis was used on data obtained from 36 different lines of business.

A negative relationship between the probability of bankruptcy and leverage was shown, implying that those firms that tend to have a high rate of failure also tend to have a lower amount of debt in their structure. Bankruptcy costs were excluded from the data because, according to Castanias, it is not possible to estimate the value of anticipated indirect bankruptcy costs.

According to Altman (1984 and 2002) it is possible to divide bankruptcy costs into direct and indirect costs, direct costs being measurable costs such as lawyers' fees and court accounts as well as other administrative charges, while indirect costs are those that are consequent on bankruptcy such as a loss of profits.

Altman (2002) has made some estimate of the extent of indirect costs by measuring any abnormal or unexpected loss of profits that occur in bankrupt firms as the date of the bankruptcy approaches. It is not only firms that fail that experience indirect bankruptcy costs, he argues, but also those that survive but that are perceived as having a high probability of bankruptcy.

These increased bankruptcy costs may include greater wariness from customers as well as additional restrictions from suppliers, for instance suppliers may ask for cash on delivery. In order to determine the amount of the indirect bankruptcy costs, Altman has estimated the profits that would have been expected in the three years leading up to a bankruptcy and has compared these to the actual profits (which will be less than those expected) in order to arrive at the figure for the indirect bankruptcy costs.

He used as his sample twelve retail and seven industrial firms that became bankrupt between 1970 and 1978. He then compared the present value of bankruptcy costs with the present value of the expected tax shield benefits from interest payments arising from leverage. From this he concluded that in many cases bankruptcy costs were significant, exceeding 20% of the value of the firm as measured prior to bankruptcy. The sample found that for many failed firms that were examined in the sample the present value of expected bankruptcy costs exceeded the present value from tax benefits gained by using debt.

Altman comes to the conclusion that bankruptcy costs are therefore an important factor in determining any firm's capital structure. The indirect bankruptcy costs of ten restaurants that went bankrupt between 1980 and 1992 were estimated by Kwansa and Ho Cho (1995) in order to show the impact of indirect bankruptcy costs on a firm's capital structure by comparing the cost of financial distress with the tax savings gained from using debt. It was shown that indirect bankruptcy costs are significant in absolute terms. If the indirect bankruptcy cost is greater than the tax savings, then the firm will be closer to bankruptcy. Their conclusion is that the state of the trade-off between indirect bankruptcy costs and tax savings can provide an early warning of financial distress.

A model that demonstrates the trade-off theory of capital structure has been developed by Bradley et al. (1984) through the use of different measures for the probability of bankruptcy. Using the volatility of a firm's earnings as a measure to indicate the likelihood of bankruptcy, they found that against a cross-sectional sample of 851 firms in 25 industries over a period from 1962 to 1981, the likelihood of bankruptcy was negatively related to leverage. This study also appears to support the trade-off theory of capital structure.

According to Brigham (1992), both theoretical and empirical studies failed to produce anything that can be used to define a firm's optimal capital structure, even though they have added to the body of existing knowledge of capital theory. In order to arrive at a quantitative assessment of optimal capital structure, Philosophov and Philosophov (1999) developed a probabilistic model.

This calculates the probability of bankruptcy both before and after studying individual financial characteristics. To do this they have used Bayes' formula of probability theory as well as Altman's model for calculating the prior probabilities of bankruptcy.

This calculation is based on a specific period of time and the percentage of companies that were operating at the beginning of this period and which became bankrupt during this period.

These probabilities are then used in a modified formula of discounted share valuation in order to be able to calculate the share value of firms that might go bankrupt at some future point. According to Philosophov and Philosophov optimal capital structure can be determined by maximizing the share value of a firm. Their conclusion is that share value is dependent on the leverage ratio, and the probability of bankruptcy and firm returns affects this.

3. 2. 2.1 Empirical Studies in Trade-off Theory (target capital structure)

A number of studies using US data have provided evidence in favour of static-trade-off theory that firms adjust toward a target ratio. Taggart (1977) and Jalilvand and Harris (1984) found significant adjustment coefficients, which they interpret as evidence that firms optimize debt ratios.

Hovakimain et al., (2001), using data from the US market, results imply that pecking order considerations affect corporate debt ratios in the short-run. However, firms are likely to move them toward target debt ratios that are consistent with trade-off models of capital structure choice. Shyam –Surnder and Myers (1999), using data from the US market, in a comparative study between pecking order and static trade-off theories found that when the simple target adjustment model is tested independently, it performs well. However, when the pecking order theory and the target capital models are tested jointly, the coefficients and significance of the pecking order model change hardly at all; the performance of the target-adjustment model degrades, though coefficients still appear statistically significant.

Graham and Harvey (2001) using a survey of 392 chief financial officers (CFOs) in the US market, showed that 71% of the CFOs in their sample responded positively to having a target range for their debt-equity ratio and another 34% indicated that they have strict target debt ratio. Using US data, Leary and Roberts (2005) found that the motivations behind corporate financing decisions are consistent with dynamic rebalancing of leverage.

They found that firms are more likely to adjust their leverage increasing or decreasing. They contend that their findings of a significant response to both increasing and decreasing leverage are consistent with the existence of a target range for leverage, as in the trade-off model. Several studies have investigated the empirical evidence of static trade-off (target capital theory) in the UK market.

Marsh (1982) provides evidence that companies do appear to make their choice of financing instrument as though they had target levels in mind for both the long –term ratio, and also for the ratio of short –term to total debt. Furthermore, he found that the probabilities of debt and equity issues vary with the deviation of the current debt ratio from the target. He also found that the probability that firm issues equity is significantly higher if the firm is above its target debt ratio, and significantly lower if below the target.

Ozkan (2001) pointed out that European firms have a long-run optimal target debt ratio which is assumed to be a function of several firm-specific characteristics which vary over time, over companies, or over both times and companies. He found also that adjustment process take place, which involves a lag in adjusting to changes in the optimal target debt ratio.

Brounen et al. (2005) found that in the UK, Netherlands, Germany and France over two-thirds of firms aim for some target debt ratio. Furthermore, they found that in each of the countries only 10% of all firms maintain a static target capital structure. They argue that these results are in line with Graham and Harvey (2001).

Cai and Ghosh (2003), using data from the US found that when a firm's debt level is out of its target range. The firm will try to correct it and converge back to the range.

Marsh (1982) developed a descriptive model of the choice between equity and long term debt financing based on both the theory (companies in need of new finance should issue equity if they are above their target debt level and debt if they are below) and existing empirical evidence. He tested his model using a logit analysis applied to a sample of 748 issues of equity and debt made by UK companies over the period from 1959 to 1970.

The study concluded that companies are heavily influenced by market conditions and the past history of security prices in choosing between equity and debt financing. The study also provided evidence that companies do appear to make their choice of financing instruments as though they had target levels in mind for both long term debt ratio, and the ratio of short term debt to total debt. Marsh concluded that the results are consistent with the notion that target levels are themselves functions of company size, bankruptcy risk, and assets composition.

Deangelo and Masulis (1980) generalised Miller's differential tax model by including other non-debt tax shields such as depreciation charges and investment tax credits. They stated that introduction of such non-debt tax shields leads to the conclusion that each firm has a unique interior optimal capital structure that maximizes its value. This capital structure is determined only by the interactions of personal and corporate taxes as well as positive financial distress costs.

Bradley, Jarrell and Kim (1984) developed a model that synthesises the modem trade-off theory of optimal capital structure. In the empirical testing of this model, the authors found that the volatility of a firm's earnings had a negative relationship with leverage. In addition, they found a strong direct relationship between non-debt tax shields and the firm's debt level.

Bancel and Mittoo (2004) carried out a survey on CFOs of 87 firms in 16 European countries with a response rate of 12%. In comparison to Graham and Harvey (2001) study, they found that European managers use factors similar to those used by their U.S. counterparts for their financing decisions. However, there were differences among European countries on several dimensions, particularly between Scandinavian and non-Scandinavian countries. Country's institutional structure, especially the quality of its legal system was found an important determinant of debt policy. Financial flexibility and earnings per share dilution were the managers' primary concerns in issuing debt and common stock respectively. Most firms determined their optimal capital structure by trading-off factors such as tax advantage of debt, or bankruptcy costs, agency costs, and accessibility to external financing.

More recently, Beattie et al (2006) conducted survey on 192 financing directors of UK listed companies, which represents a response rate of 23%. The main finding is heterogeneity among companies regarding capital structure policies, in which about 50% respondents seek to maintain a target debt level (i.e. consistent with trade-off theory) and 60% claim to follow a financing hierarchy, (i.e. consistent with pecking order hypothesis).

3. 2.3 Asymmetric information and pecking order theory

Asymmetric information is another dimension of the capital structure theories. It is generally thought there is asymmetric information between firm managers (or insiders) and outside investors. Firm managers or insiders are assumed to possess private information about the characteristics of the firm's return stream or investment opportunities. This branch of literature was first developed by Myers (1984) and Myers and Majluf (1984). According to this branch of literature, firms that issue equity will face under pricing due to the information asymmetry that exists. Ross (1977) proposes a model where he extends the asymmetric information framework. In his model, the managers know about the firm's future returns, while investors do not.

The main theories derived from this asymmetric information argument are the signalling theory and pecking order theory. High levels of debt in a firm signal to investors that the firm's investment will indeed pay off and that the firm will be able to fulfil its debt obligations. High debt levels signal to investors that firms are of high quality, which explains the preference for debt rather than equity. Investors regard high debt levels in firms favourably. The implication behind this is that when a firm announces an equity issue, the market value of the firms' existing shares will fall. Internal funds and/or riskless debt is preferred as there is no undervaluation involved (Harris and Raviv, 1991).

This is referred to by Myers (1984) as the 'pecking order' where capital structure is driven by firm's desire to finance new investment, first internally, then with low risk debt and finally with equity as a last resort.

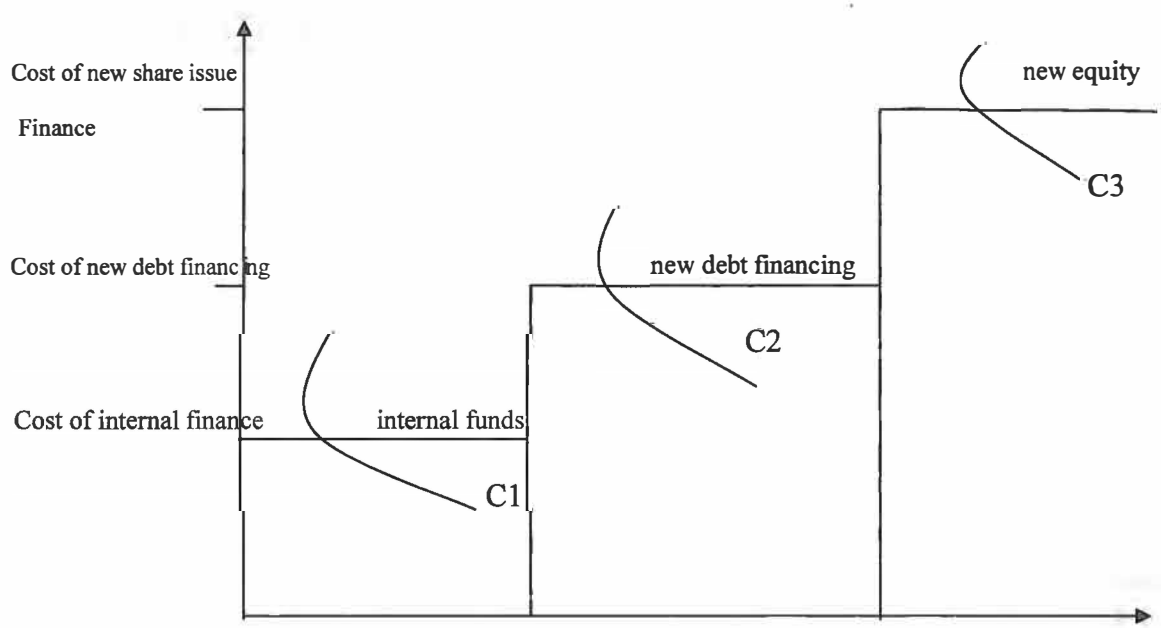
3.2.3.1 Pecking Order Theory (POT)

Firm managers or insiders are assumed to possess private information about the characteristics of firm's returns and the investment opportunities available to them (Harris and Raviv, 1991). Various theories have been developed that have attempted to explicitly model this private information which has consequently given rise to theories other than the Trade-off Theory. The Pecking Order Theory (POT) is one such theory that attempts to explain capital structure decisions by formally taking into account the inherent information asymmetry that exists between different parties. The pioneers that have explicitly accounted for asymmetric information in their work has been Ross (1977) and Leland and Pyle (1977). However, the first ones to actually take into account asymmetric information in the area of capital structure have been Myers (1984) and Myers and Majluf (1984).

They show that the choice of capital structure mitigates inefficiencies in the firm's investment decisions that are caused by information asymmetry. According to the pecking order theory (POT), firms have a strong preference for internal finance (Myers, 1984) as it is believed to have a cost advantage over new debt and equity. If external finance is required, firms first issue debt and when all other "safe" options are exhausted; they issue equity as a last resort. The literature regarding the POT has been dormant since its inception in the early 1980's when it was first proposed by Myers (1984) and Myers and Majluf (1984). It is only in the late 1990's that a new interest has been revived in the POT by financial theorists. The POT proposed by Myers (1984), prescribes a strict ordering or hierarchy of finance: firms use internal finance first then debt and only when such options are exhausted, equity finance is used. This is explained by the fact that internal and external finance are not perfect substitutes.

The POT is diagrammatically illustrated below.

Figure 3.2: Hierarchy of Sources of Finance and their Costs.



Source: Fazzari, Hubbard and Petersen (1998) p156)

C1, C2 and C3 represent investment demand schedules. When investment demand is low at C1, investment is financed with internal funds, which are relatively cheaper. If investment demand is at C2, after exhausting the internal funds, external funds are used namely in the form of debt finance. Finally, if investment demand is very high at C3, equity finance is used after internal funds and debt finance have been exhausted. This hierarchy can be explained by three factors. The first factor is the costs associated with each form of finance which are related to the degree of information asymmetry, the "safeness" of each form of finance or the signal that the issuance of some form of finance gives to the market. Internal finance is believed to be the cheapest source of finance followed by debt and equity.

The availability of internal funds allows firms to undertake investment without having to resort to external finance which is relatively more expensive due a number of factors. The issuance of debt and equity usually involves issuance costs that are sometimes prohibitively high. Also the issuance of debt or equity can cause agency problems to arise.

The issuance of debt can cause conflicts to arise between managers and debt holders while the issuance of equity can cause conflicts to arise between debt holders and equity holders. Furthermore, the issuance of external finance namely debt, involves repayment of capital and interest which the firm has to pay whatever its financial state. This increases the risk of financial distress. All these factors explain why a firm would prefer internal finance over external finance. Another explanation for the POT is provided by Myers and Majluf (1984) that draws from an asymmetric information framework.

The management is assumed to know more about the firm's value than the potential investors. Only insiders know the quality of a firm or its investment projects. Therefore outsiders require a premium if they are asked to fund these projects.

The degree of information asymmetry regarding equity is higher when compared to debt. Financial intermediaries are able to monitor the firm and gain access to information that outside investors cannot get. Outsiders are normally not able to monitor firms and thus require a much higher premium on equity finance than debt since they are in the dark regarding the growth prospects of firms.

3.2.3.2 Empirical Evidence of pecking order theory

Most of the studies regarding the POT have been based on the US. The recent wave of theoretical and empirical literature is quite overwhelming (Shyam-Sunder and Myers (1999), Benito (2003), Chen (2004), Fama and French (2003)) with studies focusing on countries such as Australia, China, Italy, Spain, Turkey, the UK and the US to name but a few. Studies have not only tried to explain the financing choices of large firms but quite a number of studies have also focussed on how the POT can explain the financing choices of SMEs.

Baskin (1989) suggested that the pecking order hypothesis appears to describe corporate practice. He used regression-based econometrics to distinguish between the pecking order behaviour and static optimal capital structure theory. A sample of 378 firms from the 1960 Fortune 500 that were still available in COMPUSTAT in 1984 was used. The results confirmed the basic pattern of correlation that is consistent with the pecking order theory, and it was shown that the small positive serial correlation in debt financing disappears once the effect of profitability, growth opportunity and dividend policy are controlled for.

Allen (1991) interviewed senior financial personnel of 48 listed Australian companies. He found that 93% of the respondents were found to pursue a policy of maintaining spare debt capacity. Relatively consistent with pecking order prediction, 52.1% of the respondents preferred to fund their business by internal funding sources. Moreover, some evidence on target debt ratios and tax considerations of debt is found. Norton (1991) used a survey instrument designed to examine the motivations, behaviour and beliefs that guide the capital structure decisions of small firms.

Only 110 out of 405 such survey instruments received from small, high-growth corporations, were usable. The survey questions were derived from various strands of the theoretical financial literature on capital structure. The results showed that, contrary to mainstream financial theory, factors dealing with bankruptcy costs, agency costs and information asymmetry have little effect, if any, on the capital structure policy of such firms. In fact, he concluded that these factors "... are a concern only to firms living on the edge, e. g. large firms experiencing financial problems or firms with an inadequate track record". The responses showed that financial officers in the sample followed a "pecking order" when choosing their sources of funds. In financing assets, internally generated cash was used as much as possible and in the cases where external financing is needed, debt is used to raise funds and equity instruments are issued as a last resort.

Griner and Gordon (1995) used subsets of fortune 500 companies in each of the years 1985 to 1988 to test the pecking order and managerial hypotheses, i. e. managers who have a small ownership stake in the firm use internal cash flows to undertake a level of capital expenditures higher than that which would maximise the wealth of current shareholders.

The analysis of capital expenditures and internal cash flows confirmed the prediction of both theories that internal cash flow is an important determinant of capital expenditure levels. The analysis also showed an inverse curvilinear association between capital expenditures and insider ownership. The multivariate analysis confirmed that internal cash flow is an important determinant of capital expenditure levels. However, the most important finding was that there was no association between capital expenditures and insider ownership, in any of the years, after controlling for other determinants of capital expenditures.

The conclusion was that the reliance on internal cash flow is not caused by conflicts between managers and existing shareholders, but rather is a consequence of information asymmetries between managers and potential new shareholders .Hence, using internal cash flows is, ceteris paribus, wealth maximising for existing shareholders when compared to issuing debt.

Shyam-sunder and Myers (1999), using data from the US market, in a comparative study between pecking order and static trade-off theories found that when the simple target adjustment model is tested independently, it performs well. However, when the pecking order theory and the target capital models are tested jointly, the coefficients and significance of the pecking order model change hardly at all; the performance of the target-adjustment model degrades, though coefficients still appear statistically significant. This implies a greater confidence in pecking order theory than in the target adjustment model. Frank and Goyal (2003) found that a firm's deficit does not wipe out the effects of the conventional variables that affect the capital structure mix (tangibility, market to book ratio, size, and profitability).

Clifford and Klock (1992), using data from the US market, found that firm growth shifts the financing from equity to debt (positive relation), which is in line with the pecking order theory. They argue that fast growing firms are likely to have insufficient earnings to finance all of their growth internally, and so issue more debt. Furthermore, they found that profitability is negatively related to leverage.

Leary and Roberts (2005), using data from the US market, found evidence consistent with the prediction of the pecking order. They found that firms are less likely to use external capital markets when they have sufficient internal funds, but are more likely to use it when they have large investment needs.

Several studies have investigated the empirical evidence of pecking order theory in the UK market.

Adedeji (1998), in his study of 224 UK firms over the period 1993-1996, concluded that there is a negative relationship between the dividend payout ratio and investment. He also concluded that there is a positive association between the dividend payout ratio and gearing. However, there is no significant correlation between gearing and investments. Although investments have a positive influence on gearing, the positive does not hold. The results are similar to the previous evidence on pecking order theory, asymmetric information and dividend policy.

Michacelas et al., (1999) indicated that the positive coefficient of the growth variable for both short and long-term debt is consistent with the pecking order theory. Moreover, he has found that profitability is negatively related to leverage, which provides some evidence for the pecking order theory .Supporting for the pecking order theory, he also has provided a negative relationship between the age of the firm and leverage.

Jordan et al., (1998) tested the importance of the pecking order theory and found that the pecking order theory is very important determinant of capital structure in UK small firms.

Brounen et al., (2005) using data from four European countries (UK, Germany, Netherland, and France) claim that their results are in line with the predictions of the pecking order theory. He also argued that the results showed that financial flexibility is the most important factor that influences the amount of debt. This can be considered as evidence in favour of the pecking order model, since flexibility increases the possibility of choosing between different financing alternatives.

They found that in the UK market, financial flexibility is more important in dividend - paying firms. These results support Graham and Harvey's (2001) conclusion that financial flexibility is not driven by the pecking order theory.

Bentio (2003), using data from UK and Spanish markets, points out that the results for the UK market are in line with pecking order theory and against the trade –off model. He contended that higher cash flow implies lower levels of debt. Furthermore, according to the pecking order model a higher level of investment increases the need for debt finance. Moreover; he found that profitability is negatively related to debt. This provides additional evidence for the pecking order model that the availability of internal funds should imply lower debt ratios ,compared with the trade-off theory prediction that higher profitability or cash flow should imply that firms are likely to use the associated tax benefits of debt as the probability of bankruptcy is lower. Several studies found evidence consistent with both pecking order and the static trade-off theory (the target capital structure theory) at the same time .These studies propose combination of both theories to explain the capital structure behaviour.

Mayer and Sussman (2003), using data from the US market; found that large projects are basically financed with debt by large companies and with new equity by small companies. They argue that in financing large projects, companies move away from their prior capital structure, as expected by the pecking order theory. Furthermore, new equity issues are basically associated with small, loss–making companies. However they found that firms do adjust back to prior levels of leverage, consistent with the trade –off theory. The two authors conclude that a combination of pecking order and trade–off theories provides a good description of short-run and longer run dynamics.

Fama and French (2002), using data from the US market, found mixed results. They found that leverage is inversely related to firm profitability, which is in line with the pecking order and against the trade-off theory. However, they found that leverage is also negatively related to investment which opposes a "simple" pecking order theory and consistent with a trade-off theory.

Claggett (1991) using data from the US market, found that more firms with above industry average long term debt ratios adjusted more readily towards the mean of the leverage ratio than those with below average ratios. He also found that firms ' behaviour is in line with pecking order theory. He concludes that firms' behaviour is to over-simplify the complexities of capital structure decisions. The author claimed that a hybrid between the optimal capital structure theory and the pecking order theory is the next step in the current quest to explain how firms manage their capital structures.

Miguel and Pindado (2001), using data from the Spanish market, argue that their results confirm the negative relationship between cash flow and debt originating from the existence of asymmetric information, corroborating the pecking order theory.

On the other hand, in the absence of asymmetric information, the relationship between cash flow and debt is positive. They claim that their results imply that when the firm faces asymmetric information, they do not resolve the free cash flow problem by issuing debt, while in the absence of asymmetric information firms issue debt when they have free cash flow. Moreover, in this context, it can be inferred that those firms with the capacity to generate internal funds use these before issuing debt: just as the pecking order theory postulates.

3.2.4 Agency cost theory

The agency models which consider Debt Capacity, Discipline, Asymmetric Information and Signalling are interrelated and focus on the conflict of interests among parties involved in the firm. Jensen and Meckling (1976) in their seminal paper argue for the inevitability of agency costs in corporate finance and their importance to capital structure theories. They (1976, p 308) defined the agency relationship and costs as:

> *"A contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. Agency costs are the sum of (1) the monitoring expenditures by the principal, (2) the bonding expenditures by the agent, and (3) residual loss ".*

The analysis of agency problems is based on two behavioural assumptions. First, all individuals are assumed to choose actions that maximise their own personal welfare. Second, individuals are assumed to be rational and capable of forming unbiased expectations regarding the impact of agency problems and the associated future value of their wealth.

Rationality implies that individuals recognise the self-interest motivation of all other individuals so that future decisions by managers (agents) based on their own interests are anticipated and taken into account by shareholders (principals).

Agency problems between managers and shareholders arise because, under the assumption of self-interest, managers, who own less than 100 per cent of the residual claim on the firm, do not invest their best efforts unless this is consistent with maximising their own welfare. Instead, they would pursue their own goals which do not always match the shareholders' goals such as maximising the level of perquisite consumption.

Additionally, there exist conflicts of interest between debt and equity holders which arise only when there is a risk of default, because when the debt is risk free, bondholders have no interest in the income, value or risk of the firm. But if there is a chance of default, shareholders can gain at the expense of the bondholders.

The recognition of the implications of potential conflicts of interest between bondholders and shareholders is crucial to the Trade-Off Theory. Prior to that recognition, the costs of financial distress seemed limited to the transaction costs of bankruptcy and reorganization. Investors foresee these possibilities, so the threat of financial distress can reduce the current market value of the firm, which provides a good reason for operating at relatively conservative debt ratios.

Barnea et al., (1985) argue that while no one theory has emerged to explain the Complexities seen in the real world, the agency costs model explains better than any other theory all these phenomena. Therefore, there exist agency costs related to both debt and equity. These costs are foreseen by the investors and passed on to the firm in the form of discounted prices for the securities bought.

3.2.4.1 The agency relationship between Shareholders and Debt holders

The existence of debt financing under limited liability creates an incentive to shareholders to engage in high risk activities that transfer wealth from debtholders to shareholders. This is the risk shifting game and is described by Jensen and Meckling (1976) who argue that shareholders of geared firms gain when business risk increases. Indeed, if an investment is successful and yields returns that exceed the value of debt, shareholders receive most of the gains whereas if the investment fails bondholders lose.

Managers who are assumed to act in the interest of shareholders will favour risky projects over safe ones and may even take projects with negative NPVs.

This behaviour is typical when the chances of default are high. However, rational investors recognise this possibility in advance and pass on the costs of these actions to shareholders in the form of discounted bond prices. Myers (1977) describes another incentive of shareholders who refuse to contribute capital and forgo profitable investment. He argues that in the absence of debt financing, the firm accepts any investment for which the market value net of investment is positive.

However, given the outstanding debt, shareholders maximise their wealth by accepting an investment only if its market value exceeds the debt obligation. Otherwise, it is in their best interest to default. Therefore, investment opportunities may be passed up, even though they make a positive contribution to firm value, and thus the present market value of the firm is reduced.

This problem is particularly critical for firms with few tangible assets and more intangible assets such as R&D intensive firms, high- and bio-tech firms.

Myers describes two other situations that give rise to agency costs between shareholders and bondholders. Firstly, shareholders may be reluctant to invest money in a firm in financial distress, but they are happy to take money out in the form of cash dividends. The market value of the shares decreases by less than the amount of dividend paid because the decline in firm value is shared with bondholders. Secondly, a firm starts with a conservative debt policy, issuing safe debt. Then, the firm suddenly switches and increases its gearing ratio to levels that make all debt unsafe.

This imposes a capital loss on old bondholders which goes to shareholders. Therefore, debt financing and limited liability give rise to a number of agency costs where the bondholders' capital loss is the shareholders' capital gain. However, bondholders recognise this wealth expropriation possibility in advance and pass it on to shareholders in the form of discounted bond prices. However, the firm's reputation for non-default may offset this agency costs, and may produce some optimal level of debt.

3.2.4.2 The agency relationship between Shareholders and managers

Jensen and Meckling (1976) analyse the agency relationships between the shareholders and managers. A manager who owns 100 per cent of the company bears the full costs associated with additional perquisite consumption. This is no longer the case, however, if he sells a portion of his holdings to outside investors. In this case, he continues to enjoy the full benefit of additional perquisite consumption but bears only his proportional ownership fraction of the associated reduction in share value.

Thus, as the proportion of outside equity investment increases, the degree of efficiency of the firm may decrease. However, introducing or increasing debt in the capital structure essentially increases the proportion of equity owned by the manager, reducing the loss from monitoring costs imposed by outside equity holders, ceteris paribus. Therefore, in this sense, debt capital disciplines the managers who engage in excessive perquisite consumption and reduces the agency costs of equity.

Jensen (1986) expands further the debt discipline argument and argues that managers of firms with substantial free cash flow might be interested in expanding their firms because this would bring more power to them and they might even invest it in value decreasing projects rather than paying it out. However, introducing or increasing debt levels allows managers to bond their promise to pay out future cash flows. Scheduled interest and principal payments are contractual obligations of the firm.

Debt forces the firm to pay out cash and capital structure might also be determined by trading off these benefits of debt against the costs of debt. Perhaps the optimal debt level would leave just enough cash in the bank after debt servicing, to finance all positive NPV projects, with not a penny left over. Hence, Jensen suggests that debt is an effective disciplinary measure, as the firm is legally obliged to pay out future cash flows as interest. The free cash flow theory or discipline theory says that dangerously high debt levels will increase value, despite the threat of financial distress, when a firm's operating cash flow significantly exceeds its profitable investment opportunities. This theory is designed for mature firms that are prone to overinvest.

Harris and Raviv (1990) support Jensen's (1986) conclusions and argue that debt financing ensures that the management is disciplined to making efficient investment decisions and that they are not pursuing individual objectives as this would increase the probability of bankruptcy. In situations of information asymmetry, increases in the debt ratios of a profitable firm can signal quality financial management. The leveraged buyouts of the 1980s were first and foremost attempts to solve Jensen's free cash flow problem. Additionally, they argue that managers will always want to continue operating even if investors want to liquidate. Debt may resolve this problem. Thus, higher debt levels reduce the agency problem between managers and investors which arises from the decision to liquidate or continue the firm. Therefore, where a conflict occurs between managers and investors (shareholders), regarding the level of perquisite consumption, investment in value-decreasing projects, or the liquidation decision, debt may be employed to reduce or even eliminate such conflict by encouraging managers towards more efficient actions.

3.2.4.3 Empirical Evidence of the agency theory

Harvey et al., (2004) using data from emerging countries markets; investigate whether debt can mitigate the effects of agency and information problems. They found that the incremental benefit of debt is concentrated in firms with high expected managerial agency costs; they are also most likely to have overinvestment problems resulting from high levels of assets in place or limited future growth opportunities. They argue that their results indicate that shareholders benefit from intensively monitored debt in circumstances in which managers are most likely to exploit shareholders, as well as when the information asymmetry is severe enough that shareholders cannot reasonably infer what managers are doing with a firm's funds. They argue that firms in emerging countries markets firms have potentially extreme managerial agency problems. They found that debt creates shareholder value for firms that face potentially high managerial agency costs.

Singh and Davidson (2003), using data from the US market, found that leverage in large firms is relatively related to an agency cost measure. Jong and Van Dijk (1998), using data from Netherlands, investigate the determinants and the relationships between leverage and agency problems. They found that direct relationships between leverage and four agency problems are absent; although the findings suggest that agency problems are present.

Crutchely and Hansen (1989), using data from the US market, found that greater earnings volatility leads to lower leverage. Furthermore, greater earnings volatility is associated with greater managerial ownership and with larger dividends.

This result is consistent with the conclusion that greater earnings volatility raises expected bankruptcy costs, which increases debt agency costs, thereby dictating less debt. This study also found that larger firms not only use more leverage, but they also pay out larger dividends, and that their managers have lower equity ownership. Furthermore, they found that lower diversification costs not only induce greater equity ownership by managers but also induce lower dividends and lower debt ratios. These findings provide evidence supporting agency theory.

Using data from the US market, Chung (1993), found that firms with higher asset diversification and larger fixed asset ratios tend to use more long-term debt relative to short-term debt, and firms with greater growth opportunities' and higher operating risks tend to use less short- and long-term debt which is consistent with the traditional notion that riskier firms would use less debt.

Many studies have found that firms with a low probability of free cash flow problem and those with many investment opportunities are likely to have low debt levels (Myers, 1977; Jensen, 1986; Lasfer, 1995; and Stulz, 1990). However, Stulz and Johnson (1985) have showed that secured debt can be used to finance growth opportunities. This is because tangible assets are likely to have known values, and this will reduce the risk of lenders and the costs of monitoring how the new loan is being used (e. g. Myers and Majluf 1984).

Several studies have investigated the agency theory in the UK market. Lasfer's (1995) results suggest that agency costs are the main determinants of corporate borrowing. Consistent with the agency theory, Lasfer found that firms that have fewer growth options have more debt in their capital structure. Furthermore, the results show that debt mitigates the free cash flow problem, and that firms that are more diversified and less prone to bankruptcy are more highly levered. Chittenden et al., (1996) found that agency theory provides an explanation of small firm capital structure. This can be explained by the use of collateral, especially for unlisted small firms, being widespread, and being consistent with use as a way of dealing with agency problems in lending to small firms. Michaelas et al. (1999) found that a high fixed asset component and a high inventory level are associated with higher short term as well as long term debt. These results suggest that information asymmetries and agency problems are significant in the small business sector. They claim that issuing debt secured by fixed assets or inventory with known values reduces information asymmetric and agency costs, making debt available at a lower cost to small firms.

3.3 The firm-level factors influencing the corporate capital structure decision

There are many factors impacting upon the capital structure decision at the firm-level which exert a stronger influence than the macroeconomic factors. This could lead to firms reaching optimal capital structure ratios which could potentially be unique for each firm due to the resulting interaction of taxation, macroeconomic, and corporate factors. The firm-level factors may strongly impact upon the corporate capital structure decision, as the corporate environment is less difficult to understand and react to in making both short-term and long-term financing decisions. Therefore, the different classes of corporate factors are discussed in turn.

3.3.1 The influence of business risk (volatility of earnings) on the corporate capital structure decision

The potential threats that a firm would go bankrupt and the costs associated with it were found to be an important factor in the corporate capital structure decision. Thus, since earnings volatility is closely linked to, and has a direct impact on bankruptcy risk, it is important for companies to consider earnings volatility when making a capital structure decision. Hence, this type of risk is briefly summarised in this section. Stiglitz (1988) argues that the only aspect of risk which is important is how the return of an individual firm correlates with the market return. However, managers and investors also care about the variance of the returns. Fluctuations in the returns to stockholders or business risk are accentuated by gearing. If sales are buoyant expected returns are increased by gearing, but if sales are poor, expected returns are reduced because of mandatory interest payments.

Bradley et al., (1984) find that the volatility of earnings is important as it helps explain both inter- and intra-industry variations in firm gearing ratios. They demonstrate that if the costs of financial distress are significant, optimal firm gearing is related inversely to the variability of firm earnings. This is supported by Rajan and Zingales (1995) who suggest that a firm's optimal debt level is a decreasing function of the volatility of its earnings.

Antoniou et al., (2002) note that firms with high earnings volatility carry a risk of the earnings level dropping below the level of their debt service commitment and this may result in arranging funds at high cost to service the debt or face the risk of bankruptcy. Therefore, firms with highly volatile earnings borrow the least and prefer equity to debt.

British firms raise debt capital from capital markets and have armslength relations with lenders. Hence, the cost of failing to service market debt is high. For these reasons, such firms are expected to be more concerned with earnings volatility. There is however, some evidence that suggests that business risk does not affect gearing. For example, Ferry and Jones (1979) fail to find an association of income variation with a firm's gearing. Additionally, Titman and Wessels (1988) employ a factor analytic approach to study 469 US firms over the period 1974-82. They include an indicator of volatility, the standard deviation of the percentage change in operating income, but find it not to be a significant determinant of leverage. However, Castanias (1983) argues that there are several reasons why their findings cannot be viewed as evidence against the trade-off model.

A negative relationship between variability of earnings and financial gearing is not a general implication of the trade-off model. As proved by Bradley et al., (1984) the presumption that bankruptcy costs are positive is not sufficient to ensure that the relationship between variability of earnings and gearing is negative.

Also tests based on samples of very large firms are less likely to find a negative relationship if marginal bankruptcy costs for larger firms increase more slowly, even if the relationship is significant for smaller firms. Indeed, Myers (1977) suggests that marginal bankruptcy costs will be lower in larger firms where managerial discretion and growth opportunities are less. However, even if earnings variance has a positive effect on borrowing as shown by Auerbach (1983), Bennett and Donnelly (1993) argue that the positive relationship between earnings volatility and gearing is not inconsistent with the trade-off theory.

They argue that this theory suggests that the relative strengths of the agency and bankruptcy costs determine the sign of the relationship. Further, Sarkar and Zapatero (2003) find evidence that earnings exhibit a mean reversion property. They argue that companies enjoying high earnings are right to have relatively less debt despite the tax benefits of greater leverage. The reason is that corporate earnings are `mean-reverting' - they tend eventually to go back to the long-run average level. With mean-reverting earnings, the ideal gearing ratio actually falls when earnings rise and vice versa. Indeed, they (2003, p 836) argue that:

> *"When earnings rise, debt value increases slightly while equity value Increases significantly. Thus the effect of higher earnings is a lower Leverage ratio. But it is important to note that the new leverage ratio is also optimal for the firm. This is because with mean reverting earnings, the long-term mean earnings level is more important in determining the optimal debt level than the short-term (current) earnings level. Thus, with mean-reverting earnings and long-term debt, it is optimal for the firm not to change its debt level when earnings change. "*

To summarise, there is some relatively strong evidence of the significant impact of earnings risk upon gearing as implied by the trade-off model. Further, the documented negative relationship between earnings and gearing, at first glance inconsistent with the Trade-Off Theory, is shown to be reconciled once the mean reversion of earnings is taken into account.

3.3.2The influence of size on the corporate capital structure decision

Most authors would agree that gearing employed by the firm is positively related to size, and thus theory and evidence supporting this hypothesis is examined first. However, some authors contradict this finding and hypothesize a negative relationship which is also discussed. The results are then brought together to arrive at a correct understanding of the influence of firm size on capital structure.

Marsh (1982) employs a logit analysis of 748 UK firm security issues over the period 1959-70 and finds a positive relationship between size and the corporate capital structure ratio due to size-related differences in long-term debt flotation costs and asset composition. Thus, larger firms appear to offer greater security for debt and experience lower flotation costs than smaller firms.

Ang et al., (1982) find that direct bankruptcy costs appear to constitute a larger proportion of a firm's value as that value decreases. They also find that large firms tend to be more diversified and less prone to bankruptcy. The cost of issuing securities is also related to firm size with larger firms being more highly geared. Small firms pay much more than large firms to issue new equity and long-term debt due to economies of scale (Brealey and Myers, 2001).

Castanias (1983) argues that firm size is related to line of business average failure rates because an increase in firm size may lead to less business risk per dollar of assets invested, easier access to borrowing markets; more tax offsets per dollar of assets and lower costs of default per dollar of assets.

Jalilvand and Harris (1984) found that larger firms adjust faster to the target level of long-term debt than do smaller firms. Larger firms also tend to use more long-term debt in responding to their financing needs. They argue that these larger firms appear to adjust more slowly to target levels of equity and use less common and preferred stock in responding to the remaining funding needs than is the case of smaller firms.

Fama (1985) argues that the financial disclosure of smaller and larger firms is not the same due to monitoring costs being relatively higher for smaller firms. Thus larger firms, due to lower information asymmetry, are likely to have easier access to debt markets and be able to borrow at lower cost implying a positive relationship of size and leverage. Rajan and Zingales (1995, p 1451) state that:

"*The effect of size on equilibrium leverage is more ambiguous. Larger firms tend to be more diversified and fail less often, so size may be an inverse proxy for the probability of bankruptcy*"

They also note that larger firms are more transparent, hence size may also be a proxy for the information which outside investors have about the firm, which should increase their preference for equity. However, they do not explain why this latter information effect should not also increase demand of potential debt holders, thus making their argument somewhat weaker. Larger firms tend to have more gearing, perhaps because they are more transparent, have lower asset volatility, or naturally sell large enough debt issues that the fixed costs of public borrowing are not prohibitive. Also, larger companies are more likely to have a good bond rating and thus have access to non-bank debt financing, which is usually unavailable to smaller companies.

This is indeed what Bevan and Danbolt (2000) find. Large firms are found to hold more debt perhaps because they are However, Bevan and Danbolt find that Rajan and Zingales' results are highly dependent upon the precise definition of gearing being examined. By decomposing total liabilities into sub-components, Bevan and Danbolt find that larger firms borrow more long-term debt while smaller firms borrow more short-term debt. They suggest that smaller firms are supply constrained, in that they do not possess sufficient credit rating to allow them access to long-term borrowing. This is consistent with the results of Tucker and Lean (2001) who fined that small firm financing is in the form of short term debt and as they move through the stages of growth, they use more long term debt to finance their activities.

Bancel and Mittoo (2002) find that compared to smaller firms, larger firms are influenced more by debt levels of their industry peers but are less concerned about potential bankruptcy costs, and about issuing long-term debt to minimize the risk of having to finance in bad times. Further, internationally-orientated firms place higher value on financial flexibility and the tax advantage of interest deductibility than their domestic orientated counterparts.

Beattie et al. (2004) find that larger companies are more likely to have a target capital structure than smaller companies. This is consistent with the argument that large companies have greater control over their capital structure than small companies and may reflect large companies' greater access to finance and their response to stock market pressures. However, the preference for a hierarchy of sources of finance is independent of company size.

Therefore, the theory and evidence discussed above supports the hypothesis that corporate gearing increases with firm size. However, Remmers et al. (1974) hypothesize a positive relationship, again arguing that size was a proxy for risk, but find no evidence of significant differences between the debt ratios of small, medium and large firms for a number of countries for the years 1966 and 1970.

They note, however, that the firms studied were the largest firms within each country and thus possibly did not represent enough variation in scale for differences to become significant. Evidence of a negative relationship between firm size and gearing is more limited and sometimes refers to short-term debt rather than long-term debt or total debt. This evidence is discussed next.

Titman and Wessels (1988) employ a factor analysis of 469 firms over the period 1974-82, and find that smaller firms employ more debt than larger firms, although most of the gearing is short-term debt. They conclude that size is negatively related to short-term gearing ratios.

Remolona (1990) in the Global Vantage data study of firms in four major countries in the 1980s finds that larger firms are much less geared than smaller firms. Therefore, a limited number of researchers have found a negative relationship between the size of firm and gearing. However, these findings relate mainly to short-term debt and do not detract the positive relationship between size and long-term debt. Clearly, smaller firms are more prone to using short-term debt than larger firms, due to difficult access to the capital markets, transaction costs and amounts raised which might be prohibitive for the smaller firms.

Overall, there appears to be a positive relationship between the size of firm and debt, at least long-term debt, arising from lower risk, a larger asset base which could be used as collateral, economies of scale, greater diversification, and so on. However, there is also evidence of a negative relationship between short-term debt and firm size, although somewhat limited, as smaller firms may find long-term debt financing inaccessible or costs prohibitive. Thus, although the evidence is inconclusive, it suggests that short-term debt is mainly employed by smaller firms while larger firms employ significantly more long-term debt. However, short-term gearing ratios are not a true representation of a firm's financial risk, in which case there is a need to focus on total debt. Hence, in addition to studying long-term debt gearing ratios, we also need to take account of short-term debt and hence study total debt.

3.3.3The influence of growth opportunities on the corporate capital structure Decision

Growth opportunities, leading to larger firms in the future, should also significantly impact upon the corporate capital structure decision. Growth opportunities are capital assets that add value to a firm but cannot be collateralised and do not generate current taxable income. While one indicator of growth is the capital expenditure to total assets ratio, researchers such as Rajan and Zingales (1995) and Bevan and Danbolt (2000), inter alia, use the MTB ratio as a proxy for the level of growth opportunities available to the firm.

It is worth noting here that it is difficult to clearly separate the effect of growth opportunities from that of intangible assets such as R&D expenditure, advertising expenses, and so on, which are sometimes also used as proxies for growth as investment in intangibles will lead to future growth. Most of the literature suggests a positive relationship between growth opportunities and gearing (leverage) , the theory and evidence of which are considered below.

Toy et al. (1974) study firms in the US, Japan, Norway, Holland and France over the period 1966-72 arguing that high growth rate firms would have higher gearing ratios. The evidence they find generally supports this hypothesis, hence, high growth firms may require large amounts of long-term debt relative to equity until their internal cash flows start to benefit from the growth of sales and earnings.

Martin and Scott (1974) study 112 US firm issues during 1971 hypothesising that firms experiencing rapid growth would be more willing to be exposed to higher financial risk due to higher gearing levels than non-growth firms and find evidence to support this hypothesis. Bevan and Danbolt (2000) found that firms with high levels of growth opportunities have higher levels of debt than low growth but otherwise similar firms. However, this result appears to be driven entirely by trade credit and equivalent, and no significant MTB effect was found for other forms of debt. Dissanaike et al. (2001) argue that there is a positive relationship between the MTB ratio and gearing. Companies with higher MTB ratios are expected to have a higher marginal effective tax rate and lower probability of default and hence, a lower present value of bankruptcy costs.

Dissanaike et al., (2001) confirm Fama and French's (2000) results who find a positive relation between MTB and gearing.There is however, some evidence which suggests that growth opportunities are negatively related to gearing ratios. Some researchers have used different proxies for the level of growth such as R&D expenditure, which might be a reason for the different results found. For example, DeAngelo and Masulis (1980) and Bradley et al. (1984) find that optimal firm leverage (gearing) is related inversely to intangible assets such as R&D and advertising expenditures, which they use as proxies for future growth.

Barnea et al., (1985) argue that equity-controlled firms have a tendency to invest sub optimally to expropriate wealth from the firm's bondholders. Treating equity as a put option and adopting an option-pricing framework, it is clear that the higher the variance of returns of the underlying asset, the higher the value of this put option. Therefore, managers acting in shareholders' interests undertake high-risk projects reducing the debt value to increase the equity value. The cost associated with this agency relationship is likely to be higher for high growth firms, which have more flexibility in their choice of future investments. As growth opportunities are largely intangible, they may provide limited collateral value or liquidation value. Therefore, they argue, future growth opportunities are negatively related to gearing.

Rajan and Zingales (1995) find evidence of negative correlations between MTB ratios and gearing for all G7 countries. Futher, Hovakimian et al. (2001) also found a negative effect of MTB ratios on both the observed debt ratios and the probability of debt versus equity issue choice, and argue that high MTB firms have low target debt ratios and, therefore, are more likely to issue equity and less likely to issue debt.

Additionally, Bancel and Mittoo (2002) found that there were significant differences in the responses between the high growth and low growth firms. Compared to the low growth firms, high growth firms view equity as a less risky and cheaper source of funds and as a better signal than debt. This implies a negative relationship between growth and the gearing ratio. Therefore, the evidence on growth opportunities and gearing is mixed. Some researchers argue that growth is positively related to gearing levels, because firms with growth opportunities require greater flexibility, drain retained earnings more easily, and would be more receptive to higher financial risk financing than mature firms with no growth opportunities. However, this is questioned by evidence that suggests that the relationship between growth and gearing is negative. This could be due to the fact that different studies use different proxies for growth such as the MTB ratio, R&D expenditure, advertising expenses, and so on, and they might capture characteristics other than solely growth opportunities. It may be safe to conclude that the change in the size of assets and operations of firms significantly impacts upon the corporate capital structure decision.

3.3.4The influence of profitability on the corporate capital structure decision

Profitability is widely suggested to impact significantly on the level of gearing that firms employ in their capital structures although the sign of the relationship is not theoretically clear (Drury and Bougen, 1980; Rajan and Zingales, 1995). A firm with high profitability could operate with either low or high gearing. Lower gearing might occur as higher retained earnings reduce gearing by definition.

High gearing might reflect the firm's ability to meet debt payments out of its relatively high operating cash flow. This could be the reason why the predictions of theories concerning profitability vary and the evidence is also ambiguous.

The trade-off theory predicts that more profitable firms can afford high levels of debt because on the supply-side of debt more profitable firms would have better access to it. However, the pecking order theory predicts a negative relationship between gearing and profitability as retained earnings would reduce the gearing ratio by definition. While on the supply-side of debt more profitable firms would have better access to debt, on the demand side debt may be negatively related to profits.

Stiglitz and Weiss (1981) illustrate that the inability of lenders to distinguish between good and bad risks ex ante, preventing them from charging variable interest rates, dependent on the actual risk. In this event lenders are forced to increase the general cost of borrowing, which will tend to induce a problem of adverse selection as good risks are driven from the market by the high costs of borrowing. Due to this information asymmetry, companies will tend to prefer internal to external financing, where available.

Antoniou et al., (2002) note that British firms have arms length relationships with their lenders. Thus, lenders are unlikely to be fully aware of the quality of investment opportunities and hence they demand higher rates of interest on their investment.
A higher interest rate is likely to deter profitable firms from borrowing. Therefore, it may be expected that in the UK, profitability is negatively related to gearing, at least on the demand side.

Toy et al., (1974) suggest that high profitability firms would maintain low gearing ratios because of their ability to generate internal finance. They analyse gearing ratios of 816 firms in 5 countries and find that profitability is significantly negatively related to the debt ratio in four of the five countries studied.

Drury and Bougen (1980) study the gearing determinants of 700 UK firms over the period 1968-77 and find that high profitability firms are more likely to employ low gearing ratios. Marsh (1982) employs an analysis of variance of 748 security issues made by UK firms over the period 1959-70, and finds that high profitability firms are more likely to issue equity at the margin, leading to a negative relationship. Titman and Wessels (1988) employ a factor analysis of 469 US firms over the period 1974-82 and find significant evidence of a negative relationship between past profitability and current gearing levels.

Rajan and Zingales (1994) in their study of US firms using a Tobit model, find a significant negative relationship between profitability and gearing. Further, they find evidence that the negative relationship between profitability and gearing arises in all of the G7 countries over the period 1987-91. Jordan et al. (1998) find that the relationship between gearing and profitability is negative especially for small and medium-sized firms who have restricted access to financial capital markets. Shyam-Sunders and Myers (1999) found evidence that profitable firms have low debt ratios because they can use retained earnings hence confirming the negative relationship between gearing and profitability.

Dissanaike et al. (2001) found that changes in debt levels are most sensitive to profitability shocks. A one pound increase in profits leads to approximately a half pound decrease in debt. There are two main channels through which a contemporaneous profitability shock may influence management's choices for the debt process. The first channel, direct, is through the flow of funds constraint (i. e. pecking order). The second channel is through the effect of contemporaneous and revised future profitability on the expected marginal effective tax rate and present value of bankruptcy costs (the trade-off channel). They conclude that the relationship will be negative for low growth firms or financially distressed firms and positive for high growth firms or firms with low expected costs of financial distress.

Graham and Harvey (2001) argue that, because of bond ratings, more profitable investment grade firms are the firms more concerned about gearing levels. However, because rating agencies are more concerned about debt ratios when analysing less profitable firms than when analysing more profitable ones, it is not clear, a priori, what should be the overall relationship between profitability and gearing.

Hovakimian et al., (2002) argue that firms with relatively high profitability are likely to have more valuable assets-in-place and thus have higher debt ratios. They argue that under the dynamic trade-off hypothesis, the negative relation between profitability and observed gearing arises not because profitability affects target gearing, but because it affects the deviation from the target.

Profitable firms will retain earnings and become less geared, while unprofitable firms will borrow and become more geared, thus creating a negative relation between profitability and observed gearing and between profitability and the probability that external financing is raised. Therefore, the negative relation should not hold for firms that offset the deviation from the target by resetting their capital structures.

They found that profitability has no effect on the firm's post-dual-issue gearing ratio. The probability of debt issuance increases with the firm's profitability. However, further analysis shows that although the likelihood of equity issuance declines with profitability, the likelihood of debt issuance is not affected by profitability. Only when unprofitable, do firms raise external financing. Furthermore, since unprofitable firms are likely to be over geared, they issue equity rather than debt. Profitability will be negatively related to observed debt ratios in samples dominated by firms that do not issue, but will have a positive effect on the probability of debt versus equity issuance.

To summarise, there appears to be a negative relationship between profitability and debt levels employed by firms in their capital structure. This may be because more profitable firms find it easier and cheaper to finance using internal funds generated from the high profitability, hence supporting a negative relationship. However, the relationship between gearing and profitability is not so clear when firms are faced with the decision to raise external funds. Some researchers argue that at the margin, profitability is associated with a higher probability of debt issuance. It is probably reasonable to say that the relationship between gearing and profitability when external funds are required remains unresolved.

3.3.5 The influence of asset structure upon the corporate capital structure decision

It is argued that the asset structure of a company significantly impacts upon the capital structure decision of that firm. From an accounting perspective, the assets of a company can be classified into fixed and current categories. However, for the purpose of capital structure theory debate, assets can also be classified as tangible and intangible assets. Tangible assets refer to the fixed assets, otherwise known as assets-in-place and tangibility of a firm's assets is measured by the ratio of fixed-to-total assets. Liquid assets refer to current assets and are measured as current-to-total assets.

Intangible assets are assets which cannot be collateralised such as know-how, R&D, and so on. Although these assets cannot always be found on the company's balance sheet and cannot be used as collateral when the firm borrows, they are very important as they will generate cash flows in the future. However, due to information asymmetries that exist between managers and bondholders, tangible assets are more critical to the latter.

Indeed, Brealey and Myers (2001) argue that if bankruptcy occurs the liquidation value of tangible assets would be high due to the active second-hand market for these assets and hence bondholders would suffer less. Issuing debt secured by tangible assets with known values makes bondholders' investment safer and reduces agency costs. For this reason, firms with assets that can be used as collateral may be expected to issue more debt. The nature of any relationship between these accounting ratios and corporate gearing is examined below.

Marsh (1982) argues that firms with a higher proportion of tangibles should employ higher long-term debt and finds evidence that the tangible assets are a significant determinant of the corporate capital structure decision in his logit analysis of 748 issues made by UK companies over the period 1959-70. Thus, he concluded that tangibility is positively related to gearing. Stutz and Johnson (1985), Williamson (1988) and Harris and Raviv (1990) find that tangibility of assets is positively related to gearing and suggest that this may reflect the fact that debt may be more readily available to a firm with high amounts of collateral upon which to secure debt, thus reducing agency problems. Indeed, a firm's opportunity to engage in asset substitution is reduced by secured debt. The same argument is advanced by Bradley et al. (1984), Titman and Wessels (1988) and Rajan and Zingales (1994).

Johnson (1997) argues that firms with relatively high tangible assets face difficulties in shifting their investments to riskier projects as their debt is secured against these assets. In firms with more intangible assets the costs of controlling capital outlays are higher as monitoring is more difficult. Johnson used the fixed asset ratio as a proxy for project liquidation values. Since collateral is more relevant in traditional bank lending than in borrowings from capital markets, the importance of fixed assets as a collateral for debt is not as visible in the UK as in other European countries. Borrowing from the market rather than from the banks diminishes the need for collateral. Therefore, the borrowing ability of UK companies could remain independent of tangibility of assets to a large extent. Moreover, UK companies employ relatively lower levels of debt than their French and German counterparts and hence creditors feel more secure in providing credit to UK firms irrespective of their fixed assets ratio (Rajan and Zingales, 1995; Antoniou et al, 2002).

Martin and Scott (1974) argue that gearing is positively related to liquidity, in that liquid firms should be more likely to issue debt rather than equity. Examining a sample of 112 US firms that issued either debt or equity during 1971, they find that more liquid firms are more likely to issue equity rather than debt. They (1971, p 75) explain this apparently counter intuitive result by arguing that:

"Their low degree of operating leverage might indicate a trade-off between financial and operating leverage as a conscious part of management Policy. "

Stonehill et al., (1975) survey 87 manufacturing firms in Japan, France, Norway, the Netherlands and the US over the period 1972-73, and find that liquidity was perceived to be a very important debt ratio determinant in Norway alone. Thus, evidence confirms a positive relationship between liquidity and gearing for Norwegian firms, but not for firms in the other countries in the survey. Indeed, Ozkan (2001) and Antoniou et al. (2002) found a negative relationship between liquidity and debt levels in the UK Thus, although theory would generally suggest that firms with greater liquidity could support more debt, the evidence is mixed and inconclusive. Further examination of the potential impact of this hypothesised determinant on gearing is required before robust conclusions are reached. As discussed earlier in this chapter, it is difficult to clearly separate the influence on gearing ratios of growth opportunities and intangible assets such as R&D and advertising expenditures, and indeed some authors have used these as a proxy for future growth. The reason is that they are very closely linked: growth opportunities are intangible and intangible assets will generate growth in the future.

Myers (1986) analyses further his 1977 assets-in-place theory, arguing that the costs of possible financial distress are most important for firms whose value depends on intangible assets. Myers argues that the low debt ratios observed in the US pharmaceutical industry, where firm value depends on the continued success of research and development could be due to the inclination of such firms to underinvest. Thus, the type of investment may influence the firm's choice of capital structure.

Long and Malitz (1986) argue that the type of investment opportunities facing the firm determines its ability to support debt. They hypothesized that firms with relatively high levels of intangible investment should employ less debt. On the other hand, firms investing predominantly in tangible assets should use more debt.

They argue that in the event of financial distress a firm will find it difficult to cash in particularly on assets which have value only as part of a going-concern. If bankruptcy occurs, the loss in value will be much higher for firms with intangible assets than for firms with tangible assets.

Long and Malitz study the data of 545 firms from 39 US industries and find that gearing is negatively related to advertising and R&D expenditure and positively related to the amount of plant, thus supporting their hypothesis.

Antoniou et al. (2002) argue that in firms with more intangible assets, the costs of controlling capital outlays are higher as monitoring is more difficult. Further, since intangible assets are less valuable at liquidation, firms with relatively more intangible assets are less preferred by creditors.

This would lead to intangible-asset-intensive firms employing less debt than firms which invest in tangible assets. However, since collateral is more relevant in traditional bank lending than in borrowing from capital markets, they find that the effect of intangibles on gearing in the UK (debt-securities dominated market) is not as strong as in other European countries such as Germany and France (bank-lending dominated market). Thus, it appears that there is some relatively strong evidence that firms which invest more in intangible assets should employ less debt relative to equity than firms with more tangible investments. Therefore, the type of investment may significantly influence the capital structure decision.

3.4 Theoretical Prediction

Harris and Raviv (1991) argue that theories of capital structure have identified a large number of potential factors that might have an impact on debt levels. Among these factors which have been found by a large number of studies to influence the firm's capital structure are size, tangibility, profitability, risk, tax, and growth,. However, there is significant disagreement among the capital structure theories, in particular, between the trade-off, pecking order theories and agency cost about the influence of some factors on the firm's capital structure. In this section, therefore the discussion involves the viewpoints of the capital structure theories about the effect of these attributes on leverage ratios.

3.4.1 Size

It seems there is an agreement between theories about the positive effect of size on firm's capital structure though their explanation differs. From the point view of the trade-off theory, firms trade-off between the benefits of leverage such as tax savings or mitigation of agency problems against the costs of leverage such as the costs of bankruptcy. Rajan and Zingales (1995), however, argue that large firms tend to be more diversified and so suffer bankruptcy less often. Accordingly, an observed positive dependence is expected between leverage and firm size. Alternatively, because of information asymmetries, smaller firms are likely to face higher costs for obtaining external funds. Moreover, Bevan and Danbolt (2002) argue that due to credit rating, large companies are more likely to have access to non-bank debt financing. In turn, this too would suggest a positive relationship between size and debt.

3.4.2 Tangibility

Titman and Wessels (1988) and Harris and Raviv (1991) argue that tangibility might be the major factor in determining the firm's debt levels. Theoretically, Jensen and Meckling (1976) argue that issuing debt increases the shareholders motivation to invest sub-optimally in high-risk projects, taking advantage of the possibility of increasing their benefits at the expense of increasing the risk, which is passed on to the debt-holders, who are the ones that would suffer the possible losses. However, if debt is secured against assets, the borrower is restricted to using loaned funds for a specific project, and creditors have an improved guarantee of repayment Thus, firms with high level of fixed assets would have higher level of debt. Bevan and Danbolt (2002), however, argue that if the tangibility provides a reasonable proxy for the availability of depreciation tax shields, the tax-based hypothesis of DeAngelo and Masulis (1980) would expect a negative rather than a positive association between leverage and tangibility.

3.4.3 Profitability

There are no consistent theoretical predictions on the influence of profitability on firm's capital structure. From the point view of the trade-off theory, the more the firm's profitable, the higher the leverage should be, due to debt tax deductibility of interest payment.Rajan and Zingales (1995), further, argue that debt suppliers should be more willing to lend to profitable firms. Accordingly, a positive dependence is expected to be observed between leverage and profitability. On the other hand, the main argument supporting a negative relationship between leverage and profitability comes from the pecking order theory.

Myers (1984) and Myers and Majluf (1984) argue that, as a result of information asymmetry between corporate insiders and the market, investors may under price firm's equity. If firms finance new projects by issuing equity, the net effect is that new investors obtain a higher gain from this investment than pre-existing shareholders, which may cause the project not to be accepted on these grounds even when it has a positive NPV (under investment problem). To avoid such problems, internal funds and even debt that is not too risky will be preferred to equity. Accordingly, firms will prefer to finance from retained earnings first, then from debt and finally from issuing new equity. This, in turn, suggests a negative relationship between profitability and debt ratios.

3.4.4 Risk (business risk)

The theoretical literature argues that firms with high variability in earnings have a greater risk of not meeting their debt obligations, so increasing the probability of default. Thus, lenders will be less willing to lend or will charge a higher risk premium since they will have a greater probability of losing their money. DeAngelo and Masulis (1980) argue that the cost of debt will increase for firms that have variability in their earnings since investors will not be able to accurately predict future earnings based on publicly available information. Bradley et al. (1984) argue further that the variability of the firm value is expected to show negative influence on the debt ratio when the costs of financial distress are significant. Consequently, this suggests an inverse relationship between risk and leverage.

3.4.5 Growth

Myers (1977) argues that the under-investment and asset substitution issues are likely to be more severe for firms with great growth opportunities and, thus, such firms should use less debt in order to mitigate these agency problems. Titman and Wessels (1988) further argue that since growth opportunities are capital assets that add value to the firm but cannot be collateralised, the costs associated with agency conflicts between equity and debt holders is expected to be higher for firms in growing industries. Accordingly, a negative relationship between debt and growth opportunities suggested. Pecking-order hypothesis also suggests a negative relationship between leverage and growth opportunity.

According to Myers and Majluf (1984), information asymmetry demands an extra premium for firms to raise external funds irrespective of the true quality of their investment project. In the case of issuing debt, the extra premium is reflected in the higher required yield. Therefore, firms with growth opportunities may find it too costly to rely on debt to finance its growth. Myers (1977), however, argues that these agency problems can be mitigated if the firm issues short-term debt rather than long-term debt. This would suggest growth to have a negative relationship with long-term debt and a positive relationship with short-term debt.

3.5 Review of prior empirical studies in developed markets and in emerging markets

After discussing the main theories of capital structure this section discusses the empirical evidence of the determinants of the capital structure literature.

3.5.1 Capital structure literature

Since the Modigliani and Miller (1958) irrelevance theory of capital structure, numerous empirical studies have been made on how firms should decide on their capital structure. Theories of capital structure are based on the theories of corporate finance such as, the trade-off-theory, agency theory (Jensen and Meckling, 1976; Jensen, 1986), pecking order theory (Donaldson, 1961; Myers, 1984), and asymmetric information theory (Ross, 1977).

The previous empirical work in the determinants of capital structure is almost consistent with one or more of these theories. However, countries differ in their financial and economic environments. Therefore, factors that may affect corporate capital structure may differ across countries. The research in this area can be categorized in different dimensions: some scholars have been interested in international data to investigate the determinants of capital structure, amongst them are Rajan and Zingales (1995) (using developed countries) and Booth et al. (2001) (using developing countries). Others examine the capital structure issue using data from specific developed countries, such as Titman and Wessels (1988), Ghosh et al., (2000), De Miguel and Pindado (2001), and Colombo (2001). Others have been concerned about developing countries as Bhaduri (2002), Suto (2003), and Huang and Song (2005).

Some empirical work is concerned with small and medium sized enterprises (SMEs) such as Cassar and Holmes (2003) while Voulgaris et al., (2004) use both large firms and SMEs. In this section, selected empirical works in the area of the determinants of corporate capital structure will be listed, which will give more details about each study and its main results. This review is categorized into two groups: literature related to the developed markets and emerging markets.

3.5.2 Capital structure studies in developed markets

The majority of capital structure research has focused on understanding the forces that influence the corporate financing behaviour of firms registered in the United States, Europea, though they do consider various incompleteness of the capital market in some extent. Rajan and Zingales (1995) focus on the major industrial countries (G7).

Titman and Wessels' (1988) study is considered to be one of the leading studies in the developed markets. They try to extend the empirical work in capital structure theory by examining a much broader set of capital structure theories, and to analyze measures of short-term, long-term, and convertible debt. The data cover US industrial companies from 1974 to 1982, and they use a factor analytic approach for estimating the impact of unobservable attributes on the choice of corporate debt ratios.

The resulting factors are: collateral values of assets, non-debt tax shields, growth, and uniqueness of the business, industry classification, firm size, and firm profitability. They found that there is a negative relationship between debt levels and the uniqueness of the business. In addition, short-term debt ratios are shown to be negatively related to firm size. However, they do not provide support for the effect on debt ratios arising from non-debt tax shields, business risk, collateral value of assets, and firm growth.

Homaifar et al., (1994) extend the work of Titman and Wessels (1988) by investigating the determinants of capital structure including corporate tax rate which was omitted from the Titman and Wessels model. They provide long-run steady state equilibrium estimates of the determinants of capital structure rather than a short-run relationship, by using a dynamic capital structure model (including lags in the variables).

Their sample consists of 370 US firms for the period from 1978 to 1988. They use the general autoregressive distributed lag model (ADL) approach with leverage as a dependent variable. Corporate tax rate, non-debt tax shield, firm size, growth opportunities, capital market conditions, inflation rate, and earning volatility, are used as independent variables.

They found that in the long-run, the leverage ratio is positively related to the corporate tax rate. In addition, there is a positive relationship between firm size and the leverage ratio, and a negative relationship between growth opportunities and leverage, as well as between leverage and stock returns.

Rajan and Zingales (1995) provide international evidence about the determinants of capital structure. They examine whether capital structure in other countries is related to factors similar to those that influence United States firms. Cross-sectional regression analysis was used on data from 1987 to 1991, the results indicating that the leverage ratios are similar across the G-7 countries. The database contains 2583 companies in the G7 countries.

They use regression analysis with the firm's leverage (total debt divided by total debt plus total equity) as the dependent variable. Tangible assets, market-to-book ratio, firm size, and firm profitability are used as independent variables. They Found that firms with a lot of fixed assets are not highly levered, however, they support a positive relationship between tangible assets and leverage. Furthermore, a negative relationship between leverage and the market-to-book ratio is found.

A negative relationship also exists between firm profitability and leverage. Finally, a positive relationship exists between firm size and leverage. Their findings that high leverage can benefit company performance.

In a different vein, McConnell and Seriiaes (1995) consider the relationship between debt financing and equity financing using a US database. They investigate the value of the firm, financial leverage and stock ownership, using three cross sections for the years 1976, 1986, and 1988. The study divides the firms into two groups: low growth firms and high growth firms. They found that there is a negative relationship between the value of the firm and the high growth firms, and positive with the low growth ones.

In addition, the distribution of ownership between the Board of Directors (BOD) and external investors plays a more important (significant) role in low growth firms than high growth ones. Finally, debt has both a negative and a positive effect on the value of the firm because debt is affected by the investment decisions. They found that the negative effect dominates the positive effect in the high growth firms, and the positive effect dominates the negative effect in the low growth firms.

In an attempt to expand Rajan and Zingales (1995)'s work, Bevan and Danbolt (2002) examine for the determinants of short-term and long-term debt separately in the UK. They used data from 1988 to 1991 to examine the robustness of Rajan and Zingales' conclusion to variations in the leverage measure by decomposing the analysis into long and short-term debt.

When applying the same leverage definitions as Rajan and Zingales, Bevan and Danbolt found that the results were very similar to theirs, but when Bevan and Danbolt decomposed total debt into their subcomponents, they found that short-term debt is negatively correlated with tangibility, while long-term debt is positively related to tangibility. Furthermore, the relationship between firm size and short-term bank borrowing is negative, whereas, firm size is positively related with all long-term debt forms and short-term paper debt.

In their study on determinants of capital structure in the UK, Bennett and Donnelly (1993) utilised data for 433 firms over the time period from 1981 to 1984. Regression analysis techniques were used to regress six explanatory variables (profitability, assets structure, non-debt tax shields, growth, earnings volatility and size) against three leverage variables (total debt, short-term debt and long-term debt).

Their factors indicated that earnings volatility, size and assets structure are positively related to the total debt ratio while non-debt tax shields, growth and profitability are negatively related to total debt ratio. Their results also indicated that there are some differences when debt was segregated into its sub-components.

Ghosh et al., (2000) analyze the important determinants of capital structure in the US manufacturing industries. They use a sample of 362 companies and two cross section periods 1982 and 1992. Then they run the ordinary least square (OLS) regression models, with long term debt ratio as the dependent variable.

Asset size, growth rate, non-debt tax shields, tangibility, net profit margin, research and development expenditures, advertising expenditures, selling expenses, and business risk (coefficient of variation of cash flows, and the square of the coefficient of variation of cash flow) are used as independent variables.

For each year, they regress the dependent variable against the independent variables with and without the business risk variables. They found that there is a negative relationship between growth of assets and the leverage ratio except in 1982, when they include the business risk variables a positive relationship appears.

In addition, there is a positive relationship between tangibility and the leverage ratio. Furthermore, there is a negative relationship between research and development expenditures and advertising expenditures on the one hand, and leverage ratio on the other hand. Finally, they claim that the relationship between business risk and leverage is a quadratic form.

Hovakimian et al., (2001) test the hypothesis that firms tend to move toward their target debt ratio when they either raise new capital or retire or repurchase existing capital. The dataset covers 3987 US firms from 1979 to 1997. The study uses two stage regression procedures to examine whether firms make financing choices that move them toward a target debt ratio.

The first stage uses debt to assets ratio as the dependent variable, and the independent variables are: three year mean operating income, net operating loss carry forward, two year stock returns, market-to-book ratio, research and development expenditures over sales, sales expenses over sales, and tangibility of assets ratio.

The second stage regression model uses logit regression to predict a firm's financing choice in a given year, the key explanatory variable here is the difference between firm's actual leverage and its estimated targeted leverage, which is obtained from the first stage. They found a negative relationship between debt ratio on the one hand, and profitability, net operating loss carry forward, research and development expenditures over sales, sales expenses over sales on the other hand. In addition, they find a positive relationship between the debt ratio and both the tangibility of assets and size.

Hovakimian et al., (2001) conclude that firms often make financing and repurchasing decisions that offset past profit changes in their capital structure and that they make financial choices for the target debt ratio when they choose between debt and equity issuance. Finally, stock prices are significant determinants of firm's financing choice.

In line with the target capital structure literature, Ozkan (2001) in his study investigates the determinants of the target capital structure of firms and the role of the adjustment process in the UK using a sample of 390 firms over the time period from 1984 to 1996. The multiple regression approach (using panel data) is used with debt measured by total debt over total assets as the dependent variable.

Independent variables are: non-debt tax shield, firm size, liquidity, firm profitability, and firm growth. He found that profit, liquidity, non-debt tax shield, and growth opportunities are negatively related to leverage. Finally, limited support appears for a positive effect arising from size of firms on leverage. The study provides evidence that the UK firms have long-term target leverage ratios and they adjust quickly to their target ratios.

Despite the fact that the capital structure studies have mainly used data from large firms, Michaelas et al. (1997a) investigate the capital structure of small privately owned firms in the UK. They utilised data gathered from 360 firms from six different industries for the 10 years 1985 to 1994.Two multiple regression analyses with dummy variables were used to test the hypotheses. One of the results indicated that most of the determinants of capital structure presented by capital structure theory are found to be relevant for UK small privately owned firms. The results, however, show that the capital structure of small firms is not stable over time and differences in the industry classification affect the capital structure of small privately owned firms. Furthermore, the sources of finance used tend to change with macroeconomic conditions.

Michaelas et al., (1999) examine the implications of the theory of capital structure in UK small and medium sized enterprises (SMEs). Data was gathered from 3500 firms over the time period from 1986 to 1995. Panel data regression analysis was used to test 12 hypotheses relating to the static trade-off, agency cost and asymmetric information theories. The results of OLS regression indicated that agency cost and asymmetric information theories are pertinent theories in understanding the financing behaviour of SMEs firms.

Cassar and Holmes (2003) found that that their results supported the static trade-off theory and the pecking order theory when they utilised data from Australian SMEs. Data from 1555 firms were used and five dependent variables (total debt, short-term debt, long-term debt, outside financing and bank financing) were regressed against five explanatory variables (size, asset structure, profitability, risk and growth). The results indicated that assets structure; profitability and growth are important determinants of capital structure in Australian SMEs.

Nuri (2000) examined the determinants of capital structure and attempted to identify which theory of capital structure provides a better explanation for financing behaviour in the UK hotel and retail industries. He classifies the capital structure theories into two categories; pecking order theory and target adjustment theory. Panel data for 134 retail firms and 22 hotel firms for the time period from 1985 to 1997 were utilised in regression analysis using the Generalised Least Squares (GLS) technique. The explanatory variables that seem to have an impact on capital structure are: profitability, size, earning volatility, assets structure, non-tax shields, leasing and management contracts.

The results indicate that the target adjustment model (trade-off and agency theory) has more support than the pecking order theory, while profitability was the most important explanatory factor for the retail firms followed by non-debt tax shields, the most important explanatory factors for hotel firms are non-debt tax shields, management contracts and profitability.

To examine which factors have an impact on the capital structure of Swiss companies, Gaud et al., (2005) use two different models, a static model and a dynamic model for analysing data for 106 Swiss companies. The dynamic model examined the adjustment speed toward a target debt ratio, and they found that Swiss companies adjust toward a desired debt ratio, but at a slower speed than other countries. The static model was also used to investigate the relationship between leverage ratios and five explanatory variables, namely, profitability, tangibility, growth, size and operating risk. The results indicate that the size, tangibility and business risk are positively related to leverage ratios, whereas, a negative relationship is observed between leverage ratios and both profitability and growth. They conclude that although the results support both the pecking order theory and the static trade-off theory of capital structure, the static trade-off theory has the more support.

Drobetz and Fix (2003) also investigate the determinants of capital structure in Switzerland using a static and a dynamic model, to analysing data for 124 Swiss firms. Ordinary Least Square and censored Tobit regressions are used in order to regress six explanatory variables (profitability, tangibility, growth, size, volatility and non-debt tax shield) against leverage variables. The results of the static regression indicated that tangibility and size are positively related to leverage while growth, volatility and profitability are negatively related to leverage. On the other hand, the results of a pooled regression analysis, for 90 Swiss firms, illustrated that Swiss firms do adjust to long-term target leverage ratios.

In three different European countries that are characterised by different financial systems and traditions, that is France, Germany and the UK, Antoniou et al., (2002) found that the capital structure decisions of firms are not only affected by its own characteristics, but also by its surrounding environment.

They investigate the determinants of the leverage ratios of French, German and British firms using panel data for the time period from 1969 to 2000 for the UK, from 1983 to 2000 for France and from 1987 to 2000 for Germany. The results show that despite the differences in the significance and directions, profitability, size, book-to-market ratio, tangibility, term structure of interest rates and prior changes in share price seem to have a significant effect on the firm's capital structure in all countries. One of the results indicates that the financial environment and tradition of the country play an important role on the strength and the nature of the effect of the above-mentioned determinants of capital structure. They conclude that the firms in all three countries adjust their debt ratios towards their desired capital structure, but of those firms, the quickest to adjust is the French firms.

Hall et al. (2004) utilise data from 4000 SMEs firms in eight European countries (Belgium, Germany, Spain, Ireland, Italy, Netherlands, Portugal and the UK). They formulated ten hypotheses relating to profitability, growth, tangibility, size and age. The results indicated that there is a difference between the countries surveyed in terms of both capital structure and the determinants of capital structure. They added that the variations might be attributable to the differences in financial statements reporting style, attitudes to borrowing, and relationships with lenders, tax code, and other national economic and social and cultural aspects.

Voulgaris et al., (2004) investigate the determinants of capital structure of Greek manufacturing firms. They use panel data of two random samples one for small and medium sized enterprises (SMEs) including 143 firms and another for large sized enterprises (LSEs) including 75 firms for the period from 1988 to 1996.They use a nonlinear regression model with leverage (short run debt ratio, long run debt ratio, and total debt ratio) as the dependent variable.

The independent variables are: firm size, asset structure, profitability, growth rate, stock level, and receivables. Their findings suggest that there are similarities and differences in the determinants of capital structure among the two samples.

The similarities are: size and growth are positively related to leverage, while profitability is negatively related to leverage. The differences are: inventory period, and account receivables collection period are found as determinants of debt in SMEs but not in LSEs. Liquidity does not affect LSEs' leverage, while it affects the SMEs. Finally, there is a positive relationship between profit margins and short-term debt ratio only for SMEs. Voulgaris et al. have recommended that:

> "*The attitude of banks toward small sized firms should be changed so they provide easier access to long-term debt financing*". In addition, "*enactment of rules that will allow transparency of operations in the Greek stock market and a healthier development of the newly established capital market for SMEs will assist Greek firms into achieving a stronger capital structure* "(Voulgaris et al., 2004: 258).

The above literature gives evidence relating to the capital structure, puzzle using data from developed countries. Scholars find that firms in different developed countries somehow share same determinants (with the same or different signs). However, this gives limited evidence about capital structure using only developed countries. Therefore, part two of this section is concerned with the developing countries literature point of view.

3.5.3 Capital structure studies in emerging markets

The study by Booth et al. (2001) is considered as one of the leading studies in the developing countries. They aim to assess whether capital structure theory is applicable across developing countries with different institutional structures. The data include balance sheets and income statements for the largest companies in each selected country from the year 1980 to 1990. They use 10 developing countries: India, Pakistan, Thailand, Malaysia, Zimbabwe, Mexico, Brazil, Turkey, Jordan, and Korea. They use multivariate regression analysis with dependent variables: total debt ratio, long-term book debt ratio, and long-term market-debt ratio. The independent variables are: average tax rate, asset tangibility, business risk, firm size, firm profitability, and the market-to book ratio. They indicated that the more profitable the firm the lower the debt ratio, regardless to how the debt ratio is defined. In addition, the higher the tangible assets mix, the higher the long-term debt ratio but the smaller the total debt ratio.

Finally, they conclude that

> *"Debt ratios in developing countries seem to be affected in the same way by the same set of variables that are significant in developed countries".*

However, there are persistent differences across countries, indicating that specific country factors are at work. The findings suggest that although some of the insights from modem finance theory are portable across countries, much remains to be done to understand the impact of different institutional features on capital structure choices.

Colombo (2001) investigates the capital structure of Hungarian firms using a cross section and a panel data approach. The dataset is composed of balance sheet data and information on market structure for 1100 firms for the period from 1992 to 1996.

He uses a multiple regression approach with leverage measured as short-term debt over total assets as the dependent variable. The independent variables are: the firm's size, cash flows over total assets, asset tangibility, foreign ownership, and asymmetric information. He finds a positive significant relationship between short-term leverage and the firm's size, indicating that big firms tend to have easier access to bank credit relative to small firms.

Tangibility is also positively related to short-term leverage, and the profitability of the firm is negatively related to short-term leverage. The latter seems to be an indication of the existence of the pecking order hypothesis in the selected firms. However, foreign ownership and the degree of market power of the firm are irrelevant to the capital structure decision.

Finally, Colombo claims that asymmetric information seems to be a problem for Hungarian firms to achieve their optimal capital structure because such information reflects the agency problem, which deters firms from reaching their optimal capital structure.

Furthermore, Bhaduri (2002) investigates capital structure in developing countries using 363 Indian firms. A two-step multivariate procedure is used to address the measurement issue.

In the first step, a set of factors is measured by relating them to observable proxy variables using a simple factor analytic model (the variables are: non-debt tax shield, assets structure, firm's size, financial distress, growth rate, profitability, age, signaling, and the uniqueness of the firm). In the second step, a multiple regression approach uses the factors obtained in the first step to explain the variation in the leverage ratio across the firms.

The first step results in five factors: asset structure, growth, uniqueness, firm size, and cash flows. In the second step the following relations are found: Firstly, firms with large size depend more on the long-term borrowing, while the small firms depend more on short-term borrowing.Cash flows are negatively related to leverage, and the growth factor is positively related to leverage. Finally, a negative relationship is found between uniqueness of the firm and leverage.

Suto (2003) investigates the corporate finance and corporate governance structure of Malaysian firms before and after the financial crisis in 1997, with a sample of 375 non-financial firms for the period from 1995 to 1999. Cross-sectional regression analysis is used with leverage as the dependent variable. The' independent variables are: bank dependency (bank loans and advances to total debt), profitability, non-debt tax shield, tangibility, firm size, and business risk. He finds a significant positive relationship between bank dependency and debt ratio.

In addition, profitability has a negative effect on capital structure. For the non-debt tax shield, most of the estimated coefficients are negative. Firm size, tangibility and business risk are positively related to debt financing. To test the concentration and structure of ownership, the shares of the top ten ownership shareholdings are added to the regression analysis, and this variable (shares of the top ten shareholders) is negatively related to the debt ratio.

This suggests ownership dispersion increases the agency cost of equity. When foreign ownership is added to the regression model it also shows a negative relationship with debt ratio. Malaysia was affected by the financial crisis in South East Asia in 1997.

Pandey (2001) examines the determinants of capital structure for 106 Malaysian companies utilising data from 1984 to 1999. The time period is divided into four sub-periods of four years each: 1984-1987, 1988-1991, 1992-1995 and 1996-1999. The reason for dividing the time period is to reflect the general economic conditions in Malaysia during these sub-periods. He decomposed total debt into two elements: short-term and long-term debt. The results indicate that the financial crisis in 1997-caused a subsequent increase in debt ratios. Pandey concludes that the explanatory power of the variables is higher for short-term debt ratios than long-term ratios.

Deesomsak, Paudyal, and Pescetto (2004) analyze the capital structure of firms operating in the Asia Pacific region, in four countries (Thailand, Malaysia, Singapore and Australia) with different legal, financial and institutional environments. The choice of these four countries is motivated by several factors.

Firstly, they are all in the Asia Pacific region where the literature on the determinants of capital structure is sparse. Secondly, they have different institutional set-ups, such as financial markets, legal traditions, bankruptcy codes and corporate ownership structure.

In particular, Malaysia, Singapore and Australia are members of the British Commonwealth and thus have some common attributes in accounting practices, corporate governance and corporate control. In addition, Thailand and Malaysia are emerging markets, while Singapore and Australia are more established markets.

This diversity offers the opportunity to assess the effects of different environments on corporate financial decisions. Thirdly, they were hit in different degrees by the 1997 East Asian financial crisis: the crisis hit Thailand and Malaysia most severely; Singapore was also affected but its economy recovered more quickly, while Australia escaped it altogether.

The sample of the study includes all non-financial firms listed in the relevant national stock exchanges for which a continuous data set exists over the sample period. Hence the sample consists of 294 Thai, 669 Malaysian, 345 Singaporean, and 219 Australian firms for the period from 1993 to 2001.The firm-specific factors which are used in the study include Tangibility, Profitability, Firm Size, Growth Opportunity, Non-debt Tax Shield, and Earning Volatility. The regression results suggest that the capital structure decision of firms is influenced by the environment in which they operate, as well as firm-specific factors identified in the extant literature.

The study finds that the importance of the determinants of capital structure varies across countries in the region. For instance, profitability has significant influence on the capital structure of Malaysian firms and firm size has no effect on Singaporean firms. These differences confirm that managerial decisions may be affected by country specific considerations. This inference is supported by the findings following the introduction of country dummy variables and country specific variables, such as the level of stock market's activity, interest rates, creditor's rights and ownership concentration. As well, the financial crisis of 1997 is also found to have had a significant but diverse impact on fine's capital structure decision across the region. For instance, the relationship between leverage and firm specific variables such as firm size, growth opportunities, non-debt tax shield, and liquidity, has altered between the pre- and post-crisis periods. In addition, the financial crisis of 1997 is also found to have had a significant but diverse impact on fine's capital structure decision across the region. For instance, the relationship between leverage and firm specific variables such as firm size, growth opportunities, non-debt tax shield, and liquidity, has altered between the pre- and post-crisis periods.

Huang and Song (2002) argue that the transition from a command economy to a market economy might have affected Chinese firms' capital structures. In this regard, they investigate the determinants of capital structure in China. They used data from Chinese listed companies over the time period from 1994 to 2000. Chinese companies have unique features such as; the state is the controlling shareholders of most listed companies, the tax rate does not have any impact on capital structure and Chinese companies have quite low leverage.

The results indicate that leverage decreases with profitability and growth opportunities whereas it is related positively to company size. Tangibility is related positively only to the long-term debt ratios. They conclude that the state ownership of some Chinese companies does not prevent these firms from following the same behaviour of private companies.

Huang and Song (2005) in their recent study, investigate the determinants of capital structure using 1200 Chinese-listed firms for the period from 1994 to 2003 using a cross-sectional analysis. They use the ordinary least squares method and tobit regression analysis with leverage measured by book values of leverage and market values basis. The independent variables are: profitability, tangibility, tax, size, non-debt tax shields, growth opportunities, volatility, and ownership structure. They find that leverage (long-term debt ratio, total debt ratio, and total liability ratio) decreases with profitability, non debt tax shield, managerial shareholdings, while it increases with firm size and tangibility. In addition, the tax rate positively affects long-term debt ratio and total debt ratio. Institutional shareholdings have no impact on capital structure decisions. Furthermore, there is a negative relationship between leverage and firm growth opportunities.Huang and Song explain the consistency of these relationships with previous literature in developed countries. Thus:

> *"Chinese-listed firms are the best part of the country's economy in terms of corporate governance, and they have followed the basic rules of market economy. State ownership of these firms does not prevent these firms from following rules of the market" (Huang and Song, 2005: 20).*

Finally, they indicate that: "Chinese firms prefer and have access to equity financing once they go public ". Hence, "Chinese firms prefer equity financing over debt financing, at least from the perspective of state or institutional shareholders. Also, the management prefers equity financing rather than debt financing because the former is not bending" (Huang and Song, 2005: 20)

In order to identify the effect of liberalisation on capital structure, Rao and Lukose (2003) examine the determinants of capital structure of Indian companies in pre-and post liberalisation periods. The study periods are from 1990 to 1992 and from 1997 to 1999 for pre-and-post-liberalisation periods respectively. Non-debt tax shields, tangibility, profitability, business risk and growth opportunities were regressed against book and market value of leverage. The results indicated that size and risk measures became significant factors in capital structure decisions during the post reform period.

Fan, Titman and Twite (2006) examine the capital structure and debt maturity choices of firms in a cross section of 39 developed and developing countries, focusing on the effect of the countries' public policies and institutional structures as corporate financing choices are determined by a combination of factors that are related to the characteristics of the firm as well as to the institutional environment.

The study examines a broader set of countries, providing more cross-sectional dispersion in the explanatory variables. Moreover, by including industry dummies, together with firm-level variables, it identify the variation in capital structure across countries that cannot be explained by either difference in the industrial mix across countries or by cross-country differences in firm-level characteristics.

The study also examines a broader class of country-level explanatory variables and includes interactions between these variables and firm-level characteristics that allow the study to estimate how institutional differences between countries affect the cross-sectional variations in capital structures within the countries.

The study presents evidence that indicates that firms operating within legal systems that provide better protection for financial claimants tend to have capital structures with less total debt, and more long term debt as a proportion of total debt. It finds that taxes and the characteristics of the institutions that supply capital have an influence on how firms are financed.

The study found that when dividends are more highly taxed, firms tilt their capital structures towards more debt. It also found that firms in countries that are viewed as more corrupt tend to be more levered and use more short-term debt, and common law countries have lower leverage and use more long-term debt.

The evidence shows that financial institutions, which provide capital to corporations, have an important influence on the type of capital that is used. Although the results regarding life insurance companies are somewhat mixed and difficult to interpret, the results that relate to the size of the banking sector are both strong and intuitive. Specifically, corporations in countries with large amounts of bank deposits tend to have shorter maturity debt, reflecting the preferences of banks to lend short-term. However, firms in more corrupt countries and/or with state controlled banking systems tend to use more debt, in particular long-term debt, suggesting that the banking system may provide a channel for corrupt public officials to fund their cronies.

The study also finds that the cross sectional determinants of leverage differ across countries. In particular, the relationship between profitability and leverage tends to be stronger in countries that have weaker shareholder protection.

De Jong, Kabir and Nguyen (2008) analyze the importance of firm-specific and country-specific factors in the leverage choice of firms from 42 countries around the world for the period 1997 to 2001. The study constructs a database of nearly 12,000 firms including all types of firms (large and small). It analyzes the standard firm-specific determinants of leverage, such as firm size, asset tangibility, profitability, firm risk and growth opportunities. Besides, the study incorporates a large number of country-specific variables in the analysis, including legal enforcement, shareholder/creditor right protection, market/bank-based financial system, stock/bond market development, and growth rate in a country's gross domestic product (GDP). The study found that firm specific determinants of leverage differ across countries.

The results show that the impact of some factors like tangibility, firm size, risk, profitability, and growth opportunities are strong and consistent with standard capital structure theories across a large number of countries. Using a model with several firm-specific explanatory variables, the study found a relatively large explanatory power of leverage regressions in most countries. However, a few determinants remain insignificant, and in some countries one or two coefficients are significant with an unexpected sign. Performing a simple statistical test, the study rejects the hypothesis that firm-specific coefficients across countries are equal.

It indicates that the often-made implicit assumption of equal firm-level determinants of leverage across countries does not hold. In addition, the study finds that there is an indirect impact of country specific factors on the capital structure of firms because country specific factors also influence the roles of firm specific determinants of leverage. The study observes that certain factors like GDP growth rate, bond market development and creditor right protection significantly explain the variation in capital structure across countries. Moreover, it finds considerable explanatory power of country-specific variables beyond firm-specific factors. The study then proceeds to measure the indirect impact of country-specific variables. The results consistently show the importance of country factors as the study documents significant effects of these via firm-specific determinants. For example, the study observes that in countries with a better law enforcement system and a healthier economy, firms are not only likely to take more debt, but the effects of some firm-level determinants of leverage such as growth opportunities, profitability and liquidity are also reinforced. The study's findings indicate that the conventional theories on capital structure which are developed using listed firms in the United States as a role model, work well in similar economies with developed legal environment and high level of economic development.

Delcoure (2007) investigates the determinants of capital structure in transitional economies using Central and eastern European countries. The sample is composed of 129 firms from Czech Republic, Poland, Russia, and Slovak Republic. He uses panel regression analysis with total leverage, long-term leverage, and short-term leverage as dependent variables. The independent variables include firm size, non-debt tax shield, asset tangibility, growth opportunities, profitability, earnings volatility, and taxes.

The results indicate that there is a positive relationship between firms leverage ratios on the one hand, and asset tangibility, non-debt tax shield, and taxes on the other hand. In addition, there is a negative relationship between leverage ratios and profitability. Furthermore, puzzling findings relating to the relationship between firm size and earnings volatility with the leverage ratios are found, as the significant sign changes across countries and among the different dependent variables.

Delcoure concludes that the pecking order hypothesis, the trade-off theory, and the agency theory explain the capital structure puzzle partially in the Central and Eastern European countries. The results of the above literature give evidence that firms in developing countries share the same determinants of capital structure that are suggested by the developed markets. Even though there is not much attention in the emerging markets, the results of these studies improve the understanding of the capital structure puzzle. Therefore, developing markets improves our insights.

Few studies have been conducted which further our knowledge of capital structure within single countries that have different institutional structures. Hussain and Nivorozhkin (1997) examine the capital structure of listed firms in Poland to study the determinants of leverage by using the early data of the Warsaw Stock Exchange from 1991 to 1994. The objective of the study is to generate lessons from Poland's experience that may be useful for newly formed stock exchanges, such as those of the Baltic countries.

The study describes Poland's financial sector in considerable detail and examines firm-level panel data for listed firms to study the determinants of leverage, with a view to exploring how firms choose among retained earnings, debt, and shares of stock. The estimation methods include the use of descriptive statistics, correlations, and panel regression techniques, with both pooled and variance components procedures. The study finds extremely low leverage levels for listed firms in Poland, suggesting a growing stock market and a potential reluctance of banks to grant loans to old and risky firms. Shareholder concentration has a neutral or even a beneficial influence on firm leverage. The author suggests that the nature of ownership may be primarily responsible for this finding. The study also finds that large, new, foreign-owned firms and firms with strong cash positions have higher levels of leverage in Poland. These results for Poland suggest certain policy implications. The study suggests that authorities should promote large, new, foreign-owned firms, and those that have strong cash positions or high retained earnings in order to raise the degree of leverage. Efforts should be made to reduce the proportion of bad loans in banks' portfolio so that banks become willing to lend more, thereby raising the quality of leverage. Wiwattanakantang (1999) presents empirical evidence on the determinants of the capital structure of non-financial Thailand firms in 1996. The objective of this study is to investigate empirically the determinants of the Thai firms' capital structure based on well known optimal capital structure theories, namely the tax based theory, the signalling theory, and the agency theory.

The data sample includes 270 listed firms in the Stock Exchange of Thailand in 1996. The cross-section analysis is applied in this study. Empirical results imply that the tax effect, the signalling effect, and the agency costs play a role in financing decisions. The results indicate that taxes, bankruptcy costs, agency costs and information costs are important factors in the Thai firm's financing decisions. Non-debt tax shields, profitability have negative effects on debt-equity ratio. The results are consistent with the tax based model and the pecking order theory. The Thai corporate leverage ratio is positively related to firms' size and tangibility. The estimates of measure for firm risk, variation in sales are insignificant. Ownership structure also effect financial policy. Single-family owned firms have significantly higher debt level. Only in single-family owned firms does managerial shareholding have consistently positive influence on firm leverage. Finally large shareholders affect the debt ratio negatively, implying that they may monitor the management.

Shah and Hijazi (2004) analyze the determinants of Pakistani firms' capital structure by using listed non financial Pakistani firms for five year period. This study attempts to answer the question of what determines the capital structure of Pakistani listed firms. This is the first thorough study to be conducted in Pakistan with regard to determinants of capital structure of listed non-financial firms.

Even though Booth, et al. (2001) have worked on the determinants of capital structure of 10 developing countries including Pakistan; however, their study analyses data only for the firms that were included in the Karachi Stock Exchange's KSE-100 Index from 1980 to 1987.

This study uses a relatively large and new sample set including 445 listed non financial firms for the period 1997 to 2001.The study uses total debt ratio divided by total asset as a proxy for leverage, and it has four independent variables including tangibility, firm size, growth opportunities, and profitability.

The pooled regression type of panel data analysis is used in the study. The results show that assets tangibility is positively correlated with debt. However, this relationship is not statistically significant. The study suggests that asset structure does not matter in determination of capital structure of Pakistani firms. This is in contrast to the previous empirical studies say that tangibility should be an important determinant of leverage. Size is measured by taking log of sales in the study which is positively correlated with leverage.

The result shows that large Pakistani firms will employ more debt. The implication is that large firms consider themselves to have less chances of falling into financial distress and have more capacity to absorb shocks. One may also infer that fixed direct bankruptcy costs are smaller for large firms as a percentage of their total value; that is why they do not fear bankruptcy that much as the smaller firms do. Growth is measured by the annual percentage change in total assets which is negatively correlated with leverage. The study suggests that this result supports the simple version of pecking order theory that growing firms finance their investment opportunities first by their internally generated funds. However this does not support the extended version of pecking order theory. In addition, a Strong negative relationship is found between profitability and leverage.

Shah and Khan (2007) further analyze Pakistani listed companies by using a panel data set for the period from 1994 to 2002. The study by Shah and Hijazi (2004) was an improvement on the previous empirical studies as it included 445 non-financial firms listed on KSE for the period 1997-2001. However, it is basic in nature in terms of its use of pooled regression model avoiding the fixed effects and random effects models. This latest study by Shah and Khan is to extend the work of Shah and Hijazi (2004). It includes more years, using relevant models of panel data and including more explanatory variables. The study uses a balanced panel data set including 286 listed firms from 1993 to 2002. This study adds two new independent variables comparing to the previous one, which are Earning Volatility and Non-debt Tax Shields. For model selection, the study uses fixed effects panel data model to apply to the data. Using fixed effect dummy variable regression, the study finds that the coefficients for a number of industries were significant showing there were significant industry effects. The results of the study approve the prediction of trade off theory in case of tangibility whereas the earning volatility and depreciation fail to confirm to trade off theory. Profitability approves the predictions of pecking order theory. The result of size variable neither confirms to the prediction of trade off theory nor to asymmetry of information theory. This study uses relatively new and long time series data set. However, the cross-section data points (286 listed firms) are less than the previous study (445 listed firms) as two new variables require more data and the sample set has to keep balanced. If the study used unbalanced panel sample set, it would have a wider cross-section. In addition, only fixed effects panel data model is used in the study. A comparison between fixed effects and random effects models would be an interesting topic for Pakistani listed companies.

Medeiros and Daher (2004) present empirical evidence on the determinants of the capital structure of Brazilian firms from 1995 to 2002. The purpose of the study is to test the trade-off theory and the pecking order theory using Brazilian data in order to establish which theory best explains the capital structure of local firms. The study uses 371 non-financial firms listed in the Brazilian stock markets from 1995 to 2002. The study uses static panel data models include both fixed effects and random effects models. The study tests both trade-off theory and pecking order theory, and it finds that the pecking order theory provides the best explanation for the capital structure of these Brazilian firms.

The study suggests that the Brazilian capital market has a secondary role in the capitalization of Brazilian firms, both in terms of stock or debt issues. Besides, Brazil characterizes by having a relative small number of publicly listed firms and preferred stock makes the majority of shares. The theory of finance treats this type of stock as debt, whereas the Brazilian business regulations define it as equity. Hence, the pecking order theory should accept the issuing of preferred stock, since it represents debt, but in Brazil, it goes against the pecking order theory because it is regarded as equity. In addition, Brazilian interest rates, both short and long-term, are very high in real terms. This, together with credit restrictions and the incentive given to banks to invest in government bonds, there is a short supply of private credits. Long-term lending is virtually supplied by the BNDES (the state-owned development bank) only with subsidized interest rates, which is a situation extremely favourable to the pecking order theory.

Correa, Basso and Nakamura (2007) analyze the determinants of the capital structure of the largest Brazilian firms by using a panel data set. The study analyzes some factors that supposedly determine the level of leverage of firms in light of the two main theories pertaining to the subject - the pecking order theory and the trade-off theory - testing the empirical validity of these theories in Brazilian corporate scenario. It uses dynamic panel data models aimed to analyze the adjustment process of capital structure over time, toward a supposed optimal target level, as suggested in other studies that addressed the dynamic nature of decisions concerning capital structure. The study uses a panel data set includes 500 largest Brazilian companies, public or not, relating to the period from 1999 to 2004. It also applies both static panel data models including fixed effects and random effects, and dynamic panel data models to the data set.

The results show a negative relation between leverage and the level of tangible assets, contradicting trade-off theory. They also demonstrate a negative relation between the profitability of firms and the leverage, confirming pecking order theory and contradicting trade-off theory. In addition, it demonstrates a positive relation between the risk and the level of leverage of firms, contradicting the main two theories about capital structure. The results indicate that although the business industry does not exhibit statistical relevance as a determinant of leverage, the level of leverage of the Manufacturing firms differs significantly both from the level observed in the Trade sector and from the level observed in the Transport and Telecommunication industry. They also indicated that the capital origin exercises significant influence on the levels of leverage of firms, and that foreign companies are more in debt than national firms.

The analysis suggests that the pecking order theory is more consistent than the trade-off theory to explain the capital structure of the largest Brazilian firms. The dynamic analysis showed a slow adjustment process of the capital structure towards the target level, suggesting the existence of high adjustment costs and confirming the pecking order behaviour of managers.

Applied to Chinese firms, existing theories of capital structure may be quite improper. The reason for this is that such theories focus upon the typical modem economy. However, for a transitional economy such as China, capital markets are at their starting stage and there exist a lot of institutional constraints which usually do not exist in advanced economies. Firms in such situation, therefore, may respond these special constraints in ways which appear strange to orthodox theorists.

In her investigation on the determinants of capital structure for 77 Chinese listed firms over the time period from 1995-2000, Chen (2004) states that although some aspects of capital structure theory are portable to China, Chinese firms seem to follow, which it is called, a "new pecking order"; retained earnings, equity, and long-term debt. She added that this new pecking order might be attributable to the institutional differences, firm specific factors and financial constrains in the banking sector.

Qian, Tian and Wirjanto (2007) examine determinants of the capital structure for publicly listed Chinese companies by using a panel data set with 650 publicly listed Chinese companies over the period of 1999 to 2004. The study estimates static panel data models of the firms' capital structure, with both unobserved cross-sectional and time effects as well as industry effects.

Then the study posit that a firm's decision on capital structure is inherently dynamic, and formulate a dynamic panel data regression model, which is estimated using dynamic panel data generalized method of moments. There are six key variables that are used in the study as the determinants of a firm's capital structure, they are: profitability, firm size, tangible assets, non-debt tax shields, growth opportunities, volatility, and non-circulating share Ratio. The result of the study shows that there is large and statistically significant lagged leverage effect on firm's current leverage, suggesting that there is a target debt-to-equity ratio for publicly listed Chinese companies in the sample and thus the estimates obtained from the static panel data models are biased and inconsistent. However, the speed of adjustment toward the target level is estimated to be very slow.

The study suggests that one reason for this is the fact that deviating from equilibrium is perceived to be not too costly for these publicly listed Chinese companies. The study also finds that publicly listed Chinese firms adjust toward an equilibrium level of debt ratio in a given year, but the adjustment process is very slow. The results also show that firm size, tangibility and ownership structure are positively associated with firm's leverage ratio, while profitability, non-debt tax shields, growth and volatility are negatively related to firm's leverage ratio. Lagged profitability has a small and positive impact on firm's leverage ratio. However, in using all sample firms in a balance panel, the study estimates the speed adjustment for all firms regardless of whether there are deviations of the firms' capital structures from their target levels and how far away the deviations are.

To examine whether firms adjust toward an equilibrium leverage level, the study would need to investigate how firms rebalance their capital structures after they have experienced large changes in leverage since these firms are more likely to deviate from the equilibrium level and thus have greater incentives to make an adjustment.

The determinants of capital structure were investigated by few scholars in the Arab world. For example, in Kuwait it was reported that the use of debt in capital structure was negatively related to profitability, liquidity and the previous debt ratio and positively related to growth opportunities, dividend payout and collateral.

Al-Sakran (2001) investigates the determinants of capital structure in the absence of a corporate tax system in Saudi Arabia. The tax code in Saudi Arabia is based on the total value of shares as a tax base instead of net profit. This code is called Zakat and it equals 2.5% of the total value of shares. Data from 35 companies from different industries were used over the time period from 1993 to 1997.

He argues that the Zakat will make no difference whether a company is financed by equity or debt since both are included in the Zakat base. The results however indicate that leverage ratios have a negative relationship with profitability and growth, whereas, size and government share have a positive relationship with leverage.

Omet and Nobanee (2001) examine data from 32 listed industrial companies over the time period from 1994 to 1998. Two leverage variables (total debt to total assets and total debt to equity) were regressed against five explanatory variables (fixed assets to total assets ratio, cash flow to fixed assets ratio, and total assets to equity ratio, current ratio, and the logarithm of fixed assets).

The results show that all the explanatory variables are positively related to leverage ratios except for cash flow to fixed assets ratio. Due to the relatively low R2 in their regressions, they argue that this might be attributable to omitting other explanatory variables, such as, nonfinancial factors. They conclude that future work should consider the manager's preference, beliefs, and attitudes toward debt and equity.

3.7 Summary

The history of theoretical research in capital structure started with the famous irrelevance theory of Modigliani and Miller (1958). By relaxing Modigliani and Miller's assumptions of perfect capital markets, several theoretical frameworks have been developed to explain the firm's capital structure. The variations in debt ratios across firms, industries and countries have been explained by theories of trade-off, agency costs and asymmetric information (pecking order theory). These theories suggest that how and why firms select leverage depends on their balancing of the benefits and costs associated with the use of debt or equity.

Although the capital structure theories noted above explain much about the financial structure of firms, in general, no consensus has been reached about those factors which have a significant impact on capital structure decisions and about the optimal level of debt that a firm should carry. It is possible that any firm's capital structure is influence by environmental factors, such as the legal and tax environments and the economic system, as well as technological capabilities. Many studies of the determinants of capital structure have investigated firms in developed countries. There have been only a limited number of empirical studies of firms in developing countries. The work undertaken in this chapter has reviewed recent thinking about the determinants of capital structure and the impact of institutional factors on a firm's capital structure across a number of different countries. In chapter 4 the hypotheses will be tested through an empirical investigation comparing Libyan and UK companies, and the selection and development of methodology and method of investigation will be explained.

Chapter Four

RESEARCH METHODOLOGY

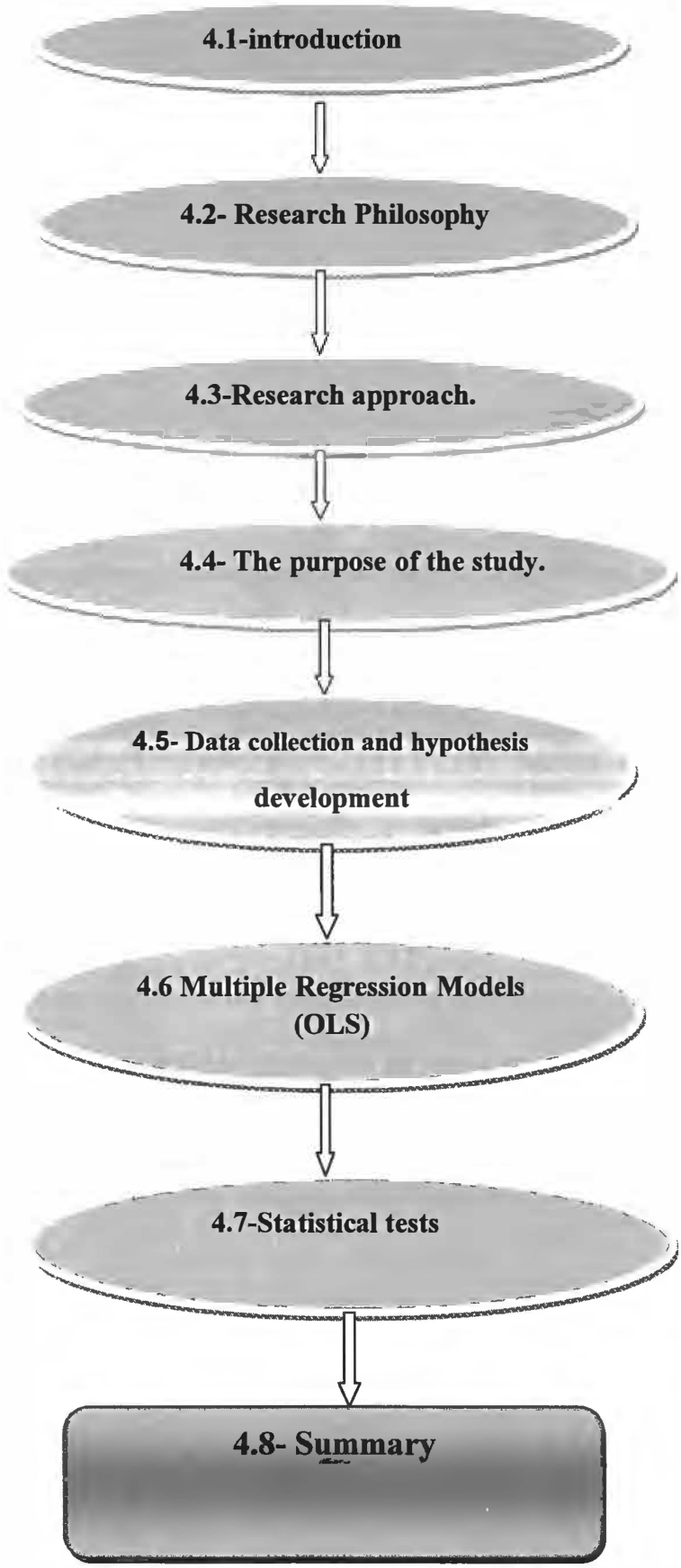
4.1 Introduction

This chapter describes the methodology used in this research to investigate capital structure in Libyan and British companies, utilising quantitative models. The main purpose of this chapter is to detail the research methodology employed to efficiently and effectively fulfil the research aims and objectives.

This chapter is structured as follows: research philosophy; research approach, which includes deductive element; research strategies, which include survey; research choices, which include mono method; time horizons, which include a cross-sectional approach; and techniques and procedures which include data collection and data analysis.

Data collection and analysis in this study will focus on secondary data sources, which are important in any research investigation. Secondary data from the DataStream database are employed for UK companies, balance sheets and income statements for Libyan companies. A quantitive approach was used to understand and then explain the financing behaviour of Libyan companies, and also to analyse any differences there might be between the financing patterns of Libyan and UK companies. Figure 4.1 provides a summary of chapter contents.

Figure 4.1: Chapter Contents



4.2 Research and Philosophical Assumptions

Research is "a systematic investigation to find answers to a problem" (Bums, 2000, p.3). A similar definition of research has been presented by McKenzie et al. (1997, p. 8), as they pointed out that research is "a response to a challenge. It is undertaken in an endeavour to solve a problem." The nature of accounting research and its purpose has been subjected to a lengthy debate. Definitions range from the idea of basic research , the pursuit of knowledge for its own sake, to applied research, which concerns explaining and answering some practical problems, to action research which concerns solving some ill defined problem which goes beyond current knowledge and has as its output both a "solved" problem and a contribution to theory (Berry and Otley, 2003).

Easterby-Smith et al., (2002) argue that there are at least three reasons why an understanding of philosophical issues is very helpful in thinking about the nature of research. The first reason is that knowledge of philosophy can help to clarify research designs. This not only involves considering what sort of evidence is needed and how it is to be collected and interpreted, but also how this will give good answers to the basic questions being investigated in the research. The second reason is that knowledge of philosophy can also be useful in helping the researcher to recognize which designs will work and which will not and thus ensure the avoidance of errors by illustrating the limitations of particular approaches. Thirdly, knowledge of philosophy can assist researchers to identify, and even create, designs that may he outside their previous experience. It may also help to adapt research designs, according to the constraints that different subjects impose.

Burrell and Morgan (1985) asserted that approaching the real world to grasp how and why events happen involves adopting (explicitly or implicitly) certain assumptions as regards the nature of social science and the nature of society. These assumptions are related to ontology, epistemology, and methodology (Burrell and Morgan, 1985). These assumptions have direct implications on the research methodology adopted, the way in which investigations are carried out and how knowledge concerning the social world is acquired. The section below outlines each of these assumptions.

4.2.1 Scientific Realism

Scientific research is an overall conceptual framework within which research is carried out. That is, a paradigm is the world -view or "a set of linked assumptions about (his) world which is shared by a community of scientists investigating the world" (Deshpande, 1983, p.101). Guba and Lincoln (1994) classify scientific paradigms into four categories: (1) positivism ;(2) Critical theory; (3) Constructivism; and (4) Realism. Each category has three elements: (i) Ontology; (ii) Epistemology; and (iii) Methodology.

Briefly, ontology is the "reality" that researchers investigate, epistemology is the relationship between that reality and researcher, and methodology is the technique used by the researcher to investigate that reality (Healy and Perry, 2000). Underlying the four paradigms is the question of knowledge creation: how can the findings of one research project be generalized to other situations? In the first of the four paradigms, positivism, Knowledge is statistically generalized to a population by statistical analysis of observations about an easily accessible reality (Sobh and Perry, 2006). In the paradigm of realism, the findings of one study are extended by analytical generalization.

This shows how the empirical findings of a research project nestle within theories in other words; the aim of the (fourth) realism paradigm is to generalize to theoretical propositions and not to populations (Yin, 1989). In the other paradigms of constructivism (three) and critical theory (two), reality is perception, and so generalization of one research finding about someone's perceptions to another person's "theory" about reality cannot be done (Sobh and Perry,2006).

Essentially, positivism (one) predominates in science, and assumes that science quantitatively measures independent facts about a single apprehendaible reality (Guba and Lincoln, 1994).

In other words, the data and its analysis are value-free, and data does not change because it is being observed; that is, researchers view the world though a "one-way mirror" (Guba and Lincoln, 1994). However, a positivist view is inappropriate when approaching a social science phenomenon, which involves humans and their real-life experiences. That is, positivists separate themselves form the world they study while researchers within the three other paradigms acknowledge that they have to participate in real-world life to some extent so as to better understand and express its emergent properties and features (Healy and Perry, 2000).

In contrast with positivism's relevance to much quantitative research, the next three paradigms are relevant to much qualitative research (Healy and Perry, 2000). The second paradigm, critical theory, emphasizes social realities incorporating historically situated structure .Thus critical theory researchers aim at critiquing and transforming social, political, cultural, economic, and ethnic and gender values.

Research enquiries are, therefore, often long-term ethnographic and historical studies of organizational processes and structures. Assumptions are essentially subjective, hence knowledge is grounded in social and historical routines and is therefore, value-dependent and not value-free (Guba and Lincoln, 1994).

The critical theory paradigm is not appropriate for much financing research, unless the researcher aims to be a " transformative intellectual" who liberates people from their historical mental, emotional and social structures (Guba and Lincoln, 1994) .For example, most business network research aims at understanding the actions of decision makers involved, rather than changing them or their approaches to strategy formulation (Healy and Perry, 2000).

The third paradigm, constructivism, holds that truth is a particular belief system held in a particular context (Healy and Perry, 2000). Like critical theory, constructivism enquires about the ideologies and values that lie behind a finding, so that reality actually consists of the "multiple realities" that people have in their minds ((Healy and Perry, 2000). Researching this constructed reality depends on interaction between interviewer and respondent; that is the researcher has to be a passionate participant during his or her field work (Guba and Lincoln, 1994).

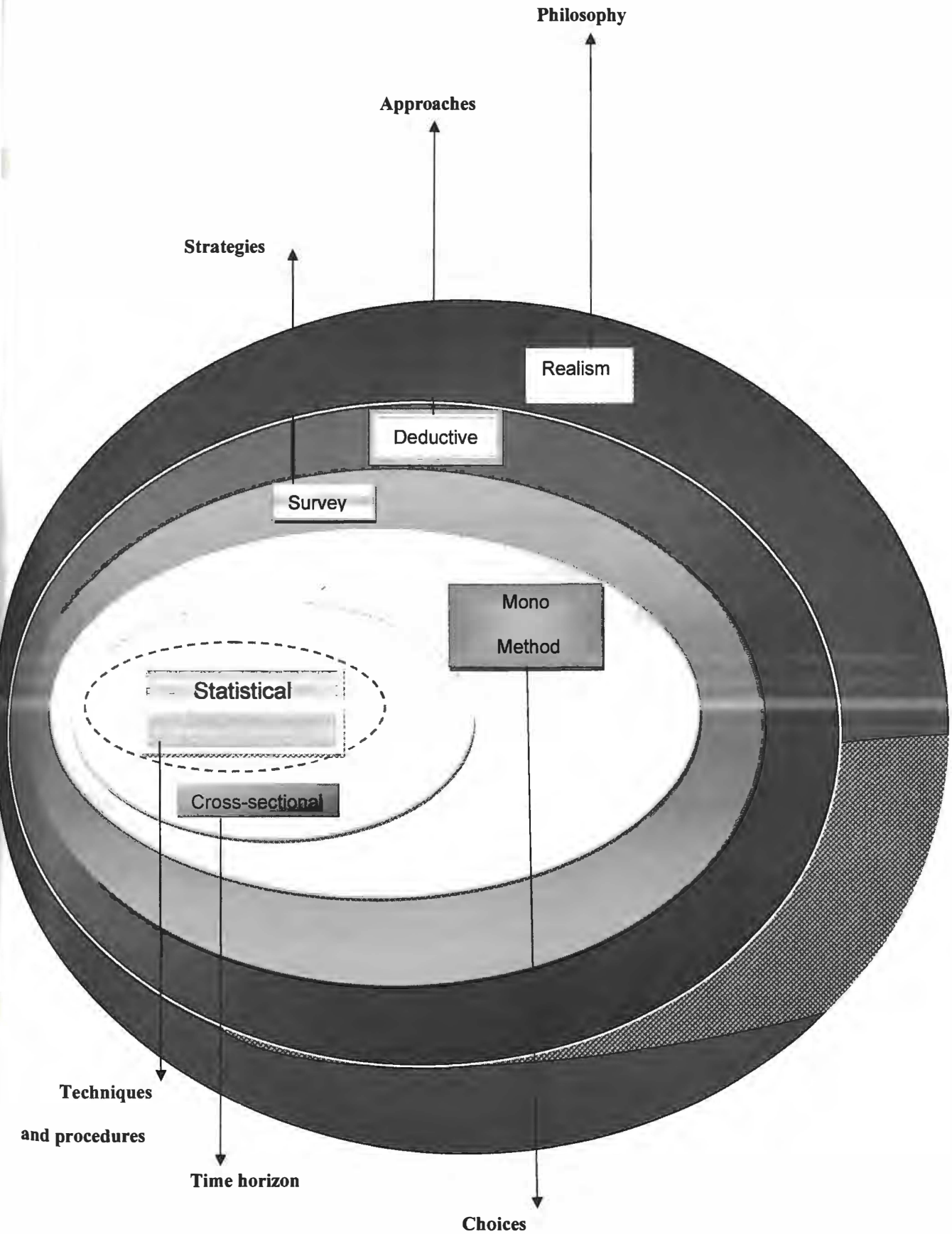
This constructivist approach may be suitable for some social science and consumer behaviour research into subjects such as religion or beauty. However it is rarely appropriate for financing research because the approach excludes concerns about the important, and clearly "real" economic and technological dimensions of business (Hunt, 1991).

Finally, realism believes that there is a "real" world to discover even though it is only imperfectly apprehensible (Godfrey and Hill ,1995 ; Guba and Lincoln ,1994 ; Merriam,1998; Tsoukas,1989).

Popper, according to Magee (1985), summarizes the three ontological assumptions above in three "worlds "; world one is positivist, and consists of objective, material things. World two is related to critical theory and constructivism, and is the subjective world of minds. World three is related to realism, and consists of abstract things that are born of people's minds but exist independently of any one person '... the third world is largely autonomous, though created by us '. Thus, Popper distinguishes realism's world three from the very objective world one and the very subjective world two (Healy and Perry, 2000).

In summary, when applied to finance and social science scientific realism maintains that- to the extent that there are theories that have had long-term success in explaining phenomena , predicting phenomena, or assisting in the solution of pragmatic problems in society - scientific realists are warranted in believing that something like the postulated entities and their structure of relationships exists; that is they truly represent or correspond to some reality that is external to the theorist (Hunt,1990).

Figure 4.2 Research 'onion'



Adapted from: Saunders et al. (2007, p. 102)

4.3 Research approach

It has been argued that it is helpful for the researcher to link his/her research approach (or approaches) to his/her research philosophy (or philosophies). The extent to which the researcher is clear about theory at the beginning of his/her research raises an essential question regarding the design of the research project. This is whether the researcher has to utilize a

deductive or inductive approach (Saunders, Lewis and Thornhill, 2007).This research follows a deductive approach, which owes more to realism , and involves the researcher develops a theory and hypothesis (or hypotheses) and designing a research strategy to test the hypothesis (or hypotheses). Such an approach is the common research approach in the natural sciences, where laws present the basis of explanation, allow the anticipation of phenomena, predict their occurrence and thus permit them to be controlled (Collis and Hussey, 2003). Robson (2002) argues that there are five sequential stages in the deductive research approach:

1- Deducing a hypothesis (a testable proposition about the link between two or more concepts or variables) from the theory.

2- Articulating the hypothesis in operational terms (that is, demonstrating precisely how the concepts or variables are to be measured), which propose a link between two or more specific concepts or variables.

3- Testing the operational hypothesis.

4- Examining the specific outcome of the inquiry.

5- Modifying the theory in light of the findings, if necessary.

Furthermore, Ryan, Scapens and Theobald (2002) indicate that in the deductive model, a particular occurrence or a relation is explained by deducing it from one or more general laws. Every observation is deemed to belong to an implicit class and its explanation depends on

statistical generalizations (covering laws) that link the empirical and theoretical domains.

4.4 Purpose of the study

It is important for this research to study the factors influencing capital structure in the Libyan environment for two reasons. First, macroeconomic conditions in Libya may be significantly different from those in other countries particularly with regard to its GDP growth rates and rates of inflation. Second the most obviously unique aspect of the Libyan economy is that there is no secondary capital market, and this may deter investors from making long term investments in equity or debt. Consequently, it is necessary to study the capital structures of Libyan companies to find out how it may be possible for Libyan companies to overcome this problem of a lack of a secondary capital market within their business environment. In effect, this means that it is necessary to explain and also understand the way that Libyan companies are financed.

Therefore, the main aim of this research project is to answer these two questions

1- Which theory or theories of capital structure explain the financing behaviour of Libyan and UK companies? (Among the capital structure theories specifically tested here are static trade-off theory, agency cost theory and pecking order hypothesis).

2- Do the factors affecting cross-sectional variability of capital structure in the UK have comparable effects on the capital structure of Libyan Companies?

Based on the above, Table 4.1 presents the relationship between the research questions, research objectives and methods used in this study.

Table 4.1: Relationship between Research Questions, Objectives and Methods.

Research Questions	Objectives	Methods
1-Which theory or theories of capital structure explain the financing behaviour of Libyan and UK companies? (Among the capital structure theories specifically tested here are static trade-off theory, agency cost theory and pecking order hypothesis).	1- To examine which theory or theories of capital structure explain the financing behaviour of Libyan and UK companies. Among the capital structure theories specifically tested here are static trade-off theory, agency cost theory and pecking order hypothesis 2-To examine the factors affecting the capital structure decision of companies in Libya and the UK .For this purpose, five firm-specific factors or determinants including: tangibility; Profitability; growth; risk; and firm size are tested to examine their relationship with leverage ratios.	**Main: (model)** For the first and second objective, the basic cross-sectional regressions of three different measures of the company's debt ratio will be regressed against five explanatory variables (model)
2-Are the factors affecting cross-sectional variability of capital structure in the UK have similar effects on the capital structure of Libyan companies?	To identify whether the factors that affect cross- sectional variability of capital structure in the UK which have similar effects on companies' capital structure in Libya?	**Main: (model)** With respect to the third objective, the regressions models that will be used to achieve the first objective are also used to conduct a comparison between Libya and UK.

4.5 Outline of the research project

Quantitative methods were used in this project to examine hypotheses about the financial structures of Libyan companies, by investigating data taken from financial statements of a sample of those companies. Quantitative data were gathered in respect of a sample of UK companies, via DataStream, in order to analyse and, if possible explain, any differences in the financing patterns of UK and Libyan companies.

Using quantitative approach it is possible, to make use of data from quite a large number of companies, rather than being restricted to an examination of the data from a small number of companies only. The testing of a significant number of companies gives greater validity to generalisations that are made based on those findings.

The quantitative approach has been described as an extensive approach which uses less detail and more generalization. It is therefore believed that the quantitative method is an appropriate methodology to use for this project. The hypotheses tested by this research project are set out in section 4.6.2.

They have been derived from the theory of capital structure, and from the characteristics of the Libyan economy, the impact of managers' preferences and their attitudes towards debt and equity.

4.5.1 Determinants of capital structure

Effort has been made to explain determinants capital structure through results that have come from both theoretical and empirical studies. A number of broad categories of possible capital structure determinants have surfaced from these studies. In relation to this it has been pointed out by Wessels and Titman (1988), and Raviv and Harris (1991) that there is potential for debate as to what provides suitable explanatory variables that can be reflected in theories about capital structure. For this project five possible key explanatory variables have been used in this study that were utilized by almost all previous capital structure studies, such as Rajan and Zingales ,(1995); Bevan and Danbolt ,(2000 and 2004); Gaud et al (2003) , Cassar and Holmes, (2003) ; Daskalakis and Psillaki ,(2008),and Delcoure (2007) among others. These variables include tangibility, size, profitability, risk and the level of growth opportunities. The following sub-sections define leverage (short, long and total debt as dependent variables) and the five independent variables (tangibility, size, profitability, growth and risk), and set out the hypotheses that will be tested.

4.5.1.1 Dependent variables

Three measures have been used to identify the dependent variables, which are:

4.6.1.1.1 Leverage ratio: This is measured by total debt to total assets. It is argued by Harris and Raviv (1991), Rajan and Zingales (1995), Bevan and Danbolt (2000), Omet and Nobanee (2001), Huang and Song (2002), Antonion et al., (2002), Cassar and Holmes (2003) Chen (2004), Nguyen et al., (2006). This ratio demonstrates the relationship between total debts to total assets.

$$(TD/TA) = \frac{\textit{Total Debts (TD)}}{\textit{Total Assets (TA)}}$$

4.5.1.1.2 Long-term debts/total assets: This is measured by long –term debts/total debts. It has been argued by Harris and Raviv, (1991); Rajan and Zingales, (1995); Bevan and Danbolt, (2000); Omet and Nobanee, (2001); Huang and Song, (2002); Antonion et al. (2002), and Cassar and Holmes, (2003).

$$(\text{LTD/TA}) = \frac{\textit{Long Term Debt (LTD)}}{\textit{Total Assets (TA)}}$$

4.5.1.1.3 -Short -term debt /total assets. This is measured by Short -term debt to total assets. It has been argued by Bevan and Danbolt, (2002); Omet and Nobanee, (2001); and Cassar and Holmes, (2003).

$$(\text{STD/TA}) = \frac{\textit{Short Term Debt (STD)}}{\textit{Total Assets (TA)}}$$

Three debt ratios are used as dependent variables to test the determinants of capital structure of Libyan firms. These are: total debt, short-term debt and long-term debt (all scaled by book value of total assets). There are two principal reasons for selecting these measures. First, it is necessary to find out the determinants of the use of the firms' general level of leverage (i.e. total debt). Second, where any leverage is used, it is necessary to know what determines the mix of long-term debt and short-term debt for financing assets growth.

4.5.1.2 Independent variables

Independent variables of the study on which data were collected include the following:

4.5.1.2.1 Firm Size

This is measured by the natural logarithm of total assets, is argued by Titman and Wessels, (1988); Huang and Song, (2002), Antoniou et al. (2002) and Mazur, (2007). They found a significant positive relationship between leverage ratios and size of the firm. Company size is selected as an independent variable because companies with large total assets are capable of diversifying their investments and subsequently, are less vulnerable to bankruptcy and insolvency (Rajan and Zingales, 1995).

Moreover, the cost of funding for these companies will be lower, and the debt ratio within the financing structures of major banks is expected to be larger than equity. It has been indicated by various studies that there is a positive relationship between a company size and leverage. The logarithm of assets has been used in a vast number of capital structure studies, such as Titman and Wessels, (1988); Rajan and Zingales, (1995); Bevan and Danbolt (2002 and 2004); and Abor (2008), among others, to capture the effect of firm size on leverage. Consequently, the logarithm of assets is employed as the proxy for size in this study to capture the influence of firm size on leverage.

4.5.1.2.2 Tangibility

This is measured by fixed assets divided by total assets. It has been argued by Harris and Raviv, (1991); Rajan and Zingales, (1995); Bevan and Danbolt, (2000); Omet and Nobanee, (2001); Huang and Song, (2002); and Antonion et al. (2002). They found a significant positive relationship between leverage ratios and tangibility of a firm.

Fixed assets to total assets is the common proxy most studies use to capture the effect of tangibility on leverage. However, different authors have used different measures for the concept of the collateral value of assets. Most studies (e.g. Marsh, 1982; Friend and Lang, 1988; Rajan and Zingales, 1995; Bevan and Danbolt, 2002 and 2004; Mazur 2007; Daskalakis and Psillaki 2008; among others, employ the ratio of fixed assets to total assets. Therefore, this study utilizes the ratio of fixed assets to total asset as the proxy for tangibility.

4.5.1.2.3 Profitability

This is measured by dividing earnings before interest and tax (EBIT) by book value of total assets. It is argued by Harris and Raviv (1991) that companies with a strong financial position can have relatively easier access to cheaper debt, and hence be able to invest more. There is complementary effect between profitability and total debts. This ratio is measured by Rajan and Zingales, (1995); Michalease et al. (1999); Bevan and Danbolt, (2000); Ozkan ,(2001); Huang and Song ,(2002); Antonion, et al. (2002), Gaud et al. (2005); Song, (2005); Qian et al. (2007); Ngugi, (2008) ; Jong, (2008); Westgaard et al.(2008), and Chakraborty (2010).

Over all, there was a significant and negative relationship between leverage ratios and profitability of the firm. So, the relationship between leverage ratio and profitability is expected to be negative. In other words, increased company earnings before interest and tax will enhance a company's capability to repay debt and finance assets out of its own sources. Thus, the company will be in a better position to compete with other companies, and there will be higher expectations concerning the company's ability to benefit from the advantages of relying on debts, thereby yielding positive impacts (Keister, 2000).

4.5.1.2.4 Growth

The two proxies most commonly employed to capture the influence of growth opportunities on leverage are (1) the ratio of the market value of assets to the book value of assets (market-to-book ratio); and (2) the percentage change in book value of total assets. The most commonly used proxy found in previous studies is market-to-book ratio and the percentage change in total assets respectively. However, within the Libyan context, it is impossible to reach the market value of assets due to the absence of a secondary stock market in the country during the study period (2000-2004) and the companies in the sample are not listed on stock market in Libya and so it is not possible to ascertain the market value of their equity.

For this study growth of firm is measure by the percentage change in the book value of total assets. This measure has been utilized by Titman and Wessels (1988), Chittenden et al. (1996), Hall et al. (1998), Um (2001), Fattouh et al. (2005), Al-Sakran (2001), Mazur

(2007) and Chakraborty (2010), among others.

4.5.1.2.5 Risk (business risk)

Risk is measured in terms of the degree of fluctuation in a company's earnings and it is a for business risk. Companies with high risk are less able to borrow. Earnings volatili measured as the standard deviation of the earnings before interest and tax (EBIT) divided total assets, which is the most commonly used proxy found in the previous studies to capture business risk. This measured was utilized by Booth et al (2001), Hung and song (2001), pand (2001), Mazur (2007), Westgaard et al (2008), Ngugi (2008) and De Jong, Kabir and NguY (2008). Table (4-2) summarizes the calculation process of the selected dependents independents variables, showing the proxies used for each variable.

Table (4-2) Summary of the calculation of variables

variable	Proxies
Dependent variables	
STD	(Bank borrowing repayable in less than one year) / Total assets.
LTD	(Bank borrowing repayable in more than one year) / Total assets.
TD	(STD)+ (LTD)/ Total assets.
Independent variables.	
Size	size defined as the natural logarithm of total assets.
Profitability	It equals the ratio of earnings before interest and tax divided by book value of the total assets.
Tangibility	Fixed assets / Total assets.
Risk	standard deviation of earnings before interest and tax (EBIT) divided by book value of the total assets of 5 years.
Growth	Defined as the percentage change in the total assets through five year period covered

4.5.2 Hypotheses Development

This section formulates a number of hypotheses that guide the investigation in empirically examining the application of the study's theories to Libyan companies. The hypothesized factors affecting capital structure were identified based on a review of the factors identified in previous studies and also by reference to the theory of capital structure, namely the trade-off theory, agency theory and asymmetric information (pecking order theory). The hypotheses are designed to be tested in this study and are presented below.

4.5.2 .1Assets structure (tangibility)

Agency theory suggests that collateralized assets can be used as a monitoring instrument to control managers, and prevent threats of transferring wealth from debtholders to shareholders. Lenders require collateral since it is considered an explicit promise over debt. Therefore, a positive relationship is expected between assets structure (tangibility) and debt level. Trade-off theory assumes that firms with tangible assets are stronger to face financial distress, and these assets make debt more secure. Tangibility of assets increases the liquidation value of the firm, and decreases the hazards of mispricing and the difficulties of financial loss in the case of bankruptcy. Therefore, this theory also expects a positive relationship. The pecking-order hypothesis assumes that firms prefer debt over equity. This is due to the fact that debt is considered more secure, and has lower agency costs. The demand of debt will be covered by collateral assets. Therefore, the greater the tangibility of assets, the higher the secured debt, and a positive relationship is also expected. On the other hand, (DeAngelo and Masulis, 1980) state that if the proportion of fixed assets provides a reasonable proxy for the availability of depreciation tax shields, firms with high levels of depreciation would be expected to have low levels of debt. Therefore, this would involve a negative relationship between tangibility and debt level. This research will follow the majority of capital structure theories which expect a positive relationship between the tangibility of assets and debt level represented in the following hypothesis:

H1: There is a significant positive relationship between tangibility and debt (leverage)

4.5.2.2 Profitability

Current profitability can be a good indicator to predict the future trend of profits. Although many theoretical studies have taken place since Modigliani and Miller (1958), no consensus on the relationship between profitability and debt level has been accomplished. Trade-off theory assumes that profitable firms are stronger to face financial distress and bankruptcy costs than firms with low profitability. This theory expects a positive relationship between profitability and debt level. Pecking-order theory postulates that firms prefer internal resources in financing decisions. This means that profitable firms may have less debt, and the costly issuing of new equities will be a last resort. This also indicates a negative relationship between profitability and debt level. Asymmetric information problems between the firm and lenders indicate that managers prefer internal financing if they cannot convey credible information to lenders. This also suggests a negative relationship between profitability and debt level.

According to agency theory, profitable firms prefer not to raise external equity in order to avoid potential dilution of ownership. On the other hand, controlling shareholders prefer rising of debt level to ensure that managers pay out profits rather than build empires. Issuing of debt is also to prevent others from threatening their shareholding dominance by sharing the controlling position which results from the issuance of new equities. This indicates a positive relationship between profitability and debt level. According to the above discussion, because capital structure theories give different implications for the relationship between profitability and debt level, this research assumes a positive relationship between profitability and debt level as is shown in the following hypothesis:

H2: There is a significant positive relationship between profitability and debt (leverage)

4.5.2.3 Growth opportunities

Banks are more likely to lend to firms who present superior growth rates or when they expect valuable future growth opportunities (Chen, 2004). Pecking-order theory assumes that growing firms depend on internal funds more than external funds. Additionally, growth opportunities could be an indicator of the firm's success and the level of its profitability. Therefore, this leads to a negative relationship between growth opportunities and debt level.

However, firms with rapid growth opportunities are likely to seek more debt due to their lack of internal earnings (Michaelas and Chittenden, 1999). In this special case, a positive relationship is expected. Trade-off theory considers future growth opportunities as intangible assets which cannot be collateralized. Accordingly, firms with intangible assets use less debt than those holding tangible assets. According to these arguments, a negative relationship is expected between growth opportunities and debt level. Agency theory has a dual role; it assumes that growth opportunities enlarge managers' power by increasing the resources under their control. Therefore, debt is necessary to control managers' opportunistic behaviour.

To the contrary, firms with high future investment opportunities might have lower debt levels due to the fear that the debt holders may restrict firms from investing in valuable investment opportunities and expropriate wealth to themselves at the expense of shareholders. Therefore, a negative relationship between growth opportunities and debt level is expected. Because of the information asymmetry problem, many firms with high future growth opportunities, which tend to incur risky debt, may forego this option because it reduces the shareholders' value and transfers wealth to debtholders. Therefore, a negative relationship is also expected between growth opportunities and debt level.

This research will follow the majority of capital structure theories which expect a negative relationship between growth opportunities and debt level as represented in the following hypothesis:

H3: There is* a *significant negative relationship between growth opportunities and debt

4.5.2.4 Firm size

Agency theory expects a dual role for the relationship between a firm's size and debt level. First, a large firm's ownership is more widespread than small firms. Also, the owners of large firms are too dispersed to take a primary role in controlling activities inside the company. Consequently these large companies prefer long-term debt to provide control over managers. This argument suggests a positive relationship between a firm's size and debt level. Conversely, if controlling roles are played by managers who are more interested in their own benefits than their shareholders' benefits, they will prefer less debt to avoid the risk of bankruptcy risks which includes personal loss.

This behaviour by managers grows in significance along with the firm's size. When the firm becomes larger, the management power in controlling the company's resources becomes greater. This affects the management efficiency in dealing with the external environment; as a result a negative relationship is expected between a firm's size and debt level. Similarly, large firms need lower debt as a monitoring tool because they can avoid such costs in the case of economies of scale. Large investors or the market occupies this monitoring role in these firms and this also suggests a negative relation between a firm's size and debt level. In terms of information asymmetries, size reflects the amount of information an outside investor has. As a result, large firms should have more information transparency and disclose more information than small firms.

Because of this, firms with less asymmetric information problems are likely to have more equity and as a result lower debt. This suggests a negative relationship between a firm's size and debt level. Trade-off theory assumes that large firms are more diversified, have lower risk, better reputation, more stable cash flows and lower risk of being liquidated. This gives large firms easier access to the capital markets with negligible debt costs. Thus these firms are stronger to face bankruptcy and financial distress. Hence a positive relationship between a firm's size and debt level is expected. According to the above discussion, and because capital structure theories give different implications for the relationship between a firm's size and debt level; this research assumes positive relationship between a firm's size and debt level represented in the following hypothesis:

H4: There is a significant positive relationship between afirm's size and debt (leverage)

4.5.2.5 Business risk

As debt involves a commitment to periodic payments; highly leveraged firms are in danger of financial distress costs while facing a near bankruptcy situation. Trade-off theory assumes that the costs of bankruptcy and financial distress reduce the firm's incentive to use debt financing. Higher volatility of earnings increases the probability of financial distress and bankruptcy costs, because firms may not be able to fulfil their debt commitments. As a result, a firm's debt capacity decreases with increases in earnings volatility. This leads to an expected inverse (negative) relationship between a firm's risk and debt level. From the agency theory perspective, debt is used as a disciplinary device to prevent managers from transferring resources to their own personal benefits or investing in negative projects.

The higher the probability of agency costs, the more the debt needed. It is therefore reasonable to expect a positive relationship between a firm's risk and debt level. According to the above discussion, and because capital structure theories give different implications for the relationship between a firm's risk and debt level, this research assumes a negative relationship between a firm's risk and debt level as represented in the following hypothesis:

H5: There is significant a negative relationship between risk and debt (leverage)

4.5.3 Research Method

The next section address the data collection method used for this research, namely regression analysis.

4.5.3.1 OLS-Multiple Regression Model

The study employs a model, in order to achieve its objectives. The determinants (the independent variables) of leverage included in the model are based on the main theories of capital structure (Static trade off theory, agency theory, and asymmetric information theory (pecking order). In addition, the variables included in the model are based on previous empirical studies that have investigated the determinants of capital structure (e. g., Barclay and Smith, 1995; Jordan et al., 1998; Rajan and Zingales, 1995; Bevan and Danbolt, 2002, and 2004; Chung, 1993; Panno, 2003; Titman and Wessels, 1988; Mackie-Mason, 1990; Michaelas et al., 1999; Chittenden et al., 1996; Ghosh and Cai , 2000; Harris and Raviv , 1991 ; Prasad ,Green and Murinde, 2001 ; Cassar and Holmes, 2003; and Bennet and Donnelly, 1993).

This section gives a brief explanation of the model used in chapters 5 and 6. The detailed explanation and the justification of each variable, and the hypotheses that were tested are also explained in chapters 5 and 6.

The model used in this study took the following form:

Where:

$$Yi = ai + h\,nXn + h\,nD + hnXnD + ei$$

Yi represents a firm' leverage. The study uses three measures: total debt to total assets (TD/TA), short term debt to total assets (SD/TA), and long term debt to total assets (LD/TA).

The study uses the book value of leverage definition for the following reasons. Marsh (1982) justifies using book values on the basis that managers tend to focus on these values when making the leverage decision.

Myers (1977) argues that there may be some theoretical justification for the use of book values on leverage, since these are related to the value of assets in place and do not normally include the capitalised value of future growth opportunities.

Barclay el al. (1995) argues that book values primarily reflect tangible assets, which tend to provide better collateral for lenders. They also point out that the use of market values contrasts with the practice of many corporate treasurers and rating agencies who express leverage ratios exclusively in terms of book values. Corporate treasurers claim to use book

ratios because these measures help keep their financial planning free of the

"distortions" caused by the volatility of market prices, and rating agencies offer a similar rationale.

Moreover, Kisgen (2005) argues that "Credit rating agencies rely more on the book values of the financial ratios rather than the market value when rating corporate entities". Due to the fact that the companies in the sample are not listed on the stock market in Libya, and the market value is not available, this study uses the book value of leverage.

b = regression coefficient for **x1, x2, x3, x4, x5**

X n = independent variables (n=1, 2, 3, 4 and 5):

1=Tangibility (TA) defined as fixed assets over book value of total assets.

2= Risk defined as the standard deviation of earnings before interest and tax (EBIT) divided by total assets.

3=SIZE firm size defined as the natural logarithm of total assets.

4=Growth defined as the percentage change in the total assets.

5=Profit: is the measure of the firm's profitability. It equals the ratio of earnings before Interest, taxes, divided by book value of the total assets. D refers to a dummy variable, which takes 0 if the firm is State-owned firm 1if the firm is a private firm and dummy variable, which takes 0 if the firm is industrial firm 1if the firm is a non –industrial firms. ***ai is*** the intercept. **ei** *is* the random error term.

This study expects the regression coefficients to show either positive or negative signs depending on the hypothesised relation. The statistical and economic significance of the coefficients will then be analysed. Depending on the results, additional tests for robustness will be carried out. OLS-regression results will then' be compared with the' underlying capital structure theory, and previous empirical research findings.

4.5.3.2 The Population and Sampling of the research

In any sample based study, it is necessary to define clearly the population being surveyed and to ensure that the sample selected provides an accurate representation of the population (Khorwatt, 2006).

The population of the present study consisted of companies (state-owned and private) that are located in Libya in the two biggest cities Tripoli and Benghazi.

Tripoli and Benghazi are the cities where most of the financial and commercial actives of Libya take place (Mahmud, 1997); as such these were the locations where the sampling took place.

This is for the following reasons: 1- in excess of 80% of all Libyan companies offices are registered in these locations for corporate in tax. 2-most of the economic and business activity take place here. 3- These are also the two locations in Libya which are the main tax offices in which companies must be registered for tax purposes.

In an ideal word, a simple random sample would be selected utilizing a comprehensive sampling frame; no such frame exists for this purpose in Libya. There is no exhaustive, extensive list of business.

The government itself does not have such a list. At a second level, the tax authorities have lists of companies registered for tax. This list had fewer than 170 companies, but they covered the whole country. It is beyond the scope of this study to operate nationally.

The two largest cities for company registration were Tripoli and Benghazi. Thus these cities were selected as the sites for the study. With a 20/80 split of responses {all responses have for one fifth choosing a given scale response} the margin of error (+, - 10 %) at 95% level of confidence with a sample size of 65 companies. The sample as in the two cities selected using a random number generator applied to single list of companies in the two cities ordered alphabetically.

4.5.4 Cross-Country Comparisons (Libya and the UK)

In this phase of the research, reported in chapter 6, investigation was made as to whether institutional features of the Libyan business environment caused Libyans to engage in different financing behaviour from that experienced in UK companies included in the sample.

These investigations will also aim to analyse and, where possible, explain differences in financing patterns that exist in UK and Libyan companies. Libya is different from other countries because it differs in relation to the ownership of companies, its regulations, the enforcement of law, and in its corporate governance.

According to De Jong et al. (2008) and Glen and Singh (2003) a comparison of the financing patterns of different countries is of great value. Also, they contend that as economic reform in countries becomes part of the national and international agenda, comparisons of the financing patterns between countries is able to provide empirical guidelines to facilitate necessary economic reform. Because economic reform in Libya will require a body of empirical knowledge to work from, this phase of the research aims to add to that knowledge by providing a comparison with developed markets so that the financing patterns of Libyan companies can be put into perspective.

Cross-sectional regressions models have been used with the purpose of examine the differences in the determinants of financing patterns between Libya and the UK.

The data for all the years from2000-2004 was collected from the DataStream database (UK). The Libyan data used in this phase was based on the entire sample of the sixty-five companies which means that the sample in this phase was not segregated into different sub-samples.

With the aim of measure the dependent (leverage) variables and the explanatory variables used in this comparative study, the same measures were used as for the regression analysis of the Libyan data (chapter 5). The hypothesis tested in this section is based on the premise that the institutional features of the Libyan business environment may mean that Libyan companies exhibit different financing behaviour. Therefore, the hypothesis was formulated as follows:

H6: There is a significant difference in financing behaviour between Libyan companies and UK companies

Table (4-3) Summary of Hypotheses

Hypothesis	Statement
	Firm Characteristics. (Profitability, tangibility, growth, size, Risk)
H1	There is a significant a positive relationship between the profitability and leverage ratios
H2	There is a significant a negative relationship between the growth opportunities and leverage ratios
H3	There is a significant a positive relationship between the tangibility and leverage ratios
H4	There is a significant a positive relationship between the company size and leverage ratios
H5	There is a significant a negative relationship between business risk and leverage ratios
H6	***Cross-Country Comparisons*** There is significant difference in financing behaviour between Libyan Companies and UK Companies.

4.6 Statistical methods used to test the hypotheses

According to Oppenheim (1992) different statistical tools are used for different purposes, depending on the nature of the data. In this respect, Pallant (2005) suggested that when designing research, this gives researchers a wider range of possible techniques to use when analysing their data. According to Pallant, researchers should try to use continuous data rather than categories to measure their dependent variable, but also indicated that before deciding which tests to use, the types of data should be determined (parametric or nonparametric).

Siegel and Castellan (2000), state that the analytical inferential scheme can be divided into two independent classes, parametric and non-parametric. According to Hussey (1997), the major difference between these two classes is in their fundamental assumptions about the information to be analysed.

Pallant (2005) states that parametric techniques assume that the sample is normally distributed and each of the different parametric techniques (such as t-test, and Pearson correlation) also has other additional assumptions.

Normality of distribution is not assumed, on the other hand, for non-parametric techniques such as Chi-square, and therefore the assumptions of non-parametric techniques are less likely to be violated.

In this study the techniques used were: techniques that can be used to explore the differences between groups; and techniques that can be used to explore the relationship between variables.

Many of the variables use in this study's data set are not normally distributed. Some are positively skewed whilst others are negatively skewed; hence non-parametric techniques were more suitable where normality of the distribution could not be assumed, as stated by Pallant (2005).

As a result the statistical tests used to investigate the hypotheses and analyse the results were mostly non-parametric tests; hence, non-parametric methods were employed. There are several advantages to non-parametric techniques (Easterby-Smith et al, 1991 and Smith, 2003).These advantages are:

1) Non-parametric techniques can be used on all types of data, 2) if the sample size is small, non-paramedic techniques will be easier to apply, and 3) non-parametric techniques make fewer and less stringent assumptions than parametric methods. The tests that were used to examine the hypotheses are discussed below.

4.6.1 Mann-Whitney U Test

This test was used to check whether the medians of the two groups were equal. Roscoe (1969:p.175) argues that the Mann-Whitney *U* test is almost as powerful as its parametric counterpart, 'about 95% relative power with typical research samples' and is one of the more useful of the non-parametric tests; it is much more 'flexible in the circumstances in which it can be used 'than the parametric t-test and is an extremely good and widely used test' (Neave and Worthington, 1988)

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4.6.2 Multiple Regression Analysis

Multiple regression analysis is defined by Frankfort-Nachmias and Nachmias (1996,p445) as *"A method used when there are several independent variables, each of which may Contribute to our ability to predict the dependent variable".*

Hair et al. (1998, p. 148) stated that multiple regression analysis can be employed *"To analyse the relationship between a single dependent (criterion) variable and several independent (predictor) variables".*

Gujarati (2003) argued that Ordinary Least Square (OLS) is considered to be the most powerful approach to regression analysis. Statistical textbooks (for example, see Burton et al., 1999 and Mann, 1995) define regression analysis as a statistical tool that is usually used to learn more about the relationship between independent or explanatory variable(s) and dependent variables.

4.7 Summary

This chapter describes the research methodology and method that have been used to test the hypotheses of this study. These hypotheses propose tests of the effect of profitability, growth, tangibility, size and risk on the capital structure of sixty -five Libyan companies by utilising data extracted from their balance sheets and income statements. The results provided evidence of the significance, direction and magnitude of the effect of the explanatory variables, and empirically examined whether the static trade-off theory, the agency cost theory and the asymmetric information theory (pecking order) are relevant capital structure theories in the Libyan business environment.

The Cross-country comparison phase utilised data from a developing country and developed country. The results of this phase analysed and explained the differences in the financing patterns between Libya and UK in the sample. The results also provided a bodx of empirical knowledge, which has the potential to be used in the current economi reform in Libya.

The next chapters presents the results from the regression analysis models developed t empirically examine the first five hypotheses about the determinants of leverage in Libyan state-owned and private, and industrial and non-industrial companies. Th hypothesis regarding the cross-country comparison will be examined in chapter six.

CHAPTER FIVE

STATISTICAL ANALYSIS: FIRM CHARACTERISTICS AND CAPITAL STRUCTURE CHOICE

5.1 Introduction

In this chapter three statistical models are developed and empirically examined. The first five primary hypotheses (H^1 **to** $H^{5)}$ discussed in the previous chapter. These refer to three different theoretical attributes (static trade off; asymmetric information (pecking order); and agency costs theories), which cannot be adequately measured. As such, proxy variables have to be used in any empirical investigation, and this study is no exception.

These proxy variables represent primary hypotheses 1-5 that address the association between leverage and different firm characteristics (size, profitability, tangibility, growth opportunities and risk).

This chapter is organized as follows: section 5.2 presents the multiple regression models that have been used to analyze the data and examine the hypotheses and some statistical procedures that were taken as a remedy for the ensuing econometric problems. An overview of the data and sample is presented in section 5.3. Section 5.4 describes the cross sectional data. Section 5.5 describes the correlation analysis. Section 5.6 describes the robustness of the models. Section 5.7 presents the summarizes descriptive statistics for the independent variables and leverage measures for the entire sample of Libyan companies, and four sub-samples (private and state owned companies) and (industrial and non-industrial companies).

Section 5.8 presents a summary of the predicted signs on the estimated coefficients of all the explanatory variables of models. Section 5.9 presents and discusses the results of cross-sectional empirical tests (state-owned and private companies). Section 5.10 presents the influence of financial variables on capital structure (state-owned and private companies). Section 5.11 presents and discusses the results of cross-sectional empirical tests (industrial and non-industrial companies). Section 5.12 presents the influence of financial variables on capital structure (industrial and non-industrial companies). The last section 5.13 concludes the chapter.

5.2 OLS-Multiple Regressions

One of the analytical tools used to address the research questions and hypotheses in this study was multiple regressions Analysis (MRA). Following the previous studies that have investigated the relationship between the explanatory variables and leverage (debt ratios), MRA was employed as the most appropriate multivariate technique in this instance. MRA is a dependence technique that aims to evaluate the total proportion of variance in a dependent or criterion variable which can be explained by a set of independent or predictor variables (Tabachnick and Fidell, 1996; Hair et al.1998). Regression looks for the best fitting linear model that predicts the observed data, based upon minimizing the sum of squared errors between predicted and observed variables.

The statistical procedure models the relationship between a given dependent variable (Y) and aset of independent variables (X1, X2, X3, X4 and X5). It is commonly expressed as an equation: The basic regression estimate is:

$$\mathbf{Y=a+b1x1+b2x2+b3x3+b4x4+b5x5+e}$$

Where:

Y=value of the dependent variable (leverage-total debt, long-term debt and short term debt).

X=value of the respective independent variable, the explanatory variables as follows:

X1: Tangibility, X2: Risk, X3: Size, X4: Growth, X5: Profitability,

B: regression coefficient, e: the random error term, a: intercept (constant).

This study expects the regression coefficients to show either positive or negative signs depending on the hypothesized relation. The statistical and economic significance coefficients will then be analyzed.

Depending on the results additional tests for robustness will be carried out. OLS-regression results will then 'be compared with the' underlying capital structure theory, and previous empirical research findings. A further measure is the adjusted R^2 which is a modified value of the coefficient of determination that takes into account the number of variables and the sample size.

The statistical method closest to those applied in this chapter is cross-sectional analyses of the determinants of debt ratios: Kester (1986), Friend and Lang (1988), Rajan and Zingales(l 995) ,Chittenden et al. (1996), Michaelas et al. (1999) and Hall et al. (2004). These
cross-sectional analyses have generally been set up as linear regression models with leverage measure (usually total debt, short and long term debt to book value of assets) as the dependent variables.

Explanatory data have been drawn from income statements and balance sheets. Regression analysis is used to test the hypotheses discussed in chapter 4 means of employing various independent variables, which are regressed against the three measures of leverage.

Michaelas (1999) argues that the most capital structure studies is cross-sectional and uses the ordinary least square (OLS) technique. As a result, this study uses the OLS technique to analyze the data in this research. Three multiple regression models with dummy variables are used to test the hypotheses.

In the first regression total debt to total assets is used as the dependent variable, in the second regression the dependent variable was the ratio of short-term debt to total assets; and the ratio of long-term debt to total assets was used as the dependent variable in the third regression. The three dependent variables were each regressed against five explanatory variables, which are proxies for growth, profitability, size, tangibility, and risk. Dummies variables were used, which take the value of 0 if the firm was a State-owned company; otherwise it had a value of 1, and the value of 0 if the firm was a industrial company; otherwise it had a value of 1.

5.2.1 Heteroscedasticity

Avery important assumption of the classical linear model is that the disturbances appearing in the population regression function are homoscedastic; that is, they all have the same variance. Unequal variances for different setting of the independent variable are said to be heteroscedasticity. Gujarati (2003) points out that the problem of heteroscedasticity is likely to be more common in cross-sectional data. For the reason that cross-sectional data usually deals with members of population at a given point of time, for instance companies or industries, and these members may be of different size. Total assets have been used as a deflator in the regression analysis model which is in accordance with the suggestions of Patrick, Hall and Michaelas (1998), Kester (1986), Friend and Lang (1988), Rajan and Zingales (1995), Chittenden et al. (1996), Bevan and Danbolt (2000 and 2002), Hall et al. (2004) and Jong (2006) .

5.3 Study Data and sample

The data used in this chapter are based on financial data for the five years 2000-2004 collected from company balance sheets and income statements. In an attempt to make the database of Libyan companies as complete as possible, companies from both the state owned and the private sectors were selected. Because of the lack of an appropriate database, the data used in this chapter are gathered from the companies themselves in the capital city of Tripoli and Benghazi city, in order to have the data sample as complete as possible. The data sample, as shown in Table (5-1), consists of 65 companies from eight industry classifications. The sample consists thirty-seven state-owned companies, and twenty-eight privately owned companies. The sample includes both sound companies and companies in financial distress. This combination is necessary as the probability of bankruptcy may feature heavily in a firm's financing decisions. The principal criterion for choosing the companies was the availability and quality of data for a time period of 5 years (2000-2004). However, firms that operate in the financial sector (banks, insurance and investment firms) are excluded (see, Shyam-Sumdear and Myers, 1999; Frank and Goyal, 2003; Rajan and Zingales, 1995; Titman and Wessels, 1988; Lasfer, 1995; Ozkan, 2001 and Kisgen, 2005). Lasfer (1995) argues that financial firms are excluded because of the specific characteristics of their capital structure. Rajan and Zingales (1995) exclude financial firms such as banks and insurance firms from the sample because financial firms' leverage is highly affected by explicit (or implicit) investor insurance schemes such as deposit insurance. Moreover, financial firms' debt-like liabilities are not strictly comparable to the debt issued by non-financial firms. Finally, regulations such as minimum capital requirements may directly affect capital structure.

Table (5-1): Industry Classifications of the Libyan sample

Industry	Number of Companies		Total	The industry's percentage of entire sample (%)
	Private	State owned		
Manufacturing	4	12	16	24.62%
Agriculture	0	3	3	4.61%
Construction	7	6	13	20%
Wholesale	4	3	7	10.77%
Hotels	6	-	6	9.23%
Transportation	2	4	6	9.23%
Services	4	5	9	13.85%
Petroleum	1	4	5	7.69%
Total	28	37	65	100%

Chart 5.1 Industry Classification of the Libyan sample

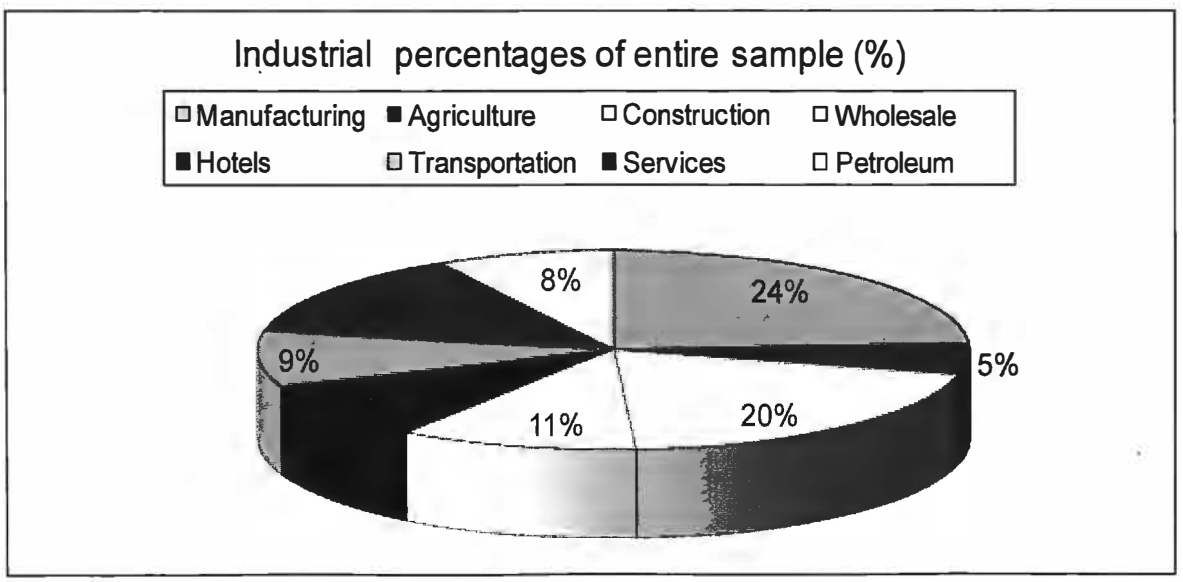


Table (5-1) and chart (5-1) show that the manufacturing sector has the highest percentage, with 24% of the total sample. It is worth noting that the manufacturing, construction, services; wholesale sectors represent over 68% of the whole sample.

5.4 Cross-sectional data

Cross-sectional data is collected for a number of entities at a given point of time. With the purpose of get a set of quantitative data (Bryman, 2001). Gujarati (2003) argues that cross. sectional data are usually connected with two or more variables that are then tested to determine the significance and directions of the association.

5.5 Correlation Analysis

Correlation analysis provides a correlation (r) that demonstrates the strength of the relationship between two variables. Values of the correlation coefficient range from r = -1 tor

= +1. A correlation coefficient of **(+/-1)** means that there is a perfect correlation between two variables. (+ 1) means that there is a strong positive correlation (i.e. when the value of one variable increases, the value of the other variable also increases, and at the same rate) whilst -

1 means that there is a Strong negative correlation (i.e. when the value of one variable increases, the value of the other variable decreases, and at the same rate). However, (0) means that there is no correlation between two variables. The correlation coefficient can fall anywhere between 0 and **+/-1** with (+/-.20) being a weak correlation, (+/-.5) being a moderate correlation and (+/-.7) being a strong correlation (Rowntree 1981). In addition to providing a correlation coefficient, the output from a correlation analysis is able to provide the significance of

the correlation. In this study the bivariate Pearson correlation test was applied for all companies and sectors.

The test was subject to a three -tailed test of statistical significance at three different levels: highly significant ($p < 0.01$), ($p < 0.05$) and significant ($p < 0.10$). For example, to test the null hypothesis there is no relationship between the variables. If the P value is less than 0.1 then it could be possible to reject this null hypothesis in favour of the alternative hypothesis there is a relationship between the variables. To calculate this E-view (Statistical Package for the Social Sciences) bivariate correlate command was used.

Additionally, this research used correlation analysis for two purposes as follows:

First, to check the presence of multicollinearity. The most important assumption of the classical linear regression model, and one which applies to all regression models, is that there is no multicollinearity among the regressions included in the model. Multicollinearity is the presence of a high degree of correlation between independent variables. An informal way of detecting multicollinearity is to examine the pair-wise correlation coefficients between the different independent variables. This study applied the ceiling of .80 for the correlation coefficient (see Berry and Feldman, 1985, Hair et al., 1995 and Gujarati, 2003). Berry and Feldman (1985) point out that correlation between variables higher than .80 should be considered as evidence of high multicollinearity. Hair et al. (1995) suggested that no limit has been set that defines high correlations, values exceeding 0.90 should always be examined, and many times correlation exceeding 0.80 can be indicative of problems. Table 5-2 shows no multicollinearity. Second, Table (5-2) provides a correlation matrix of the cross-sectional sample of the 325 observations (65 companies each for 5 years). The data was averaged over the five years to smooth the leverage and explanatory variables. In this study the correlation test is applied.

Table (5-2): **Correlation Matrix between variables in cross -sectional analysis**

(7) (3) *Variables*	( ])	(2)	(3)	(4)	(5)	(6)	(4)	(5) debt ratio
Total debt	**(8)**	**-.150**	**-.063**	**.141**	**-.430*** **	**-.290*** **	**.926*** **	**.107 ratio**

*, **, ***and*** ***, significant at the JO,* **5,** *and 1% level, respectively.*
P<0.10, P**<0.05 and P***<0.01*

(8) *Profitability*	( ])						
Tangibility	**(2)**	**-.302*** **					
Growth		**.036**	**-.033**				
Size		**-.106**	**-.003**	**-.178**			
Risk		**.282****	**.096**	**.215***	**-.533*** **		
Short-term debt ratio	**(6)**	**-.159**	**.036**	**.166**	**-.418*** **	**.305*** **	
Long-term	**(7)**	**.037**	**-.253****	**-.078**	**.006**	**.064**	**-.277****

Correlation matrix

Table 5.2 shows the correlation between the dependent variables and the independent variables. From this Table the following important remarks are found.

5.5.1.1 The correlation between the independent variables

Table (5-2) displays the correlation among the five independent variables to identify the presence of multicollinearity. Growth was found to be positively correlated with profitability but it was not a statistically significant correlation ($r = .036$, $p > 0.10$). Risk was also identified to be statistically significantly and positively correlated with profitability ($r= .282$, $p < 0.05$), whereas size was found to be negatively correlated with profitability but it was not statistically significant correlation ($r =- 0.106$, $p > 0.1\ 0$).Tangibility was also identified to be statistically

significantly and negatively correlated with profitability ($r=-.302$, $p < 0.01$).

5.5.1.2 The correlation between the explanatory variables (independent) and leverage

The table (5-2) displays the correlation among the five independent variables (profitability, tangibility, size, growth and risk) and their correlations with the dependent variable (leverage). Risk was found to be statistically significant and positively correlated with short term debt ($r=0.305$, $p<0.01$) whereas tangibility and growth were found to be positively correlated with short term debt but not statistical significant correlation ($r=0.036$, $p>.0.10$) and ($r=0.166$,$p>0.10$) respectively .Tangibility was found to be statistically significant and negatively correlated with long term debt ($r=-0.253$ $p<0.05$) whereas risk and growth were found to be negatively correlated with long term debt but not with statistically significant correlation ($r=-0.064$, $p>.0.10$) and ($r= -0.078$, $p>0.10$) respectively. Profitability was found to be statistically significant and negatively correlated with short term debt ($r=- -0.159$, $p>0.10$). Size was also negatively correlated with short term debt but it was not a statistically significant ($r=-0.418$, $p<0.01$) Size was found to be statistically significant and negatively correlated with total debt ratios ($r=-0.430$ $p<0.01$) whereas profitability and tangibility were found to be negatively correlated with total debt ratios but not with statistical significant correlations (($r=-0.150$, $p>.0.10$) and ($r= -0.063$, $p>0.10$) respectively). This implies that :- 1- Growing companies ,risky companies and companies with high levels of tangible assets tend to use short-term debt rather than long-term debt.2 -Large and profitable companies are less likely to use short-term debt and tend to use less debt overall.

5.6 Robustness of the model - multicollinearity

One of the most important assumptions of the classical linear regression model, and one which applies to all regression models, is that there is no multicollinearity among the regressors included in the model. Multicollinearity exists when two or more of the independent variables used in the regression are correlated. High correlations among variables increase the likelihood of rounding errors in the calculations of the regression coefficients and standard errors. Second the regression results may be confusing and misleading, as multicollinearity can have an effect on the signs of the parameter estimates.

More specifically, the regression coefficients may have the opposite sign to what is expected. As noted before, in order to establish the presence of multicollinearity between the independent variables this research applied the maximum of 0.80 for the correlation coefficient, according to Berry and Feldman (1985) and Hair et al. (1995). All of the correlations between all the independent variables were lower than 0.80. It can be seen that a high degree of correlation exists among the five components of the determinants of capital structure (explanatory variables) and leverage. There was a statistically significant and negatively correlation between profitability and tangibility (r -0.302 and $p<0.01$). 'There was also a statistically significant and negatively correlation between size and risk ($r = -0.533$ and $p<0.01$). Multicollinearity was not a problem at all in this research.

Table (5-3): Summary of Descriptive Statistics for (state- owned and private companies) and (industrial and non-industrial companies)

	profitability	Tangibility	Growth	Size	Risk	STD ratio	LTD ratio	TD ratio
Entire sample Mean	0 .023	0.199	12.884	14.148	0.212	0.493	0.082	0.575
Std Deviation	0 .082	0.145	28.736	1,946	0.918	0.362	0.142	0.334
Minimum	-0.187	0.003	-32.170	13.03	0.001	0.004	0.000	0.035
Maximum	0 .287	0.723	112.400	18.069	0.392	1.492	0.591	1.548
State- owned Companies Mean	0.034	0.262	3.314	14.291	0.053	0.349	0.065	0.414
Std Deviation	0.090	0.089	14.601	1.385	0.057	0.363	0.126	0.362
Minimum	-0.187	0.069	-27.120	13.03	0.001	0.004	0.000	0.035
Maximum	0.287	0.351	23.490	18.069	0.198	1.492	0.591	1.548
Private companies Mean	0.016	0.162	17.434	12.506	0. 122	0.567	0.070	0.637
Std Deviation	0.069	0.152	32.837	1.138	0.094	0.247	0.131	0.207
Minimum	0.006	0.003	-32.170	11.680	0.008	0.046	0.000	0.230
Maximum	0.173	0.723	112.400	15.970	0.392	0.940	0.590	1.019
Industrial companies Mean	0.025	0.198	5.946	17.076	0.045	0.321	0.023	0.324
Std Deviation	0.085	0.144	18.542	13.847	0.048	0.176	0.042	0.218
Minimum	0.187	0.012	29.100	13.03	0.001	0.116	0.000	0.116
Maximum	0.287	0.674	71.610	18.069	0.198	0.636	0.165	0.701
Non- Industrial companies Mean	0.015	0.173	24.04	13.506	0.101	0.358	0.065	0.423
Std Deviation	0.074	0.148	38.004	11.387	0.092	0.363	0.125	0.207
Minimum	0.256	0.003	32.170	11.683	0.001	0.004	0.125	0.035
Maximum	0.208	0.723	112.400	15.978	0.392	1.492	0.000	1.548

Growth is measured by the percentage change in total assets. Tangibility is defined as the ratio of fixed assets to total assets. Profitability is defined as the ratio of earnings before interest and tax to total assets. Size is measured by the natural logarithm of assets. Risk is measure by the standard deviation of ROA. ROA is earnings before interest and tax divided by total assets. STD ratio refers to the ratio of short-term debt to total assets. LTD ratio refers to long-term debt to total assets. TD ratio refers to the ratio of total debt to total assets.

5. 7 Descriptive Statistics for the explanatory variables and leverage

Table 5.3 presents the summarizes descriptive statistics for the independent variables (explanatory variables) and leverage (dependent variables) measures for the entire sample of Libyan companies, and four sub-sets (private companies and state owned companies) and (industrial companies and non-industrial companies).

Table 5.3 shows that Libyan companies have a low rate of profitability (2.3%). Private companies have lower rates of profitability (0.016) than state owned companies (0.034). The growth rate on average is (12.884%) and private companies tend to have higher average growth rates (17.434%) than state –owned (3.314%) companies. State -owned companies have, on average, higher tangibility (26.2%) than private companies (16.2%). The size on average is (14.148%) and the state-owned companies are more sizable (14.291%) than private companies (12.506%). The ratio of total debt on average is 57.5% of total book value of assets. The risk rate on average is (0.212) and private companies tend to have higher average risk rates (0.122) than the state –owned (0.053 %) companies.

The majority of debt is short-term nature (49.3% on average) but private companies have higher levels of short-term debt (56.7%) than state-owned companies (34.9%). The long-term debt ratio is very similar for state –owned (0.065) and private companies (0.07).

Table 5.3 shows that non-industrial companies have lower rates of profitability (0.015) than industrial companies (0.025). Non-industrial companies tend to have a higher average growth rate (24.04%) than industrial companies (5.946 %). Industrial companies have, on average, higher tangibility (19.8%) than Non-industrial companies (17.3%). Industrial companies are more sizable (17.076%) than Non- industrial companies (13.506%).

Non-industrial companies tend to have higher average risk rates (0.101) than industrial companies (0.045). Non-industrial companies have higher levels of short-term debt (42.3%) than industrial companies (32.4%), and Non-industrial companies have higher levels of long-term debt (0.065) than industrial companies (0.023%).

5.8 Theoretical predictions

The hypothesized directions of influence of the explanatory variables on the endogenous variable (leverage) are based on the trade off, pecking order, agency, and control considerations as well as previous empirical studies. Table 5-4 presents a summary of the predicted signs on the estimated coefficients of all the explanatory variables of models, which are included to proxy for the various theories as discussed in chapter 3. The predictions can thus be summarized as follows.

Table (5-4) Predicted signs on the proxies for the competing leverage determinants theories

Variables (proxy)	*Agency cost Theory*	*Static Trade- off theory*	*Asymmetric information Theory (Pecking order)*
Firm Size	**+ positive**	**(+) positive** Larger firms tend to be more diversified, less risky and thus less prone to bankruptcy and can support more debt.	**?**
Profitability	**positive or Negative** (+)In an efficient market profitable firms employ debt to prevent waste by managers (-)In an inefficient market, managers tend to avoid the disciplinary role of debt.	**(+) positive** – Profitable firms enjoy better borrowing terms, as lenders prefer profitable firms.	**(-) Negative** Profitable firms have sufficient retained earnings thus rely less on external funds.
Growth	**Negative** (-) – Risk shifting: growth opportunities give greater scope for expropriation of lenders' wealth. (-) – Under investment: highly geared firms tend to pass up investment opportunities	**?**	**(+) positive** Growing firms need funds, and they prefer debt to external equity because debt is less subject to mis-pricing
Risk (business risk)	**Negative** The probability of risk shifting or under investment increases with increases in the riskiness of the firm	**Negative** Earnings volatility increases the probability, and thus the present value, of the costs of financial distress	**Negative**
Tangibility	**Negative or positive** (-) Difficult to monitor the use of intangible assets hence employ debt for this purpose (+) Harder to engage in risk shifting when assets are in place	**(+) positive** Tangible assets can be offered as security to lenders and are likely to have high value on liquidation.	**(+)Positive**

Note: "+"manes that leverage increases with the factor. "-"manes that leverage decreases with the factor. "+/-"manes that both positive and negative relations between leverage and factors are possible theoretically if in "Theoretical predicted signs". "?"Means that no clear prediction or empirical study results. Sources are from Harris and Raviv (1991), Rajan and Zingales (1995), Titman and Wessles (1988), Booth et al. (2001), and Fama and French (2002).

Discussion of results

In this section the results of cross-sectional empirical tests are presented and discussed. The detailed results are presented in various tables in this chapter. The results from the cross-sectional OLS- are also compared between the state-owned and private companies in this section analysis.

5.9 Cross section regression results and analysis Basis of private and state-owned companies

As was discussed in chapter three (literature review), there are factors that have been theorized to influence capital structure choices. It was also mentioned that a number of studies have attempted to test these various factors in order to find out if they actually have a significant effect on capital structure. A summary of previous cross sectional studies in chapter three revealed that similar US and UK studies examined factors like tangibility, business risk, firm size, growth opportunities and profitability. This section reports and discusses results of tests conducted on those same independent explanatory variables. Tables 5.6 and 5.7 show the results of the three models using multiple regressions. The models are based on book value ratios in which total debt, short term debt and long-term debt are each divided by total assets. Tables 5.6 and 5.7 report OLS regression coefficients (β) of the model used for cross-sectional analysis. Separate discussion on the mixed value ratios is presented. Since the p-values are less than 0.10 across three models, there are statistically significant relationships between the dependent and the independent variables at the 99, 95, and 90 per cent confidence levels.

Regression findings displayed in Table (5.6) for state-owned compames indicate good explanatory power through R^2 running from 78% for total debt, 73% for long-term debt and 72% for short-term debt which confirms that the five explanatory variables included in the regression equations in the first, second and third models explain 78%, 73% and 72% of the variation in the dependent variable.

In relation to private companies, regression findings displayed in Table (5.7) for private companies indicate good explanatory power through R^2 running from 84% for total debt, 79% for long term debt and 75% for short term debt which confirms that the five explanatory variables included in the regression equations in the first, second and third models explain 84%, 79% and

75% of the variation in the dependent variable. Regarding model fit, the values of F tests indicate that the models used in this study are valid (Girma, 2006).

The results of the study indicate that P-value for F-Test (prob>F) remains 0.0000 for all the models, indicating that the models used in this study are valid. The R^2, adjusted R^2 and F-test are as follow.

Table (5.5) R^2, adjusted $R^2$and F-test under Pooled OLS Estimation Model for state- owned and private Companies

Dependent Variables	R^2	Adjusted R^2	F-TEST	Prob (F-statistic)	D-W
State-owned companies					
TD	0.78	0.77	820	(0.000)	2.04
LTD	0.73	0.72	580	(0.000)	2.15
STD	0.72	0.71	530	(0.000)	2.08
Private companies					
TD	0.84	0.83	350	(0.000)	2.06
LTD	0.79	0.78	219	(0.000)	2.09
STD	0.75	0.75	235	(0.000)	2.28

In the above table, **TD** refers to total leverage; **LT D** refers to long term leverage and **ST D** represents short term leverage

5.9.1 Regression Results of Short-Term Debt ratio

Table 5.5 presents the regression results of determinants of the short-term debt ratio of Libyan companies between 2000 and 2004. For state-owned companies the R^2 is 0.72, which indicates that about 72 percent of the variability of the short-term debt ratio is explained by firm specific factors. The F-statistic of 530 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.08, which indicates the absence of an autocorrelation problem.

In relation to private companies, table 5.5 shows the R^2 is 0.75, which indicates that about 75 percent of the variability of the short-term debt ratio is explained by firm specific factors.

The F-statistic of 235 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.28, which indicates the absence of an autocorrelation problem.

5.9.2 Regression Results of Long-Term Debt Ratio

Table 5.5 presents the regression results of determinants of long -term debt ratio of Libyan companies between 2000 and 2004. For state-owned companies the adjusted R^2 is 0.73, which indicates that about 73 percent of the variability of long-term debt ratio is explained by firm specific factors. The F-statistic of 580 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.15, which indicates the absence of an autocorrelation problem.

In relation to private companies, table 5.5 shows the R^2 is 0.79, which indicates that about 79 percent of the variability of the long -term debt ratio is explained by firm specific factors. The F-statistic of 219 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.09, which indicates the absence of an autocorrelation problem.

5.9.3 Regression Results of Total Debt Ratio

Table 5.5 presents the regression results of determinants of the total debt ratio of Libyan companies between 2000 and 2004. For state-owned companies the R^2 is 0.78, which indicates that about 78 percent of the variability of the total debt ratio is explained by firm specific factors. The F-statistic of 820 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.04 which indicates the absence of an autocorrelation problem.

In relation to private companies, table 5.5 shows the R^2 is 0.84, which indicates that about 84 percent of the variability of the total debt ratio is explained by firm specific factors. The F-statistic of 350 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.09, which indicates the absence of an autocorrelation problem.

Table (5-6): Results of OLS analysis over different measures of leverage for State-owned companies

Independent Variables	*Dependent variables* (leverage)					
	Total debt ratio Model (1)		Short-term debt ratio Model(2)		Long-term debt *ratio* Model(3)	
	Coefficient(β)	t (value)	Coefficient(β)	t (value)	Coefficient(β)	t(value)
Intercept (c)	0.0277	(0.614)	0.2133***	(4.212)	- 0.1264***	(5.530)
Profitability	0.1532***	(3.438)	0.0952***	(7.304)	0.0410	(1.516)
Size	0.0367***	(5.173)	0.0174***	(2 .704)	0 .0268***	(2.543)
Growth	-0.0335***	(-2.683)	-0.985***	(-3.938)	-0.207***	(-2.405)
Tangibility	0.0736***	(2 .602)	0.008	(0.507)	0.0274	(1.328)
Risk (BR)	-0.0204	(-0.507)	- 0.072***	- (2.302)	-0.0876** *	(-2.851)
R^2	0.78		0.72		0.73	
Adjusted R^2	0.77		0.71		0.72	
F-statistic	820***		530***		580 ***	
Prob (F-statistic	(0.000)		(0.000)		(0.000)	
D-W	2.04		2.15		2.08	
Number of observations	185		185		185	

Table (5- 7) Results of OLS analysis over different measures of leverage for Private companies

Explanatory variables	Total debt ratio(TD) Model (1)		Short-term debt ratio(STD) Model (2)		Long –term debt Ratio(LTD) Model (3)	
	Coefficient (β)	t (value)	Coefficient (β)	t (value)	Coefficient (β)	t (value)
Intercept	0.2016	(1.413)	0.3614***	(5.5476)	-0. 1618***	(2.501)
Profitability	0.0578***	(2.776)	0.031***	(1.811)	0.0206	(0.976)
Size	0.0237***	(2.128)	0.067***	(4.571)	0.0241***	(5.282)
Growth	-0.0168	-(0.530)	-0.005	(-1.651)	-0.0141	-(1.336)
Tangibility	0.3046***	(6.518)	0.0426***	(2.406)	0 .0165	(0.618)
Risk	- 0.0448	(-1.338)	-0.039	(-1.910)	-0.488***	(-3.196)
R^2	0.84		0.75		0.79	
Adjusted R^2	0.83		0.74		0.78	
F-statistic Prob(F-statistic)	350*** (0.000)		235*** (0.000)		219*** (0.000)	
D-W	2.06		2.28		2.09	
Number of observations	140		140		140	

Table (5-6) and (5-7) presents values of leverage and other firm-specific characteristics from two sectors All variables are averaged over the period 2000–2004, in which data are required to be available for at least five years. The firm-specific variables are as follows: **Leverage (LEV) = a+ β1TA + β2Grow + β3 size + β4 profit+ β5 Risk + D +Єİ** Tangibility (TA) defined as fixed assets over book value of total assets. Risk defined as the standard deviation of earnings before interest and tax divided by total assets. SIZE: Firm size defined as the natural logarithm of total assets. Growth defined as the percentage change in the total assets. PROFIT: Profitability defined as ratio of earnings before tax to total assets. Short-term debt ratio refers to the ratio of short term debt to total assets. Long-term debt ratio refers to long-term debt to total assets. Total debt ratio refers to the ratio of total debt to total assets. D refers to a dummy variable, which take 0 if the firm is state-owned firm and 1if the firm is private firm.. *** **,* indicate statistical significance at 1%, 5%, 10% level, respectively. F-statistics are in parentheses'-value is reported in parentheses. Adj-R2 is the value of adjusted R2 for the regression. All Durbin-Watson coefficients are above 2 which indicate the absence of multicollinearity.

5.10 The influence of financial variables on capital structure (leverage)

5.10.1 Tangibility

In chapter Four, hypothesis (HI) suggests a positive relationship between asset structure and debt ratio. In this study it was found that there was a statistically significant and positive relationship between tangibility and total debt(TD).The result was significant at a 1% level (β =0.0736, $p<0.01$),(see table 5.6).

The findings also indicate that there was not a statistically significant relationship between tangibility and either short or long term debt for state owned companies. The coefficient of tangible assets in short debt model (STD) and long debt model (LTD) were small and not statistically significant. All results were not significant at a 10% level (β = 0.008, $p>0.10$ and β =0.094, $p>0.10$) respectively. This means tangible assets had a weak relationship with STD and LTD. This suggests that state owned companies do not use their fixed assets as collateral for obtaining more debt. This may imply that as the state has a majority ownership in these companies, the debt holders take government involvement as collateral instead of the firms' fixed assets. The relationship between tangible assets and short and long term debt seems to be weak. Libyan banks required tangible assets to the value of at least a third of the debt to guarantee loans. However, Libyan state-owned companies were able to borrow from banks without high tangibility. This happens widely in Libya. It is possible that this characteristic of companies' bank borrowing affected the relationship between tangible assets and STD.

The findings also suggest that there is a statistically significant and positive relationship between tangibility and short-term debt for private companies, (see table 5.7), ($P = 0.0426$, $p < 0.01$). This means that private firms with more fixed assets were able to use such assets as collateral. If a company's tangible assets are high, then these assets can be used as collateral, diminishing the lender's risk of suffering agency costs of debt. Hence, a high proportion of tangible assets is expected to be associated with high leverage. Also, the value of tangible assets should be higher than intangible assets in case of bankruptcy. Williamson (1988) and Harris and Raviv (1990) suggest leverage should increase with liquidation value and both papers suggest that leverage is positively correlated with tangibility. Empirical studies that agree with the above theoretical prediction include Marsh, (1982); Long and Malitz, (1985); Friend and Lang, (1988); Rajan and Zingales, (1995); and Wald, (1999).

This result is in line with the agency theory of capital structure. Other studies in the finance literature find the same result among them: Jensen and Meckling, (1976); Titman and Wessels,(1988);Thies and Klock,(1992);Bhaduri,(2001);Booth et al. (2001); Colombo,(2001);
Dessi and Robertson, (2003);Chen, (2004);Voulgaris et al. (2004); Huang & Song, (2005 and 2006); and Westgaard et al. (2008). Alternatively, the findings in this study also suggest that there is no significant difference between state owned and private companies in terms of the
relationship between long-term debt and tangibility ($P = 0.0274, p > 0.10$ and $p = 0.0165, P > 0.10$) respectively. However, at the time of study the situation in Libya was different. Because the corporate bond market was undeveloped and small, very few Libyan companies issued corporate bonds.

The discussion about agency costs of debt might not apply to those companies. According to the introduction of corporate financing earlier, the debt of Libyan companies existed mainly as bank borrowings. Project financing required property rights as a guarantee, asset tangibility was an important criterion in Libyan bank's credit policy. It is a surprising result, because fixed assets are usually used as collaterals in order to obtain long-term debt finance. The possible explanation is that long-term finance was more likely, used by the state owned companies for purposes other than investment in new projects and the purchase of fixed assets. Although the State owned companies had a high proportion of fixed assets compared to private companies, the tangibility coefficients of the state owned companies were not significant for short and long term debt. This might mean that information asymmetries and agency problems were less significant in the state owned companies than the private companies. Tangibility of assets seems to have been more important for Libyan private companies than State owned companies, as tangibility assets increase the security to lenders and at the same time decrease information asymmetries. In sum, this study confirms the positive relationship between the tangibility of assets and a firm's debt level.

5.10.2 Profitability

Hypothesis (H2) suggests a positive relation between profitability and debt level. In this study it was found that there was a statistically significant and positive relationship between profitability, and leverage (total debt and short-term debt) for state-owned companies. In table 5.6 the results are significant at a 1% level ($\beta = 0.1532$, $p < 0.01$, and $\beta = 0.0952$, $p < 0.01$ respectively).

Profitability was not a significant explanatory variable for long term debt ratios ($\beta = 0.0410$, $p > 0.10$) indicating that profitability influenced the maturity structure of debt, as well as the overall level of debt. Profitability was positively related to short-term debt ratio and total debt ratio, indicating non-compliance to pecking order hypothesis but compliance to the static trade-off theory. According to Um (2001), high profitability gives a higher debt capacity and the accompanying tax shields; hence a positive association between profitability and capital structure is expected. This positive relationship may suggest that profitable firms resort to short-term debt to finance their current assets.

The expectation of a positive relationship between profitability and debt is that as high profit increase the debt capacity of a company, companies will choose to increase their debt to take advantages of tax deductibility. The static trade off theory thus states that there is a positive relation between profitability and debt ratio. Alternatively, the results of private companies show that profitability has a statistically significant and positive relationship with leverage (Total debt TD), and short-term debt (STD) in table 5.7. All results are significant at a 1% level ($\beta = 0.0578$, $p < 0.01$ and $\beta = 0.031$, $p < 0.01$) respectively. Given that the vast majority of debt in Libyan companies was from short-term sources (see Table 5.3), there is strong support for the static trade-off theory. The relationship between a firm's debt level and profitability is similar for both private and state owned companies. In sum, this study confirms a positive relationship between profitability and a firm's debt level. The results show that for the sample, a firm's profitability was an important criterion in determining financing policy.

5.10.3 Growth

Hypothesis (H3) suggests a negative relationship between growth opportunities and debt ratios. In this study it was found that there was statistically significant and negative relationship between growth and leverage (Total debt (TD), long –term debt (LTD), and short-term debt (STD)) for state-owned companies in table 5.5. All results are significant at a 1% level (β = -0.0335, $p < 0.01$, β= -0.028, $p < 0.01$ and β= -0.207, $p<0.01$) respectively .The negative and significant effect gives support to the argument of trade-off theory. This theory considers future growth opportunities as intangible assets which cannot be collateralized, and expects that firms with greater growth opportunities might have lower leverage ratios, due to the fear of' debt holders that firms may forgo valuable investment opportunities and expropriate wealth to their benefit.

Another potential reason for this result is that firms have a tendency to issue stock when their stock price is high relative to their earnings or book value. This is because, as Rajan and Zingales, (1995) state, the negative relationship between growth ratio and leverage ratio is largely driven by firms that issue significant amounts of equity. The negative sign for the regression coefficients for the growth variables in the State owned companies indicate that growing companies did not rely on debt to finance their new investment opportunities. This may imply that growing state companies had enough internal funds for their financing needs but, more likely, it may imply that as growing state-owned companies tend to be less risk averse , they prefer to use more debt. The negative signs for growth variables support agency cost theory. Agency problems are likely to be more severe for growing firms, because they are "more flexible in their selection of future investments. Thus, the expected growth rate should be negatively related to long-term leverage" (Titman and Wessels, 1988).

Myers (1977) suggests that firms with higher growth rates tend to use less long term debt and more short term debt in their capital structure in order to reduce such agency costs. The costs of state companies associated with an agency relationship and financial distress are relatively high in growing companies. Lenders therefore tend to demand higher rates of interest, and as a result managers may thus be unwilling to increase debt. The results are also consistent with agency cost theory, which says that debt holders prefer assets as collateral when they provide their funds to firms. This study supports those who find a negative effect for the explanations mentioned above, including Rajan and Zingales,(1995), Ozkan,(2001), Harris and Raviv,(1991), Aklitar,(2005), Antoniou et al.(2002; Al-Sakran, (2001);Chung,(1993); Ghosh and Cai,(2000), Huang and Song,(2006); and Brailsford, Oliver, and Pua ,(2002).

For private companies, the findings also suggest that growth was found to have a negative relationship with three debt ratios ,total debt (TD), long –term debt (LTD), and short-term debt (STD), (Table5.7) but not statistically significant,all results being not significant at a 10% level (β = - 0.0168, $p > 0.10$, β= -0.005, $p > 0.10$ and β = - 0.0141, $p > 0.10$) respectively. Growth opportunity has negative significance with the dependent variables. Trade off theory suggests that companies which have future growth opportunities will tend to have lower leverage and that because growth opportunities are a form of intangible assets, they cannot be collateral listed. High growth companies find it easier to issue equity than low growth companies, which may be because they have better performance and higher profitability.

Also it might be because these companies have higher retained earnings for project financing, which might reduce the correlation between growth opportunity and leverage. In sum, this study confirms the negative relationship between a firm's debt levels and growth opportunities.

5.10.4 Size

Hypothesis (H4) suggests a positive relationship between a firm's size and debt level. In this study it was found that there was a statistically significant and positive relationship between the size of a firm and leverage, indicating that leverage increases with size and vice versa. In terms of total debt (TD), short-term debt (SD) and long term debt (LD) for state-owned companies in table 5.6, all results were significant at a 1% level ($\beta = 0.0367$, $p < 0.01$, $\beta = 0.0174$, $p < 0.01$ and $\beta = 0.0268$, $p < 0.01$ respectively).

The results in Table (5-7) show that the relationship between size and total debt; short term debt, and long term debt was positive for private companies. All results were significant at a 1% level ($\beta = 0.0237$, $p < 0.01$, $\beta = 0.067$, $p < 0.01$ and $\beta = 0.0241$, $p < 0.01$) respectively.

The results in tables 5.6 and 5.7 suggest that the trade-off theory seems to have a greater explanatory power in explaining the effect of company size on the leverage ratios in Libyan companies (state owned and private) as indicated by the significant positive coefficients in tables 5.6 and 5.7. The results seem to be consistent with the argument of Rajan and Zingales (1995), who consider company size to be an inverse proxy for the probability of bankruptcy.

There is fairly strong support for the static trade-off theory. As a company's size increases, it is able to increase its debt. In other words, larger companies have a lower probability of bankruptcy than smaller companies and larger companies may have easier access to capital markets (debt financing) than smaller companies. Furthermore, larger companies have higher debt capacity than smaller companies and therefore, are able to borrow more, and take more advantage of tax reliefs. Therefore, a positive relationship between company size and leverage can be interpreted as being consistent with static trade-off theory.

As stated by Green (2004) most of the external finance of firms in developing countries comes from bank finance as the bond market is relatively under-developed. The positive relationship is due to the fact that the bigger the Libyan company was the easier it become for them to seek financing as compared to smaller companies. For the explanations mentioned above, this study supports those who find a positive relationship between company size and debt ratio. These include Deesomask, Paudyal, and Pescetto, (2004); Krishnan and Moyer, (1997); Colombo, (2001); Booth et al. (2001); Bhaduri, (2002);Huang and Song,(2006);Voulgaris, Asteriou, and Agiomirgianakis,(2004);Chung,(1993);Maris and Elayan (1990); Homaifiar et al. (1994); Singh and Nejadmalayeri,(2004);Cassar and Holmes,(2003); (Dessi and Robertson, (2003) and Westgaard et al. (2008). In contrast Titman and Wessels, (1988) and Delcoure, (2007) found a negative relationship between company size and leverage ratio. In sum, this study confirms a positive relationship between a firm's size and its debt level .The results show that a firm's size for non-financial companies included in the sample is an important criterion in determining financing policy since it has a positive relationship in all models used in the regressions.

5.10.5 Risk

Hypothesis (H5) suggests a negative relationship between a firm's risk and debt level. The negative relationship between a firm's risk and debt level supports the trade-off theory; this assumes that the costs of bankruptcy and financial distress reduce a company's incentive to use debt financing. This is because firms may not be able to fulfil their debt commitments, as supported by Panno, (2003). Meanwhile, the positive effect supports the agency theory and the managerial risk aversion, as suggested by Chung,(1993). From the agency theory perspective, debt is used as a disciplinary device to prevent managers from transferring resources to their own personal benefits or to invest in negative projects.

Agency theory states that higher the probability of agency costs, the more the debt needed which is consistent with the proposed negative relationship between business risk and leverage. In this study it was found that there was a statistically significant and negative relationship between risk and leverage in the form of short term debt (STD) and long term debt (LTD) for state-owned companies in table 5.6 . The coefficients for short debt (STD) and for long debt (LTD) were significant at 1% level, those for short-term debt (STD) and long-term debt, at 5%, and 10% levels ($\beta = -0.072$, $p < 0.01$, and $\beta = -0.0876$, $p < 0.05$) respectively. The findings also suggest that for these companies, risk was found to have a negative relationship with total debt (TD) but it was not statistically significant, ($\beta = -0.0204$ $p > 0.10$). These results imply that companies with high risk levels exhibit low long-term debt ratios. In other words, they may avoid accommodating more financial risk by employing less long-term debt.

However, the results in table 5.7 indicate that there is a statistically significant and negat¡ve relationship between risk and long term debt (LD) for private companies, the resul¡s sign¡ficant at the 1% a level (P = -0.488, p<0.01). The findings also suggest that risk was found to be a negative relationship with total debt (TD) and short term debt (STD), but not a statistically significant level.

The coefficients for total debt (TD) and short debt (SD) are not significant at 10% level (P ===. 0.0448, p >0.10, and P= -0.039, p>0.10) respectively. High risk means a high probability of financial distress; this causes higher agency costs and consequently the firms raise less debt. Under the trade off theory, if a firm reduces its debt, it also reduces its bankruptcy risk and the volatility of its profits, and therefore the benefit from its tax shield increases. Under the pecking order theory, high risk firms accumulate earnings during profitable periods in order to utilize them during difficult periods in the future. Ozkan (2002) reveals that risk exerts a negative impact on debt; firms choose to have a longer debt maturity structure when the volatility of their earnings is lower. Companies which are risky try to control their risk by depressing their leverage (Ozkan, 2002).

The results are consistent with the hypothesis that firms with high variability in earnings have a greater risk of not meeting their debt obligations and, thus, they should have lower debt ratios. The evidence is consistent with the findings of Bradley et al.(1984); Titman and Wessels,(1988),Friend and Lang,(1988);Mackie-Mason,(1990),Kim et al.(1998); Kale et al.(199 l);Jensen et al.(1992);Bhaduri,(2002); Drobetz and Fix,(2003);Nivorozhkin,(2004) and Huang and Song,(2005).

In sum, this study confirms a negative relationship between a company's risk and debt level. The results show that risk for non-financial companies included in the sample was an important criterion in determining financing policy since it had a negative relationship in all models used in the regressions. Table 5-8 summaries the determinants of capital structure, theoretical predicted signs, the results of previous empirical studies and empirical evidence from the results of the study.

Table (5-8) summaries of determinants of capital structure, theoretical predicted signs, the results of previous empirical studies and empirical evidence from the results of the study

determinants	Theoretical prediction	Results of majority of empirical research	Empirical evidence from the results of the study(Libyan companies)
Profitability	+/-	-	+
Tangibility	+	+	+
Growth	+/-	-	-
Size	+	+	+
Risk	+/-		_

5.11 Cross section regression results and analysis for industrial and non- industrial Companies

Funding requirements are likely to vary by industry (Watson, 2006). Trade-off theory assumes that companies within the same industry are similar in their capital structures since they have equivalent types of assets, business risks and profitability (Phillips and Sipahioglu, 2004). Companies in the same industry class face the same business risk because they share the same technology in producing the same products, as well as using similar raw materials and labour costs (Ferri and Jones, 1979).

Reasonable numbers of studies supporting this argument include Akhtar (2005), who found that Australian multinational corporations belonging to the basic materials, energy and industrial industries had a significant positive relationship with level of debt. However, the study found that for domestic firms that belonged to the basic materials, consumer cyclical and telecommunication industries, they had a significant negative relationship with debt level.

A study by Allen and Mizunot, (1989), into Japanese industrial and commercial compani suggested that industry factors play an important part in the determination of capital structure. Baker (1973) reveals that companies in the same industrial field tend to have similar amounts o leverage. Bhaduri,(2002) states for Indian firms that the choice of capital structure is affected by a range of factors including product and industry characteristics. Also, Chung, (1993) states tha industry regulation has a strong positive effect on long-term debt capacity, which perhap indicates lower agency costs of debt in regulated industries.

On the other hand, Krishnan and Moyer, (1997), investigation the emerging market economies of Asia, found that industry classifications was not significant in explaining capital structure decisions. Also, Huang and Song, (2006) for Chinese companies revealed that considering industry characteristic variables is not important in leverage decisions. Industrial and non-industrial companies differ from each other due to firm specific characteristics. Antoniou et al. (2002) argue that industrial and non-industrial companies have some differences with respect to their assets structure and their degree of weakness to changes in capital markets. As a result of this, the factors that may affect capital structure decisions may be different in these two sectors. In order to investigate this issue, the sample was split into industrial and non-industrial companies.

Discussion ofResults

Regression findings displayed in table (5 .10) for industrial companies indicate good explanatory power through R^2 running from 89% for total debt, 84% for long-term debt and 80% for short-term debt which confirms that the five explanatory variables included in the regression equat;ons in the first, second and third models explain 89%, 84% and 80% of the variation in the de[endent variable. In relation to non-industrial companies, regression findings displayed in table (5.11) for non-industrial companies indicate good explanatory power through R^2 running from 87% for total debt, 85% for long-term debt and 79% for short-term debt which confirms that the five explanatory variables included in the regression equations in the first, second and third models explain 87%, 85% and 79% of the variation in the dependent variable.

Regarding model fit, the values of F tests indicate that the models used in this study are valid (Girma, 2006). The results of the study indicate that P-value for F-Test (Prob>F) remains 0.0000 for all the models, indicating that the models used in this study are valid. The R^2 adjusted R^2 and F-test are as follows.

Table (5.9) R^2, adjusted $R^2$and F-test under Pooled OLS Estimation model for industrial and non-industrial companies

Dependent Variables	R^2	Adjusted R^2	F-TEST	Prob (F-statistic)	D-W
Industrial companies					
TD	0.89	0.88	190.621	(0.000)	2.02
LTD	0.84	0.83	180.110	(0.000)	2.08
STD	0.80	0.79	85.515	(0.000)	2.07
Non-industrial companies					
TD	0.87	0.86	230	(0.000)	2.16
LTD	0.85	0.84	310	(0.000)	2.11
STD	0.79	0.78	369	(0.000)	2.05

In the above table, **TD** refers to total leverage; **LT D** refers to long term leverage and **ST D** represents short term leverage

5.11.1 Regression Results of Short-Term Debt ratio

Table (5.9) presents the regression results of determinants of the short-term debt ratio of Libyan companies between 2000 and 2004. For industrial companies the R^2 is 0.80, which indicates that about 80 percent of the variability of the short-term debt ratio is explained by firm specific factors. The F-statistic of 85 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.07, which indicates the absence of an autocorrelation problem. In relation to non-industrial companies, table (5.9) shows the R^2 is 0.79, which indicates that about 79 percent of the variability of the short-term debt ratio is explained by firm specific factors. The F-statistic of 369 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.05, which indicates the absence of an autocorrelation problem.

5.11.2 Regression Results of Long-Term Debt Ratio

Table 5.9 presents the regression results of determinants of long -term debt ratio of Libyan companies between 2000 and 2004. For industrial companies the adjusted R^2 is 0.84, which indicates that about 84 percent of the variability of long-term debt ratio is explained by firm specific factors. The F-statistic of 180 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.08, which indicates the absence of an autocorrelation problem. In relation to non-industrial companies, table (5.9) shows the R^2 is 0.85, which indicates that about 85 percent of the variability of the long -term debt ratio is explained by firm specific factors. The F-statistic of 310 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.11, which indicates the absence of an autocorrelation problem.

5.11.3 Regression Results of Total Debt Ratio

Table (5.9) presents the regression results of determinants of the total debt ratio of Libyan companies between 2000 and 2004. For industrial companies the R^2 is 0.89, which indicates that about 89 percent of the variability of the total debt ratio is explained by firm specific factors. The F-statistic of 190 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.02 which indicates the absence of an autocorrelation problem.

In relation to non- industrial companies, table (5.9) shows the R^2 is 0.87, which indicates that about 87 percent of the variability of the total debt ratio is explained by firm specific factors. The F-statistic of 230 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.16, which indicates the absence of an autocorrelation problem.

Table (5-10): Results of OLS analysis over different measures of leverage for Industrial companies

Independent (Explanatory) Variables	*Dependent variables* (leverage)					
	Total debt ratio Model (1)		Short-term debt ratio Model(2)		Long-term debt *ratio* Model(3)	
	Coefficient(β)	t (value)	Coefficient(β)	t (value)	Coefficient(β)	t(value)
Intercept (c)	1.152***	(2.435)	0.413***	(3.276)	0.0827	(1.345)
Profitability	0.002	(1.486)	0.0342	(0.4265)	0.012	(0.538)
Size	-0.016**	- (2.118)	0.067	(0.634)	- 0 .008***	- (4.711)
Growth	-0.034	(-0.285)	0.0198	(0.686)	-0.005	(-1.082)
Tangibility	0.527***	(2.386)	0.026	(1.153)	0.169***	(1.218)
Risk (BR)	-0.130	(-1.072)	- 0.059	- (0.722)	-0.184** *	(-2.773)
R^2	0.89		0.80		0.84	
Adjusted R^2	0.88		0.79		0.83	
F-statistic	190***		85***		180. ***	
Prob (F-statistic)	(0.000)		(0.000)		(0.000)	
D-W	2.02		2.07		2.08	
Number of observations	80		80		80	

Table (5-11): Results of OLS analysis over different measures of leverage for Non- industrial companies

Independ Variables	*Dependent variables* (leverage)					
	Total debt ratio Model (1)		Short-term debt ratio Model(2)		Long-term debt *ratio* Model(3)	
	Coefficient(β)	t (value)	Coefficient(β)	t (value)	Coefficient(β)	t(value)
Intercept (c)	-0.176	(1.184)	0.183***	(3.265)	0.0654 **	(1.715)
Profitability	0.108***	(3.163)	0.0412**	(2.183)	0.125	(1.365)
Size	-0.056***	(8.287)	0.021***	(3.421)	- 0 .045***	(-3.866)
Growth	0.00 47**	(-0.285)	0.102	(1.226)	0.006	(0.455)
Tangibility	0.082	(0.533)	0. 098***	(3.581)	-0.166***	-(7.662)
Risk (BR*)*	-0.0436	- (1.639)	- 0.028**	- (1.786)	-0.105** *	(-4.076)
R^2	0.87		0.79		0.85	
Adjusted R'	0 .86		0.78		0.84	
F-statistic	230***		369***		310***	
Prob (F-statistic)	(0.000)		(0.000)		(0.000)	
D-W	2.16		2.05		2.11	
Number of observations	245		245		245	

Table (5-10) and (5-11) presents values of leverage and other firm-specific characteristics from two sectors All variables are averaged over the period 2000–2004, in which data are required to be available for at least five years. The firm-specific variables are as follows: **Leverage (LEV) = a+ β1TA + β2Grow + β3 size + β4 profit+ β5 Risk + D +Єİ** Tangibility (TA) defined as fixed assets over book value of total assets. Risk defined as the standard deviation of earnings before interest and tax divided by total assets. SIZE: Firm size defined as the natural logarithm of total assets. Growth defined as the percentage change in the total assets. PROFIT: Profitability defined as ratio of earnings before tax to total assets. Short-term debt ratio refers to the ratio of short-term debt to total assets. Long-term debt ratio refers to long-term debt to total assets. Total debt ratio refers to the ratio of total debt to total assets. D refers to a dummy variable, which take 0 if the firm is industrial firm and 1if the firm is non-industrial firm.. ***, **,* indicate statistical significance at 1%, 5%, 10% level, respectively. F-statistics are in parentheses'-value is reported in parentheses. Adj-R2 is the value of adjusted R2 for the regression. All Durbin-Watson coefficients are above 2 which indicate the absence of multicollinearity.

5.12 The influence of financial variables on capital structure (industrial and non industrial companies)

5.12.1 Tangibility

In this study it was found that in table 5.10 ,there was a statistically significant and positive relationship between tangibility and both total debt(TD) and long term debt.The results were significant at a 1% level (β =0.527, $p<0.01$ and β =0.169, $p<0.01$) respectively. The findings also indicate that there was not a statistically significant relationship between tangibility and short term debt for industrial companies, the coefficient of tangible assets in short debt model (STD) was small and not statistically significant. The result was not significant at a 10% level ($\beta = 0.026$, $p>0.10$).

This finding indicates that the industrial companies relied on fixed assets for obtaining more long-term debt, whereas, no significant relationship was observed between tangibility and short-term debt. In table 5.10 the coefficient for the relationship between tangibility and long-term debt is significantly negative ($\beta = - 0.166$, $p<0.01$) for non-industrial companies and there is a significant difference between industrial and non-industrial companies, as shown by the negative interaction coefficient for tangibility in table 5.11. In contrast, there is no significant difference between industrial and non-industrial companies in terms of the relationship between short-term debt and tangibility, although a significant positive relationship between short-term debt and tangibility was detected ($\beta = - 0.098$, $p<0.01$).This may imply that non-industrial company's preferred short-term debt to long-term debt when offering their fixed assets as collateral.

A possible explanation is as long as non-industrial companies have less long-term investments than industrial companies, they might match the maturity of their debt with the life of their assets. The results provide support for the existence of significant agency costs in non industrial compames.

5.12.2 Profitability

For industrial companies, the results in table 5.10 indicated that profitability was found to have a positive relationship with leverage (Total debt (TD), long-term debt (LTD), and short-term debt STD) but this relationship was not statistically significant, all results being not significant at a

10% level (P = 0.002, p > 0.10, P= 0.012, p > 0.10 and P = 0.034, p > 0.10 respectively). Tables 5.10 and 5.11 show that when the type of industry dummies was used, profitability was not a significant explanatory variable for the debt ratios of industrial companies. Profitability was significantly and positively (P = - 0.098, p<0.01) related to short-term debt for non-industrial companies as shown in table 5.11. The positive relationship between short -term debt ratios and profitability provides support for the static trade-off theory. This suggests that as a company's profitability increases; it is able to increase its short-term debt.

5.12.3 Growth

In this study it was found that there was not a statistically significant relationship between growth and leverage (Total debt, long -term debt, and short-term debt) for industrial companies in table 5.10, All results were not significant at a 10% level (P = -0.034, p>0.10, P= -0.005, p>0.10 and P= 0.0198, p>0.10 respectively).

For non-industrial companies, the findings in table 5.11 also suggest that growth was found to have a positive relationship with short-term debt (STD) and long –term debt (LTD), but not a statistically significant one ,all results being not significant at a 10% level (β = 0.102, $p > 0.10$, and β= 0.006, $p > 0.10$ respectively). Growing non-industrial companies tended to have higher total debt ($\beta = 0.0047$, $p<0.01$).

5.12.4 Size

In this study it was found that the relationship between size and the long-term debt ratio was negative for the industrial companies ($\beta = -0.008$, $p<0.01$), whereas no significant relationship between size and short-term debt ratio was detected for industrial companies ($\beta = 0.067$, $p > 0.10$). This may imply that larger industrial companies tend to resist long-term debt. In connection with the dummy interaction coefficients, the non-industrial companies significantly differed from industrial companies in terms of the relationship between long-term debt and company size. In Table 5.11 the relationship between long-term debt and company size is still ($\beta = -0.045$, $p<0.01$, however, significantly negative for non-industrial companies, but the relationship between short-term debt and company size is significantly positive ($\beta = 0.021$, $p<0.01$). Given that the vast majority of debt in Libyan companies is from short-term sources (see Table 5-3), there is fairly strong support for the static trade-off theory. As a company's size increases, it is able to increase its short-term debt. As a result, larger companies have a lower probability of bankruptcy, and are, therefore able to borrow more, and take advantage of tax deductibility.

5.12.5 Risk

The negative relationship between a firm's risk and debt level supports the trade-off theory which assumes that the costs of bankruptcy and financial distress reduce a firm's incentive to use debt financing. This is because firms may not be able to fulfil their debt commitments as supported by Panno, (2003). Consistent with the theory proposing a negative relationship between business risk and leverage, in this study it was found that there was a statistically significant and negative relationship between risk and long term debt (LTD) for industrial companies in table 5-10. The coefficient for long debt (LTD) is significant at a 1% level, (== _ 0.184, p <0.01). The findings also suggest that for these industrial companies risk was found to have a negative relationship with total debt (TD), but it was not statistically significant,(🔲 == - 0.130, p >0.10).

These results imply that firms with high risk levels exhibit low long-term debt ratios. In other words, they may avoid accommodating more financial risk by employing less long-term debt. However, the results in table 5.11 indicate that there was a statistically significant and negative relationship between risk and long term debt(LTD) for non-industrial companies; the result was significant at the 1% level (🔲= -0.105, p<0.01). The findings also suggest that risk was found to have a negative relationship with total debt (TD), but not at a statistically significant level (🔲== - 0.130, p>0. l 0). The coefficient for short debt (STD) was significant at the 5% level (🔲 = -0.028, p< 0.05). High risk means a high probability of financial distress; this causes higher agency costs and consequently the firms raise less debt.

Under the trade off theory, if a firm reduces its debt, it also reduces its bankruptcy risk and the volatility of its profits and therefore, its benefit from the tax shield will increase. Under the pecking order theory, high risk firms accumulate earnings during profitable periods in order to utilize them during more difficult periods in the future.

Ozkan (2002) reveals that risk exerts a negative impact on debt; firms choose to have a longer debt maturity structure when the volatility of their earnings is lower. Firms which are risky try to control their risk by depressing their leverage (Ozkan, 2002). The results are consistent with the hypothesis that firms with high variability in earnings have a greater risk of not meeting their debt obligations and, thus, they should have lower debt ratios. The evidence is consistent with the findings of Bradley et al. (1984), Titman and Wessels, (1988), Friend and Lang,(1988), Mackie-Mason,(1990), Kim et al.(1998), Kale et al.(1991), Jensen et al.(1992), Bhaduri,(2002), Drobetz and Fix,(2003), Nivorozhkin,(2004) and Huang and Song,(2005).

5.13 Summary

This chapter investigates follow the determinants of leverage in Libyan companies. The chapter examines whether the trade-off theory, agency cost theory, and asymmetric information (pecking order theory) influence the financing behavior of Libyan companies.

Results show that the determinants of capital structure suggested for developed markets also applied in the Libyan environment. This chapter used regression models to measure the determinants of capital structure in Libyan non-financial firms for a five -year period. This study used the total debt, short and long term debt ratios divided by total assets as a proxy for leverage and used five independent variables to measure their effect on leverage.

The results of this chapter contribute to an improved understanding of financing behaviour in Libyan companies. The hypotheses based on comparing the relationships between short and long term debt and five independent variables (tangibility, growth, profitability, risk and size) were developed to test which theory or theories of capital structure explain the financing behaviour of Libyan companies. The analysis, when dummies were used to identify state-owned and private companies, suggests that both the static trade-off theory and the agency cost theory are applicable theories, while there was little evidence to support the pecking order theory. The analysis where dummies were used to identify industrial and non-industrial companies indicates no significant relationship between debt ratios and profitability for industrial companies, but a significantly positive relationship for the short-term debt ratio with profitability in non- industrial companies.

This may imply that non- industrial companies support the static trade-off theory, as the vast majority of debt in Libyan companies is from short-term resources. The relationship between company size and the short- term debt for non- industrial companies may provide further support for the static trade-off theory. The regression results of the models confirmed that leverage in Libyan companies was positively and statistically significant linked to tangible assets, firm size and profitability. However, leverage was negatively and statistically significantly (inversely) associated to firm growth opportunity and risk. The evidence of this chapter suggests that the static trade-off theory and the agency cost theory have more explanatory power in relation to the determinants of capital structure of Libyan companies than the pecking order theory.

Chapter six

An Empirical Investigation of Capital Structure in Developing and Developed Countries (Libya and UK)

6.1 Introduction

Capital structure theories have mostly been developed and tested in single-country contexts. Researchers have identified five firm-specific factors, based on the three most widely accepted theoretical models of capital structure: the static trade-off theory, the agency theory and the asymmetric information theory (pecking order theory). These factors are profitability, size, tangibility, growth and risk.

Many studies have been conducted to investigate to what extent these factors influence the capital structure of firms operating within a specific country. International studies comparing differences in capital structure between countries started to appear only during the last decade.

Previous studies involving more than one country have asserted that institutional arrangements are significant determinants of capital structure. Rajan and Zingales (1995) examined whether the capital structure in the G-7 countries was related to factors similar to those that influence the capital structure of US firms. They found that although firms had a fairly similar capital structure across the G-7 countries, there were several institutional characteristics that affected capital structure choice. Antoniou et al. (2002) analysed data from the UK, Germany, and France; Hall et al. (2004) used data from European SMEs, Deesomsak, Paudyal, and Pescetto (2004) analyze the capital structure of firms operating in the Asia Pacific region, Feidakis and Rovolis (2007) used data from the European Union.

Recently, De Jong et al. (2008) investigated the importance of firm-specific and country-specific factors in explaining the leverage choice of firms from 42 countries around the world. They found that legal environment and economic conditions affected the countries' firm financing choice directly and indirectly.

Within developing countries the attention paid to capital structure is no way comparable to the amount of research conducted in developed economies. Booth et al. (2001) for example, examined whether capital structure theory was transferable across developing countries with different institutional structures. Their conclusion was that although debt ratios appeared to be affected by the same variables as in developed countries, there were systematic differences in the way these ratios were affected by country-specific factors. Barakat and Rao (2004) also investigated the role of taxes in the capital structure of 12 Arab countries (not including Libya). They obtained empirical results that support the importance of institutional differences on capital structure decisions.

This chapter uses data to examine the capital structure of companies in Libya and the UK. Libya's business environment differs from that of other developing countries. Libyan and UK companies included in the study also differ in terms of ownership, regulations and the enforcement of law, and in their corporate governance. The countries' business environments, such as tax law and the range of choices available within the domestic financial system, play a major role in the capital structure decisions of companies (De Jong et al. 2008).

Fan, Titman and Twite (2006) argue that since the seminal work of Modigliani and Miller (1963), the tax system in general, and specifically the tax treatment of interest and dividend payments, has been recognized as an important factor influencing capital structure choices.

This chapter provides further evidence of whether institutional differences in the Libyan business environment induce Libyan companies to display financing behavior different to that of UK companies included in the sample. The comparative nature of this chapter provides relevant empirical knowledge to help to identify the potential impact of Libyan economic reform. The contribution of this chapter is to extend the analysis employing a comparative approach to examine the impact of a variety of country-specific variables on corporate leverage across Libya as a developing country, and the UK as a developed country.

The chapter is divided as follows: Section 6.2 explains the environmental differences between Libya and the UK with the potential to affect the companies included in the samples. Section 6.3 describes the data and methods of analysis adopted in the chapter. Section 6.4 presents and discusses the empirical findings, while the results of the regression analysis are reported in section 6.5. Section 6.6 presents and discusses regression results and analysis of UK companies' .Section 6.7 presents and discusses regression results and analysis of UK industrial and non-industrial companies. Section 6.8 discussion of results for Libyan and UK companies.Section 6.9 presents the conclusion.

6.2 Environmental Differences and Financing Patterns

De Jong et al. (2008) argue that the legal environment and economic conditions affect directly and indirectly a country's firm financing choices.They indicated that in terms of the direct impact of country -specific factors on leverage, the evidence suggests that protection of creditor rights, bond market development, and GDP growth rate have a significant influence on corporate capital structure.

Fan et al. (2006) contend that companies' capital structure differ from one country to another due to the objectives of the company and/or the differences in their business environment, such as different tax laws, different inflation rates, and the levels of economic growth. They also argue that some specific economic characteristics such as poor protection for investors, inadequate competition and high levels of debt may lead to the expropriation of the funds of minority shareholders, the ignoring of profits, and over-investment. There are some differences between Libya and UK that are pertinent in comparing the corporate capital structures of the two countries.

1- The stock market in Libya was established only in 2007, so the range of financing options available to companies is more limited than it is in a country with a well-established secondary stock market such as the UK.

2- Most of the larger Libyan companies are state owned. British companies are mostly privately owned. High proportions of these private companies are owned by families or by up to 50 people. A relatively small number are called public companies with a much wider spread of ownership, amongst members of the public and bodies such as pension funds. The shares and debt of most of these larger companies are traded on a stock exchange.

Many of the biggest companies are structured as groups with subsidiary operating companies. Managers of family-owned companies may be inclined to avoid external equity finance, attributable to a potential loss of control while the state-owned companies, as indicated by Dewenter and Malatesta (2001), may focus more on external financing because the lenders may take government involvement in these companies' ownership as more reliable collateral.

3- There are differences between Libya and the UK in terms of the enforcement of law and corporate governance. Twite et al. (2008) argue that environmental differences, such as the legal environment, the size of the capital market and ownership structure, have an important impact on capital structure decisions. La Porta et al. (1998) argue that commercial laws come from two traditions: common law, which is Anglo-Saxon in source, and civil law, which derives from Roman law. The civil tradition has three major families: French, German, and Scandinavian. La Porta et al. (1998) argue that the civil legal tradition is the oldest, the most influential and the most dominant tradition around the world. They argue that most Arab countries, particularly in the northern of Africa, adopted French law principles in their commercial laws.

Kilani (1988) argues that Libyan commercial law has been based on the principles of French law. La Porta et al. (1998) argue that French civil law countries provide weaker legal protection to Investors in terms of shareholders rights, debtholders rights and the enforcement of law, and also have less developed capital markets than Anglo-Saxon common law countries. The most basic right for shareholders is their right to vote for directors and on major company issues, however in Libya a shareholder is restricted to only one vote at the General Assembly, regardless of how many shares he or she has.

Having one vote regardless of the number of shares might be seen as inequitable to major investors as, this may result in expropriation of the majority of shareholders' voting rights to directors. The main right for the debt holders is to repossess collateral in the event of bankruptcy.

The maintenance of a legal reserve is considered to be the most common debt holders' right in all civil-law countries (Libya among them). Accordingly, Libyan companies are required to maintain a certain level of capital as a legal reserve, equivalent to 5 % of annual net profit before tax, until it reaches one fifth of paid-in capital (see for example, Mahmud, 1997). Libyan commercial law seems to be more focused on legal reserve as the debt holders' principal right, rather than giving them the right to repossess collateral.

La Porta et al. (1998) argue that the efficiency and integrity of the legal system and its independence are considered as a major remedy to agency problems. In other words, it is expected that debt will be used relatively more than equity, and short-term debt will also be used relatively more than long-term debt when the legal system has less integrity and is less independent (Fan et al. 2006). Using short-term debt might mitigate agency problems, because short-term debt can reduce cash flow problems (Kim and Lee, 2003). Agency problems can also be mitigated by using short-term debt, as companies' access to short-term sources might be restricted in the immediate future if shareholders attempt to influence managers to expropriate wealth from debt holders to the shareholders. Kim and Lee (2003) argue that economic downturn and weaker corporate governance may cause serious agency problems.

French civil law countries (Libya among them) are known to have weaker corporate governance (La Porta et al. 1998). For that reason, Libyan companies may suffer more from agency problems and, as a result, these companies are more likely to use short-term debt (the shorter maturity of such debt limits the potential for the expropriation of debt holders' rights) and are less likely to use outside equity. With the purpose of examining whether environmental differences between Libya and the UK induce Libyan companies to display different financing patterns from that of the UK companies included in the study; the following section (6.3) presents the data and methods of analysis.

6.3 Data Collection and Regression Models

The data used in this chapter for empirical analysis were derived from two sources. Libyan data was based on financial data collected from company balance sheets and income statements. From this dataset 65 non-financial companies were selected. This provides a panel database of 325 cases over five years. In order to make the database of Libyan companies as complete as possible, companies from both the state owned and the private sectors were selected. The data used were gathered from the companies themselves, in order to have the data sample as complete as possible. The criteria used for choosing the companies were:

(1)-The availability and quality of data for a time period of 5 years (2000-2004).
(2)-Firms that operated in the financial sector (banks, insurance and investment firms) were excluded (e.g., Shyam-Sumdear and Myers, 1999; Frank and Goya, 2003; Rajan and Zingales, 1995; Titman and Weasels, 1988; Lasfer, 1995; Ozcan, 2001 and Kisgen, 2006). Lasfer (1995) argues that financial firms are excluded because of the specific characteristics of their capital structure. Rajan and Zingales (1995) exclude financial firms such as banks and insurance firms from the sample on the grounds that financial firms' leverage is highly affected by explicit (or implicit) investor insurance schemes such as deposit insurance. Moreover, financial firms' debt-like liabilities are not strictly comparable to the debt issued by non-financial firms. Finally, regulations such as minimum capital requirements may directly affect capital structure. The data source for UK companies was the DataStream database.

The data of the UK companies included in the sample were restricted to the same time period, 2000-2004. The criterion used for choosing the UK as the comparative country was the availability of a large sample of companies over that time period. All data were measured in nominal local currency and averaged over the five years to smooth the leverage and explanatory variables. The UK sample selection was conducted as follows: From the initial sample of 2037 companies taken from DataStream, only 374 were identified as having data available on the appropriate variables of interest. To be included in the final sample a company had to have at least five years of data on a variable of interest. In addition the company should not be a 'financial firm' such as banks, financial institutions, and insurance companies.

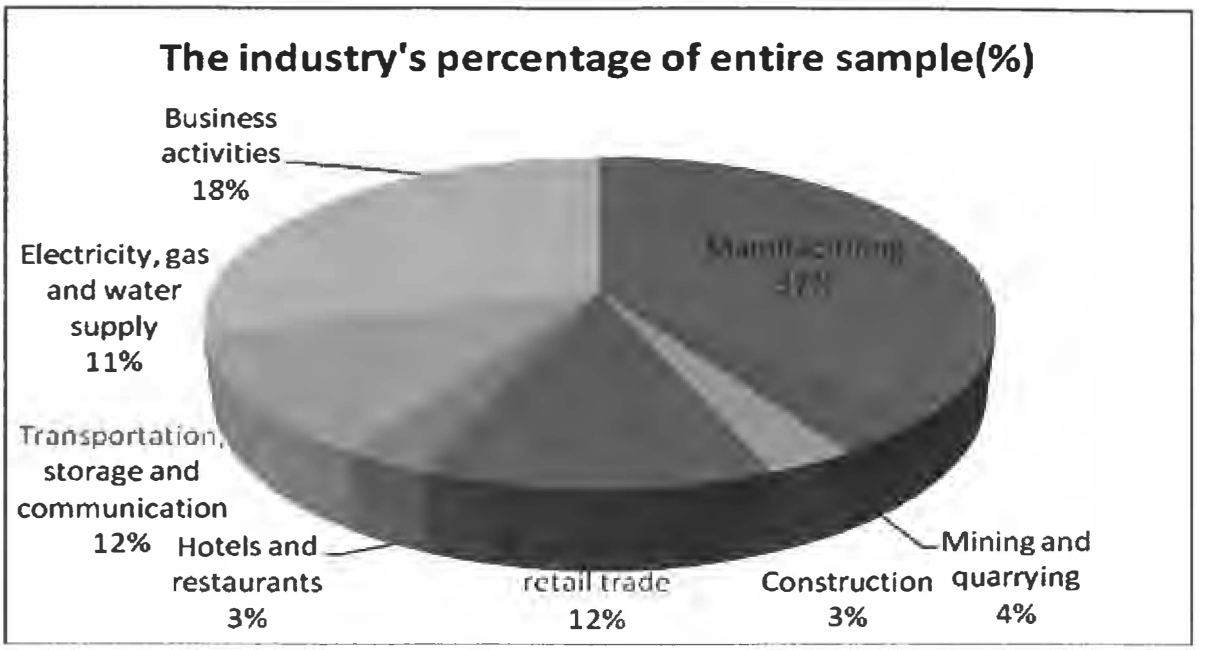
Empirically, Bradley et al. (1984) provided evidence that financial companies like banks and insurance companies were excluded because their capital structures are not normally a result of pure financing decisions but also reflected regulations such as minimum capital requirements, and insurance schemes such as deposit insurance (see Rajan and Zingales, 1995, p. 1424). Other scholars have supported this view by saying, "financial intermediaries do not seem relevant for testing models of financing decisions", (Fama and French, (2003, p. 8). One of the characteristics of financial intermediaries is that financing decisions of these firms are unlikely to convey new Information to the market (Pinegar and Wilbricht, 1989).

The panel of 374 companies was analysed over the 5 year period. This provided a panel database of 1870 cases. Given the relative size of the Libyan and UK samples (65 and 374 respectively), to aid analysis it was necessary to reduce the UK sample size to match that of Libya .To do this, the 374 UK companies were numbered sequentially and using a random number generator, 65 were selected. To examine if the sample of 65 was significantly different to the larger group of 374, Mann-Whitney U tests was conducted: no significant differences were found and therefore the 65 company sample was used as the basis for further analysis. The sample included 65 firms, the study used the SIC classification for the firms' industry classification. Eight sectors were represented in the sample. The chart and table below explain the distribution of the industries of the sample.

Table (6- 1) Industry Classifications of the UK sample

Industry Classifications (SIC)	Number of Companies	The industry's percentage of entire sample (%)
Manufacturing	**24**	**0.37**
Mining and quarrying	**3**	**0.04**
Construction	**2**	**0.03**
Wholesale and retail trade	**8**	**0.12**
Hotels and restaurants	**2**	**0.03**
Transportation, storage and communication	**8**	**0.12**
Electricity, gas and water supply	**7**	**0.11**
Business activities	**11**	**0.18**
Total	**65**	**100%**

Chart (6-1) Industry Classification of the UK sample



In order to reduce potential econometric problems, such as heteroscedasticity; total assets were used as a deflator in accordance with the suggestions of De Jong et al. (2008). Three regression models were used. The dependent (leverage) variables used for alternative estimations were: total debt to total assets, short-term debt to total assets and long-term debt to total assets. These three dependent variables were regressed against the five explanatory variables, which were proxies for profitability, tangibility, growth, size and risk.

6.4 Interpretation of the Empirical Results

Identifying and specifying the differences in accounting and disclosure practice between countries is a major problem in inter-country research (Bancel and Mittoo, 2004). Nevertheless this section attempts to identify and, where possible, explain:

(1) Whether there was any difference between companies registered in Libya and the UK in terms of using short term debt and long-term debt;

(2) Whether returns on assets in Libyan companies were higher or lower than their counterparts in the UK ; (3) Whether growth rates in Libyan companies were higher or lower than the growth rates of UK companies; (4) Whether the asset structure of Libyan companies was fundamentally different from the asset structure of UK companies and (5) whether companies in Libya were on average larger or smaller than UK companies and (6) whether risk rates in Libyan companies were higher or lower than the risk rates of UK companies. Furthermore , this section investigates whether statistics generated from financial statements about leverage levels, profitability, asset structure, growth size and business risk differ between UK companies and Libyan companies, and whether these differences can be explained and related to specific factors.

Table (6-2) provides summary information of leverage ratios, tangibility profitability, size, growth, and risk

Country	Number of companies	TD ratio	STD	LTD	Profit	Growth	Tang	Size	Risk
Libya	65	0.57	0.49	0.08	0.02	0.13	0.19	0.14	0.21
UK	65	0.47	0.19	0.28	0.09	0.45	0.31	0.26	0.05

TD ratio refers to the ratio of total debt to total assets. STD ratio refers to the ratio of short term debt to total assets. LTD ratio refers to the ratio of long- term debt to total assets. Profitability defined as ratio of earning before tax and interest to total assets. Tangibility defined as fixed assets over book value of total assets. Growth defined as the percentage change in the total assets. Size: firm size defined as the natural logarithm of total assets. Risk defined as the standard deviation of earning before tax and interest to total assets.

6.4.1 Leverage

Table 6.2 illustrates a summary of the mean average data for three debt ratios (total debt to total assets, short-term debt to total assets and long-term debt to total assets) for the two countries, Libya (a developing country) and UK (a developed country). Based on total debt ratio, the UK had the lower total debt to total assets ratio (47%). Libyan companies had a mean average ratio of total debt to total assets of 57%. With regard to the components of total debt, Libyan companies had the higher short-term debt ratio (49%) and the lower long-term debt ratio (8%). UK companies had the higher long term debt ratio 28% and the lower short –term debt ratio (19%).

6.4.2 Profitability

Profitability is widely suggested to impact significantly on the level of debt that firms employ in their capital structures, although the sign of the relationship is not theoretically clear (Drury and Bougen, 1980; Rajan and Zingales, 1994). A firm with high profitability could operate with either low or high leverage. Lower gearing might occur, as higher retained earnings reduce gearing by definition.

High gearing might reflect a firm's ability to meet debt payments out of its relatively high operating cash flow. This could be the reason why the predictions of theories concerning profitability vary and the evidence is also ambiguous. In this study profitability was measured by the ratio of profit before tax and interest (EBIT) to total assets. Kimian et al. (2002) argue that firms with relatively high profitability are likely to have more valuable assets-in-place and thus have higher debt ratios. Glen and Singh (2003) indicate that the profitability of companies is of central importance, particularity in economies based on a capitalist ideology. The differences in accounting standards adopted in each country and their impact on income calculation make comparisons of companies' profitability difficult, in addition to differences due to real profitability. Because of these accounting differences, "real" differences in profitability, and the diversity of economic systems between the two countries included in the sample, there was a wide range in reported profitability. Libyan companies' average profitability (2%) was below the average profitability ratio of the UK companies (9%).

6.4.3 Growth

Growth opportunities, leading to larger firms in the future, should also significantly impact upon on corporate capital structure decisions. Bevan and Danbolt (2000) find that firms with high levels of growth opportunities have higher levels of debt than low growth but otherwise similar firms. Table 6.2 shows that companies in Libya and the UK were growing, as evidenced by positive growth rates in their total assets. The UK had a higher growth rate of (45%) over the period 2000-2004, whereas Libyan companies' assets grew at an average rate of (12%); a relatively lower growth rate compared to the UK companies.

A possible reason for the lower growth rate in Libya may be attributed to the Libyan economy suffering from many negative aspects; the Libyan government attempted to introduce a series of reforms in order to restructure economic sectors to allow an expansion of the base of ownership and allow the direct participation of the private sector in economic activities. Delay in economic reform and the establishment of companies owned by the private sector, and the opening of the national economy to foreign investment could explain why the Libyan companies had lower levels of assets.

6.4.4 Tangibility

It is argued that the asset structure of a company significantly impacts upon the capital structure decision of that firm. Tangible assets refer to fixed assets; the tangibility of a firm's assets is measured by the ratio of fixed-to-total assets. Jensen and Meckling (1976) argue that the use of asset- secured debt might reduce debt agency costs.

The agency cost approach of Jensen and Meckling (1976) is consistent with the asymmetric information approach of Myers (1984) in that issuing debt secured by collateral reduces the asymmetric information related costs of financing. Marsh (1982) argues that firms with a higher proportion of tangibles should employ higher long-term debt, and finds evidence that tangible assets are a significant determinant of the corporate capital structure decision in his legit analysis of 748 issues made by UK companies over the period 1959-70. He concluded that tangibility is positively related to leverage. Johnson (1997) argues that firms with relatively high tangible assets face difficulties in shifting their investments to riskier projects as their debt is secured against these assets.

In firms with high levels of intangible assets the costs of controlling capital outlays are higher as monitoring is more difficult. Johnson (1997) used the fixed asset ratio as a proxy for project liquidation values. Since collateral is more relevant in traditional bank lending than in borrowings from capital markets, the importance of fixed assets as a collateral for debt is not as visible in the UK as in other European countries. Borrowing from the market rather than from the banks diminishes the need for collateral. Therefore, the borrowing ability of UK companies could remain independent of the tangibility of their assets to a large extent. Moreover, UK companies employ relatively lower levels of debt than, for example their French and German counterparts, and hence creditors feel more secure in providing credit to UK firms, irrespective of their fixed assets ratio (Rajan and Zingales, 1995; Antoniou et al, 2002). Table 6.2 shows that UK companies had the higher levels of fixed assets to total assets (31%) compared to Libyan companies (19%). There is an obvious difference in the level of fixed to total assets between Libyan companies and UK companies. This may mean that Libyan companies hold high levels of cash, inventory and/or trade receivables.

6.4.5 Size

A number of researchers have argued that the size of firm significantly impacts upon its corporate capital structure decision. They suggest that size impacts upon financial risk, financial distress and bankruptcy costs, competition, and so on, and makes large and small firms very different in terms of capital structure. Beattie et al. (2004) found that the size of a firm is a good explanatory variable for its leverage ratio, due to the fact that larger firms are more likely to have a lower probability of bankruptcy than smaller firms.

According to Bancel and Mittoo (2004), compared to small firms, large firms are influenced more by the debt levels of their industry peers but are less concerned about potential bankruptcy costs, and about issuing long-term debt to minimize the risk of having to obtain finance in bad times. Furthermore, internationally-orientated firms place higher value on financial flexibility and the tax advantage of interest deductibility than their domestically orientated counterparts. As indicated by Rajan and Zingales (1995), larger firms are likely to be more diversified. Therefore, large firms will be induced to use more debt than small ones. Beattie et al. (2004) find that large companies are more likely to have a target capital structure than small companies.

This is consistent with the argument that large companies have greater control over their capital structure than small companies, and may reflect large companies' greater access to finance and their response to stock market pressures. However, the preference for a hierarchy of sources of finance is independent of company size. In this study size is measured by the natural logarithm of total assets, and Libyan companies seem to have lower size (14%) compared to UK companies (26%).

6.4.6 Risk

The level of risk is said to be one of the primary determinants of firm's capital structure. The potential threats that a firm would go bankrupt and the costs associated with it were found to be an important factor of the corporate capital structure decision. Thus, since earnings volatility is closely linked to, and has a direct impact on bankruptcy risk, it is important for companies to consider earnings volatility when making a capital structure decision. Bradley et al. (1984) find that the volatility of earnings is important as it helps explain both inter- and intra-industry variations in firm gearing ratios.

They demonstrate that if the costs of financial distress are significant optimal firm gearing is related inversely to the variability of firm earnings. This is supported by Rajan and Zingales (1994) who suggest that a firm's optimal debt level is a decreasing function of the volatility of its earnings. Antoniou et al. (2002) note that firms with high earnings volatility carry a risk of the earnings level dropping below the level of their debt service commitment and this may result in arranging funds at high cost to service the debt or face the risk of bankruptcy. Therefore, firms with highly volatile earnings borrow the least and prefer equity to debt. Firms with a high business risk are more likely to face financial difficulties and consequently are more likely to be bankrupted. Since debt involves a commitment of periodic payments to the lender, highly leveraged firms are prone to financial distress costs. Thus, firms with volatile returns are expected to use less debt in their capital structure than those with stable returns (Bhaduri, 2002). This argument is supported by bankruptcy theory.

UK companies seem to have lower risk (5%) compared to Libyan companies (21%). This study uses the standard deviation of earnings before interest and tax (EBIT) divided by total assets.

6.5 Determinants of Financing Patterns

Cross-sectional regression models with dummy variables were used to investigate differences in the determinants of financing patterns between the Libyan and UK companies included in the sample. The analysis was conducted on the basis of the entire sample. In the following sections the results of cross-sectional empirical tests are presented and discussed. The detailed results are presented in various tables in this chapter. The results from the cross- sectional OLS- are also compared between UK and Libyan companies, and UK industrial and non-industrial companies in these sections of analysis.

6.5.1 Cross section regression results and analysis of UK and Libyan companies

Regression findings displayed in table 6.3 for UK companies indicate good explanatory power through R^2 running from 86% for total debt, 84% for long-term debt and 80% for short-term debt which confirms that the five explanatory variables included in the regression equations in the first, second and third models explain 86%, 84% and 80% of the variation in the dependent variable. In relation to Libyan companies, regression findings displayed in table 6.3 for Libyan companies indicate good explanatory power through R^2 running from 83% for total debt, 85% for long-term debt and 79% for short-term debt which confirms that the five explanatory variables included in the regression equations in the first, second and third models explain 83%, 85% and 79% of the variation in the dependent variable. Regarding model fit, the values of F tests indicate that the models used in this study are valid (Girma, 2006).

The results of the study indicate that P-value for F-Test (Prob>F) remains 0.0000 for all the models, indicating that the models used in this study are valid. The R^2, adjusted R^2 and F-test are as follows.

Table (6.3) R^2, adjusted $R^2$and F-test under Pooled OLS Estimation Model for UK and the Libyan Companies

Dependent Variables	R^2	Adjusted R^2	F-TEST	Prob (F-statistic)	D-W
UK companies					
TD	**0.86**	**0.85**	**630**	**(0.000)**	**2.06**
LTD	**0.84**	**0.83**	**310**	**(0.000)**	**2.08**
STD	**0.80**	**0.79**	**450**	**(0.000)**	**2.10**
Libyan companies					
TD	**0.83**	**0.82**	**170**	**(0.000)**	**2.01**
LTD	**0.85**	**0.84**	**185**	**(0.000)**	**2.26**
STD	**0.79**	**0.78**	**129**	**(0.000)**	**2.12**

In the above table, **TD** refers to total leverage; **LT D** refers to long term leverage and **ST D** represents short term debt

6.5.1.1 Regression Results of Short-Term Debt ratio

Table 6.3 presents the regression results of determinants of the short-term debt ratio of UK and Libyan companies between 2000 and 2004. For UK companies the R^2 is 0.80, which indicates that about 80 percent of the variability of the short-term debt ratio is explained by firm specific factors. The F-statistic of 450 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.10, which indicates the absence of an autocorrelation problem. In relation to Libyan companies, table 6.3 shows the R^2 is 0.79, which indicates that about 79 percent of the variability of the short-term debt ratio is explained by firm specific factors. The F-statistic of 129 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.12, which indicates the absence of an autocorrelation problem.

6.5.1.2 Regression Results of Long-Term Debt Ratio

Table 6.3 presents the regression results of determinants of long -term debt ratio of UK and Libyan companies between 2000 and 2004. For UK companies the adjusted R^2 is 0.84, which indicates that about 84 percent of the variability of long-term debt ratio is explained by firm specific factors. The F-statistic of 310 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.08, which indicates the absence of an autocorrelation problem. In relation to Libyan companies, table 6.3 shows the R^2 is 0.85, which indicates that about 85 percent of the variability of the long -term debt ratio is explained by firm specific factors. The F-statistic of 185 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.26, which indicates the absence of an autocorrelation problem.

6.5.1.3 Regression Results of Total Debt Ratio

Table (6.3) presents the regression results of determinants of the total debt ratio of UK and Libyan companies between 2000 and 2004. For UK companies the R^2 is 0.86, which indicates that about 86 percent of the variability of the total debt ratio is explained by firm specific factors. The F-statistic of 630 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.06 which indicates the absence of an autocorrelation problem. In relation to Libyan companies, table 6.3 shows the R^2 is 0.83, which indicates that about 83 percent of the variability of the total debt ratio is explained by firm specific factors. The F-statistic of 170 suggests that the model fits the data significantly. The Durbin-Watson statistic has a value of 2.09, which indicates the absence of an autocorrelation problem.

Table (6-4) Results of OLS analysis over different measures of leverage for UK companies

Independent (Explanatory) variables	Dependent variables (leverage)					
	Total debt ratio Model (1)		short term debt ratio Model (2)		Long term debt ratio Model (3)	
	Coefficient	t (value)	Coefficient	t (value)	Coefficient	t (value)
Intercept	0.288***	(6.307)	0.0644	(0.809)	0.1380***	(5.128)
Profitability	-0.102***	-(1.182)	-0.182***	-(1.539)	-0.031***	(-2.408)
Tangibility	0.0235***	(5.038)	0.056***	(12.221)	0.225***	(5.488)
Growth	-0.0048***	(6.529)	- 0 .075***	-(2.979)	-0.255***	- (5.352)
Size	0.025***	(14.855)	0.0026***	(3.347)	0.018***	(1.924)
Risk	-0.549***	(-6.287)	-0.055***	(-4.482)	-0.068***	(4.115)
R^2	0.86		0.80		0.84	
Adj R^2	0.85		0.79		0.83	
F-statistic	630***		450***		310***	
Prob (F-statistic)	(0.000)		(0.000)		(0.000)	
D-W	2.06		2.10		2.08	
Number of Observations	235		235		235	

Table (6-5) Results of OLS analysis over different measures of leverage for Libyan companies

Explanatory variables	Total debt ratio (TD)		short –term debt ratio (STD)		Long-term debt ratio (LTD)	
	Coefficient (β)	t(value)	Coefficient (β)	t(value)	Coefficient (β)	t (value)
Intercept	0.005	(0.281)	0.003	(-1.016)	-0.002	(-3.249)
Profitability	0.045***	(2.203)	0.078***	(6.742)	0.019	(3.276)
Tangibility	0.141***	(7.743)	0.169***	(4.224)	0.036	(2.046)
Growth	-0.528	(2.376)	-0.094***	(2.428)	-0.560	(1.277)
Size	0.038***	(5.617)	0.014***	(2.511)	0.042	(0.398)
Risk	-0.053***	(3.341)	- 0.086***	(-5.218)	-0.406***	(-3.724)
R^2	0.83		0.79		0.85	
Adj R^2	0.82		0.78		0.84	
F-statistic	170***		129***		185***	
Prob (F-statistic)	(0.000)		(0.000)		(0.000)	
D-W	2.01		2.12		2.26	
Number of Observations	235		325		325	

The tables (6-4) and (6-5) presents values of leverage and other firm-specific characteristics from two countries (Libya and UK). All variables are averaged over the period 2000–2004, in which data are required to be available for at least five years. The firm-specific variables are as follows: -

Leverage (LEV) = a+ β1TA + β2Grow + β3 size + β4 profit + β5 Risk + D +Єİ

The dependent and independent variables are scaled by total assets. Tangibility (TA) defined as fixed assets over book value of total assets. Risk defined as the standard deviation of earnings before interest and tax divided by total assets. SIZE: Firm size defined as the natural logarithm of total assets. Growth defined as the percentage change in the total assets. PROFIT: Profitability defined as ratio of earnings before tax and interest to total assets. .Short-term debt ratio refers to the ratio of short-term debt to total assets. Long-term debt ratio refers to long-term debt to total assets. Total debt ratio refers to the ratio of total debt to total assets. D refers to a dummy variable, which take 0 if the firm is British firm and 1if the firm is Libyan firm. ***, **,* indicate statistical significance at 1%, 5%, 10% level, respectively. F-statistics are in parentheses. P-value is reported in parentheses. Adj-R2 is the value of adjusted R2 for the regression. All Durbin-Watson coefficients are above 2 which indicate the absence of multicollinearity.

6.6 Results and discussion For the UK companies

After discussing the overall results it is also important to present in detail the results for each explanatory variable and their importance to determining total debt, long- term debt and short term debt. Each explanatory variable is dealt with in detail with emphasis on the results obtained from OLS, and then the results are compared with the Libyan results. Moreover, the discussion for each variable also takes account of the theoretical models that they follow and compares the results of this study with empirical results obtained in previous studies in the UK.

6.6.1- Profitability

In this study it was found that there were statistically significant and negative relationships between profitability and leverage (Total debt, short-term debt and long – term debt) for UK companies, as shown in table 6.4. All results were significant at a 1% level (β = - 0.102, p <0.01, β= - 0.182, p <0.01 and β= - 0.031, p<0.01) respectively. This study confirms a negative relationship between profitability and a firm's debt level. The results in table 6.4 show that, for the sample a firm's profitability is an important criterion in determining financing policy. A negative effect supports the pecking-order theory that firms prefer to use internal funds in financing decisions, and by that strategy have less debt. While the results can be taken to indicate that UK firms follow a pecking order preference when they decide how to finance a project, there is another possible explanation, which is that UK firms are successful at reducing the information asymmetry problem between a firm and outsiders.

Managers prefer internal financing if they are unable to convey credible information to these outside parties. One more reason from the corporate governance point of view for a negative relationship is that debt might be used more frequently as a management discipline device in the UK. Therefore, more debt is reflected in more monitoring activities; which may include the monitoring of management expenses, which have the potential to reduce the firm's profits, so debt is not favourable. Previous empirical studies in the context of UK companies are also consistent with the pecking order theory. Ozkan (2001) found profitability to be negatively related to leverage, and Bennet and Donnely (1993) conclude that profitability is negatively associated with leverage when market based measures of leverage are used.

This study supports those who find a negative relationship between profitability and debt level, including Donaldson,(1961); Baker,(1973);Titman and Wessels,(1988);Allen and Mizunot,(1989);Harris and Raviv,(1991);Thies and Klock,(1992);Rajan and Wald, 1999); Booth,(2001), Ozkan,(2001); Bhaduri,(2002); Brailsford, Oliver,and Pua,(2002); Bevan and Danbolt,(2002);Cassar and Holmes,(2003);Dessi and Robertson,(2003); Deesomsak, Paudyal, and Pescetto,(2004),Chen,(2004),Agiornirgianakis,Voulgaris, and Asteriou,(2004);Akhtar,(2005);Huang and Song,(2006);and Bond and Scott,(2006).

6.6.2 Business risk (BR)

The study found that there was a statistically significant and negative relationship between risk and leverage (Total debt, short-term debt and long –term debt), for UK companies in table 6.4. All results were significant at a 1% level (β = - 0.549, $p < 0.01$, β= - 0.055, $p < 0.01$ and β= - 0.068, $p<0.01$) respectively.

The negative relationship between a firm's risk and debt level supports the trade-off theory, which assumes that the costs of bankruptcy and financial distress reduce a firm's incentive to use debt financing. This is because firms may not be able to fulfil their debt commitments (Panno, 2003). Meanwhile, the positive effect supports the agency theory and the managerial risk aversion Chung,(1993). From the agency theory perspective, debt is used as a disciplinary device to prevent managers from transferring resources to their own personal benefits or investing in negative projects. The more the probability of agency costs, the more the debt needed.

Debt financing involves a commitment to periodic payment. Companies with a high debt ratio tend to face high financial distress costs. Thus, companies with volatile incomes are less leveraged. This result is in line with the bankruptcy theory of capital structure. Under the trade –off theory, if a firm reduces its debt, it also reduces its bankruptcy risk and the volatility of its income, and therefore the benefit from its tax shield will decrease. A number of studies have indicated an inverse relationship between risk and debt ratio in this field. Among them are: Bhaduri, (2002), Jensen et al. (1992), Bradley et al. (1984), Titman and Wessels, (1988); Friend and Lang, (1988); Mackie-Mason, (1990); Kale et al. (1991); Kim et al. (1998) and Westgaard et al. (2008).

6.6.3-Asset structure (TANG)

In this study it was found that there were statistically significant and positive relationships between tangible assets and leverage (Total debt, short-term debt and long –term debt), for UK companies in table 6.4 . All results were significant at a 1% level (β = 0.0235, p <0.01, β=0.056, p <0.01 and β=0.225, p<0.01) respectively. This study confirms the positive relationship between the tangibility of assets and a firm's debt level. The results show that the tangibility of a firm's asset structure for non-financial companies included in the sample was an important criterion in determining financing policy, since it had a positive effect in all models used in the suitable regressions.

A positive effect supports the trade-off model which states that firms with more tangible assets are better able to face financial distress due to their liquidation value. These firms have easier excess to finance and lower costs of financing. Also it supports the suggestion of Myers and Majluf,(1984) that firms prefer to issue debt secured by property with known values rather than to issue costly securities. In addition, this result supports the positive effect of the agency theory of Jensen and Meckling, (I976); in their model they suggest that stockholders of leveraged firms have an incentive to invest sub optimally to expropriate wealth from bondholders. In this case if the debt can be collateralized, then the borrower is restricted to using these funds for specific projects. Assets act as a guarantee for debt, but collateralized assets can also be used as a monitoring instrument, which reduces the agency costs of debt. This means that UK companies with high levels of fixed assets can use such assets as collateral. Firms with high levels of tangible assets are in a position to provide collateral for debts: If the company then defaults on the debt the assets will be seized but the company may be in a position to avoid bankruptcy.

It is expected, therefore, that companies with high levels of tangible assets are less likely to default and will take on relatively more debt resulting in a positive relationship between tangibility and financial leverage. The result of this study is therefore in line with the agency theory of capital structure.

This study supports those who find a positive relationship between asset structure and debt level, including Jensen and Meckling,(1976),Titman and Wessels,(1988), Rajan and Zingales,(1995), Thies and Klock,(1992), Booth et al.(2001),Bhaduri,(2001), Dessi and Robertson,(2003), Colombo,(2001),Chen,(2004),Huang and Song,(2006), Krishnan and Moyer,(1997),Chung,(1993),Voulgaris, Asteriou, and Agiomirgianakis,(2004),Akhtar, (2005),Fattouh,Scaranlozzino,and Harris,(2005),Wald,(1999)and Westgaard et al.(2008)

6.6.4-Growth opportunities

The study found that there was a statistically significant and negative relationship between growth and leverage (Total debt, short-term debt and long –term debt), for UK companies in table 6.4. All results were significant at a 1% and 5% level (β = - 0.0048, p <0.01, β= - 0.075, p <0.01 and β= - 0.255, p<0.01) respectively.

This study confirms the negative relationship between a firm's debt levels and growth opportunities. The results show that a firm's growth opportunities are an important criterion in determining financing policy, since it relates significantly in all models. This result is consistent with the expected negative sign which is predicted by agency theory. The negative and significant effect gives support to the argument of trade-off theory. This theory considers future growth opportunities as intangible assets which cannot be collateralized.

Also, firms with greater growth opportunities might have lower leverage ratios due to the fear of debt holders that firms may forgo valuable investment opportunities and expropriate wealth for their own benefit. Another potential reason is that firms have a tendency to issue stock when their stock price is high relative to their earnings or book value. This is because, as Rajan and Zingales (1995) state, the negative relationship between growth opportunities and leverage ratio is largely driven by firms that issue significant amounts of equity.

The negative coefficient in the study between growth and long term debt supports Myers (1977). According to the trade off theory, firm holding future growth opportunities, which are intangible assets, tend to borrow less than firms holding more tangible assets, because growth opportunities cannot be collateralized. Further, agency theory argues that firms have a tendency to expropriate wealth from debt holders (Jensen, 1986). Myers argued that the potential for underinvestment or diversion of resources is most severe for companies whose value is predominantly accounted for by future investment opportunities rather than by assets in place, and lenders may be reluctant to provide finance to such firms. The results of this study are consistent with the propositions of Ozkan (2001) and Myers (1977). Lang, Ofek and Stulz (1996) further argued that leverage was negatively related to growth opportunities only for firms whose growth opportunities were not recognized by capital market. This study supports those who find a negative relationship between growth and debt level, including Rajan and Zingales, (1995);Ozkan,(2001); Pitman and Wessels,(1988); Harris and Raviv,(1991); Aklitar, (2005); Chung,(1993);Deesomsak, Paudyal, and Pescetto,(2004);Ghosh and Cai,(2000), Ozkan,(2001); Huang and Song,(2006) and Brailsford, Oliver, and Pua,(2002).

6.6.5 Size

In this study it was found that there were statistically significant and positive relationships between firm size and leverage, indicating that leverage increases with size and vice versa. The regression result for size is reported in table 6.4, which shows that size is positively correlated with total debt, long term debt and short term debt. All results in table 6.4 were significant at a 1% level ($\beta = 0.025$, $p < 0.01$ $\beta = 0.0026$, $p < 0.01$ and $\beta = 0.018$, $p < 0.01$) respectively.

This study confirms a positive relationship between a firm's size and debt level. The results show that a firm's size for non-financial companies included in the sample was an important criterion in determining financing policy since it had a positive relationship in all models used in the regression. The positive effect found in the UK supports a phenomenon described by Jensen (1986) and Williamson (1988), which is that firms need debt to monitor their managers' behaviour. Also, it supports Rajan and Zingales, 1995) who made the same observation for the USA and Wald, (1999).

This result provides evidence that the ownership of the larger firms UK's is very widespread and owners are often too distant to take the primary role in controlling activities. Also, since the study sample consists of large UK companies, this supports the trade-off theory, which assumes that large firms are better able to face bankruptcy and financial distress, and that public debt markets are more accessible to large firms. This is supported by Ozkan,(2001) for the UK and Wald,(1999) for the USA, UK and Japan. This means that large UK firms tend to be more diversified and hence less likely to be susceptible to financial distress. This result is in line with the static trade -off theory of capital structure and agency cost theory.

Previous studies using UK data illustrate the following results: Bennet and Donnely (1993) in their study of UK companies found support for the hypotheses that smaller firms employ relatively less debt. Lasfer's (1995) results revel that larger firms that are diversified and less prone to bankruptcy tend to be highly leveraged. However, the study by Ozkan (2001) supports the pecking order hypotheses. He found little evidence that firm size has a positive effect on leverage and concluded that firms have relatively higher preference for equity relative to debt financing, which implies a negative relationship between leverage and size. A more recent study by Beven and Danbolt (2004), they concluded that company size is positively rated with all debt elements. This study supports those who find a positive effect for a firm's size, which include Deesomsak, Paudyal and Pescetto 2004); Krishnan and Moyer,(1997); Voulgaris, Asteriou, and Agiomirgianakis,(2004); Chung,(1993), Maris and Elayan,(1990), Rajan and Zingales,(1995), Booth et al.(2001), Bhaduri, (2002); Singh and Nejadmalayeri, (2004), Cassar and Holmes,(2003), Dessi and Robertson,(2003) , Bhaduri,(2002) and Westgaard et al.(2008) .

6.7 Cross section regression results and analysis of UK industrial and non industrial companies

Regression findings for industrial companies displayed in table 6.6 indicate good explanatory power through R^2 running from 0.67% for total debt, 0.85% for long-term debt and 0.70% for short-term debt which confirms that the five explanatory variables included in the regression equations in the first, second and third models explain 67%, 85% and 70% of the variation in the dependent variable. In relation to non-industrial companies, regression findings displayed in table 6.7 for non-industrial companies indicate good explanatory power through R^2 running from 89% for total debt, 69% for long-term debt and 88% for short-term debt which confirms that the five explanatory variables included in the regression equations in the first, second and third models explain 87%, 85% and 79% of the variation in the dependent variable.

Regarding model fit, the values of F tests indicate that the models used in this study are valid (Girma, 2006). The results of the study indicate that P-value for F-Test (Prob>F) remains 0.0000 for all the models, indicating that the models used in this study are valid.

Table (6-6) Results of OLS analysis over different measures of leverage for UK Industrial companies

Explanatory variables	Total debt ratio (TD)		short –term debt ratio (STD)		Long-term debt ratio (LTD)	
	Coefficient (β)	t(value)	Coefficient (β)	t(value)	Coefficient (β)	t (value)
Intercept	0.086	(0.683)	0.265***	(-4.184)	-0.228	(-3.073)
Profitability	0176***	(3.105)	0.0225***	(1.320)	0.018***	(3.415)
Tangibility	0. 052	(1.519)	-0. 061***	(3.084)	0.0156***	(2.046)
Growth	-0.004***	-(6.182)	-0.003***	- (6.618)	-0.001**	-(2.153)
Size	0.0287***	(2.574)	-0.032***	(2.723)	0.048***	(5.168)
Risk	-0.046	- (0.251)	- 0.039	(-1.186)	-0..022	(0.821)
R^2	0.67		0.70		0.85	
Adj R^2	0.66		0.69		0.84	
F-statistic	135***		430***		508***	
Prob (F-statistic)	(0.000)		(0.000)		(0.000)	
D-W	2.03		2.13		2.09	
Number of Observations	120		120		120	

Table (6-7): Results of OLS analysis over different measures of leverage for UK Non- industrial companies

Explanatory variables	Total debt ratio (TD)		short –term debt ratio (STD)		Long-term debt ratio (LTD)	
	Coefficient (β)	t(value)	Coefficient (β)	t(value)	Coefficient (β)	t (value)
Intercept	-0.114**	(2.326)	0.457**	(5.120)	-1. 451	(-4.322)
Profitability	0.058***	(3.752)	0.291***	(7.166)	-0.027	- (0.361)
Tangibility	0.183***	(13.148)	-0.0163	- (0.352)	0.146***	(9.758)
Growth	0.007***	(0.162)	-0.003	(1.259)	-0.009	(0.324)
Size	-0.021***	(5.069)	0.038	(1.357)	-0.0294***	(4.50
Risk	-0.027	-(0.746)	- 0.078***	(-6.745)	-0.047***	(-2.46
R^2	0.89		0.88		0.69	
Adj R^2	0.88		0.87		0.68	
F-statistic	970***		1020***		934***	
Prob (F-statistic)	(0.000)		(0.000)		(0.000)	
D-W	2.11		2.07		2.05	
Number of Observations	135		135		135	

Table (6-6) and (6-7) presents values of leverage and other firm-specific characteristics from two sectors All variables are averaged over the period 2000–2004, in which data are required to be available for at least five years. The firm-specific variables are as follows: **Leverage (LEV) = a+ β1TA + β2Grow + β3 size + β4 profit+ β5 Risk + D +€i** Tangibility (TA) defined as fixed assets over book value of total assets. Risk defined as the standard deviation of earnings before interest and tax divided by total assets. SIZE: Firm size defined as the natural logarithm of total assets. Growth defined as the percentage change in the total assets. PROFIT: Profitability defined as ratio of earnings before tax to total assets. Short-term debt ratio refers to the ratio of short-term debt to total assets. Long-term debt ratio refers to long-term debt to total assets. Total debt ratio refers to the ratio of total debt to total assets. D refers to a dummy variable, which take 0 if the firm is industrial firm and 1if the firm is non-industrial firm. ***, **,* indicate statistical significance at 1%, 5%, 10% level, respectively. F-statistics are in parentheses'-value is reported in parentheses. Adj-R2 is the value of adjusted R2 for the regression. All Durbin-Watson coefficients are above 2 which indicate the absence of multicollinearity.

6.7.1 Results and discussion for the UK industrial and non-industrial companies

6.7.1.1 Profitability

For industrial companies, the results in table 6.6 indicate that profitability was found to have a positive relationship with three dependent variables (Total debt, long–term debt, and short-term debt). However, this relationship was statistically significant, at a 1% level ($\beta = 0.176$, $p < 0.01$, $\beta = 0.022$, $p < 0.01$and $\beta = 0.018$, $p < 0.01$) for TD, STD and LTD respectively. This result is contrary to the pecking order hypotheses and suggests that more profitability firms use more debt in their capital structure. The result is consistent with trade off theory model. Table 6.6 shows that when the industry dummies were used, profitability was a significant explanatory variable for the debt ratios of industrial companies.

Profitability was significantly and positively related to short-term debt ($\beta = 0.291$, $p<0.01$) for non-industrial companies, as shown in table 6.7. The positive relationship between short -term debt ratios and profitability provides support for the static trade-off theory. This suggests that as a company's profitability increases, it is able to increase its short-term debt.

6.7.1.2 Tangibility

For industrial companies, the results in table 6.6 indicate that the negative relation between tangibility and short term debt suggests that when companies have collateral available to them, they prefer long term debt and reduce their dependence on short term debt. This relationship was statistically significant, at a 1% level ($\beta = 0.061$, $p < 0.01$). One possible reason behind the decrease in short term debt can be reduced long term interest rates that the financial sectors may be offering to the companies. However, the result indicted that tangibility is positive related to total debt and long term debt. A positive effect supports the trade-off model, stating that firms with more tangible assets are better able to face financial distress due to their liquidation value. These firms have easier excess to finance and lower costs of' financing. It also supports the suggestion of' Myers and Majluf, (1984) that firms prefer to issue debt secured by property with known values rather than to issue costly securities. This finding indicates that industrial companies relied on fixed assets to obtaining long-term debt, whereas, a negative significant relationship was observed between tangibility and short-term debt. In table 6.7 the coefficient for the relationship between tangibility and long-term debt is significantly positive ($\beta = 0.146$, $p<0.01$) for non-industrial companies and there is no a significant difference between industrial and non-industrial companies, as shown by the negative interaction coefficient for tangibility in table 6.7. In contrast, there is no significant difference between industrial and non-industrial companies in terms of the relationship between short-term debt and tangibility. This suggests that as a company's assets increase, it is able to increase, its long -term debt.

6.7.1.3 Growth

In this study it was found that there was a statistically significant relationship between growth and leverage (Total debt, long –term debt, and short-term debt) for industrial companies in table 6.6, All results were significant at a 1% level ($\beta = -0.004$, $p<0.01$, $\beta= -0.003$, $p<0.01$and $\beta= -0.001$, $p<0.01$) respectively. This is consistent with the expected negative sign, which is predicted by agency theory. The negative and significant effect also gives support to the argument of trade-off theory. This theory considers future growth opportunities as intangible assets which cannot be collateralized, and that firms with greater growth opportunities might have lower leverage ratios due to a fear among debt holders that firms may forgo valuable investment opportunities and expropriate wealth to their own benefit. According to the trade off theory, firms holding future growth opportunities, which are intangible assets, tend to borrow less than firms holding more tangible assets, because growth opportunities cannot be collateralized. Further, agency theory argues that firms have a tendency to expropriate wealth from debt holders Jensen, (1986). For non-industrial companies, the findings in table 6.7 also suggest that growth was found to have a positive relationship with total debt ($\beta = 0.007$, $p<0.01$), and a negative relationship with short term debt (STD) and long term debt (LTD), but not a statistically significant relationship: all results being not significant at a 10% level ($\beta = -0.003$, $p > 0.10$, and $\beta= -0.009$, $p > 0.10$ respectively). Growing non-industrial companies tended to have higher total debt ($\beta = 0.007$, $p<0.01$).

6.7.1.4 Size

The results show that size is positively related to total debt and long term debt for industrial companies in table 6.6, the results were significant at a 1% level ($\beta = 0.0287$, $p<0.01$,and $\beta= 0.048$, $p<0.01$ respectively). The relation between size and short term debt is negative and significant ($\beta = -0.032$, $p<0.01$).According to Bevan and Danbolt (2004) the negative and significant relationship between short term debt and size indicates that large firms use long term debt rather than depending on short term debt for raising finance . Moreover, it also indicates that large firms have higher debt capacity than smaller firms, which they gain from diversification and from economies of scale when issuing long term debt. The overall result supports the trade off theory and rejects the predictions of pecking order hypotheses.

This may imply that larger industrial companies tend to use long-term debt. In connection with the dummy interaction coefficients, the non-industrial companies significantly differed from industrial companies in terms of the relationship between long-term debt and company size. In Table 6.7 the relationship between long-term debt and company size is significantly negative ($\beta = -0.0294$, $p<0.01$), but the relationship between short-term debt and company size is positive, but not significantly ($\beta = 0.038$, $p<0.01$).

6.7.1.5 Risk

For industrial companies, the negative relationship between a firm's risk and debt level supports the trade-off theory, which assumes that the costs of bankruptcy and financial distress reduce a firm's incentive to use debt financing. This is because firms may not be able to fulfil their debt commitments, as suggested by Panno, (2003). This is consistent with the trade- off theory proposing a negative relationship between business risk and leverage. In this study it was found that there was a negative relationship between risk and leverage for industrial companies in table 6.6. All results were not significant at a 10 % level (β = -0.046, $p > 0.10$), β= -0.039, $p > 0.10$ and β= -0.022, $p > 0.10$) respectively.

The results in table 6.7 indicate that there were statistically significant and negative relationship between risk and short and long term debt for non-industrial companies, the result was significant at a 1% a level (β = -0.078, $p<0.01$ and β = -0.047, $p<0.01$ respectively). High risk means a high probability of financial distress; this causes higher agency costs and consequently the firms raise less debt. Under the trade off theory, if a firm reduces its debt, it also reduces its bankruptcy risk and the volatility of its profits and therefore, the benefit from its tax shield will increase.

6.8 Discussion of results for Libyan and UK companies

6.8.1 Asymmetric Information Assumptions (pecking order theory)

Myers and Majluf (1984) and Myers (1984) point out that the choice of a firm's capital structure is designed to mitigate inefficiencies in the firm's investment decisions that are caused by asymmetry information. Myers (1984) argues that issuing debt secured by collateral reduces asymmetric information related to costs in financing. This might imply that the firm's debt capacity should increase with the proportion of tangible assets. Consequently a positive relationship between tangibility and debt can be interpreted as an indication of the existence of asymmetric information problems between managers and investors. Um (2001) argues that growing companies' funding pressure for investment opportunities is likely to exceed their retained earnings and, according to the pecking order theory ,they are likely to choose debt rather than equity.

For UK companies the results of regression analysis in table 6.4 illustrate that there is little support for the asymmetric information theory which predicts a positive significant relationship between the growth and tangibility variables and a negative significant relationship for the profitability variables. A negative relationship between the leverage and profitability is detected and a positive relationship between leverage and tangibility is detected. A positive relationship between leverage and growth is not detected; consequently there is little support for asymmetric information theory in connection with to the capital structure decisions of UK companies.

For Libyan companies the results of regression analysis in table 6.5 illustrate that there is no support for the asymmetric information theory, which predicts a positive significant relationship between growth and tangibility variables, and a negative significant relationship for profitability variables. A negative relationship between leverage and profitability is not detected and a positive relationship between leverage and growth is not detected either, consequently asymmetric information theory is not relevant to the capital structure decisions of Libyan companies.

6.8.2 *Agency Cost Assumptions*

Titman and Wessels (1988) indicated that the cost related to the agency relationship between debtholders and shareholders is likely to be higher for firms in growing industries. Growing companies tend to invest in risky projects and, consequently, lenders may require some limitations on lending to such companies. This is because of the fact that if the investment fails, the lenders are likely to bear the cost because of the limited liability of shareholders. Also, a negative relationship between debt and growth can be interpreted as including the existence of agency problems.

Using secured debt can mitigate debt agency problems, and this debt can be secured by collateral. Firms with satisfactory collateral can obtain more secured debt, as the lenders will feel safe taking assets as collaterals. Nevertheless, Um (2001) suggests that if a firm's level of tangible assets is low, the management for cost monitoring reasons may choose a high level of debt to mitigate equity agency costs. Hence, a positive relationship between debt and tangibility is consistent with an equity agency cost explanation.

He also argues that firm size may be a proxy for debt agency costs (monitoring costs) arising from conflicts between managers and investors. He emphasises that monitoring costs are lower for large firms than for small firms; consequently, larger firms are induced to use more debt than small ones. The agency cost theory predicts a positive significant and a negative significant slope for size and growth variables, respectively; and either a significant positive or negative relationship (depending on the nature of the agency cost) for the tangibility variable.

For Libyan companies there is strong evidence for the likely existence of agency cost problems as evidenced by the significantly positive coefficient and the significantly negative coefficients for tangibility and growth in table 6.5.

Libyan companies seem to be affected by debt agency problems, as evidenced by the significant positive relationship coefficient for tangibility and size, and the significantly negative coefficients for growth. Debt agency problems may be less severe with short-term debt as it reduces the potential for expropriation from debt holders to shareholders, because debt holders can withhold further financing if expropriation is expected. At the same time, there is evidence for both agency and trade-off theory which explain why Libyan companies issue short term debt, as evidenced by significant coefficients for short -term debt in Table 6.5. UK companies' choice of long-term debt appears to be consistent with the asymmetric information (Pecking order theory) and agency cost theories.

6.8.3- Static Trade-Off Assumptions

The assumption of a positive relationship between profitability and debt is based on a perception that high profits increase the debt capacity of a company; and that companies choose to increase their debt to take advantages of the tax deductibility of interest expense. Furthermore, high profit levels also lower the probability of bankruptcy, giving rise to higher incentives to use tax shields, thus leading to a higher level of debt. The static trade off theory thus states that there is a positive relationship between profitability and leverage.

It is believed that large firms have a lower probability of bankruptcy than small firms and that large firm may have easier access to capital markets than small firms. Also, large firms have higher debt capacity than small firms; therefore, a positive relationship between company size and leverage can be interpreted as being consistent with static trade-off theory.

Firms with high levels of tangible assets are in a position to provide collateral for debts. If the company then defaults on the debt the assets will be seized but the company may be in a position to avoid bankruptcy. It is expected, therefore, that companies with high levels of tangible assets are less likely to default and will take on relatively more debt, resulting in a positive relationship between tangibility and financial leverage. On the whole, if the static trade-off theory holds, significant positive slope coefficients are expected for the profitability, tangibility and size explanatory variables and significant negative slope coefficient for risk.

For Libyan companies the results of the regression analysis in table 6.5 indicate that there is strong evidence for the static trade-off theory for total debt, short term debt and long term debt, as evidenced by the coefficients for profitability, tangibility, size and risk.

For the UK companies in the sample, a significant positive relationship between leverage and both size and tangibility was observed, and the relationship between risk and leverage was significantly negative for total debt, short-term debt and long term debt. However, the hypothesised positive relationship between leverage and profitability was not detected. The results indicate that there is no support for the static trade-off theory for total debt, short-term and long term debt, as evidenced by the coefficients for profitability, this suggests that static trade-off theory is not the relevant capital structure theory for these UK companies.

6.9 Summary

This chapter analyses capital structure in developing and developed countries, identifying similarities and differences across companies, particularly between Libya and the UK, using cross section data methods. The major focus of this chapter is thus to analyse, and where possible explain, differences in the financing patterns between UK companies and Libyan companies.

This study found that the impact of several firm-specific factors on capital structure in both countries was significant and consistent with the prediction of conventional capital structure theories. The findings of this chapter contribute towards a better understanding of differences in financing behaviour between Libyan companies and UK companies by comparing the theories appearing to influence the capital structures of the companies in these countries.

The descriptive statistics indicate that there are differences between Libyan and UK companies in terms of using short-term and long-term debt and profitability. Some of these differences could be attributed to the lack of a capital market in Libya ,while the other differences could be attributed to agency problems (overinvestment problems), for instance the lower return on assets and lower level of fixed assets to total assets of Libyan companies. The results when dummies variables were used to analyse industrial and non-industrial companies in the UK indicated significant relationship between debt ratios and profitability for industrial companies, therefore a significantly positive relationship between short-term debt ratio and profitability in non- industrial companies.

This may imply that the evidence from non- industrial companies supports the static trade-off theory, as the vast majority of debt in non-industrial companies in the UK was from short-term resources. The relationship between company size and short- term debt for non- industrial companies may provide further support for static trade-off theory. This may imply that larger industrial companies tend to use long-term debt. In connection with the dummy interaction coefficients, non-industrial companies significantly differed from industrial companies in terms of the relationship between long-term debt and company size. The chapter shows that the financing patterns of Libyan companies can be interpreted as being consistent with the static trade-off and agency cost theories of capital structure. UK companies' financing behaviour can be interpreted as being consistent with the pecking order and agency cost theories of capital structure.

Chapter Seven: Conclusion

7.1 Introduction

This research project examined empirically the application of three theories of capital structure in samples of Libyan and UK companies. The main objective of this thesis was to examine the determinants of leverage of firms in a developed and a developing country, addressing the cases of Libya and the UK. Using quantitative methods of data collection and analysis, the project has examined the implications of static trade-off, agency costs and asymmetric information costs along with some behavioural theories on the financial policies and capital structure choices of companies in Libya and UK. The theory of capital structure was examined in the context of the Libyan business sector with some comparative data about UK companies. Six hypotheses were developed to test the possible causes of the level of debt in companies.

The results provide empirical evidence about the financial behavioural factors that influence and determine the leverage of companies, and identify the mechanisms involved in the capital structure decision-making process in businesses. In this part of the study, the main conclusions are reported. In addition, recommendations for further research deriving from of the study will be indicated. Capital structure is considered to be a controversial issue in corporate finance. Researchers diverge in the use of theoretical approaches to investigate this topic in corporate finance. However, scholars agree that company characteristics are probably important determinants of capital structure; Attempts to compare the different methodologies and to improve them are central to empirical studies.

This study aims to add to the corporate finance literature by analysing capital structure, using data from Libya and the UK. This chapter is structured as follows. Section 7.2 presents the main results of the statistical analysis that emerge from the theoretical and empirical analysis undertaken, while section 7.3 summarises the contribution made by the study, whilst Section 7.4 indicates its limitations, and section 7.5 offers suggestions for further research.

Most determinants of capital structure studies have focused on developed countries. Only a limited number of empirical studies focus on developing countries. This study reduces the gap by analysing the capital structure question in a Libyan setting. The Libyan business environment differs from the UK, in terms of companies' ownership, regulations, enforcement of law, investor protection and corporate governance. Some of the differences between Libya and the UK are pertinent to the analysis .The Libyan stock market was established only in 2007, and the range of financing options available to companies is more limited than in a country with a well established secondary stock market. This potentially switches the focus of company financing from long -term investment to short -term investment.

The main objectives of this research were:(1) to identify the financial and fiscal determinants of leverage of Libyan and UK companies, for this purpose, five firm-specific factors or determinants including: tangibility; profitability; growth; risk; and firm size are tested to examine their relationship with leverage ratios; (2) to assess which theory or theories of capital structure explain the financing behaviour of Libyan and UK companies.

Among the capital structure theories specifically tested here are static trade-off theory, agency cost theory and pecking order hypothesis; and (3) to compare the financial factors that affect cross-sectional variability of capital structure of companies in the UK with those that affect capital structure of Libyan companies

This study is divided into two parts, both Theoretical and empirical investigations being undertaken in order to achieve the research objectives. The aim of the theoretical part of the study was to provide a theoretical framework within which the study' observations could be interpreted and understood. This aim was addressed in chapters 2 - 4 of this study. Chapter 2 was devoted to describing financing policy and the components of the finance sector in the Libyan business environment. Chapter 3 presented a review of the relevant literature on capital structure. Chapter 4 explained the research methodology and methods. The second part is concerned with the empirical statistical analysis which is covered in chapters 5 - 6.

7.2 The Main findings of the study

This study has addressed the objectives set out in the introduction (P.10) and answered the questions posed. Although Libya is still transforming from a command economy to a market economy, and the state is still the controlling shareholder for most listed companies, however the firm-specific factors which affect companies' leverage in other countries such as the UK also affect Libyan companies' leverage in a similar way. The regression results of models illustrate that leverage in Libyan companies has a positive correlation with tangible assets, firm size and profitability, and negatively correlates to growth opportunity and risk. Based on the literature review and the theoretical and empirical analysis, several main findings emerged. These findings are summarised in the following section. Some comparisons are drawn between Libyan and UK companies' financing behaviour in respect of financial factors.

7.2.1 General conclusions about financial factors affecting capital structure decisions

The difference between the institutional environment of Libya and the UK leads to differences in capital choice, such as ownership concentration, the state of the legal system, banks and securities markets, the development of financial sectors and capital markets. These are all factors influencing the importance of firm-specific factors on companies' leverage decisions.

The investigation revealed that several characteristics of the financing sector in Libya, (the absence of a secondary capital market, the legal system, corporate governance, the development of financial sectors and capital markets), affect the financing decisions of Libyan companies. The ratio of total debt on average is 57% of total book value of assets. The vast majority of the debt (49%) is of a short-term nature on average.

In Libya private companies have higher levels of short-term debt than state-owned companies, which results in private companies having higher average debt ratios (57%) than the state- owned ones (35%). In contrast to the UK, Libya has a relatively small stock market, and there is no evidence of a corporate bond market. Bank loans have become the most important way to finance new projects. The absence of a corporate bond market might explain firms' orientation towards bank loans. Some financial results have been found to be important factors affecting the capital structure decisions of Libyan companies as compared to UK companies. The important findings are summarised as follows:

(1)-The results of this study into profitability in UK companies showed that UK companies tend to use retained earnings as their first choice for financing, followed by bank borrowing as the second choice. Equity issuance might be the third choice for companies; Equity is an alternative way for companies to finance. A remarkable difference between the capital choices of Libyan companies and UK companies is that Libyan companies prefer short term finance and have substantially lower amounts of long term debt.

(2)- Libyan companies have higher short-term debt and lower long-term debt compared to the UK companies examined in the study. A reason behind this may be the absence of a secondary market in Libya, which gives firms the opportunity to mix its sources of funding.

(3)- Libyan companies' average profitability (2%) is lower than the average profitability ratio of UK companies (9%). UK companies have higher levels of fixed assets to total assets (31%) compared to Libyan companies (19%) this may imply that Libyan companies hold high levels of cash, inventory and/or trade receivables.

(4)- The most important variable among all the explanatory variables for Libyan private companies were profitability, size and tangibility. Private companies tended to be externally financed and prefer short-term debt sources.

(5)-The most important variable among all the explanatory variables for Libyan state-owned companies were profitability and size. State-owned companies tended to be externally financed and prefer short-term debt sources.

(6)- The results when dummies were used to analyse Libyan state-owned and private companies, suggests that both the static trade-off and agency cost theories were applicable, while there was little evidence to support the pecking order theory.

(7)- The most important variable among all the explanatory variables for Libyan non-industrial companies were profitability and tangibility. Non-industrial companies tended to be externally financed and preferred short-term debt sources, to long-term debt when offering their fixed assets as collateral.

(8)- The relationship between company size and short- term debt for Libyan non-industrial companies may provide further support for the static trade-off theory, as the vast majority of debt in Libyan companies was from short-term resources.

(9)- Libyan non-industrial companies had less long-term investments than industrial companies; this might have been due to the fact that they were matching the maturity of their debt with the life of their assets. The result provides support for the existence of significant agency costs in non industrial companies.

(10)- The results when dummies were used to analyse Libyan industrial and non-industrial companies indicated no significant relationship between debt ratios and profitability for industrial companies, but a significantly positive relationship for the short-term debt ratio with profitability in non- industrial companies.

(11)- The regression results of the models confirmed that leverage in Libyan companies was positively and statistically significant linked to tangible assets, firm size and profitability. However, leverage was negatively and statistically, significantly (inversely) associated to firm growth opportunity and risk. The evidence suggests that the static trade-off theory and the agency cost theory have more explanatory power in relation to the determinants of capital structure of Libyan companies than the pecking order theory.

(12)- The most important variable among all the explanatory variables for UK industrial companies were profitability, tangibility, and size; whereas profitability and tangibility were the most important variable for UK non- industrial companies.

(13)- The most important variables among all the explanatory variables for UK companies were tangibility and size.

(14)- The results when dummies were used to analyse industrial and non-industrial companies in the UK indicated significant relationship between debt ratios and profitability for industrial companies, therefore a significantly positive relationship between short-term debt ratios and profitability in non- industrial companies. This may imply that non- industrial company's supported the static trade-off theory as the vast majority of debt in non-industrial companies in the UK companies was from short-term resources. This suggests that as a company's profitability increase, it is able to increase its short term debt.

(15)- The UK industrial companies tended to use long-term debt. In connection with the dummy interaction coefficients, the non-industrial companies significantly differed from industrial companies in terms of the relationship between long-term debt and company size.

(16) -There was a negative relationship between leverage and profitability in British companies that accords to the pecking order theory (POT), and suggests that when firms experience an increase in cash flow, they tend to reduce the amount of leverage in their capital structure. It also suggests that when cash flow falls, firms tend to increase their reliance on leverage, suggesting that cash flow and leverage are substitute sources of finance. However, the result contradicts the argument of the trade-off theory of capital structure, which states that firms prefer using debt first to finance their projects but is consistent with (POT).

(17)- The results show that there is a positive relationship between size and leverage for both British and Libyan companies. This is in accordance with the trade-off theory (TOT), which postulates that larger firms normally take more leverage. Larger firms have a lower probability of bankruptcy than smaller firms, and the larger firms may have easier access to capital markets than smaller ones. Furthermore, larger firms have higher debt capacity. When firms grow in size, they tend to reduce their leverage, which can possibly be explained by the fact that SMEs tend to rely on External funds, usually loans, when they want to grow but after a while the larger they grow in size, the more they pay back their debt and reduce their leverage.

(18)- The results show that asset structure was a significant factor in capital structure's decision making, it is positively related to leverage in both Libyan and UK companies. This result is in line with the agency theory of capital structure. In addition, this result indicates that companies that have assets that can be used as collateral issue more secured debt than firms without collateral.

(19)- The results indicate that there was a significant negative relationship between business risk and the debt ratio in both the UK and Libya. Therefore, companies with high debt ratio tend to face high financial distress costs. Thus, companies with volatile incomes are less leveraged. This result is in line with static trade-off theory.

(20)- The results indicated that companies in Libya and the UK were growing, as shown by positive growth rates in their total assets. UK firms have a higher growth rate of 45% over the period 2000-2004, whereas Libyan companies' assets grew at an average rate of 13% in the same period.

(21)- The results show that there was a strong and significant negative relationship between growth opportunities rate and leverage in UK companies, and this is consistent with the expected negative sign which was predicted by agency theory. The negative and significant effect gives support to the argument for trade-off theory. This theory considers future growth opportunities as intangible assets which cannot be collateralized. Furthermore, firms with greater growth opportunities might have had lower leverage ratios due to the fear of debt holders that firms may forgo valuable investment opportunities and expropriate wealth for their own benefit. The negative relationship is consistent with the result found by Rajan and Zingales,(1995), Ozkan,(2001), Harris and Raviv,(1991), Aklitar,(2005), Antoniou et al.(2002),Al-Sakran,(2001),Chung,(1993),Deesomsak, Paudyal, and Pescetto,(2004), Ghosh and Cai,(2000), Huang and Song,(2006) and Brailsford, Oliver, and Pua ,(2002).

(22)- The results indicate that there was a negative relationship between growth and leverage for state-owned companies in Libya. This means that growing state-owned companies do not rely on debt to finance their new investment. This may imply that growing state-owned companies have sufficient internal funds for their financing needs. The negative relationship for growth supports agency cost theory. The results are consistent with the findings reported by Rajan and Zingales, (1995), Antoniou et al. (2002) and Al Sakran, (2001). Linking theories to practices in both the UK and Libya, the static trade-off theory and the agency cost theory are applicable theories in the Libyan business environment, while there is little evidence to support the idea that Libyan corporations follow pecking order theory. However, the companies in the UK seem to follow the agency theory and pecking order theory of capital structure.

7.3 CONTRIBUTION OF THE STUDY

This study has examined research questions and hypotheses that have been raised about the capital structure of Libyan and UK companies. The empirical findings of the study contribute to knowledge as follows.

Since Modigliani and Miller's irrelevance theory (1958) established the foundation of capital structure theory, many theoretical and empirical studies have tested the theory in respect of developed and developing countries. However, Libya, as a developing and transitional economy, has different institutional structures from developed as well as many developing countries. This includes an undeveloped corporate bond market, tight control over the issuance of equities, and large amounts of state owned shares. This research provides a comprehensive study of Libyan and UK companies' determinants for corporate financing. It examines the influences on the capital structures of these companies by using a relatively large data set, including 130 firms and using financial data from 2000 to 2004.

Overall the study contributes to the existing literature by providing empirical evidence for the Libyan setting in the capital structure debate. It also provides important policy guidelines for the financial behaviour management of Libyan companies. Its findings hopefully contribute towards a better understanding of UK and Libyan companies' financing behaviour. The study adds to the existing literature of capital structure in the following respects:

A combination of different capital structure theories and models that were used in studies examining other countries have been tested to asses if they explain Libyan data. In particular, the research examines whether the modern capital structure theories are relevant to the financing behaviour of Libyan and UK companies. The study contributes to the limited number of studies on capital structure in developing economies in general, and within the Arabic countries in particular. It is a further contribution towards the limited amount of capital structure research that is based on Libya data. Furthermore, this study is one of the first comparing capital structure practices between developing and developed counties (Libya and the UK). The study adds fresh empirical evidence to the determinants of capital structure in developing countries where there are relatively few studies.

7.4 LIMITATIONS OF THE STUDY

1- The absence of a secondary market in Libya (during the study period 2000-2004) has required the researcher to depend on return on assets (ROA) as a measure of profitability, rather than utilizing return on shares (ROS), which, whilst in principle a more relevant measure requires some information such as share closing prices which is simply not a available . This leads to difficulties in capturing the market value of firm equity and assets, which leads to the researcher having to rely on historical cost.

2- The lack of high-quality databases is a major barrier to conducting capital structure research in Libya. The shortage of high-quality data prevents the examination and identification of additional variables that could have an impact upon the financing behaviour within the Libyan market.

3- Due to the lack of official statistics about the precise number of companies and the number of companies which work in each industry in Libya, it is difficult to ascertain whether the sample is fairly representative of the entire population of Libyan companies.

7.5 SUGGESTIONS FOR FURTHER RESEARCH

The limitations mentioned above could lead to further work as follows:

1- New data available from the secondary market in Libya (which will result from companies being registered) will provide researchers with more information related to measured variables that previous studies have stated to have an impact on leverage, such as ROS and growth measured by assets market value/assets book value.

2- This study has considered the effect of institutions and agencies as determinants of capital structure and laid some ground work upon which a more detailed evaluation of institutional influences might be based. Based on the discussions in previous sections, some suggestions for further research are addressed below:

Further research may focus on some specific areas, for example: the relationship between dividend policy and capital structure, as more data becomes available in future. Such data could be used for examining and identifying additional variables that may have an influence on financing behaviour. In addition, the Libyan government and Regulators are trying to improve the Libyan stock market to allow listed companies to issue corporate bonds for their medium term or long term financing. At the same time, the Libyan stock market has turned into a bull market since 2010. More foreign institutional investors entered the Libyan stock market by using the QFII (Qualified Foreign Institutional Investor) quota. Due to the high competition and pressure from investors, Libyan listed companies' management are willing to improve their dividend policy to develop wealth. Further studies could focus on these changes and might be able to find some interesting results by using more available data.

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