The Determinant of Capital structure in SME's: Evidence from UK and China

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(BSc, MSc)

A Thesis Submitted in Partial Fulfilment of the Requirement of Bournemouth University for the Degree of

Doctor of Philosophy

March 2018

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Acknowledgement

I would like to express my special thanks and gratitude to my supervisors, Professor Steve Letza and Professor George Filis for their continued patience and encouragement. They gave me the opportunity to complete this project on The Determinants of Capital Structure in SMEs: Evidence from UK and China, and assisted me in the research process.

I would also like to thank my parents and friends who gave me a lot of support in finalizing this project within the four years.

Abstract

The concept of capital structure and its related determinants has received significant attention in academic discussion due to a change in the financial environment allied to changes to the economic climate over the last several decades. To mitigate these changes and challenges, an understanding of capital structure variances from certain aspects of firm, industry and country-specific levels has been the focus of research in this area. This has resulted in an emphasis on the financial implications of such capital structure variance building an understanding of the influences of its determinants when economic environments change. However, results of the research to date is inconsistent due probably to the heterogeneity of sampled firm in a changing financial market. Therefore, these inconsistent results leave a gap in the literature that needs for further investigation.

The main research aim of the study is to investigate and analyse the determinant of capital structure in listed small and medium sized firms in the UK and China. There are three specific objectives strategically generated to contribute to the existing literature on the subject matter. Firstly, to investigate the impact at firm, industry and country-specific levels on capital structure variance of firms using both market and book based values in specific sector between 2007 and 2017. Secondly, to analyse the relationship between capital structure and its determinants by using panel data fixed effect to analyse their direct and indirect influence. Thirdly, to examine using the same model, the dummy effects of time, industry and financial systems on capital structure.

To achieve these research objectives, the study uses two samples, namely, 510 firms on the UK Alternative Investment Market (AIM) All Share Index and 759 listed firm on the China SMEs Board Market from the period 2007 and 2017. The secondary data used in the study is acquired from DataStream, The World Bank and National Statistical Bureaux of the UK and China. The analysis initially uses the Haussmann test in Stata to determine, within the context of a panel data analysis, whether fixed or random effects should be utilised. The evidence predicated the use of fixed effects.

The need for a heightened awareness of environmental management has been highlighted as a results of climate change, global warming and other related environmental challenges that have occurred over the last three decades. To mitigate

these challenges, efficient environmental processes, strategies, policies, initiatives and practices have been adopted by a number of companies and countries. As a result, research scholars have highlighted the financial implication of engaging in such environmental management activities and research has focussed on advanced investigations to understanding the relationship between corporate environmental performance (CEP) and corporate financial performance (CFP). However, results to date are inconsistent and contradictory thus, leaving a gap in the literature that calls for further examination.

An analysis of descriptive statistics indicate that the Basic Material, Industrial, Health and Consumer Services sectors are the most prominent representatives in the AIM sample. The Basic Material, Industrial and Consumer Goods sectors are the most significant sector in the sample of SMEs Board Market. Several studies indicate that firms in the Financial and the Utilities Sectors should not be included in the sample because their financing decisions are supervised and regulated by government. The capital structure of firms in these sectors have a different composition compared to firms in the non-regulated sectors. In order to provide accurate empirical evidence, this research investigates the determinants of capital structure excluding the Financial and Utilities sectors. On AIM, it is found that the capital structures of the Oil and Gas , Technology and Consumer Goods sectors are mainly explained by firm-specific determinates. The capital structures of the Industrial sector relies on factors with industry characteristics, but the capital structure of the Health Care, Consumer Services, Consumer Goods, Industrial and Basic Materials sectors are more influenced by macroeconomic change. In the SMEs board, the capital structures of the Health Care, Technology, Oil and Gas and Consumer Services sectors are mainly explained by determinants related to firm characteristic. The financing decisions of the Consumer Goods, Industrial and Basic Materials sectors are influenced more by factors arising from the economic environment. Furthermore, industry characteristic variables have a stronger explanatory powers in the Industrial, Consumer Services, Industrial and Health Care sectors.

The regression estimators also indicate that the overall difference in capital structure variance between the AIM and SMEs board is not significant. Financing structure of firms in AIM are explained more by factors with firm characteristic than those in

SMEs board with no effect being observed from industry characteristics? However, industry characteristics does also play an important role in firm's capital structure in SMEs Board. The short term leverage element of the capital structure of firms on AIM is mainly explained by factors firm characteristic with these factors having a lower explanatory power in the SMEs board. On the SMEs board, the factors with industry and country characteristics have the greatest influence on short term leverage of firms. Regarding long term leverage, there is not significant difference between AIM and the SMEs board with industry-specific factors affecting the long term rather than the short term leverage of firms in AIM.

Furthermore, using panel data with fixed effects, it is found that the capital structure of firms in both the markets is significantly affected by the time, industrial and financial system dummy. The effect of the industrial variable plays a significant role in the financing decisions of firms on AIM. With no difference being observed between short term and long term leverage. However, in the SMEs board, the industrial variable only affects short term leverage with no empirical evidence showing any significant effect on long term leverage. However, the time variable on capital structure shows different results between AIM and the SMEs board. Overall, the effect of the time variable on AIM is twice that of its influence on the SME's board and in relation to short term leverage on AIM its effect is four times as significant. In relation to the influence of the financial system variable there is no difference in the absolute value of its impact between AIM and the SME's board.

The study contributes to knowledge and the existing literatures in several ways. The primary contribution is the analysis of the hierarchical and dimensional construct of capital structure variance. The study analyses the different aspects of financing choice made by firms given the influence of time, firm characteristics, industry and country. Also, the proxies of capital structure are grouped as short-term and long term leverage with both measured in relation to market and book value. For example, there is evidence that firm size is positively related to short term leverage in the market value of firms on AIM whereas it has a significantly adverse impact on book value. Also, the distance from bankruptcy (default risk) is found to be negatively related to short term leverage of firms in the SME board, while it positively affects long term leverage. These contradictory results suggest that there is a motivation to measure the relationship between capital structure and its determinants to provide more explanatory power. Furthermore, the results provide statistical evidence to support existing literature on the non-linear relationship between capital structure and its determinants in relation to firm characteristics. The study's distinction of the non-linear relationship between capital and non-capital intensive firms assists managers in utilisation of the marginal effects of conditional variables on financing choice. Finally, the study contributes to the capital structure literature by identifying the capital structure choice of small and medium sized firms in the developed country of the UK and emerging country of China from 2007 to 2017 providing evidence of the distinction between UK and Chinese firms, which contributes to the understanding of financing preferences in different financial markets.

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Chapter One: Introduction

1.0 Introduction

The variation in capital structure across firms has emerged as a significant source of discussion and research in recent years. Capital structure, associated with financing decisions, refers to the "sources of financing employed by the firm. These include debt, equity and hybrid securities that a firm uses to finance its assets, operations, and future growth" (Baker and Martin 2011). Capital structure is a major aspect of financial management aimed at contributing towards the maximization of firm value. This is because "a firm needs sufficient funds to support its activities arising from its investment decisions" and therefore, how the firm allocates the proportion of capital sources required including share, debt and retained earnings, plays a significant role in the firm's sustainability (Harris and Raviv 1991). As Baker and Martin (2011) explain, if debt becomes the least costly form of financing, the influence of growing leverage in using debt financing increases financial risk. Debt financing not only increases the default risk of firms but also the volatility of a firm's earnings. In this instance, the benefit of a lower cost of debt would decrease when leverage rises and is associated with growth of financial risk and the probability of financial distress. Myers (1977) and Myers and Majluf (1984) succinctly summarise this stating "sources of capital have vital consequence for the firm to affect its market value and hence shareholder balance" as capital structure is a direct determinant of firm's overall risk and cost of capital. Given the huge changes that have occurred in the economy for the past several decades (i.e. banking crisis 1990s, financial crisis 2007), companies, industries and economies around the world have been paying attention to capital structure and corporate financial decisions.

The global financial market presents more choices of capital instruments with a vast range of new sources and forms of capital for firms. There are three major sources of capital for firms, which are "internally generated funds, bank loans and financing raised in capital markets" (Dewaelheyns and Van Hulle 2010). As Agarwal (2013) describes, firms can be given direct loans and credit from banks and can also raise loans in the form of bond issues. Equity issues can be made in the primary market which may then be traded in the secondary equity market. The wide circulation of instruments within the capital market, with the resulting mix of debt and equity determines that a firm's capital structure can be more widely based. Due to the wide range of capital sources, the determinants of the cost of these can be an essential issue for firms. Since the seminal framework by Modigliani and Miller (1958), who devise the research paradigm on capital structure and the firm's value, a large volume of academic studies have been focused on the determinant of the explanatory factors for capital structure. As explained by Modigliani and Miller (1958), under stringent condition of competitive, frictionless, and complete markets, without transaction or bankruptcy costs and distortionary taxation, the value of firm is independent of its capital structure. According to Bevan and Danbolt (2002), once these fundamental assumptions are relaxed, however, capital structure may be relevant to firm value. Moreover, there could be restrictions for firms in accessing external financing, and the costs of its alternative forms may differ. Under such market imperfections, firms will attempt to borrow levels of debt and raise equity in order to reach an optimal capital structure (Bevan and Danbolt 2002).

In his follow up paper Miller (1977) proposes the tax shield as a factor that significantly affects the capital structure of firms, however, this was subsequently refuted by DeAngelo and Masulis (1980) who introduce the factor of a non-debt tax shield as a determinant of capital structure. There are number of theories that cover capital structure which provide explanatory power to be determinants. Trade-off theory relates to profitability and size, agency cost theory covers firm growth and volatility in cash flow, pecking order theory addressed both profitability and growth, signalling theory is associated with tangibility of assets and market timing hypothesis introduces the price of equity. These theories and their relevance to capital structure have been covered in the following studies Jensen and Meckling (1976), Ross (1977), Myers (1984) and Baker and Wurgler (2002). There is a growing interest amongst academic researchers in exploring the rationale for altering the mix of the capital structure within firms. The majority of researchers have attempted to explore one of the most common questions of whether capital structure has an optimal range that maximises firm's value, given the level of capital necessary to support a firm's activities. Moreover, the critical determinants in setting the leverage ratio is an area that attracts a concentration of research.

Furthermore, with the change in the economic environment and diversity of the global capital market, some studies explore the influence of specific economic conditions including GDP, inflation rate and market liberalization on the financing choice of firms (Bokpin 2009; Cook and Tang 2010). These studies (Booth et al. 2001; Antoniou et al. 2008; Beck et al. 2008; De Jong et al. 2008) contrast the capital structure of firms from different countries, and suggest that other than firm characteristics, country specific and institutional factors may also influence financial leverage. A number of empirical studies making international comparisons (Agarwal and Mohtadi 2004) suggest that external financing is "more important in developing countries than in developed countries". For example, Atkin and Glen (1992) find that for firms in G7 countries, internally generated funds were dominants, while for firms in developing countries, externally generated funds, i.e. bank loans and equity were important. In addition, the use of the capital market as a source of external financing in developing countries has increased and further growth is expected (Booth et al. 2001). Larger firms. within developing countries, are more able to meet the requirements of external finance providers (Beck et al. 2008).

While there are many studies on the role firms and countries play in capital structure, the literature neglects industry factors. Although a few studies include dummy industry variables representing the effect arising from different industries, it is difficult to find studies including variables that characterize each industry, the exception being MacKay and Phillips (2005); Kayo and Kimura (2011). Further, although there are a number of research studies that address the relationship between capital structure and either firm specific or country specific factors, most use data for firms that can be classified as large by any definition of business size. This is because small firms are confronted with a different set of problems and have different complexities, such as "shorter expected life, presence of estate tax, intergenerational transfer problems and prevalence of implicit contracts" (Michaelas et al. 1999). Furthermore, another possible reason for this limitation is that SMEs data are often scarce and unreliable because small firms are not required to disclose the same level of detailed information as large companies.

Regarding the differences in methodologies, it is found that studies investigating the relationship of capital structure have adopted different approaches. For instance, using a sample of U.S. firms is a common theme in the study of the impact of firm characteristic on capital structure (Huang and Ritter 2009; Lemmon and Zender 2010; Graham et al. 2016). Other studies test the capital structure determinants of UK companies (Michaelas et al. 1999; Ozkan 2001; Bevan and Danbolt 2002), European firms (Bancel and Mittoo 2004; Daskalakis and Psillaki 2008), and Asian firms (Deesomsak et al. 2004), international data (Bertus et al. 2008; De Jong et al. 2008; Fan et al. 2012; Cho et al. 2014). The theoretical frameworks are widely recognised and utilised in these studies and they illustrate different empirical methodologies to gain insight into the key elements of the capital structure formation.

The current study argues that the fundamental gap that has to be addressed is the multidimensionality of capital structure and the emphasis on large firms. Along with firm characteristic, De Jong et al. (2008), Daskalakis and Psillaki (2008); Gungoraydinoglu and Öztekin (2011) focus on the role of country variables in influencing the capital structure of firms. Other studies include a number of dummy variables to control for the effect of industry, time and country on a firm's speed of adjustment to change in the capital structure of firms (Wald 1999; Hall et al. 2000; Deesomsak et al. 2004; De Jong et al. 2008). This study appears to validate the view that the dimensions of capital structure determinants should be investigated as one single study in order to gain a comprehensive result covering all facets. Therefore, this study, based of review of existing literature, seeks to analyse the multidimensionality of the determinants of capital structure to provide a more comprehensive picture of the factors that influence firm decision making in its make up. Additionally, there is limited amount of literature on the capital structure of small and medium (SMEs) and it draws substantially on largely unlisted firms. This distorts the equity relationship since there is a reluctance amongst SMEs to introduce that type of funding into their capital structure due to a lack of qualification for a listing or a loss of ownership control. There is therefore a preference to rely on internal funds followed by debt (Michaelas et al, 1999). In order to address this distortion this study uses only listed SMEs since equity plays major element in the capital structure and therefore eliminates the distortion whilst reducing the knowledge gap by examining an under researched area namely listed small firms. there is wide literature on the subject of the difference in capital structure by country and this study enlarges this fields by both concentrating on SMEs and including firms listed on the Alternative Investment Market (AIM) in London and the SMEs Board in Shenzhen.

1.1 Relevance of UK and China Context in the study

The current research explores the capital structure of listed firms in the UK and China from 2007 to 2017. Given that the UK has well-developed financial markets and active stock trading, it is worth researching the financing preference of listed companies based on the UK capital market where there is a legal tradition of long standing and a liberal approach to economic activity. This can be contrasted to China where the economy has been growing at high speed despite the fact that it has an under developed legal system and financial market. This difference in the characteristics of the economic environment and legal system, serves as a useful opportunity to produce a comparative study of the capital structure preference of firms in the UK and China and to explore any differences of approach.

The primary reason for the chosen period of study is to provide insight on the impact of the recent financial crisis on the capital structure of firms in the UK and China, including any change in both equity and debt levels of firms during the crisis and post crisis periods. The efforts made by the governments of most countries, particularly those which play a significant role in global capital markets towards using regulatory action to achieve stability in the market to implement a raft of monetary policy of initiatives including quantitative are now the subject of research by a large number of academics. For example, the programme of asset purchases by the Monetary Policy Committee of the Bank of England began in 2009. There was a total of £200 billion assets purchased between 2009 and 2010, representing about 14% of UK GDP (Kapetanios et al. 2012). In China, the stimulus programme of 4 trillion Yuan (£293 billion) was adopted by Chinese government in response to the 2008 global financial crisis, which represented 16% of China's GDP (Zheng and Chen 2009). An evaluation of the effect of monetary policy could mislead the public into assuming that companies which are affected by the crisis during 2007 to 2008 benefitted from the quantitative easing policy. However, academic research that evaluated, how the capital structure of firms changed during the financial crisis provides a comprehensive insight for government and policymakers. For example, according to Iqbal and Kume (2015), the overall leverage ratios of firms in the UK and Germany have been increased from the pre-crisis period (2006 to 2007) to the crisis period (2008 to 2009) but subsequently decreased in the post crisis period (2010 to 2011). This paper systematically analyses the impact of the 2007-2008 financial crisis on firms leverage ratio from a variety of perspectives, including the impact of different financial systems, industry capital structure ratios and time periods.

The means by which Small and Medium Enterprises (SMEs) determine their capital structure is the focus of this research. This is partly because the recognition the importance of SMEs in the economy in terms of "number of enterprises, employment and value added, and also because the acknowledgement that SME financing exhibits considerable differences when compared to larger enterprise" (Daskalakis et al. 2017). Also, as Porter (1993) and Hussain et al. (2006) indicate that a healthy and growing SME sector is perceived to be crucial for sustainable competitive advantage and economic development at local, regional and national level. According to Huang et al. (2016), the Chinese National Bureau of Statistics concludes that SMEs account for about 99 percent of the total number of firms in China and these SME firms contribute about 60 percent of the country's total gross industrial output. Also, as ben be seen from statistic data of the UK's Federation of Small Business (2008), SMEs represent 99.9 percent of all UK business and account for over half of private sector employment. The UK's 4.8 million SMEs are critical to the economic health of the UK, as recognised in the UK Coalition governments programme. However, the capital market's environment in the UK and China has entered its worst period since the financial crisis. Therefore, the question of whether and how the financial crisis impacted the capital structure of SMEs and was the effect different, for example in relation to key determinants, during, pre and post the period is the main focus of this study.

Historically, the Financial Services Authorities (2001) reported that UK companies have not made extensive use of the bond market, and particularly the domestic sterling bond market. For the most part, they have tended to place far greater reliance on equity financing. This partly reflects the fact that the UK has a well-developed equity market and that for long periods the UK suffered from a high level of inflation, followed by residual inflationary expectations, which caused the nominal costs of long term debt finance to be unattractively high. On the other hand, the financial landscape in China is more complicated as it is dominated by the state-owned banking system. The stock market and bond market have rather limited roles in corporate financing. According to Goodfriend and Prasad (2006), the total amount of deposit in the banking system of China are circa take 160 percent of GDP, compared to government stock which is about 25 percent of GDP. Comparing the banking system, the corporate bond market and stock market in China are relatively small. Only a small number of enterprises are permitted to list on the stock market and most of the shares of these listed enterprises are owned by the state and these shares are not traded. In briefly, the stock market does not play a major role in corporate financing.

Therefore, a further focus of the research is to investigate whether the financing preference of firms in the UK and China differ with particular feature such as any difference in the firm characteristics and market conditions have an influence on corporate structure. The findings would inform both policy and firm decision making when considering investment in the respective countries. The respective influence of macroeconomic conditions and government response to both opportunities and crises could be major influences on the decisions of both domestic and foreign firms in relation to their approach to capital structure and investment.

1.2 Research Questions

The study contributes to the literature by examining whether multiple dimensions of determinants have an effect on the capital structure of SMEs. To carry out an effective investigation, the following research questions are constructed in line with the objectives of the thesis.

First, what are the determinants (i.e., time-, firm-, industry- and country- level or financial system) of firm's capital structure (e.g. market value and book value of short term leverage and long term leverage) from a sectoral perspective?

Second, are the capital structure determinants of UK and China SMEs driven by similar factors, and are potential differences driven by time, firm, industry and country-specific elements?

Third, is the size and structure of their financial market an important factor in explaining any cross-country differences on SME capital structure?

1.3 Research Objectives

In an attempt to answer the research questions, the current study aims to investigate the influence of time, firm, industry and country specific level determinants of capital structure of firms from the UK and China. The effect of these determinants will be evaluated at varying level in the capital structure process. The study adopts data for firms listed on FTSE AIM all shares index in the UK and SZSE SME Board in China which will reflect an appropriate mix of debt and equity. The objectives of the study are:

First, to access the relative importance of each determinants level on the variance of firm leverage in the various sector from 2007 to 2017.

Second, to extend this basic model to include fixed effects panel data in order to analyse the influence of the characteristics of firm, industry and country on firm leverage including a direct and indirect influence.

Third, using the fixed effects model, to examine the effects of time, industry and the financial system on capital structure of firms in the UK and China.

1.4 Research Methodology Structure

To achieve the aims and objectives discussed above, this study uses multiple samples including a sample size of 510 listed firms on the FTSE AIM all share Index and 759 listed firms on the SZSE SMEs board market from 2007 to 2017. Listed firms in the UK and China are the central focus of this study due to the transparent nature of the information disclosed regarding the financial and operational performance of firms. Further, the AIM and SME Board are the only direct equity financing platform for small and medium companies (SMEs) from a wide range of industries. Many of the firms on AIM and SMEs Board have been actively trading over the years and have large market capitalization. For example, ASOS on AIM has the largest market capitalisation of £4.82 billion in 2018 (LSE, 2018) and RSPC on SMEs board has issued capital of 14 billion Yuan in 2018 which became the firms with largest equity issuance (SZSE, 2018). These examples provide considerable justification for the investigation of these small and medium listed firms' attitude to capital structure ratios.

The FTSE AIM all shares Index primarily represents all eligible companies listed on the sub-market of the London Stock Exchange (LSE). This comprises of the FTSE AIM UK 50 Index, the FTSE AIM 100 Index and the FTSE AIM All share Index. The Alternative Investment market is regulated by the London Stock Exchange but with less demanding rules than the main market. It comprises the smaller and less viable companies that run in a more flexible regulatory system than the main market and no capitalisation requirements exist and companies on AIM are not required to issue a certain number of shares. Similar to AIM in the UK, the SZSE SME Board is a sub-board of the Shenzhen Stock Exchange founded specifically for small and medium-sized enterprises (SMEs) to provide lower entry barriers in China. It provides a direct financing platform for a growing number of private (non-state) companies from a wide range of sectors and include traditional firms as well as firms with significant a hi-tech content. However, the listing standards for the SMEs board are stricter than that required for AIM in the UK. The requirements applicable to the main board of Shenzhen Stock Exchange include companies "information disclosure, IPO and listing advice and disclosure of key financial indicators, profitability, size of share capital and the ratio of public shares, all of which should be supplied by SME Board companies (Shenzhen Stock Exchange, 2004).

Furthermore, the study includes a representative sample of firms from all sectors as listed on the FTSE and SZSE excluding any related to the financial and utilities sectors together with any involved in merger and acquisitions. This is predicated on research produced by Frank and Goyal (2003),Cook and Tang (2010), Korajczyk and Levy (2003), who found that financial firms, regulated utilities and firms involved in mergers and acquisitions were obliged to comply with regulatory guidance with which influenced the capital structure choice for these firms. The financial data are extracted from the companies' annual reports and Data stream while macroeconomic data are gained from the World Bank and the State Statistical Bureaux. There are two main prerequisite sample selection criteria adopted in this study to arrive at the panel data. Firstly, firms with at least three years of data from 2007 to 2017 available from annual reports are selected. It is imperative to start with this criterion due to limited data availability for annual reports. The second criterion is to eliminate firms with missing financial data relating to variables such as those related to profitability, size and dividend payment over the period 2007 to 2017.

A total of 718 firms were listed on the FTSE AIM all shares and 821 firms on the SZSE SME Board and following the exclusions noted above the sample was restricted to 510 firms on AIM and 759 on SME Board. These were included in the unbalanced panel data analysis. These are firms that feature across all industry sectors in the Industrial Classification Benchmark (ICB) and CNI Industries Classification Standards (CNI) sectors excluding the Financial and Utilities Sectors. However, the firms within the excluded financial and utility sectors are not ignored but evaluated separately.

This study uses panel data regression analysis containing time series and cross-sectional dimensions of the data collected. Panel data contains "information on both the intertemporal dynamic and the individuality of the entities may allow one to control the effect of missing or unobserved variables" (Gaud et al. 2005; Hsiao 2007; Baltagi 2008; Bollen and Brand 2010). The study then uses a Fixed Effect approach due to the possibility of omitted variables which may be correlated with the variables in the model. Additionally, the danger of non-linearity was explored but it was concluded that a linear panel model appropriately addressed the research aims. However, it is recognised that some studies have identified a degree of non-linearity in the leverage ratios within capital structure and this research addressed this by utilising the same fixed effect approach but logging firm characteristic variables to recognise the non-linear relationship between the dependent and independent variables. This also serves as a robustness check.

1.5 Contribution of the Study

The research has both policy and academic relevance due to the role played by regulators and policy makers in governments, who would benefit from the study's results and contribute to the aim of maximising SMEs' wealth and improve their financial environment. The study contributes to the significant academic literature on financing related issues and the financial performance of SMEs in both developed and developing countries, particularly in the UK and China.

First, the study contributes to the debate on the relationship between capital structure of firms and the factors which might affect it by highlighting results from a multi-sectoral perspective. A literature review finds that, only a few of studies have been conducted in the UK and China which have studied the capital structure of firms based on sectoral analysis. The studies to date adopt a variety of approaches using different measures of financial performance across a multiple sectors and the results produce an uncertain and ambiguous picture with the added complication of the papers being dated and written prior to the financial crisis and the current financial environment. This research combine eight sectors (excluding Financial and Utilities sectors) represented by the ICG and CNI Indices to present a holistic investigation of each sector's performance. Different sectors appear to adopt specific capital structure frameworks with evidence that variation in the financial environment elicits a particular response from each sector and the firms within them. Recognition of this is essential since it predicates differing policies and regulations and also informs the capital structure design of individual firms. This research identifies these trends and informs both practitioners and policy makers in the optimal solution for capital structure.

A firm's capital structure will have a hierarchy of financial instruments and this research analyse the hierarchical construct of capital structure choice providing an additional insight into the influence of time, firm, industry and financial systems on the financing decision. Although there is a large number of studies on the multi-dimensionality of capital structure (Schmukler and Vesperoni 2001; Daskalakis and Psillaki 2008; Psillaki and Daskalakis 2009; Jõeveer 2013), the majority focus at the firm specific level. To thoroughly grasp the hierarchical relationship, this study investigates the influence of time, industry and financial systems, allied to the independent variables of firm, industry and country specific observations as the determinants of capital structure and applies a linear modelling approach in order to assess the relative importance of each of them. As an example, this study found evidence that the effects of time dummy variables on capital structure were changing over the periods of the financial crisis and economic recovery. Also, the financial system had significant influence on capital structure of firms over the sample period. Bank based systems had a negative impact on leverage ratios of firms with the exception of the short term leverage in relation to book value whilst the market based system showed a positive influence on leverage excluding the short term leverage of book value. These findings may encourage managers in various sectors and financial systems to advance different policies that apply to their sector to adjust their method of financing and leverage ratios.

Furthermore, the outcomes of the study augments the literature on the non-linear relationship between capital structure and the factors affecting it. The identification of the non-linear relationship between capital intensive and non-capital intensive firms has the capacity to assist managers in those sectors with different capital intenseness to adjust their capital structure. The majority of existing studies have concentrated on the linear relationship between capital structure and its determinants ignoring the non-linear adjustment which occurs in relation to debt ratios and the tendency for such an occurrence impacts to have a temporary effect and eventually reduce. Though such circumstance may result in a U-shaped or inverse U-shaped relationship, the non-linear incidence of firm' debt adjustment this study confirms its existence. Only a few studies have empirically investigated the existence of a non-linear relationship (Fattouh et al. 2005). In response to the curvilinear relationship, Bahng and Jeong (2012) identified the existence of non-linear effects between debt ratios and explanatory variables such as firm size and profitability. However, this non- linearity is not apparent for the independent variables of asset tangibility and non-debt shield. Other papers also corroborates the estimated effect of explanatory variables such as firm size, asset tangibility and profitability at different points of the distribution (Fattouh et al. 2005). Therefore, it can be inferred that this research introduces a new perspective on the non-linear effect into the capital structure literature and serves subsequently services as a contribution to the previous literature in this field.

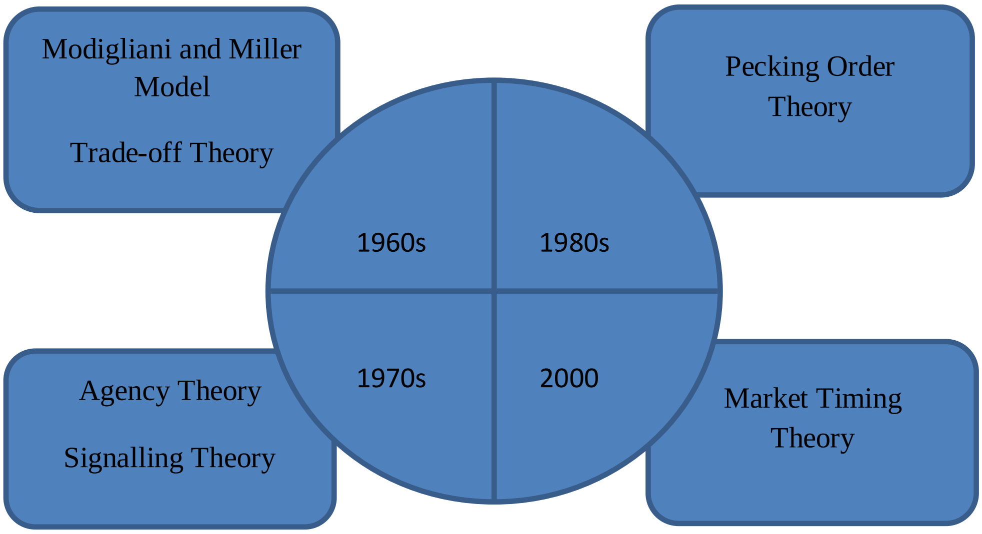
Finally, the study contributes to literature by adopting different measures of capital structure such as short and long term leverage in both market and book value. Both short term and long term leverage are, to some extent, significantly affected by time, firm, industry and country level determinants when both market and book value measures are used. For example, firm characteristics have a greater influence on short term leverage as opposed to long term leverage. Also, market value is more significantly related to country specific variables. These provide statistical evidence from differing dimensions that will allow policy makers to holistically comprehend the financing strategies of firms and develop suitable policies for firms with different capital requirements.

1.6 Structure of the Thesis

The thesis comprises eight chapters which are structured and grounded on conceptual and theoretical basis, with discussion and analytically systematic arguments. The current chapter presents an overview of the research which primarily includes the introduction, background and purpose of the study. Furthermore, this chapter identifies the research aims and objectives which address the research questions. In addition to these, the unique contribution to existing research and the policy implication are briefly outlined. The limitation of the study and proposition for future research are also outlined in the last section of this chapter.

In chapter two relevant theoretical frameworks are presented together with existing literature on the subject of capital structure and corporate financing decision. The chapter includes the main underlying theories and their suitability and practicability for use in the present study. The theories that are mainly discussed in this chapter are the Modigliani and Miller model, Trade-off theory, Agency Theory, Signalling theory, Pecking order theory and Market timing theory. Figure 1 below shows the period of development of each of the theories employed in this study. Using these theories as the basic concepts, Chapter two provides an insight into the extent to which all relevant factors relating to firm specific determinants influence changes to the capital structure of firm.

Figure 1. 1: Theoretical Composition



Furthermore, Chapter two reviews the existing empirical literature that investigates the relationship between capital structure and the factors arising from these major theories on the subject. Industry characteristics and their effects already explored in the extant literature are examined in this chapter. One prominent section in this chapter covers the limited literature that analyses the determinants of leverage using with industry dummy variables that characterize rather than classify the industry specific influence on capital structure and the differing results obtained when tested in each industry sector. It is also noted in chapter two that capital structure, is analysed separately using the different ratios of leverage, namely, short, long term or total leverage ratio. The following next section is cover about the nature and relevance of corporate capital structure in the global context. In this section, the literature on the international comparison of capital structure and the impact of economic conditions are recognised. Issues, including specific aspects of the economic environment and performance including the bond and stock market together with financial systems which are related to capital structure changes in the behaviour of firms are discussed in this section.

Chapter three introduces the main hypotheses to be tested in this research. These hypotheses are discussed and are generated from literature evaluated in chapter two. A total of sixteen hypotheses are developed based on three main levels of determinants of capital structure. The first level is the firm specific level including firm size, growth opportunities, non-debt tax shield, profitability, tangibility and intangibility of assets, effective tax rate, default risk, liquidity and dividend payment. The second level is industry specific and includes industry market concentration. The third level is country specific associated with macroeconomic market changes, including growth of GDP, capital formation, development of the bond market and development of the stock market. Furthermore, the hypotheses related to dummy variables associated with financial systems, time and industry effects are discussed in this chapter.

Chapter four identifies the specifics of the methodology used in this thesis. The first part classifies the research philosophy that underpins the more concrete questions of empirical research. The methodological procedures regarding the population of the study, sampling criteria, sample space and data descriptions are described in this chapter. In this section, the segmentation of dependent variables and independent variables together with control variables are introduce. The following section introduces the various statistical tests that are undertaken to demonstrates the validity of the data and include the Variance Inflation Factor and Pearson correlation matrix. Additionally, the procedures for running a panel data analysis including the segmentation of regression models are presented after validating the method for dealing with heteroscedasticity and autocorrelation. The final section of this chapter explains provides the process of how the non-linear relationship is explored to evaluate the marginal effect of the dependent and independent variables.

The analyses of econometric results are discussed in Chapter five, six and seven. Chapter five presents the descriptive statistics analysis with two graphs that show the distribution of the samples based on the indices of the ICB and CNI sectors. This part also shows the descriptive statistical analysis covering to the mean, standard deviation and the minimum and maximum values of the observation utilised from the data set. Furthermore, the correlation and multi-collinearity tests and analysis are also covered in this chapter.

Chapter Six discusses the panel regression analysis where the results are grouped into the various sectors. These results present the relationship between capital structure and its determinants according to the different industry sectors and stock markets. Also, this section discusses the dummy variables of time, industry and financial system which capture their specific influence.

Chapter seven primarily shows the robustness test results of analysis. It firstly presents the results of the non-linear relationship between firm-specific variables and capital structure in the markets of AIM and SME Board. It then presents the results of the non-linear relationship in the capital intensive and non-capital intensive sectors. In addition to these observations, the robustness checks test the validity of the empirical results by utilising alternative specifications that test the measures and processes to testify the validity of the empirical results, are showed in this chapter.

Chapter eight provides a conclusion by outlining the whole thesis with considerable focus on the research methodology and results with links back to the literature. It also discusses the implications of the results from various aspects and provides the main research contribution of the study by applying, linking and extending theoretical models of capital structure. The limitation of the research regarding interpreting the results are provided in the following section. This chapter also suggests several points for future studies to explore further country and firm behaviour in relation to capital structure.

Chapter Two: Literature Review

2.0 Introduction

A critical aspect of research is the underpinning of the theoretical framework on which the study's hypothesis, research results and contribution is based. Grant and Osanloo (2014) define a theoretical framework as the entire "blueprint" of research which serves as the role that guides the research in order to build a structure based on formal theories. In other words, the theoretical framework consists of the selected theory that underpins the research's thoughts and objectives. However, Lovitts (2008) defines the criteria for applying or developing the theoretical of the thesis as necessitating a logical alignment with the research question. Theories cannot prescribe the specific needs of the researchers' but instead acts as a lens to explore the different possibilities for the study from a variety of perspectives.

The capital structure literature has adopted various theories such as the Modigliani and Miller's model ((Modigliani and Miller 1958, 1963), trade-off theory (Kraus and Litzenberger 1973), agency theory (Jensen and Meckling 1976), signalling theory (Ross 1977), pecking order theory (Myers 1984; Myers and Majluf 1984) and market timing model (Baker and Wurgler 2002). Other empirical literature initially relate to the effect of the industry environment on capital structure (Bradley et al. 1984; Chevalier 1995; MacKay and Phillips 2005) and then the influence of the macro-economic markets. This research selects the Modigliani and Miller model, trade-off theory, agency theory, signalling theory, pecking order theory and market timing theory to explain the relationship between the capital structure and firm specific levels variables in the UK and China, and uses the empirical theories relating to industry effects and macroeconomic condition's effect to explain the relationship between capital structure and the key influences involved. As the current study is not only targeted at only establishing the relationships but also in determining causal directions, the theories will serve to underpin the explanatory narrative for both.

2.1 Theoretical Framework

Before delving into the context and content of the fundamental theories employed in this study, it is worth noting the structure and organisation of the sections. The chapter covers detailed theoretical discussion and is organised as follows: Section 2.1 covers the theoretical framework relating to capital structure and section 2.2 includes the practise framework generating from empirical evidence of capital structure investigation. In section 2.1, section 2.1.1 covers the Modigliani and Miller model; Section 2.1.2 explores the trade-off theory; Section 2.1.3 discusses the agency theory; Section 2.1.4 explains the signalling theory; Section 2.1.5 reviews the pecking order theory and 2.1.6 focuses on market timing theory. In Section 2.2, the industry effects on capital structure is included in Section 2.2.1, and Section 2.2.2 is about the influence of Macroeconomic condition on capital structure. In each section, the researcher first discusses the relevance of the theories and their application in the exiting literature. After that, the implication of the theories in capital structure are also analysed. In this chapter, the different concepts and arguments from literature are explored after pointing out the relevance of the theories in capital structure.

2.1.1 Modigliani and Miller Model

Modigliani and Miller (1958) and Modigliani and Miller (1963) originally devised the MM model in their articles by developing conventional financial views of capital structure to a modern theoretical framework. The MM model explores the inherent law of the firm's capital structure, based upon various assumptions, and establishes the association between market value of a firm and the composition of financial leverage. This theory has also been used in more recent studies as a starting point for the capital structure theory as suggested by Eckbo (2011) and Brusov et al. (2015) where they state the "theory of corporate finance in the modern sense stem from the Modigliani and Miller (1958) and Modigliani and Miller (1963)'s capital structure proposition". Modigliani and Miller model has had a great effect on further framework formulation of capital structure. Virtually without exception, the subsequent frameworks of the trade-off model, agency theory, pecking order theory, market-timing, and signalling theory have been developed based on relaxing the conditions of MM model's assumptions.

2.1.1.1 The Modigliani-Miller Theory with Taxes

The essence of the initial MM Model proposed that, under a perfect capital market with symmetry information, and in the absence of taxes, transaction cost and bankruptcy cost, the market value of a firm is dependent on the capitalization of the firm's expected return at a cost of unleveraged equity, and is invariant with respect to a firm's capital structure as well as cost of capital. By using a "utility function" which is presented in Figure 2.1, Modigliani and Miller (1958) show that the "total cost of the firm is determined by the value of profit outcome, discounted with fixed rate, and corresponding to total business risk of the firm". Furthermore, equity cost of a leveraged firm is equal to the equity cost of an unleveraged firm in the same risk group, plus a premium for risk, the value of which is equal to the production of difference on financial leverage level. These two MM propositions indicate that adding more debt in the composition of capital has no effect on the market value and the total cost of the firm, because the benefit acquired from the debt financing market will be offset by the rise in risk and cost of a firm's equity capital. Therefore, the market value of the firm is only dependent on its profitability and risk classes. The irrelevance results of the MM theory have also been stated by Stiglitz (1969).

Miller (1988) critiques that the propositions of initial MM model have been accepted in economic and financial theory, however, the "the empirical evidence of MM value-invariance in organically sphere of corporation finance is less clear". This is because most of Modigliani and Miller (1958) assumptions could not exist in a real situation and the conclusions of MM model are unlikely to be empirically proved (Frank and Goyal 2008; Brusov et al. 2015) suggesting that some of the prerequisites in the MM model (1958) could be removed without altering results except the crucial assumptions of no bankruptcy cost and no taxes.

Figure 2. 1: MM propositions

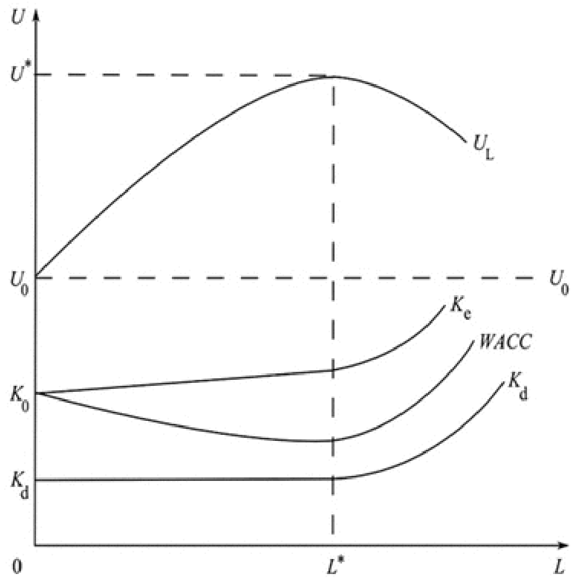


Fig. 2.1 Dependence of company capitalization, U_L, equity cost, k_e, debt cost, k_d, and weighted average cost of capital, WACC, in traditional (empirical) approach

Source: Brusov et al. (2015)

2.1.1.2 Modigliani-Miller Theory with Taxes

Subsequently, the issue of taxes in relation to the irrelevance of debt to equity in the firm’s capital structure has been specifically considered in Modigliani and Miller (1963) who propose that under some conditions, “the market value of leverage firm is higher than the market value of a firm that is entirely financed by equity at the same risk group, added by the benefit of tax shield which arising from financial leverage, and equal to the product of rate of corporate income tax and the value of debt”. Since the interest payment of debt financing becomes a tax-deductible expense for the firm, the issuing of debt can increase shareholder wealth because the firm can lower its tax expense with a rise in debt. Contrarily, issuing stock does not affect corporate tax, and thus the optimal capital structure of the firm consists of 100 percentage debt (Modigliani and Miller 1963; Kraus and Litzenberger 1973)

Modigliani and Miller (1963) show the value of financial leverage at a corporate level but ignored the question of “how equilibrium is determined when firm’s interest expense are tax deductible while outflows to shareholders are not” (Benninga and

Talmor 1988). (Miller 1977) further considers the determination of personal tax of capital structure and resolved the question that the benefit of debt financing at the corporate level is reversed at the shareholder's personal level. According to Miller (1977), the advantage of debt financing was partly overvalued because the expense of personal tax offsets the benefit that shareholder gain from equity. This solution has also been proved by DeAngelo and Masulis (1980) who suggest that the advantage of debt financing is completed eliminated if the personal tax rate on bond interest is higher than the personal rate on equity income in the form of capital financing. Investors at a basic personal tax level are more likely to invest in a taxable bond, however, investors at the higher rate are more likely purchase equity (Benninga and Talmor 1988). With consideration of both corporate tax and personal tax in capital market equilibrium, the capital structure has multiple equilibria in which debt is issued by different firms.

2.1.1.3 Modifications of Modigliani-Miller Theory

Fundamentally, the Modigliani and Miller (1958) and Modigliani and Miller (1963) make a contribution to modern theory of finance by devising capital structures irrelevance to the firm's valuation around the theorem's conditions. The criticism of the MM theorem argues that it is a simplified assumption that cannot hold in a real word setting. Based upon propositions of Modigliani and Miller (1963), the optimal capital structure of a firm can be completely debt financed due to the preferential treatment of debt to equity in the context of a tax. This cannot be achieved under a variety of circumstances (Frank and Goyal 2008)

The subsequent studies of Hamada (1969), Stiglitz (1969), Stiglitz (1974) and Gruber and Warner (1977) relax the assumptions of Modigliani and Miller (1958) theory and introduce factors of trade-off namely, bankruptcy cost, agency cost and financial distress cost to supplement Modigliani and Miller (1958) and Modigliani and Miller (1963)' s model. Stiglitz (1969) extends the propositions of Modigliani and Miller (1958) under more general conditions such as with consideration of risk classes and a competitive capital market. By using a model of market equilibrium, this article shows that the probability of bankruptcy will be increased if a firm places an overwhelming reliance on debt financing. After that, Stiglitz (1974) further shows that the maturity structure of debt has no relevance to the capital structure of firm, and the firm's value can be implied by an optimal capital structure, irrespective of the financial policies of firm. Miller (1977) also argues that in market equilibrium the value of a firm has still no relevance to its capital structure despite the advantage of tax deduction. This is because the price and returns for securities in market equilibrium "account for distortion imposed by corporate and personal tax and the company cannot facilitate performance by only changing its debt ratio" (Cheremushkin 2011). However, this suggestion has been refuted by Kraus and Litzenberger (1973), Jensen and Meckling (1976), Altman (1984), Andrade and Kaplan (1998) and Graham (2000) who explain that the relevance of the tax-deductibility and a firm's value is compromised by concerns relating to the costs of financial distress and bankruptcy. High level of borrowing is more likely to result in a firm's inability to cover interest payments when cash flow is insufficient (Graham and Smart, 2012).

2.1.2 Trade-off Theory

Robichek and Myers (1966) propose the framework of "trade-off" which originally stems from Modigliani and Miller's (1963) seminal work that involved corporate income tax. Robichek and Myers (1966) expand the MM hypothesis of perfect information and further considered bankruptcy cost, demonstrating that firms have an optimal capital structure. Basically, trade off theory of capital structure assumes that firms choose debt financing in order to optimally balance the benefit of debt with the possible costs of financial distress. The theoretical model of trade-off has also been ranged from static models to dynamic versions which considers the firm's investment as exogenous but adding the rebalancing costs of capital structure (Kraus and Litzenberger 1973; Brennan and Schwartz 1984; Fischer et al. 1989; Goldstein et al. 2001).

2.1.2.1 Static Trade off Theory

Earlier studies of Kraus and Litzenberger (1973) provide a static formulation to present capital structure option, in which the firms are described as setting a target debt ratio for their capital structure eventually moving towards the target. This is because using debt compared with equity hold both advantages and disadvantages, firms should have an optimal capital structure that balanced the tax saving brought about by leverage and the financial risk of the enhanced possibility of bankruptcy associated with a high debt at the margin (Scott Jr 1976). According to Scott Jr (1976), firms are unable to provide collateral have to pay a higher cost of debt or be forced to issue equity. Consequently, a positive relationship between the tangibility of assets and leverage is predicted by the trade-off model. Bradley et al. (1984) maintain this as the standard presentation of the static trade-off theory. Myers (1977) and Myers and Majluf (1984) investigate the link between debt financing and the firm's value when the emphasis is tax-deduction whilst ignoring bankruptcy cost, finding that the amount of debt issuance of firms is equal to the maximization of the market value of firm. A firm that complies with the trade-off model sets a target debt ratio and eventually moves toward this target. As Myers (1984) emphasises, the target is determined by balancing a debt tax shield against the cost of financial distress. However, Frank and Goyal (2009) summarize several objections to the static trade off model as the main element of a target debt ratio, claiming that tax code, bankruptcy cost and transaction cost cannot, in reality, be directly captured and achieved in reality.

2.1.2.2 Dynamic trade-off theory

Compared with the static trade-off theory, dynamic trade-off theory includes additional factors of transaction costs, optimality of financing choice in subsequent period and asymmetries in taxation (Baker and Martin 2011). This translates into the empirical prediction that the leverage ratio in reality will revert toward a target level.

Fischer et al. (1989) construct a dynamic trade off theory to consider company investment as exogenous but adding capital structure rebalancing costs. This version has been developed to identify the function of time specifying a number of aspects that are ignored in a single-period model (Frank and Goyal 2009). In a dynamic model, Fischer et al. (1989) recognize that firms are more likely to stray from their target debt ratio even in a trade-off setting with a fixed cost of issuance, adjusting leverage only in extreme bounds. This because firm may pay off the debt when it earns profit, resulting in a decrease in leverage levels. Based upon Fischer et al. (1989), firm's leverage ratio responds less to short-term equity fluctuations but more to long term value change because of the transaction cost. Thus, profitable firms will use less leverage if trade-off interpretation is implemented and the cost of rebalancing is taken into account. The idea of dynamic trade-off theory has also been extended by Leland

(1994) who examines corporate leverage values and capital structure based upon the assumption that firms have a fixed debt obligation, finding that leverage has fluctuated over time reflecting accumulated profits and losses, and has not adjusted debt toward the target level unless the cost of adjustment over the value is lost. A number of subsequent studies (Goldstein et al. 2001; Hackbarth et al. 2006; Bhamra et al. 2010) of dynamic capital structure adjustment suggested lower debt ratios than the static model; the ratio of most firms is more likely to deviate from the target debt ratio. The investigation of mean reversion in companies' leverage and the speed of adjustment have been the concentration of the empirical literature on capital structure (Fama and French 2002; Lemmon et al. 2008; Huang and Ritter 2009)

In conclusion, trade-off theory states that firms have a motivation to use debt financing because of the benefit from tax-shield. Similarly, bankruptcy cost is a significant characteristic of the trade-off theory that constrains the use of financial leverage.

2.1.2.3 Extension of Static Trade-off Model

Modigliani and Miller (1963) and Miller (1977), a number of earlier studies (DeAngelo and Masulis 1980; Bradley et al. 1984; Haugen and Senbet 1986; Fama and French 2002; López-Gracia and Sogorb-Mira 2008) attempt to coordinate Miller (1977) model and trade-off theory, and explore the relationship between the effective tax rate and level of debt by considering bankruptcy cost. DeAngelo and Masulis (1980) demonstrate the irrelevance of Miller (1977) in a complete market model, and claimed that existence of non-debt tax shield such as tax credit of investment and deprecation deduction will limit the tax-advantage of leverage because they will decrease utilization of available interest tax credit. This implies that a firm with high levels of non-debt shield is more likely to have a lower level of debt than firms with a lower non-debt tax shields. According to DeAngelo and Masulis (1980), the trade-off theory predicts a negative relationship between non-debt tax shields and firm leverage. Following studies of Kraus and Litzenberger (1973), DeAngelo and Masulis (1980) and Myers (1984), Bradley et al. (1984) presents a model where optimal leverage is inversely related to expected costs of financial distress, agency cost of debt, and no-debt tax shields. If the dividend of a share is untaxed, then the marginal tax rate will be less than the corporate rate and thus, there will be a positive tax advantage to a firm's leverage ratio. Additionally, optimal leverage of a firm is negatively related to the variability of firm value when the cost of financial distress is significant.

At the beginning, Haugen and Senbet (1986) summarize that Miller (1977) market equilibrium theory interprets redundant tax shelters and endogenous progressive tax rate, but argued the extent of financial distress can be restricted as firms can simply renegotiate the terms of the debt in order to avoid bankruptcy and associated cost. Haugen and Senbet (1986) find that it is resulted in an alternative interpretation of the trade-off model that includes the "possibility of optimal internal debt ratio and effective tax rate in company's debt return, which are sustainably less than the corporate tax rate." MacKie-Mason (1990) test companies with low marginal tax rates to determine whether they tended to issue equity, compared to profitable firms with full statutory tax rate, and provided clear results of a substantial tax effect on the choice between debt or equity issuance. The empirical evidence is consistent with prediction of the trade-off model because it presented the fact that most tax shields have a negative influence on the marginal tax rate for most companies because tax paying firms prefer debt financing. It is also accords with market equilibrium of Miller (1977) in which the value of interest on corporate interest tax rate influence capital gain. Furthermore, by using a latent variable approach, Titman and Wessels (1988) find mixed evidence for the predictive power of static trade-off theory. According to Titman and Wessels (1988), the transaction cost may be a significant determinant of capital structure choice of firms, especially for small firms as small firms intend to use significantly more short-term funding than large firms.

In 1990s, with the development of signalling theory and adverse selection in capital choice, a number of empirical studies have shown mix evidences to support both trade-off theory and pecking order theory. Opler and Titman (1994) conduct research using a sample of U.S companies that issue debt and equity between 1976 to 1993 to examine their financing behaviour, finding that highly leveraged firms lose market share to their more conservatively financed counterparts even in normal times. This directly indicates a negative relationship between financial leverage and sales growth of firms, suggesting the validity of static trade- off theory. In addition to this, Opler and Titman (1994) also find the adverse consequence of leverage for corporate capital structure choice, which implies the existence of pecking order theory. Further evidence on the trade-off model has been demonstrated in Graham (1996) who tests that the increased long term debt is positively and significantly related to firm specific marginal tax rates that account for earning losses. By following Titman and Wessels (1988), Rajan and Zingales (1995) provide mixed evidence that target debt might not be an important consideration of corporate financing decision. This result demonstrated a significant negative relationship between debt ratios and historical profitability of firms. This model estimate based upon the trade-off of the tax deduction of debt and the cost of financial distress indicates a positive correlation. In line with prediction regarding the relationship between debt policy and tax proxies, Graham et al. (1998) shows evidence that firms' tax status is endogenous to financing decisions. In particular, the firm's effective tax rate is positively related to debt ratio, but negatively related to the use of operating leases. Moreover, based upon the suggestions of Graham et al. (1998), the propensity to use debt financing increases with the expected costs of bankruptcy, and debt financing is also affected by personal tax. This is consistent with Miller (1977) who proposes that corporate tax advantage of interest deduction can be offset at the personal level.

Since Graham et al. (1998), Graham (2000) finds that firm's leverage has been persistently conservative, in particular for large and profitable firms in stable industries that have lower expected costs of financial distress. Additionally, it has been suggested in Graham (2000) that firms should relax the use of leverage as the tax benefit of interest deduction is more than the increased cost of bankruptcy. Graham and Harvey (2001) conduct a survey with 392 CFOs and find that nearly 44% indicate that their firms have a target capital structure, and tax deductibility of interest payment was a factor in deciding the target leverage ratio. By conducting a sample of 157 U.S firms, Shyam-Sunder and Myers (1999) have the intention of testing the interpretation of static trade off model for capital structure. The results show the predictive capability of pecking order has significantly more time series explanatory power than static trade-off model. After that, Chirinko and Singha (2000) clearly clarify that it is difficult to compare the two seminar frameworks in capital structure if the experimental model of Shyam-Sunder and Myers (1999) is used.

In the 2000s, empirical studies (Hovakimian et al. 2001; Fama and French 2002; Hovakimian et al. 2002; Hovakimian 2006; de Jong et al. 2011; Hovakimian et al.

2011) engage with further investigations of trade-off prediction, and bring more focus on the comparison between trade-off theory and other theories for capital structure in different countries. Hovakimian et al. (2001) and Hovakimian et al. (2002) demonstrate considerable evidence that retained earnings or losses is important in the interpretation of debt-equity ratio of firms which aligns with the pecking order theory. As Hovakimian et al. (2001) and Hovakimian et al. (2002) demonstrate, the pecking order theory examines the effect of the debt ratio of firms in the short term, indicating that in the long run, firms are more likely to carry out capital structure decisions that move toward target debt ratio which is consistent with dynamic trade-off theory. Besides, Ozkan (2001) uses a panel data analysis of 390 UK firms in the period of 1984 to 1996, finding that those firms with long term target leverage ratios move forward to the target ratio relatively quickly. This suggests that the cost of readjustment of capital structure is an important factor for firms. Furthermore, as indicated by Ozkan (2001), other factors of current liquidity, profitability, growth opportunities and non-debt tax shield negatively impact on the adjustment of leverage decision. Similar to Ozkan (2001), Adedeji (2002) evaluates a sample of 608 UK listed firm to test trade-off theory, showing that the variables of trade-off model (non-debt tax shield, growth opportunities, and firm's size) have more explanatory power on new debt issuance than the pecking order hypothesis.

Mixed evidence has been provided by Fama and French (2002) who investigate pay-out policies of dividend and leverage levels by carrying out a comparison between trade-off and pecking order theory, based upon US firms over the period of 1965 – 1999. Results indicate that companies with more investments are more likely to have less leverage, suggesting that leverage should decrease with portability. However, firms with more investment have less long-term dividend pay-out, and dividend will not vary to accommodate short-term variation in investment. These are consistent with both trade-off prediction and a complex pecking order model. The above mixed evidence has been addressed by Gaud et al. (2005) who conducted an analysis of capital structure for a panel of 104 Swiss listed firms which showed that Swiss firms have a target leverage ratio even though the process of adjustment is much slower than other countries. Moreover, the size and tangible assets of Swiss firms have a positive impact on leverage, while profitability has a negative effect. This partly suggested the influence of static trade-off theory of capital structure. With use of a dynamic partial adjustment model of capital structure, Korajczyk and Levy (2003) empirically test trade-off theory from aspects of microeconomic factors, and find that debt issuance is pro-cyclical and equity issuance is counter-cyclical for the non-financially constrained firms. Another empirical investigation by Zhang and Kanazaki (2007) uses firm's profitability and non-debt tax shields as proxies of static trade off theory and tested a sample of 1325 non-financial companies in Japan, demonstrating that the static trade-off model fail to explain the negative correlation between profitability and firm's debt. This indicates that the static trade-off theory can only be partially relevant to Japanese firm.

In line with the suggestion of Hovakimian et al. (2001), de Jong et al. (2011) test the static predictions of static trade-off theory by focusing on an important proposition that a firm will increase borrowing until it addresses the target leverage ratio, finding that for a sample of US firms, static trade off model can only successfully interpret a firm's capital structure in a repurchase decision. Similarly, Hovakimian et al. (2011) examine static trade-off theory by considering the probability of default as a proxy for benefits and costs of leverage, proving that firms with higher cost of financial distress and bankruptcy have higher probability of bankruptcy. Furthermore, firms with higher effective tax rates are more likely to reduce the probability of bankruptcy. These results imply that the static trade-off model fails to explain on several different dimensions. Besides this, the capital structure of SMEs with lower tangible of assets, tend to have less access to capital markets, are more sensitive to positive profitability and equity value shocks, resulting in a greater susceptibility to bankruptcy risk. Compared with previous research which focused on different countries, Harrison et al. (2011) show an analysis of capital structure in real estate investment trust based upon a sample of 2409 firms, providing strong evidence for trade off theory in explaining real estate investment trust's (REIT) capital structure decisions. According to Harrison et al. (2011), REIT's seize and tangible assets positively affect the financial borrowing of firms, while profitability has negatively related to firm's leverage. Furthermore, Mazen (2012) verifies the validity of the static trade-off theory via uses of a French panel data of 122 firms, indicating that the most capital-intensive and large sized firms in the sample tend to converge more quickly towards the optimal long term debt ratio.

This existence of firm's capital and size effect seems to support the assumptions of static trade-off theory.

2.1.2.4 Extension of Dynamic trade-off theory

A body of literature on dynamic trade-off of capital structure that build on the studies of Fischer et al. (1989) and Leland (1994) propose dynamic model of trade-off that emphasizes the cost of rebalancing as a significant determinant of the frequency and size of capital structure adjustment. One dividing line is the consideration of investment using financing, which is followed by Fischer et al. (1989), Goldstein et al. (2001), Flannery and Rangan (2006), Strebulaev (2007), Titman and Tsyplakov (2007) and Hennessy and Whited (2005). Another considerable research line of dynamic trade-off theory is the tax system assumption, which has been extended by recent papers of Goldstein et al. (2001), Titman and Tsyplakov (2007) and Strebulaev (2007). According to Frank and Goyal (2009), dynamic trade-off model can also been treated as the option values that embedded in deferring debt decision to the next period. This implication has also been shown in studies by Goldstein et al. (2001) and Strebulaev (2007)

Goldstein et al. (2001) follow the hypothesis of Modigliani and Miller (1958) that consider the firm's cash flow as exogenous determinants, finding that that low-leveraged firms have the option to increase debt level. In this prediction, the optimal debt level and spread of credit is similar to that found in practise. In particular, the tax benefits of an increase in debt have a more significant result than show in the static trade-off interpretation. Based on Hovakimian et al. (2001) and Hovakimian et al. (2002), Hovakimian et al. (2004) further analyse the dynamic trade-off prediction by examining the influence of firm's operating performance on financing behaviour as they determined target leverage of the firm. The conclusion of Hovakimian et al. (2004) support the dynamic trade-off proposition that debt issuers offset the deviation from target which result from accumulation of past profits and losses. Additionally, the evidence also implies high market-to-book firms tend to have low target leverage ratios, that is consistent with market timing hypothesis. Similar to Hovakimian et al. (2001) and Hovakimian et al. (2004), Titman and Tsyplakov (2007) develop a dynamic model of trade-off in which firm's value is endogenously influenced by financing and investment choice with consideration of bankruptcy cost and transaction cost, finding that whereas pecking order behaviour impact capital structure adjustment, firms, eventually, moved toward a target leverage, which is predicted by trade-off hypothesis. Another contrarian paper by Hennessy and Whited (2005) develop a dynamic structure model to observe trade-off hypothesis with endogenous investment to debt ratio, finding that firms that have no target debt ratio can suffer from over leveraging. As Frank and Goyal (2009) critically review, the conclusion of Hennessy and Whited (2005) is similar to the pecking order theory, showing that firm's financing structure can be indeterminate and depends on financing deficit and anticipated tax regime.

Other empirical evidence has also been presented by Leary and Roberts (2005) who conduct duration analysis to show that firms' financing behaviour appear to follow the dynamic trade-off theory of Fischer et al. (1989) and Mauer and Triantis (1994) that firms tend to actively move their capital structure to stay within a target range. This result is greatly consistent with the direct evidence of adjustment costs. Additionally, Kayhan and Titman (2007), Flannery and Rangan (2006) also prove that firms tend to move towards target debt ratio although a firm's history greatly influence their capital structure. Kayhan and Titman (2007) partially measure target capital ratios by focusing on non-financial firms, suggesting that firms do have a target debt ratio as the under or over leveraged firm tends to rebalance leverage ratios to offset the observed gap. This result has been achieved by Byoun (2008) who prove that firms move forward to optimal capital ratios when it has a financial deficit or gap. By following the propositions of Goldstein et al. (2001), Strebulaev (2007) further develops the model that combines both dynamic trade-off model and real investment for debt ratio, indicating that firms faced with a choice between the frequency of adjustment and the amount of debts indicating that, firms with lower cost of financing have adjusted frequently, furthermore, as the cost of adjustment increase, the boundaries of rebalance also increased. In a dynamic trade-off model, most papers have paid great attention to develop quantitative analysis models to examine whether firms are likely to deviate from the optimal debt ratio (Haas and Peeters 2006; Huang and Ritter 2009; Dang et al. 2012). Following the studies of Fischer et al. (1989), Leary and Roberts (2005) and Strebulaev (2007), Faulkender et al. (2012) emphasizes the impact of transaction costs on firm's leverage adjustments, showing that firms intend of moving toward a target debt ratio with rational adjustment cost.

Dang et al. (2012) conduct a dynamic panel threshold model of capital structure for dynamic trade-off theory based on UK evidence, allowing for asymmetries in adjustment of target leverage. The analysis implies that firms have a quicker adjustment of debt ratio so as to avoid the potential cost of financial distress caused by holding above-target debt ratios, which conform to the hypothesis of dynamic trade-off theory. As a challenge of dynamic trade-off model, Welch (2004) critiques that the adjustment of capital structure can be interpreted using historical stock return, suggesting that firms rebalance their capital level slowly to offset the historical impact of stock return on leverage. Particularly, almost 40% of US corporations' capital structure could be explained by historical stock return, whilst the classic influences of bankruptcy cost, firm's size and market to book ratio fail to explain the dynamic debt ratio.

Haas and Peeters (2006) examine the dynamic trade-off theory by analysing European firms, pointing out that firms have slow adjustment of target leverage ratio while firms prefer internal funding rather than external debt. In addition, Ovtchinnikov (2010) investigates the capital structure decisions of deregulated industries, indicating that financing structure cannot be static but change with operating environment relating to exogenous shocks, such as deregulation. Firms' behaviour in deregulated industries tend to be above their target capital structure issue utilising significantly more equity in the early of years. Also, proxies of trade-off theory relating to profitability, growth opportunities, and expected bankruptcy cost have been demonstrated to be significant determinants of capital structure. From microeconomic aspect, Bhamra et al. (2010) analyse the impact of time-varying macroeconomic environment on optimal dynamic trade-off theory of capital structure based on a cross-section of firms. The finding implies that the optimal leverage is more conservative in bad of microeconomic conditions, especially, the capital structure of firms which turn counter-cyclical in aggregate dynamics.

2.1.3 Agency Theory

The term "agency" is defined as "one in which one or more persons (the Principals) engages another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agency" (Ross 1973; Jensen and Meckling 1976). Agency theory considers the firm as a nexus of internal and external contract. Agency Cost (AO) Theory of capital structure explains these contractual relationships between principals and agents in business by positing capital structure is determined by agency cost. It is concerned with resolving problems which arise from conflicting interest among persons to the institutions, such as management, capital contributors, employees, customers and government due to unaligned goals or different aversion level of risk (Hill and Jones 1992).

Within the dominant agency theory of capital structure, the academics identifies two perspective of conflicts. The first one is the conflicts between managers and shareholders and the second one is the conflict between debt holders and equity holders (Eisenhardt 1989). Harris and Raviv (1991) explain that conflict between managers and shareholders arise because they might disagree on an operating decision. Manager hold less than 100% of residual claims, therefore, they tend to transfer firms' assets to their own benefits (Fama and Jensen 1983). The shareholder-debtholder agency conflict arise because debt contract give shareholders an incentive to invest in a manner detrimental to the debt holder's interest due to the different risk-sharing property of equity and debt (Morellec and Smith Jr 2007).

The agency problem assumes that both principal and agent are self-interested and both of them tend to maximize their expected utility. If they have different desires and attitudes toward risk, the motivation of agent may not be completely aligned with by the principal as the agent may not in the principal's best interest (Walker and Vasconcellos 1997; Tarrade 2012). If the agent's activities cannot be fully understood by the principal, the outcome of agent's behaviour can be the only benchmark for principal to observe. This discrepancy lead to agency problem of moral hazard (hidden action) and adverse selection (hidden information) (Reuer and Miller 1997). A moral hazard problem arises when agent misrepresent skills and abilities to the principal, principal cannot observe the actions of agent and therefore appraise performance based compensation contracts on imperfect surrogates of behaviour. An adverse problem arise when managers have private information and use this information to increase their welfare at the expense of firm's welfare (Arrow 1984; Baiman 1990; Chapman et al. 2006; Sprinkle and Williamson 2006).

As stated by Bergen et al. (1992), Shane (1996) and Van Osnabrugge (2000), agency theory suggests two solutions available for the principal to mitigate agency problem: 1) discouraging the agent's behaviour (Monitoring), and 2) incentivizing the agent to reach the expected outcome (Residual Claim). Firstly, the principal can increase the amount of information about the agent's behaviour through monitoring. The more information the principal has, the harder it becomes for the agent to shirk or misrepresent abilities (Eisenhardt 1989). However, since information is not free, monitoring comes at a cost and investing in correcting the agent's behaviour only pays off when the benefit from the correction exceeds the cost of monitoring the behaviour (Mitnick 2015). Secondly, the principal can align agent's preferences by replacing compensation contract with hybrid organizational arrangement, such as franchising that provided residual claims to managers. This is because residual claim aligns the agents' goals with those of the principals and transfer the risk to agents. Thus, reduce the problem of moral hazard and adverse selection (Fama and Jensen 1983; Shane 1996; Tarrade 2012). Which solution is preference depends on the cost of monitoring regarding with cost of establishing a franchise (Jensen and Meckling 1976).

2.1.3.1 Agency cost

As discussed previously, an agency relationship is described as a contract under which principals engage the agent to perform service on their behalf which involves delegating decision making authority to the agent. Agency cost is the total cost of creating and structuring this contract, including monitoring costs by the principal, boning cost, and the residual loss of opportunities that can have been beneficial in the absence of such conflict of interest (Hill and Jones 1992; Swanson et al. 2003). According to Jensen and Meckling (1976), the cornerstone of agency theory is the assumption that the interests of principles and agents diverge. As both agent and principal to this relationship are expected-utility maximisers the agent will not always act in the best interest of the principal, the principal can limit divergence from their interest by establishing appropriate incentives for agent, and by incurring "**monitoring**

cost” designed to limit opportunistic action by the agent (Oviatt 1988; Ang et al. 2000; Anderson et al. 2003).

Further, it may pay the agent to spend resources (**bonding cost**) to guarantee that they will not take certain actions that would mis-present the principal, or to ensure the principal will be appropriately compensated if they do take such action (Easterbrook 1984; Jensen 1986; Hill and Jones 1992). Despite these, the final agency cost is **residual loss**. The agent may not act completely in the principal’s best interest due to some divergence between the agent’s action and the principal’s interest may remain, insofar as this divergence reduce the welfare of principal, it can be viewed as residual loss (Jensen and Smith 1985; Hill and Jones 1992)

In conclusion, agency cost are not beneficial per se to stakeholder (Estreicher 1992; Swanson et al. 2003; Gilson and Gordon 2013). It is reasonable to speculate that the contract regarding with agency relationship should be formed and all decision should be made to minimize the firm’s total agency cost. The different component of agency costs affect firm’s capital structure. The optimal capital structure is determined to minimize the total agency cost and asset specificity consideration (Vilasuso and Minkler 2001). According to Jensen and Meckling (1976), the concept of optimality applies when there are multiple stakeholder is that of pareto optimality. From the economic perspective, capital structure of firm will be optimal if this is not possible to increase the utility of any stakeholder without decreasing the utility of at least another. In such as, the capital structure that satisfy this criterion is considered optimal from an agency perspective (Jensen and Meckling 1976; Ramakrishnan and Thakor 1982; Swanson et al. 2003; Modugu 2013).

The model based on agency cost focus on how capital structure can help constraint the agency costs by aligning the interests of stakeholders. Jensen and Meckling (1976) and Jensen (1986) identity two types of conflicts (discussed in Section 2.7.1): 1) the interaction between shareholders and managers involving agency costs and (2) the relationship between equity holders and debt holders incurring agency costs.

2.1.3.2 Agency Cost of External Equity (Shareholder-Manager's Conflict)

Based on shareholder-Management conflict, Jensen and Meckling (1976) states that the separation of manager and shareholder has been the essence of agency problem. This problem (agency cost of external equity) will be minimized or disappear when there is no separation of ownership and control. A number of studies focus on the effect of agency cost arising from shareholder-manager conflict on financial decision. Section 2.1.3.1 briefly discusses that the agency cost of the shareholder-manager relationship arise from two sources: the un-observability of manager's productive effort and the asymmetry of information.

a) Cost of Moral Hazard

Firstly, the agency cost is reduced when link the manager's compensation to a proper measure of the performance. However, this linkage will increase uncertainty in manager's compensation that need to be compensated by paying an extra expected amount. The investor will balance this cost of inducing higher effort with the benefit of higher output. The resulting effort is less the effort without this agency problem (called the first best effort). The loss of utility resulting from the reduction of the effort is the agency cost associated with moral hazard (Hölmstrom 1979; Harrison and Harrell 1993).

b) Cost of Asymmetric Information

Furthermore, if managers extract "information rent" from asymmetry of information, it constitutes another agency cost, because managers have more information about a company's operation and prospects, including future investment opportunities than shareholders (Adverse Selection Problem). At an intuitive level, the agency cost is reduced if the manager owns a part of firm If manager's investment is held constant and the proportion of manager's equity ownership increase, agency cost tend to be lower. (Ang et al. 2000; Anderson et al. 2003).

c) Agency cost of Free Cash Flow Theory

The free cash flow (FCF) theory of Easterbrook (1984) and Jensen (1986) is a slight variance of the agency cost theory discussed in the previous section. Agency cost (AC) is primarily based on the conflicts of interest between shareholders and managers. Jensen (1986) extend the concept of agency cost in capital structure by focusing on "free cash flow", which defined as "free cash flow is cash flow in excess of that required to fund all projects that have positive net present value (NPV) when discounted at the relevant cost of capital."

Free cash flow of Jensen (1986) states companies with substantial free cash flow are confronted with misbehaviour by managers and poor decisions that are not in the interest of shareholders. This is because managers endowed with free cash flow have an incentive to invest it in negative net present value (NPV) projects which benefit them rather than pay it out as dividend to benefit shareholders. This will create an over-investment problem, and consequently increasing the "over-investment cost" incurred by shareholders. Accordingly, shareholders would benefit from the company using higher financial leverage because there would be increased external control over the management. In hypothesis of free cash flow, debt financing is considered a significant means to mitigate the agency cost, reducing the amount of cash holding available for managers. Therefore, managers determine capital structure by trading off the benefits versus the cost of using debt. This hypothesis is supported by Harris and Raviv (1991) who claims that conflict between shareholders and managers arise because they might disagree on an operating decision such as project selection. This problem cannot be solved through contract based on cash flow and investment expenditure. Hence, debt helps to mitigate the problem by giving investors the option to force liquidation if cash flow are poor.

Stulz (1990) formulates a two-period risk neutral model to analyse a similar problem arising over free cash flow and the problem of manager manipulation facilitate the consumption of perquisite. According to Stulz (1990), managers are likely to over-invest if free cash flow is substantial and under-invest if there is a shortage of free cash flow, resulting in agency cost. Debt financing will alleviate the problem of managerial discretion which comprise of both the cost of over-investment and the cost of under-investment. This will eventually result in a combination of capital structures to maximise shareholder's wealth under managerial control. In Stulz (1990), capital structure is determined by trading off the benefit of debt against the cost of debt.

Another highly regarded research is Harris and Raviv (1991), who reviews capital structure based on four distinctive categories of agency cost, asymmetric information, market interactions and corporate control consideration. In conclusions of Harris and Raviv (1991), leverage is a monitoring device for managers as well as an information carrier for outside investors. Agency conflict will affect investor's perceptions of debt and equity cost, and consequently, agency cost impact on the rate that investors use to discount the firm's future cash flows. Hence, debt financing in capital structure produce valuable information in monitoring the agency behaviour, and for reasons of self-interest, mangers are assumed to reluctant to liquidate the firm or provide such information which may lead to bankruptcy. In Harris and Raviv (1991), capital structure is determined by trading off increasing liquidation decisions versus higher information investigation costs.

In Harris and Raviv (1991) and Stulz (1990), shareholders and managers disagree over an operating decision. This conflict cannot be mitigated through contract regarding with cash flow and investment expenditure. Harris and Raviv (1991) assumes that manager always continue the firm's current operations even if liquidation of the firm is preferred by investors, because the benefits of control. Debt financing, in this case, mitigates the problem arising from agency cost by giving investors the option to force liquidation if cash flow are poor. In Stulz (1990), managers invest all free funds even if paying out cash is better for investors. Hence, investors use debt payments to reduce available cash flow.

Hart and Moore (1990) also focus on the agency problem of over-investment by managers but shift the concentration from the allocation of cash flows to the allocation of control rights. Hart and Moore (1990) considers debt as an optimal security in setting control structure. Moreover, Hart and Moore (1994) suggest that debt does not prevent over-investment by reducing available free cash flow. Instead, the existence of senior debt constrains the amount of external funds that can be raised since the outstanding debt represent a prior claim on all asset, including new investment.

The comparison of Jensen and Meckling (1976), Jensen (1986), Harris and Raviv (1991), Stulz (1990) and Hart and Moore (1990) is presented in Table 2.1.

Table 2. 1: Comparison of Agency Model on Manager-Shareholder Conflict

Model	Conflict	Benefit of Debt	Cost of Debt
Jensen and Meckling (1976)	Managerial perquisites	Increase managerial ownership	Asset substitution
Jensen (1986)	Overinvestment	Reduce free cash	Unspecified
Harris and Raviv (1990)	Failure to liquidate	Allows Investors option to liquidate	Investigation Cost
Stulze (1991)	Over-investment	Reduce free cash	Under-investment
Hart and Moore (1990)	Control Rights	Security of Ownership	Unspecified

Source: Harris and Raviv (1991)

d) Empirical studies of Agency cost of Equity in period of 1980s

Several studies have investigated the effects of the conflicts of interest between management and stockholders in various perspectives. Earlier study of Griffin (1988) argues that agency problems have played an important role corporate restructuring in the petroleum industry. Griffin (1988) tests the petroleum industry in the period of 1979 to 1985, finding that in a panel data set for 25 firms, firms with high available funding invest more in less profitable investments compared to firms with low cash flow. Furthermore, Lang and Litzenberger (1989) infers that the over-investment problem associated with free cash flow is likely to be severe in stale and profitable firms with lower growth opportunities. It demonstrates that the dividends have a large impact on agency cost, and thus a large information effect for an over-investment firm than for a value-maximizing firm.

Lehn and Poulsen (1989) use a measure of undistributed cash flow, standardized by market value of equity, as a proxy of free cash flow to examine the free cash flow hypothesis. Its data for 149 leverage buyout (LBOs) from 1984 to 1987 posits a direct relationship between measure of cash flow and premiums paid to pre buyout shareholder. It is especially strong among firms where managers owned relatively little equity prior to the going private transactions, the firms where agency costs are expected to be highest. This is consistent with hypothesis of Jensen (1986).

e) Empirical studies of Agency cost of Equity in period of 1990s

Lang et al. (1991) tests hypothesis of Jensen (1986) on a sample of U.S successful tender offers in period of 1980 to 1986 by using Tobin's q (q ratio) [1]measurement. This method is the ratio between the market value of a company's asset and its replacement cost of asset, In Lang et al. (1991), q ratio is used to recognize firms beset by agency problems and expected to invest free cash in negative NPV projects, distinguishing between firms that have good investment opportunities and those that do not. The evidences show that bidder returns are significantly negatively related to cash flow for bidders with low Tobin's q but not for high Tobin's q bidders. It supports the free cash flow hypothesis that firms with free cash flow tend to grow by undertaking project with negative NPV thus reducing wealth for shareholders.

Hart and Moore (1994) develops a dynamic model to show that shareholder-manager conflict change capital structure. It the distinction between junior and senior debt and find out the consequences of differing priority of claims for firm behaviour. According to Hart and Moore (1994), a mix of short-term and senior long-term debt is necessary to prevent management from undertaking negative NPV investment. The issuance of senior debt is necessary to discipline the manager. Basically, by extending free cash flow of Jensen (1986), short term debt obligation do not put meaningful free cash flow disciplinary pressure on management. Furthermore, Lang et al. (1996) conducts an empirical analysis relating growth and leverage in panel data set of 143 U.S firms from 1970 to 1989. Using Tobin'q measurement, it finds a negative relationship between leverage and growth opportunities for firms that have poor investment opportunities (low q ratio). For firms with good investment opportunities (high q ratio), leverage does not lower growth. Accordingly, debt constrains investment only where the market consider that opportunities are poor. Jaggi and Gul (1999) based on a sample of non-

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[1] Tobin's Q was first introduced by Nicholas Kaldor in 1966. It is defined as the ratio of the market value of a firm-value of equity to the replacement value of the net fixed assets of the firm; profitability is defined as the ratio of the inflation corrected deprecation cash flow to the replacement value of fixed assets. The higher the Tobin's q, the more valuable the firm is considered as a going [1] Tobin's Q was first introduced by Nicholas Kaldor in 1966. It is defined as the ratio of the market value of a firm-value of equity to the replacement value of the net fixed assets of the firm; profitability is defined as the ratio of the inflation corrected deprecation cash flow to the replacement value of fixed assets. The higher the Tobin's q, the more valuable the firm is considered as a going concern and the more value the market thus attribute to the ability of management to generate profit from its assets (Stijin et al, 1997)

regulated U.S firms, indicates that the relationship between debt and free cash flow is positive for low growth firms. This empirical finding supports Jensen (1986)'s control hypothesis that firm's debt will be higher when it has high free cash flow and low investment opportunity set. The results also demonstrates that firm size play a role of moderating variable on this relationship. This suggests that the manages-shareholders conflict concerning free cash flow is more severe in large firms. More recently, Kochhar (1996) explains capital structure decision in leveraged buyouts by comparing agency cost of free cash flow and transaction cost in economics. The empirical analysis of Kochhar (1996) presents that agency cost of debt has an effect on capital structure changes. However, the transaction cost perspective to explain capital structure decision is more appealing than the agency theory viewpoint.

In contrast, Howe et al. (1992) and Opler et al. (1999) argue that there is no significant evidence to demonstrate agency cost is an important factor that affect cash holding. Howe et al. (1992) uses Tobin's q measurement to test whether Jensen (1986)'s free cash flow hypothesis has explanatory power in market reaction to dividend change. It examines the free cash flow hypothesis in the situation of self-tender offer and further divides sample into over-investing and value-maximizing firms, finding that free cash flow theory plays at most a minor role in explaining the price reaction the nonrecurring announcement and the agency cost reduction does not appear to be an important motive. This is adverse to Jensen (1986). Furthermore, Opler et al. (1999), considering U.S firms in the period of 1971 to 1994, find little support for the agency cost of manager-shareholder conflict on cash holding. The capital structure decisions of these firm was not significantly affected by free cash flow hypothesis. Instead, firms with firms with better growth prospects and riskier cash flow tend to hold more cash.

f) Empirical studies of Agency cost of Equity in period of 2000s

Jensen (1986)'s viewpoints have been further developed and demonstrated by plenty of studies in the period of 2000s. A number of studies use accounting data as proxies of investment opportune to observe the effect of agency cost on leverage. Brush et al. (2000), who asserts that cash flows will positively affect corporate performance, uses sales growth as proxies of investment opportunities to examine the agency cost of free cash flow, contending that sales growth in firm with free cash flow is less profitable than sales growth in firm without free cash flow. Weak corporate governance arise from the inefficiency in allocation of free cash flow since management was directed at the policies in favour of their self-interest at the expense of shareholder's wealth. Similarly, Berger and Bonaccorsi di Patti (2006) use profit efficiency as a proxy to measure the influence of agency cost arising from manager-shareholder conflict. Base on a sample of US banking industry, the empirical results of reverse causality test describe a negative association between agency cost and leverage ratio. This is consistent with the agency cost hypothesis that higher leverage or lower equity capital ratio is associated with higher profit efficiency. Additionally, the large institutional shareholders in the U.S banking industry take an active monitoring role that decrease agency cost. Later, Margaritis and Psillaki (2007) investigates a similar relationship with Berger and Bonaccorsi di Patti (2006) for a sample of more than 12000 SMEs firms in New Zealand by using a technical efficiency measure. The findings support the core prediction of agency cost hypothesis of Jensen and Meckling (1976) and Jensen (1986) in that higher leverage is associated with improved efficiency of performance. This support is further showed in Margaritis and Psillaki (2010) by using a sample of French manufacturing firms. Besides,

The benefits to debt will be greater if managers have a large base of assets in place that it can exploit. It can generate cash flow leading to either over-investment or the outright diversion of corporate funds (Bolton and Scharfstein 1990; Hart and Moore 1998). By controlling for assets in place and growth opportunities in analysis, Harvey et al. (2004) investigates the effect of capital structure as a governance mechanism in emerging market with extreme agency problems. The analysis shows that actively monitored debt helps to create value to firms with potentially high agency cost, which arise from misaligned managerial incentives and over-investment problems.

Other research has focused on whether manager-shareholder conflict lead to change in debt financing. Morellec (2004) conducts a contingent claims model where manager devices perquisites from investment to analyse the explanatory power of manager-shareholder conflict on leverage. This model shows that manager-shareholder conflicts can explain the low debt level observed in practice. Furthermore, it can also explain that firms with high growth opportunities tend to reduce debt level. As Moeller et al. (2004) suggests, agency cost of free cash flow occur when a firm no longer has growth opportunities, which could be more likely for larges firms than for small firms. This is because mangers in small firms typically have more ownership of firm than managers in large firms. Managers in large firms have more prone to contend for control rights, which might intensify agency conflict and consequently, increase agency cost. According to DeAngelo et al. (2006), firm can use low leverage, substantial equity pay outs, and moderate cash holdings to control agency cost while preserving financial flexibility. Although high leverage mitigates agency problems, it also reduce financial flexibility because the utilization of the current borrowing capacity translate into less availability in the future. In addition, Richardson (2006) examines over-investment of free cash flow based on a large sample of U.S firms, finding that over-investment is concentrated in firm with the highest level of profitable funding. Specifically, for firms with positive free cash flow, the average firm overinvests 20 percent of their free cash flow. This is consistent with agency cost hypothesis of Jensen (1986) and Stulz (1990) that the positive free cash flow is a manifestation of an agency problem, where manager in firms with free cash flow may engage in wasteful expenditure.

Further discussion of capital structure regarding agency conflict is forwarded by Hackbarth (2008) on how managerial traits effect financing decisions for single firms even without the need to appeal to optimal incentive contracts. The empirical evidence shows that over confident managers who underestimate the riskiness of earning tend to prefer equity to debt financing. In particular, higher debt ratio decision of biased managers restrain them from diverting funds, which increases firm value by reducing conflict of manager and shareholder. Additionally, the interaction among firm's capital structure, managerial compensation and investment under uncertainty is an important aspect for analysing agency cost of capital structure (Berkovitch et al. 2000; Andrikopoulos 2009). Berkovitch et al. (2000) examines the role of management compensation in disciplining and monitor the change in leverage. It suggests that the combination of leverage and management compensation serves the role to implements a better incentive and control system. Moreover, Andrikopoulos (2009) observes that agency cost of debt under a policy at maximizes managerial are lower than agency cost of debt in a setting of equity maximization. This is because the shareholders' over-investment incentive are partly offset by the effects of manager's reservation income. Andrikopoulos (2009) concludes that the influence of managerial ownership on the agency cost of debt is more prevalent when managerial ownership is at low level. This suggests there is a decreasing effect of manager's option compensation on leverage.

Although several articles have recognized the role of debt in controlling the agency problem, using sample of 89 firms from 1986 to 1991, Mikkelson and Partch (2003) follows an extreme policy of holding more than 25 percent of assets in cash indicates that agency cost of manager-shareholder conflict is not associated with the level of cash holding by companies. That persistent extreme cash holdings do not lead to poor performance and do not represent conflict of interest between managers and shareholders. From aspects of quality of governance and cash holding, several studies such as Dittmar and Mahrt-Smith (2007) finds that the market value of excess cash reserves is much lower for poorly governance firms. This implies that debt ratio in weak governance firm does not play a disciplinary role in mitigating agency cost. This implication is also confirmed by Harford et al. (2008), who uses large investments to test the interaction of quality of governance and capital structure choice. It finds that firms with high agency cost dissipate their cash holding faster than firms with lower agency cost. Managers under poor governed tend to use funding on unprofitable acquisition rather than internal investment, such as capital expenditure and R&D. Accordingly, it is less likely to finance the acquisition with debt.

Furthermore, Gregory (2005) uses takeover of listed UK domestic companies in the period of 1984 to 1992 and finds little support for free cash hypothesis. Instead, Gregory (2005) suggests that greater shareholder monitoring mitigate any agency problem associated with high free cash flow. Additionally, firms with lower free cash flow having a greater likelihood of being financially distressed. In addition to this, Wang (2010) finds that free cash fow have a signicant impact on agency cost of shareholder-manager conflict but the effect is contratry. According to Wang (2010), substancial free cash flow can increase the management's incentive for perquiste consumption and shirking, then leading to a grwoth in agency cost. Moreover, free cash flow is generated due to management's operating efficiency. This may lead to a negative relationship btween free cash flow and agency cost. Debt financing may not reduce the conflict between managers and shareholders.

g) Empirical studies of Agency cost of Equity in period of 2010s

In period of 2010s, several studies test the effect of firm diversification on the cash holdings based on agency problems. Using a sample of U.S companies, Duchin (2010) finds that multi division firms hold significantly less cash than as a fraction of their assets because the agency costs associating with cash holding are diversified in their investment opportunities. The findings also suggest diversification primarily reduces cash holdings in well-governed firm, where managers are more likely to behave optimally. Additionally, Tong (2011) finds that the value of cash holding is lower in diversified firms than in single-segment firms. This finding is consistent with the interpretation that firm diversification can replace debt to reduces the value of cash holding through the hypothesis of agency problem.

Jiraporn et al. (2012) explores the impact of CEO dominance on variations in capital structure. According to Jiraporn et al. (2012), firms tend to use lower leverage, and evade the disciplinary mechanisms of debt financing because of the manager-shareholder conflict. Jiraporn et al. (2012) finds that firms with the stronger governance appears to bring lower leverage. One of reason can be the role of debt in mitigating agency cost, higher leverage substitutes for weaker governance mechanism in alleviating agency conflict. The earlier study Wang (2011) develops a dynamic model to examine the influence of agency problems between entrenched managers and shareholders on capital structure. In fact, Wang (2011a) observes that the debt ratio is significantly less than the target level of firm because of the potential cost of bankruptcy arising from over leverage. The analysis shows the shareholder-manager conflict over risk level and cash pay-out vary dynamically with a firm’s financial health. Thus, the leverage ratio will be decided depend on financial health of firms.

Further analysis is provided by Morellec et al. (2012), who develop a dynamic model to test the importance of manager-shareholder conflict in capital structure decisions. Using the model in which financing policy results from a trade-off between tax shield contracting, Morellec et al. (2012) finds that agency costs of 1.5% of equity value can resolve the conservative debt financing problem and also to explain the leverage ratio vary with time series. In this model, monitoring mechanisms of firms significantly affect the firm’s financing decisions and value.in addition, by analysing the agency cost and disciplinary effect of debt on optimal capital structure, Chang et al. (2014)

demonstrates that managers of underleveraged firms with weak governance are more unlikely to increase debt due to the disciplinary mechanism of debt financing. This is because monitoring costs of debt financing outweigh the benefits of increasing debt. In this situation, by weighing the personal benefit that gain from different leverage level, managers with self-interest tend to use preferred leverage without concern of optimal capital structure, adjusting more slowly toward the target debt ratio, even though can increase shareholder's wealth.

2.1.3.3 Agency cost of Debt Financing

Conflicts between the shareholders and debtholders could arise because risky projects with high expected returns, but also a higher probability of negative returns, are symmetrically beneficially to stockholder and costly to debtholders. According to Jensen and Meckling (1976), the most severe conflict between shareholders and debtholders is the different claims on cash flow. Shareholders have a residual claim on cash flows and therefore, the profits and earnings of the projects is the first considerations. However, debt holders is more consider the security of their fixed claims on cash flow, which is the interest of debt. If an investment gain returns that are well above the face value of debt, shareholders acquire most of this gain. However, debt holders will standard the negative consequence if an investment turns out to be a loss (Galai and Masulis 1976; Myers 1977; Jensen 1986; Swanson et al. 2003). Under such situation, debtholders do no participate in the high positive returns and shareholder do no participate in the negative returns because of limited liability of debt contract. This wealth shifting from debtholders to shareholders will be rationally expected by debtholders who will increase the cost of debt, effectively shifting the loss from a suboptimal decision to the shareholders. In effect, such debt will be overly cost and therefore, the capital structure will change to have higher equity (Green and Talmor 1986; Swanson et al. 2003). Further, debt holders may restrict manager's investment on very risky projects even though they may ring high returns (Kalcheva and Lins 2007). As the amount of debt financing increase, debt holders' interferences in firm's investment decisions will increase accordingly (Parrino and Weisbach 1999; Margaritis and Psillaki 2007).

Shareholder-debtholder's conflict arises when a firm has risky debt. When the possibility of default is virtually zero, debtholder have no interest in income, value or risk of the firm (Jiang et al. 2010). To solve this conflict, Smith Jr and Warner (1979) suggests that shareholders and debtholders should apply constraints and restrictions to management's decision-making authority. These constrains and restrictions will lead to agency cost of debt. The agency cost of debt consists of 1) the opportunity loss of wealth caused by the impact of debt on the investment decisions of the firm; 2) the monitoring and bonding expenditures by the firm; and 3) the cost of bankruptcy and reorganization (Jensen and Meckling 1976; Gavish and Kalay 1983). As Myers (1977) states, lenders and investors in well-functioning capital market can foresee these costs. Furthermore, Jensen and Meckling (1976) suggests that the level of agency costs arising from shareholders-debtholders conflict is dependent on the creators of originating contract. In particular, it depends on the extent that principal trusts the agency. Firm with higher financial leverage will have greater probability of bankruptcy, and therefore have higher agency costs. According to Masulis and Trueman (1988), managers cannot afford to waste the limited sources under their discretion in situation where the burden of debt is heavy. Hence, increases in debt should increase the market value of firm as long as the bankruptcy costs are kept at a low level (Jensen 1986).

a) The Risk Shifting Hypothesis

As previously discussed, shareholders may have incentive to encourage firm investing in highly risky projects even though these projects may be value-decreasing for the firms. This is because the debt contract gives shareholder incentive to invest suboptimal and increase in asset risk is suffered at the expense of debtholder. This wealth transfer is one of the incentives to increase agency cost of debt, called "risk shifting" or "asset substitution effect" (Merton 1974; Galai and Masulis 1976; Jensen and Meckling 1976; Smith Jr and Warner 1979).

Gavish and Kalay (1983) demonstrates a positive relationship between financial leverage and risk-shifting incentive, suggesting that shareholder' incentive to increase the risky investment is not an increasing function of the leverage ratio. This result raises questions concerning the agency cost hypothesis. Green and Talmor (1986) restate this question in similar model, and tests the incentive for asset substitution by solving endogenously for the optimal risk policy. The findings consistent with the hypothesis of Jensen and Meckling (1976) that more debt aggravates shareholder's incentives to take risk. Accordingly, the conclusion of Gavish and Kalay (1983) is a misinterpretation.

In Jensen and Meckling (1976), greater use of external equity finance reduces the amount of effort that firm's shareholder exerts, and therefore mitigates conflict between shareholder and debtholder. However, growth of equity financing will deepen agency cost of shareholder-manager conflict (agency cost of equity). Another approach of reducing agency cost of debt is convertibles bonds issues. A convertible bond give the debt holder the right to exchange the bond for the firm's common stock. When convertible debt is issued, projects that increase firm' risk may also increase the value of convertible debt and thus, part of gains to shareholders from high risky project will be shared with debtholders with convertible bonds (Smith Jr and Warner 1979; Green 1984)

Brennan and Schwartz (1978) firstly examines the risk shifting problem under a number of environment (secured debt, covenants presence, etc.) and notes that convertible debt is used more heavily by firm whose risk is subject to a higher degree of uncertainty. This is one of the initial research that work out the asset substitution hypothesis based on statistic model. After that, Green (1984) discusses the use of convertible debt to control asset substitution problem, and provides explicit prediction about how managers should design convertible bonds to mitigate adverse investment incentives. The finding of Green (1984) describes that convertible debt is designed to mitigate bondholder and shareholder agency costs. This is also supported by studies of Lewis et al. (1998). Ortiz-Molina (2007) examines the effect of different types of debt in firm's capital structure and finds out a negative relation between leverage and weakens for convertible debt. This addresses the hypothesis that the conversion option itself protects against asset subsection. Other discussions of Lewis et al. (1999), Abhyankar and Dunning (1999); Lewis et al. (2003); Chang et al. (2004); Lyandres and Zhdanov (2014) and Dorion et al. (2014) also support the effect of convertible bonds on risk shifting (asset substitutions) problem decreasing.

Furthermore, the standard debt covenants with different types of bonds can be considered as more effective for closely held firms decreasing risk shifting opportunities and thus the agency cost of debt (Brennan and Schwartz 1978; Smith Jr and Warner 1979; Jensen 1986; Kim and Sorensen 1986). Smith Jr and Warner (1979) provides more detailed analysis of the types of covenant used in U.S corporate bond contract and ties these covenants to agency problem of debt financing that designed to control, stating that covenants contained in bond contracts restricts dividend and shows a direct transfer of wealth from shareholder to debtholders.

Over the next several decades, a number of studies develop and incorporate asset substation hypothesis into financing strategy analysis, by testing usage of debt with financing covenants, debt with dividend covenant, asset covenants or binding covenants, loan with protective loan covenants, bank debt, and convertible debt or warrants (Miglo 2016). In earlier period, considerations of asset substation problem are discussed by Leland (1994) and Leland and Toft (1996). Leland (1994) concerns bond covenant effect on capital structure optimum and claims that agency problem only exist if shareholders may choose the bankruptcy level optimally. This is because if a value covenant is enforced, there is no incentive for shareholder to shift risk. Additionally, Leland (1994) and Leland and Toft (1996) analyses the impact of debt maturity on asset substitutions and firm value. By extending Leland (1994), Leland and Toft (1996) finds that agency cost of asset substitution will be lower when shorter term debt is used. This is because debt with longer maturity creates greater agency cost by giving incentives to shareholder to increase firm's risky project through risk shifting. Short term debt can reduce or eliminate this potential agency cost. Another analysis of Childs et al. (2005) demonstrates that short term debt can mitigate the agency conflict arising from risk shifting and investment distortion. Firm, however, will only choose short term debt when it has the financial flexibility to adjust the debt level in the future because short term debt will expose the firm to liquidity risk. Ju and Ou-Yang (2006) also provide the similar detail with this analysis.

Bradley and Roberts (2004) and Billett et al. (2007) provide empirical evidence on types of covenants incorporate into private and public debt contracts. Bradley and Roberts (2004) uses a large sample of privately placed corporate debt, finding that 85 percent of the private debt issues have dividend restriction covenant. The presence of covenants have a direct negative effect on yield on corporate debt. Billett et al. (2007) uses a sample of public debt issues, finding that nearly 19 percent of public debt issues are secured. This covenant protection is stronger with growth opportunities, debt maturity and debt level. The negative relation between leverage and growth opportunities is significantly attenuated by covenant protection, suggesting that covenants can mitigate the agency costs of debt for high growth firms. Empirical studies on asset substation effect focuses on the states where covenants are violated (Chava and Roberts 2008; Nini et al. 2009; Roberts and Sufi 2009; Christensen and Nikolaev 2012). As discussed in Dichev and Skinner (2002) and Armstrong et al. (2010), violation of a debt covenant triggers a transfer of control to the lenders which typically enable them to reassess the loan through renegotiations. Additionally, debt covenants in private contracts are used in an active monitoring role, with debt holders using the covenants as an early warning system to inform them of potential problems with firms.

Chava and Roberts (2008) identify that debt covenants violations have a negative impact on both corporate investment and leverage level as creditors use their control rights to exert greater influence over policies of firm. The analysis also highlights that the state-contingent allocation of control rights can mitigate investment distortions arising from financing frictions of agency problems and information problems. Also, Roberts and Sufi (2009) test 1000 private debt covenant between U.S public firms and financial insinuations, presenting that financial covenant violations lead to large decline in debt issuing. This is because debt holders are provided limited rights to effect financial policy via changes to the terms of the covenant. Based on a large sample of private covenants between banks and public firms to investigate firm's investment and financing behaviour once a financial covenant violating, Nini et al. (2009) demonstrate that capital expenditure restrictions cause a reduction in both investment and debt level. Debt holder are more likely to use the opportunity of a technical default trigger to pressure firms to alter their policies and that reduce credit risk.

More recently, empirical study of Eisdorfer (2008) investigates the risk shifting (asset substitution)'s behaviour in the investment decision of financially distressed firms by using a large data set of 40 years. The finding presents a positive relationship between volatility of stock return and investment intensify[2]. Particularly, investments of distressed firms generate less value during times of high uncertainty. These risk shifting behaviours of firms can be mitigated by secured debt. To a lesser extent, it can be reduced by convertible debt, short-term debt maturities and managerial ownership. Additionally, Pyo et al. (2015) provide empirical analysis of how target debt level can eliminate or mitigate the disincentive to investment in firms when firms have risk debt outstanding and asymmetric information. Target debt ratio plays a role to offset the wealth transfer between shareholder and debt holder. Further, using a financial instrument with dynamic variable, Vanden (2009) infers that structured financing (multiple capital structure) can be used to solve the asset subsection problem. Structured financing induces shareholder to optimally choose the investment strategies even though the shareholder's value function might be locally convex, which can lead to overinvestment or underinvestment in risky project.

There is a number of contradictory studies such as Andrade and Kaplan (1998), Parrino and Weisbach (1999) and Graham and Harvey (2001) which find little evidence of risk shifting (asset substitution) hypothesis. Conversely, the distortion of risk shifting are inconsequential to capital structure choice. Andrade and Kaplan (1998) search for instances in which the distressed firms made large investments in unusually risky capital expenditure, finding no evidence in the sample firms. This is supported by Graham and Harvey (2001) who finds rare evidence from approximately 4440 firms that executives issue short term debt are concerned about asset substitution. This comprehensive study contains both large and small firm, finding very little evidence that firm use convertibles to protect bondholders against unfavourable actions by managers or shareholders.

Parrino and Weisbach (1999) investigates the distorted investment behaviour arising from shareholder-creditor conflicts using the simulation method. Based on a sample of large public firm, Parrino and Weisbach (1999) demonstrates that shareholder and debt holder conflict become severe as the level of debt. However, one could also argue that in perfect market, there is no wealth transfer due to risk shifting. In particular, debt holders should demand a compensation for bearing these agency risks at the

[2] Investment intensity is measured as capital expenditure/total asset

investment stage so that the resulted losses are absorbed ex-ante by current shareholders due to higher costs of debt financing.

Mao (2003) investigates the interaction between the risk shifting and underinvestment problem. In effect, the analysis describes that risk shifting by shareholder mitigates the underinvestment problem if the volatility of project cash flows increase with the investment size. In overall, an implication of this article is that the risk-shifting incentives do not necessarily grow monotonically with leverage. Another study of Hennessy and Tserlukevich (2008) develop a contingent claim model to analyse the choice between hybrid debt instruments, concluding that convertible debt cannot reduces the risk shifting (asset substitutions) problem.

b) The Underinvestment Hypothesis

Myers (1977) suggests a contrasting underinvestment or debt overhang of agency cost which is associated with a firm's debt financing. Under-investment occurs when managers acting on behalf of shareholders fail to exercise profitable investment option (primarily in intangible assets) because bondholders enjoy a reduction in the profitability of default at the cost of shareholder returns. Myers (1977) demonstrates that managers who maximize equity value rather than firm value have an incentive to defer investment inefficiently. The under-investment problem arises because risky debt capture some investment benefits without bearing the cost (Jensen and Meckling 1976; Myers 1977, 1984; Baker and Anderson 2010).

As Myers (1977) identifies, firms with greater growth opportunities will have greater underinvestment problem that will lead to suboptimal investment decisions. If the debt matures before the firm has the opportunity to exercise its real investment options, the firm's potential disincentive to invest is eliminated. Therefore, firms whose investment opportunity set contain more growth options should employ a higher proportion of short-term debt. Firms use short-term debt rather than long-term debt to minimize the underinvestment problem (Barnea et al. 1980; Barclay et al. 2003; Custódio et al. 2013). Barnea et al. (1980) proposes the use of short-term debt maturing prior to the investment needs. Consistent with this result, Guedes and Opler (1996) analyses the determinates of the term to maturity of 7369 bonds, finding that risky firms do not issue short-term debt in order to avoid inefficient liquidation. Additionally, firms with high growth opportunities are more likely to issue short-term debt.

Several studies concern that the short maturity of debt mitigates underinvestment problem because short-term debt is considered a discipline tool due to the need for frequent roll over. For instance, Barclay and Smith (1995) demonstrates that firms with fewer growth options, are large or are regulated have more long-term debt in their capital structure. This describes that debt maturity is positively related to firm size and negatively related to opportunities. Further, Barclay et al. (2003) suggests that short-term debt financing allows pursing projects with net present value, while suspending unprofitable ones. Dennis et al. (2000) provide empirical evidence for a significant inversely effect of growth opportunities on debt maturity. Ozkan (2000) provides evidence to support the hypothesis that firms with more growth opportunities in their investment tend to have more short-term debt. Furthermore, firm size shows a negative impact on debt maturity structure. Other studies of Stulz (1990) and Hart and Moore (1998) show that firms with few growth options should issue more long-term debt because long term debt is more effective at limiting managerial discretion. These are partly explain the underinvestment hypothesis.

Other results on the effect of growth opportunities are mixed. Stohs and Mauer (1996) call into question the explanations of Barclay and Smith (1995) because there is no consideration of leverage. Using a measure of weighted-average debt maturity including variable of leverage, Stohs and Mauer (1996) finds that there is little support for a negative relationship between growth opportunities and debt maturity. Additionally, Scherr and Hulburt (2001) focus on the capital structure choice of small firms and investigates firm's factors that may influence debt maturity. There is little empirical support for the influence of growth options on debt maturity, despite the fact that the small firms in sample of Scherr and Hulburt (2001) have much short-term debt than do the large firms

Hennessy and Tserlukevich (2004) uses Tobin's Q as a proxy for growth opportunities to investigate the interaction of debt overhang problem and investment opportunities. The results support the fact that debt overhang distorts both the level and composition of investment, with underinvestment problem being more severe for long-lived asset. Nevertheless, the evidences also against the notion that firms utilize additional secured debt issuance as a device for mitigating the underinvestment problem. Besides, Custódio et al. (2013) undertakes Market to Book as a proxy for investment opportunities to explore the underinvestment problem, and expects firm with more growth options to have more short-term debt. The results describe that decrease in corporate debt maturity is concentrated in small firms. For large firm, agency conflict is not responsible for the decrease in firm use of long-term debt. In effect, the decrease in debt maturity is concentrated among small firm.

However, several studies do not consider the control for firm leverage, since leverage is often positively correlated with debt maturity, their finding could not be due to that firm with growth option tend to have lower leverage (Stohs and Mauer 1996; Scherr and Hulburt 2001; Johnson 2003). With the interactions among growth opportunities, leverage and debt maturity in controlling the underinvestment problem, Leland and Toft (1996) find strong evidence that the debt maturity and capital structure decisions are interactive. Lang et al. (1996) uses a sample of U.S large industrial firms and contends that the negative relationship between leverage and growth of firm only occurs in firms with low growth expectation (Tobin's Q). Moreover, Billett et al. (2007) show empirical evidences that although growth opportunities negatively affect the leverage, there is a positive relationship between leverage and growth opportunities because of covenant protection. Debt covenants may attenuate the negative effect by attenuating the agency cost of debt for firms with high growth opportunities.

In several earlier studies, Diamond (1991) argues that too much short-term debt creates significant liquidity risk thereby increasing bankruptcy cost of short-term debt. Firm tend to employ long-term debt which reduces its liquidity risk and allows firms to use more debt. Accordingly, liquidity risk hypothesis proposes that long-term debt maturity and leverage tend to complement each other in mitigating the liquidity risk of firm. This proposition is supported by Johnson (2003) who discusses the selection of debt maturity and leverage ratio. Using simultaneous model with leverage and maturity endogenous, Johnson (2003) examines the hypothesis that short-term debt mitigates the underinvestment problem for high growth firm. If leverage and maturity considered strategic substitutes, firm using short term debt to sufficiently resolve the underinvestment problem have very little incentive to lower leverage. For this reason, the proposed negative relationship between leverage and growth opportunities vanish.

According to Childs et al. (2005), the relation between growth opportunities and debt maturity is determined by the trade-off between the reduced agency cost of underinvestment and increased bankruptcy cost of short term debt. As examined by Childs et al. (2005), the interaction between financing and investment decisions in a contingent claim model, demonstrating that short-term debt completely resolves the agency conflict of underinvestment, but firms will only use short-term debt when they also have flexibility to adjust the debt level in the future. Due to liquidity constrain, mitigating incentive problem is not the first consideration and thereby firms may not choose short-term debt when they have less financial flexibility. Based on Johnson (2003), Dang (2011) further raises the question whether a low leverage strategy can moderate the negative relationship between debt maturity and growth opportunities. Using a sample set of UK firms, Dang (2011) finds that high growth firms control underinvestment incentive by decreasing leverage but not by shortening debt maturity. The liquidity risk proposition over the underinvestment problem through presents a positive relationship between debt maturity and leverage ratio.

Firms are also found to shorten the maturity of debt to preserve future debt capacity if future growth opportunities are recognised sufficiently early (Myers 1977). Aivazian et al. (2005) examines whether financing decision influences on firm's investment decisions including underinvestment and overinvestment incentives. Based on a sample set of 1030 Canadian firms, Aivazian et al. (2005) provides empirical analysis that debt is negatively associated with investment, specifically, for firms with few growth opportunities. Additionally, when growth opportunities are not anticipated sufficiently early and completely, there is even less degree for reducing underinvestment incentive. This is because renegotiation with the debtholders is costly, hence increasing the transaction cost to firms. These transaction costs will prevent firms from adjusting leverage and debt maturity. Thus, firms with high debt ratio or long-term debt maturity ex ante are likely to forgo valuable growth opportunities, implying a negative influence of leverage level and debt maturity on their ex post investment levels (Dang 2011; Mayer et al. 2017). Later, Diamond and He (2014) analyse the effect of debt maturity on investment in a dynamic model and claim that short-term debt can both increase and decrease underinvestment effects. Short term debt can hinder current investment when the volatility of firm value is higher in bad time than in good times. For this reason, risky short-term debt can impose an even severe overhang problem in a dynamic setting with future investment opportunities, when there is significant reduction of equity value. Besides, when profits of investments are intertemporal linked, short term debt will reduce future growth arising from earlier future default (Ulgen 2016).

The interaction of underinvestment problem, debt renegotiation and leverage is explored by Mella - Barral and Perraudin (1997), Mauer and Ott (2000) and Pawlina (2010). In a unified dynamic model of a leveraged firm, Mella - Barral and Perraudin (1997) focus on strategic debt service and investigates how the underinvestment problem can be solved through debt renegotiation. Using a continuous time model, Mella - Barral and Perraudin (1997) demonstrates that the debt renegotiation can eliminate both bankruptcy cost and the agency cost of debt arising from underinvestment when the firm is in financial distress. Mauer and Ott (2000) investigates the interaction between leverage and the investment option when renegotiation of debt is not allowed for. As Mauer and Ott (2000) summary, financing exercise of the growth option with additional debt can mitigate underinvestment incentives. However, reduce debt maturity or allow shareholders to engage in strategic debt services cannot by themselves accomplish the task. Similarly, Pawlina (2010) analyse the possibility of debt renegotiation at default exacerbates firm's underinvestment problem and that placing the entire bargaining power with creditors can eliminate this problem. The results highlights a negative impact of debt re-negotiability on the relationship between growth opportunities and systematic risk as well as leverage.

2.1.4 Signalling Theory

In the period of the 1970s and 1980s, other theory that has influenced the way capital structure has evolved is the signalling theory developed by Ross (1977) and Brealey et al. (1977). This theory relaxes the assumption of asymmetric information of the Modigliani and Miller (1958)' model and start to looks at the function of debt as a signalling mechanism when there is an asymmetric information problem between well-informed inside managers of the firm and the less-informed outside investors.

According to Ross (1977), the managers are privy to better information of the firm than investors, thus, the capital structure of firms can be used as a valid signal to convey information to investors who are not familiar with the firm's performance. Accordingly, well-performing firms choose debt as the risk of bankruptcy is lower for them than weak-performing firms. Based on the signalling model, the higher level of debt can be considered as a signal of higher firm quality, and the market's perception of the value of the firm can rise with leverage. In this context, financial expenditure can decrease by issuing debt. Similar to Ross (1977), Brealey et al. (1977) contemporaneously consider the fraction of ownership retained by insider managers as a signal of a firm's quality. This indicate that increasing firm leverage allows managers to retain a large fraction of risky equity and this reduces the perquisites to managers due to risk aversion. Hence, a risk-averse owner of a well-performing corporation can signal this fact by gaining high leverage in equilibrium. However, as Ahuja et al. (2015) argue, management may misuse the signal theory and deliberately send false signals to raise the market share prices in the short term, and they can dispose-off their shareholding at higher prices before the public realizes the hoax signal.

According to the signalling theory of capital structure, firm value should be positively related to the debt ratio. The earlier empirical studies of Heinkel (1982), Miller and Rock (1985) and Blazenko (1987) present evidences to support the prediction of the signalling model. The empirical results are similar to the hypothesis of Brealey et al. (1977) and are maturely achieved by Downes and Heinkel (1982) who tests the signalling hypothesis based on a sample of U.S IPOs. As showed by Downes and Heinkel (1982), firms in which entrepreneurs retain stronger fractional ownership have higher value, providing a strong support for Brealey et al. (1977)'s hypothesis.

Since that, Miller and Rock (1985) construct a model of the interaction between dividends and earnings, finding that firms raising external equity financing signal a negative implication for internal funds. This means that debt issuing has a positive implication for high quality. By concentrating on the return aspect of signalling information, Blazenko (1987) summarizes that if manager know more about project quality than investors and if they are sufficiently risk averse, they can signal a high-quality project using debt. This implies that the managers of high value firms are more likely to issue debt as the lower risk position. Poitevin (1989) provides a similar consequence that the low cost entrant will adopt debt to signal its quality even though debt increase the probability of bankruptcy. More recently, Ravid and Sarig (1991) analyse signalling models in which firms signal their quality by using financial policies to commit to cash outflows. The finding showed that better firms are more highly leveraged than lower quality firms. Besides, Loughran and Ritter (1997) document the long-term operating performance of firms and suggested that new equity offering can be considered as a forecast of poor subsequent operating performance. In addition, Brick et al. (1998) test the signalling prediction where only variance of return is the motivation of the signalling equilibrium, indicating that if manager has private information of the firm, lower debt levels signal lower stock return of the firm.

Recent empirical papers (Miglo 2007; Hennessy et al. 2010) develop dynamic extensions of a signalling model on debt to equity ratio. Based on Chinese listed firms, the signalling model deriving from asymmetric information is tested by Chen (2004) to explain capital structure. The evidences suggest that managers use leverage to signal firm prospects to poorly inform outside investor who believe these signals. Other study Deesomsak et al. (2004) observe that signalling theory predict a negative relationship between ownership concentration and leverage because of the role of debt in mitigating both moral hazard and adverse selection problems. Besides these, Miglo (2007) conducts a dynamic model that focused on a firm's performance over time and the impact on debt ratio levels. Firms issuing equity have better operating performance at the moment of issue or soon after but have lower operating performance in the long-term. Overall, leverage has a negative relationship to firm value in long-term. However, Hennessy et al. (2010) construct a dynamic model of firms with repeating hidden information, finding that firms signal positive information by substituting debt for equity. This shows the inverse relationship between a firm's debt and net value. Several studies by Antweiler and Frank (2006) and Hommel (2011) argue that the signalling theory could not be supported by empirical evidence. Antweiler and Frank (2006) document that there was insignificant change in share price in response to a firm's debt issuance. Hommel (2011) further emphasizes that signalling prediction cannot be accurately proved as it has not been tested in the quantity of academic studies enjoyed by the trade-off theory stemming from Modigliani and Miller (1963). This is because the assumptions of a signalling model are critiqued as being simple. Furthermore, signalling hypothesis based upon a model that comprised the prediction of asymmetric information and agency theory (Noe and Rebello 1996). In fact, a large number of recent studies have majored on pecking order which highlights asymmetric information, and agency theory.

2.1.5 Pecking Order theory

The concept of optimal capital structure is also expressed by Myers and Majluf (1984) and Myers (1984) based on the notion of asymmetric information. Grounding on the concept of information asymmetry, Myers and Majluf (1984) sequentially ranked internal funding source as being the first preference where the firm refrains from market visibility, with external financing as a source of debt being the second preference associated with a lower cost of information. Accordingly, the external funding of equity is the least preferred. In contrast to a trade-off model that a firm's leverage behaviour is formulated by a target capital structure with trade-off between costs and benefits of additional debt, the asymmetric information of the pecking order theory implies the cost of adverse selection. This predicts that insiders normally capture more information than outsiders. As Myers and Majluf (1984) show, if outsiders are less informed than firm insiders, equity will be mispriced by the market. If a firm is required to raise equity funding for the business, the mispriced market will consider it as ineffective and high risk, resulting in the equity being undervalued. Consequently, the new investors will acquire more than the net present value of firm which indirectly causes a net loss to existing shareholders. In order to avoid this market distortion, firm issues equity only as a last resort. According to pecking order theory, firms have no well-defined optimal capital structure (Myers 1984).

The proposition of pecking order theory was extended by Krasker (1986) who tests the function relating to the number of new shares issued by a firm to the resulting change in the firm's stock price, and the consequence of this paper is similar to Myers (1984) and Myers and Majluf (1984). Several earlier empirical papers (Narayanan 1988; Baskin 1989; Heinkel and Zechner 1990; Korajczyk et al. 1991; Allen 1993; Klein and Belt 1994; Rajan and Zingales 1995; Helwege and Liang 1996) present a similar result to support the pecking order hypothesis. By investigating the influence of asymmetric information on debt and equity, Narayanan (1988) presents that debt is more advantageous than outside equity even if it is risky, because debt issuance is less attractive to unprofitable firm. Baskin (1989) constructs a statistical model for examining whether US firms adhere to the pecking order theory. This finding provide empirical evidence supporting the hypothesis of pecking order. Heinkel and Zechner (1990) analyse the optimal mix of debt and equity in a model with asymmetric information, finding that an all-equity financed firm will overinvest whilst existing debt reduces any overinvestment problem compared to equity financing. Korajczyk et al. (1991) and Korajczyk et al. (1992) documents the impact of time-varying adverse selection and costly project deferral on the market for equity issues, and proved that firm time their equity offering after reporting earnings. This finding has indirectly been in favour of pecking order theory. Similar to Baskin (1989), Allen (1993) tests the impact of past dividend return and growth on firm's leverage level in Australia, and consequently, the negative correlation between past return and debt ratio indicated the rejection of static trade-off model but accept of pecking order interpretation. Further, Klein and Belt (1994) conduct a logit model to measure the behaviour of a firm with internal funding as opposed to an external sources, in relation to the probability of choice between debt and equity. The sample in this study was of non-financial and financial firms in the US and it was indicated that the most efficient firm preferred to choose debt over equity. Among others, Rajan and Zingales (1995) provide similar results of pecking order theory for a sample of the seven large industrialized countries (G7).

In consistent with pecking order theory, Helwege and Liang (1996) directly examine the existence of pecking order theory by evaluating the financing of firms that went to public in 1983, indicating that the probability of gaining external financing is unrelated to the internal funds deficit. Firms that access the capital market have not followed the pecking order theory since they selected the type of security to offer, that can be indirect evidence for the theory. By using regression equations, Shyam-Sunder and Myers (1999) empirically tested pecking order theory in a sample of 157 firms in the U.S. The results strongly suggest that pecking order interpretation explain most firm's financing behaviour better than the static trade-off model. As noted by Shyam-Sunder and Myers (1999), this is an attractive and influential results because the pecking order is offered as a highly parsimonious empirical model of corporate leverage that is descriptively reasonable, although this sample is a small proportion of the set of all publicly traded firms.

Similarly, Graham and Harvey (2001) show mixed evidence in a survey of 392 chief financial officers to support the pecking order model. The consequence shows that the marginal benefit of tax shields seems to be bigger than the marginal costs of bankruptcy for almost all the firms in the sample, and thus, firms should fund more debt as it was under-leveraged. To some extent, Graham and Harvey (2001) find the financing preference for small firms in the absence of information asymmetry. Further empirical works of the pecking order model is conducted by Graham and Harvey (2001) a debt over equity preference for small firms in the absence of information asymmetry. Further empirical examination of the pecking order model has also been implemented by Aybar-Arias et al. (2003) who mainly investigate the leverage of firm in small and medium size. The evidence provides a strong support for the growth opportunities and cash flow hypothesis, indicating more debt in firms' capital structure. Sánchez-Vidal and Martín-Ugedo (2005) examine the empirical implications of the pecking order theory in the Spanish market by using a panel data analysis, showing that pecking order theory holds for most subsample analysed, particularly for the small and medium sized firms and for the firms with high growth opportunities and highly leveraged. Further, both the more and less leveraged firms tend to converge toward more balanced capital structure and finance their funds flow deficits with long term debt.

Recent empirical research has emphatically looked at the comparison of trade-off and pecking order behaviour in firms, by conducting panel data analysis to study the dynamic nature of capital structure decisions at the firms' level. Gaud et al. (2005) build up a dynamic model based on 104 listed Swiss companies, and find that the size and tangible assets of firms are positively associated with firm's debt, while growth and profitability of firms are negatively correlated with firm's leverage. This suggests that the capital structure of Swiss companies can be explained by both trade-off theory and pecking order theory. Analysing the findings of Allen (1993), Baskin (1989) and Adedeji (1998)'s models, Tong and Green (2005) who further test the predictions of pecking order and trade-off based on a sample of Chinese companies, present three illustrations. The data analysis from the three models presented contradictory results, but in overall, the findings showed a significant negative sign of leverage and profitability, plus, a positive correlation of past dividends and leverage. This favours of the pecking order proposition. Compared with Allen (1993) who uses a sample of Australian firms, Qiu and La (2010) conduct an unbalanced panel data to debt ratio of Australian firms and find that leverage is positively related to asset tangibility but inversely related to growth prospects and business risk. Also, firms with higher leveraged are more profitable than unleveraged firms, however, profitability decreases the debt ratio of levered firms. As presented, these results are consistent with pecking order theory but contradict the trade-off theory.

In several empirical papers, the pecking order and the trade-off theory are found to be not mutually exclusive. Hovakimian et al. (2001) conclude that the impact of profitability on the debt and capital structure choice seems to be complied with pecking order behaviour in the short-term and a subsequent revision to target in the long run. Furthermore, Fama and French (2002) present evidence to support both predictions of the pecking order and trade-off theory. For instance, the negative relationship of leverage and profitability support the pecking order prediction while the negative effect of volatility on dividend pay-out ratio support both trade-off and pecking order model.

More especially, large firms presented greater pecking order behaviour than smaller firms. Cotei and Farhat (2009) emphasize that in U.S firms, trade-off theory plays a significant role in determining the proportion of debt to be issued or repurchased based on the assumptions of the pecking order theory, while pecking order factors affect the rate of adjustment under an assumption of trade-off. By analysing a sample of US firms, de Jong et al. (2011) demonstrates that the pecking order theory is a better descriptor of firms' issue decision than the static trade-off theory. However, the prediction of trade-off is a stronger descriptor when focusing on repurchase decisions.

Consistent with Fama and French (2002), Lemmon and Zender (2010) investigate the impact of debt capacity on pecking order behaviour, finding that the coefficient on funding deficit in net debt regression is larger for firms with rated debt and smaller for firms with no debt rating. As found by Lemmon and Zender (2010), firms without a debt rating are both small and high-growth firms and they generally carry equity to finance deficits. A few studies have looked at pecking order behaviour a using sample of firms in developing countries and emerging markets. Qureshi (2009) focus on manufacturing firms in Pakistan to investigate the level of debt of these firm, and the evidences present a reasonable support for the pecking order theory. Conversely, Singh and Kumar (2012) provide evidences that with a sample based on 10 industries in India, firms' financial preferences were compared with a trade-off model. Dereeper and Trinh (2015) also indicate that the pecking order behaviour might not be applied in Vietnam when internal funds and equity issuance are independent of the leverage levels. Moreover, there is no target debt ratio in the long run Vietnamese market as firms rapidly adjust their level of leverage. Matemilola et al. (2015) affirms both pecking order theory and trade-off theory in corporate financing by analysing the relationship between cash flow and debt for South African firms.

In several studies, however, there is not empirical results presented to support the prediction of pecking order theory. Adedeji (1998) critiques previous studies of Baskin (1989) and Allen (1993) who explain the pecking order prediction by testing the impact of dividend payment and investment on financial debt, suggesting that the results of these studies have not indicated the influence of dividend pay-out ratios and dividend yield. Based on sample of UK firms, Adedeji (1998) argues that there was insufficient interaction between debt issues and financing deficits. In contrast to Graham and Harvey (2001), de Jong and Veld (2001) focus on capital structures of Dutch companies and their results do not support the proposition of Myers and Majluf (1984)'s pecking order theory. Similarly, Qiu and Smith (2007) suggest that pecking order theory might not be the primary choice for most U.S companies because small internal financial gaps (less than 10% of total assets) were filled by debt, while large internal financial gaps (larger than 20% of assets) were funded by equity issuance. This reconciles the different results of Shyam-Sunder and Myers (1999). Conducting the capital structure of SMEs in seven countries, Bell and Vos (2009) summarize that SMEs will generally choose not to utilise debt if given the unconstrained choice between internal funds and external debt, as there is a preference for independence, control and financial freedom. Moreover, Rahman and Arifuzzaman (2014) also consider a sample of UK firms and demonstrate that the model of Shyam-Sunder and

Myers (1999) is not appropriate for providing conclusive results for the behaviour of capital structure.

In fact, these studies (Frank and Goyal 2003; Bunn and Young 2004; Leary and Roberts 2010) show firms are more likely to gain a substantial amount of funds through equity issuance. Frank and Goyal (2003) demonstrate that based on a large cross section of U.S. publicly trading firms over long time periods, net equity issuance track the funding deficit more closely than net debt issuance. Accordingly, equity was more important than debt. This suggestion has also been proved by Bunn and Young (2004) who undertake a similar approach to Frank and Goyal (2003)) but selected a sample of UK firms. Bharath et al. (2008) robustly claim that the pecking order theory could partially explain the capital structure of firms even though the information asymmetry affects the financing decision of the US firm. Seifert and Gonenc (2008) examine the pecking order hypothesis using sample of firms from four countries-U.S, U.K, Germany, and Japan, finding no support for this hypothesis. Firms in these countries are more likely to finance deficit primarily with equity, especially, firm with major asymmetric information issues and dividend paying firms continually issue equity. In addition to this, Leary and Roberts (2010) question the ability of the pecking order to predict financing decisions. They found insufficient evidence to support pecking order behaviour from the data, even for subsamples of firms for which they argue the pecking order should be most likely to hold. Compared with studies of Frank and Goyal (2003) and Leary and Roberts (2010), Autore and Kovacs (2005) provide more emphasis that firms with high level of information asymmetry are more likely to undertake a financing strategy of issuing equity after its decline.

2.1.6 Market Timing theory

Over recent years researchers have extensively tested the market-timing theory of capital structure which emerged after the publication of Baker and Wurgler (2002) as a separate theory of capital structure. In fact, the theoretical aspect of market timing theory are considered as underdeveloped (Baker and Martin 2011).

The essence of Baker and Wurgler (2002) principally described that “capital structure develop as the cumulative outcome of past attempts to time the equity market”. Baker and Wurgler (2002) use the fundament of market timing hypothesis from previous studies of Taggart Jr (1977), Marsh (1982), Stein (1996), La Porta et al. (2000) and Hovakimian et al. (2001) who investigated the irrational behaviour of investors and managers in capital markets, and argue that managers of firms prefer to issue equity after the mispricing of the share price. According to hypothesis of market timing, managers would be reluctant to readjust the target capital structure of firm, and share price movement would permanently reduce a firm's capital structure. In addition to this, the subject of "firm time equity issues" is presented by Myers (1984), who devised pecking order theory with an evaluation of asymmetric information in a firm's financial decision making. This further research argues that managers would rather issue equity after information disclosure because this can decrease the negative influence of asymmetric information on the share price (Korajczyk et al. 1991; Bayless and Chaplinsky 1996). Following the prediction of Myers (1984) and that of market timing, Baker and Wurgler (2002) put forward a market timing model that firms are more likely to raise funds through equity when share value is perceived to be overvalued and adopt a buyback programme when the market value is believed to be undervalued. In a review by Parsons and Titman (2009), they found that firms prefer equity when the relative cost of equity is low, and rely on debt financing otherwise. Thus, when the market value of a stock is low, firm may tend to take advantage of mispricing by issuing equity.

Most of studies on market timing theory that have been developed and empirically tested concentrate on the influences of market timing on equity financing, debt financing and hybrid financing. Empirical evidence provided by Graham and Harvey (2001) shows that two thirds of CFOs advocate that "the amount by which stock is undervalued or overvalued is an important or very important consideration" in issuing equity, and "if stock a price has recently increased, the price at which it can be sold is high". Baker and Wurgler (2000) explores whether equity issuance with total equity and debt issuance, can predict aggregate market return in period of 1927 to 1997. As found by Baker and Wurgler (2000), when the equity share studied is in the top historical quartile, the average value weighted market return in the next year has been below the average return. Since this, Welch (2004) investigates the inter-relationship between volatility of stock price and firm's capital structure, demonstrating that firms have re-adjusted capital structure slowly thus the influences of historical equity shocks on debts ratio have been effectively permanent. Further evidence is presented by Huang and Ritter (2009) that firms have a the tendency to fund a financing gap when equity decreases with influence of proxies for the cost of equity capital. As reconciled by Huang and Ritter (2009), the market timing theory has increasingly challenged both the static trade-off and pecking order propositions. Under the market timing theory, equity issues are not necessarily more expensive than debt issues when the equity risk premium is low. Furthermore, firms may raise fund when the cost of equity is low in in order to build a stockpile of internal funds. However, a number of recent paper, challenge Baker and Wurgler (2000) evidence that securities issued in a year have a long-lived effects on capital structure.

By investigating the market timing model based on sample of Japan, Chang et al. (2006) find that the weighted average market-to-book ratio has significant negative correlation with the capital structure of firms. In addition, Chang et al (2006) also applied a dividend payment dummy to capture information asymmetry patterns which combined with the market to book ratio, indicated that firms in Japan with low information asymmetries are more likely to be mis-valued, this further strengthen the market timing interpretation of capital structures. These results are consistent with market timing behaviour associated with information asymmetry. Additionally, empirical studies (Chazi and Tripathy 2007; Elliott et al. 2007; Arosa et al. 2013; Setyawan 2015) show the evidence linking the impact of market timing and capital structure. Elliott et al. (2007) include the intrinsic value ratio, estimated by using the earning-based valued model, to observe share price as a timing measure. It is showed that firms whose equity is overvalued are significantly more likely to fund with equity. Chazi and Tripathy (2007) re-examine the market timing interpretation by using insider trading as a metric to the market to book value ratio, and indicate that the real mispricing of the share price rather than any perceived mispricing is the best explanation for manager timing equity issuance. Arosa et al. (2015) analyse the impact of market reception to on capital structure from a cultural dimension and find that firms who engaged in market timing by reducing their debt ratio when the share price showed a tendency to increase. Setyawan (2015) concentrates on Indonesia firms and implied that when the growth of earning achieve a certain level, the stock price will be overvalued, and that would be the best time for firm to carry out equity financing. Furthermore, Lewis and Tan (2016) demonstrates that managers tended to issue more equity relative to debt when analyst are relatively optimistic about a firm's long term growth prospects. Furthermore, firm issuing equity gain less return than debt issuance at subsequent earnings announcements. This finding suggests that market timing, in the form of debt-equity timing issuance, plays a role in driving financing anomalies.

Recent studies (Hovakimian et al. 2004; De Bie and De Haan 2007; Kayhan and Titman 2007; Mahajan and Tartaroglu 2008) make an effort to develop market timing measures, but only partially support the market timing hypothesis for capital structure. Several of these argue that the negative correlation between market-to-book value and the debt ratio of firm could be short lived. De Bie and De Haan (2007) selected Dutch listed non-financial companies as a sample and showed that the effect of share price rises on the financial decisions regarding the issuance of securities is consistent with market timing hypothesis. However, the findings of the Dutch sample only present the strong and persistent effect of market timing on capital structure in the short-term. This has also been suggested by Kayhan and Titman (2007) that market timing has only a short-term effect on capital structure of firms and dissipates significantly after a few years. Furthermore, Mahajan and Tartaroglu (2008) show that the issuance of equity has only a weak influence on the leverage ratios of listed firm in industrialized countries (G-7 countries) with the exception of Japan, and that the historical market to book value ratio in industrialized countries excluding Italy has negative relationship to firm leverage. Moreover, Brendea (2012) subsequently proves that the impact of market timing on the capital structure of listed companies in Rome are not very consistent over time. Specifically, the tendency of these listed firms to increase equity when their market value is high is not a constant feature due to the influence of market conditions. Similar to Brendea (2012), Russel and Hung (2013) conduct an investigation that market timing in the Chinese stock market plays a significant role in firms' capital structure, however, the impact is not constant and disappears within three years.

Baker and Wurgler (2002) argue that the negative relationship between market-to-book value and the level of financial leverage is more likely to be caused by growth opportunities rather than market timing (Hovakimian et al. 2004; Alti 2006;

Hovakimian 2006; Mahajan and Tartaroglu 2008). Hovakimian et al. (2004) investigate the role of target leverage in debt issuance and stock repurchases, finding that unlike debt issuance and reductions, equity issues and repurchases have no significantly lasting effect on capital structure. Besides, Hovakimian et al. (2004) and Hovakimian (2006) recognize that the power of the market timing including information of growth opportunities is a significant potential determinant of target leverage ratio and specifically, the importance of historical average market-to-book ratios in determining the debt regressions is not due to past equity market timing. Accordingly, Hovakimian (2006) emphasizes that the impact of pure equity issuance does not have a lasting influence on capital structure. Additionally, Leary and Roberts (2005) also challenge the market timing theory, showing that the persistent effect of shock on debt is more likely to be due to the presence of rebalancing costs than an indifference toward capital structure. This view is inconsistent with market timing, however, consistent with pecking order theory. This has also been supported by Kayhan and Titman (2007) and Flannery and Rangan (2006) who suggest that firms re-adjust toward a target leverage. Moreover, Bruinshoofd and De Haan (2012) present comparative evidences by processing panel data using U.S, UK and European firms, and demonstrated that historical market-to-book ratios and corporate debt level negative correlation does not extend to UK and continental European firms. Firms in the UK and European market tend to issue debt when the stock price is high and that is closer to pecking order interpretation in which debt is preferred over external equity. A major criticism of the market timing model is that the market/book value used as a measure of misevaluation is public information. Managers may have private information that helps them time the issue of equity issues (Parsons and Titman 2009)

Recently, Öztekin (2015) explores the market timing hypothesis considering influence of macroeconomic environment and financial development. It is found that after controlling these two institution factors, the impact of equity cost on the level of leverage is not statically significant, although the equity cost significant decrease the adjustment speed. Further, Bonaimé et al. (2014) view market timing as altering the cost of adjusting to a target, and the presence of market timing behaviour by firms does not preclude the trade-off theory. As analysed by Bonaimé et al. (2014), firms will benefit from the capital structure adjustment achieved by repurchasing stock when a firm’s equity is undervalued. The market reactions to open market value share repurchase are magnified if the firm is under levered and undervalued or overlearned and overvalued. In results, managers are found that have discretion over their firm’s leverage choice and that they adopt capital structure with the value-maximizing level of debt. According to Asif et al. (2018), each time a deficit firm will spawn their funds through equity and mis-evaluation will strengthen managers’ tendency to raise financing through equity. These findings are in line with Baker and Wurgler (2002) and Alti (2006) that firms alter their capital structure using market timing theory. In recent works, as the performance of stock market has become a crucial factor in the development of an economy and accordingly, the growing reputation of stock market is found that play a significantly institutional role in influencing the market timing behaviour of firms across stock markets and countries.

2.2 Practice framework

The seminal work by Modigliani and Miller (1958) on capital structure presented the fundamental concept for the development of various theories in the field. Their initial theory of capital structure irrelevance suggests that financial leverage does not affect the firm’s market value. However, Modigliani and Miller (1963) revise their position by incorporating tax-shield benefit as a critical determinant of firm’s capital structure. The concept of capital structure further expressed by Jensen and Meckling (1976) based on the conflict of shareholder-manager’s interest and conflict of shareholder-bond holder’s interest, Ross (1977) and Myers (1984) and based on notion of asymmetric information, Baker and Wurgler (2002) based on time-varying mispricing. Besides these, the possible explanatory variables arising from the existence of macro conditions are further analysed by a number of empirical works. Having established the most important factors that are likely to explain capital structure decision and the variation in leverage ratios, attention in this section focuses on how to explain financing decision of firms in different industries and different markets, and provides provide a comprehensive study of the macro determinants of capital structure. In fact, there is no consensus on the determinant of capital structure due to the different sample based, time serious, and different empirical definitions of leverage that contained empirical frameworks.

As different views have been put forward regarding the financing choice, this section focuses on two major sets of factors that influence a firm's leverage decision: (1) industry-specific factors, (2) macro-economic specific factors. By analysing firm financing behaviour, this section provides a unique window into how changing incentive structure influence financial choice of firms.

2.2.1 Industry

A number of summaries have been given with respect to the fact that the industry in which a firm operate will have a significant impact on its capital structure (Talberg et al., 2008, MacKay and Phillips, 2005). Titman (1984) initially argues the effect of industry on capital structure based on an agency relationship between a firm and its customers who suffer costs if the firm liquidates. According to Titman (1984), firms would choose a leverage ratio that can maximise the liquidation cost. It is assumed that the increasing probability of liquidation might reduce the current income stream of firm. The after-sale services of the firm will effectively disappear because of the post-liquidation and consumer are less likely to purchase durable goods from the firm at risk as the expected increase in maintenance costs of the product. A cross-sectional implications developed in Titman (1984) is that the more specialized the product firm producing, the lower is the liquidation value of the firm, because the harder it is to replace the after-sales services. For instance, firms within industries of computer and automobile companies which can impose high costs on their customers and business associates that they liquidate choose capital structure with relatively low debt ratios. Conversely, firms in hotel and retail establishment sector which impose relatively low costs on their customers and business associates that liquidate choose high debt ratios. This suggests that there is inter-industry differences in leverage across industries, as firms producing more specialized product seeks a leverage ratio to help offset their lower liquidation cost. It also stands to implication that firms in different industries exhibit different level of debt in their capital structure.

Harris and Raviv (1991) provides a summary that firms within an industry are more similar than those in different industries and that industries would retain their relative leverage ratio ranking over time. Early studies, for example, Bradley et al. (1984) finds that drug, instrument, electronic and food industry sectors have consistently low leverage whilst paper, textile, mill products, steel, airline and cement industries have consistently high leverage. Also, highly regulated firms in telephone, electric and gas utilities and airline have consistently among the most highly firms and this arise the probability that difference of leverage ratio between regulated and unregulated. Miller (1995) admits that the notion that Modigliani and Miller (1958) propositions might not apply to banks as demand deposit are the major sources of funds for most banks. However, Berger and Bonaccorsi di Patti (2006) notes that banks are subject to the same type of agency costs and other influences on behaviour as other industries though banking is a heavily regulated industry that restrict capital structure choice. As summarised by Degryse et al. (2012), leverage can exhibit intra-industry heterogeneity, driven by industry competition, the degree of agency conflict, and the heterogeneity in employed technology.

Other early works on the interaction of financing choice and product market (Brander and Lewis, 1986, Maksimovic, 1988) analyse the symmetric firms' in concentrated industries and does not provide the explanation of why firms in competing market would choose different financial structure. In oligopolies there is a tendency for firms to reach implicit agreement with their rivals to limit competition. In this context, firm in concentrated industries can maintain collusion while supporting higher levels of debt. Other works examines how product-market competition is affected when firms have asymmetric financial structure (Bolton and Scharfstein, 1990). As implied, certain types of product market competition can increase managerial incentive problems within the firm. The reliance on external financing exposes firm to cut through competition, forcing the firm to rely more on internal sources of capital than on external sources of financing. However, this reduces the extent to which outside investors monitor the firm and increases the possibility of managerial slack.

A more recent line of research by Maksimovic and Zechner (1991) shows how financial decision are jointly determined within competitive industries. It is assumed that there is a link between technology choice and financial structure. Within an industry, firm can choose between a safe technology with a certain marginal cost, and a risky technology with an uncertain costs. As implied by Maksimovic and Zechner (1991), firms that choose the technology followed by the majority of firms generate higher expected earnings before interest and taxes and less leveraged than firms that deviate and adopt a technology which is only chosen by few firms. This suggests that the debt-equity ratio is likely to be high in highly concentrated industries and in highly fragmented industries, and low in moderately. Williams (1995) extend the model by characterising the equilibrium industry distribution of debt and firm characteristic and explain firm heterogeneity within industries. By allowing for entry, Williams (1995) interprets an asymmetric equilibrium industry structure characterized by a core of large, stable, profitable, capital-intensive, financially-leverage firms and a competitive fringe of small, risky, non-profitable, labour-intensive firms.

As MacKay and Phillips (2005) concludes, Maksimovic and Zechner (1991), Williams (1995) and gain additional insight relating to partial-equilibrium model that firms make their individual financial decisions in reference to the collective decision of industry peers, and the outcomes of model imply intra-industry delivery rather than industry-wide target. Based on these studies, MacKay and Phillips (2005) test the importance of industry to firm's financial decisions and find that industry fixed effect in explaining the variation of capital structure is less than the firm fixed effects. Other industry-related factors can explain part of the wide intra-industry variation in capital structure in competitive industries. For instance, firms with capital labour ratios close to the industry median use less leverage than firms that depart from the industry median capital labour ratio. The variables of firm specific are more dispersed in competitive industries, consistent with the intra-industry diversity predicted in models of competitive-industry.

The similar results of industry fixed effects are also exhibited by Balakrishnan and Fox (1993) who find that 52% of capital structure variation is explained by firm effects and 11 by inter-industry difference. Further, Michaelas et al. (1999) uses industry fixed effect to test whether the industry effect have an influence on SMEs capital structure and finds that though there are significant industry fixed effect, the impacts are primarily on short-term debt. In recent studies, Kayo and Kimura (2011) demonstrates that the industry level characteristic account for 12% for leverage variance but 42% of capital structure variance is explained by intrinsic firm characteristic. Focusing on the role of intra-industry characteristics, Degryse et al. (2012) find that firm fixed effect are important in all industries, suggesting that within-industry heterogeneity is important. As noted, within industries, firm fixed effects which pick up the individual variability in leverage ratios are important. This shows that industry competition, the degree of agency conflict, and the heterogeneity in employed technology are important drivers of capital structure.

Nevertheless, studies on capital structure often employ dummy variables to control the effect of industry on leverage (Michaelas et al., 1999, MacKay and Phillips, 2005, Talberg et al., 2008, Cheng and Shiu, 2007). Few studies analyse determinants of leverage that characterize rather than classify each industry. Simerly and Li (2000) indicates that the specific characteristic of a given industry could also influence the firm capital structure. Using the leverage as moderate role between environmental dynamism of the industry and firm performance, Simerly and Li (2000) demonstrate that firms working in more dynamic or less predictable environment have smaller levels of debt. Specifically, the interaction variable between dynamism and leverage show a negative and significant influence on firm return on asset. In more recent works, Miao (2005) explores the influence of industry dynamic on capital structure, suggesting that there is an interaction effect between industry and determinant of capital structure. For instance, industries with high technology growth or good starting distribution of technology have relatively lower average leverage. Second, industries with risky technology, higher bankruptcy cost and higher fixed operating cost have relatively less leverage. Besides, industries with high entry cost have higher average leverage. According to Ferri and Jones (1979), the industry dynamism, from a certain point of view, is related to the concept of an individual firm’s business risk. As business risk can be defined as the expected variability in future income, it is predicted that the larger the business risk, the smaller the level of firm leverage. In a word, the larger the industry dynamism, the smaller the level of industry average leverage because profit variability is an estimate of the firms’ ability to pay for their fixed obligation (Kayo and Kimura 2011). Kayo and Kimura (2011) investigate that as a determinant of capital structure, industry dynamism show negative and significant relationship with leverage, representing the instability or volatility of an industry that lead to a lower average leverage of industry. In a word, companies working in industries with larger risk because of more dynamic environment tend to use leverage with less intensity.

Another characteristic that derive from the industry specific is munificence, which defined as the environment's ability to support sustained growth of firm or industry. Dess and Beard (1984) asserts that environments with high munificence have abundant resources, low level of competition and as a consequence, high profitability. Given this type of environment, according to Kayo and Kimura (2011), it is reasonable to expect that companies in munificent industries tend to have high levels of profitability and therefore, the hypothesis regarding the influence of firm profitability on leverage to an aggregate industry would be generated. Boyd (1995) measure the munificence by using a standardized measure of industry sales growth over a 5-year period. Following this measurement, Kayo and Kimura (2011) construct a variable of munificent representing the abundance of resource in a given industry, and present evidence that companies in industries with good growth opportunities tend to use less leverage. However, In recent work, Smith et al. (2015) uses the similar measures and observe various results by classifying the degree of munificence. For instance, firms in both highly munificent industries, which are able to produce excess resources, and in less munificent industries, which less ability to generate such resource, may see opportunities to increase or reduce their funding level while adjusting to target debt ratios at a relatively low cost. For firms in highly munificent with above target debt, the greater the industry munificence and the more their leverage exceeds their target ratio, and the more likely firms are to adjust towards their target debt ratios. Nevertheless, for firms in highly munificence with below-target debt, the greater the munificence of the industry firms in, the more leverage falls below their target debt ratios, the more likely firms are to adjust toward their target debt ratios.

As Kayo and Kimura (2011) explain, it cannot define an a-priori relation between industry munificence and leverage because there are two theoretical streams compete in their hypothesis reading the influence of profitability on leverage. The pecking order theory proposes a negative relation of profitability and leverage, whereas the trade-off prediction suggest a positive sign. The other industry characteristic that focused on this section is the influence of industry concentration on firm leverage, based on the using of the traditional Herfindahl-Hirshman (HH) index which used to determine market competitiveness. MacKay and Phillips (2005) presents empirical results that financial leverage is higher and less dispersed in concentrated industries, where strategic debt interactions are also stronger, in contrast to low concentrated industries in which leverage is lower. As MacKay and Phillips (2005) describes, this is mainly due to different characteristics of these two types of industries: i.e., higher concentrated and lower concentrated industries. In higher concentrated industries, profitability and size are also higher as well as firm risk. Due to the agency cost associating with equity holder and bond holder conflict, the higher risk to the incentive of equity holder can be related to pursue risker strategies when debt is high (Brander and Lewis 1986). Thus, the hypothesis of a positive relationship between HH index and firm leverage is suggested (Kayo and Kimura 2011). However, with agency problem, debt may decrease investment expenditures and product market competition when equity holders cannot receive full benefit from firm investment, especially in a harsh scenario and high likelihood of bankruptcy. Therefore, Clayton (2009) indicates that debt is motivated by issues outside of product market concerns to solve an agency problem.

By using the Herfindhal index, Almazan and Molina (2005) find that intra-industry capital structure dispersion is greater in industry that are more concentrated, use leasing more intensively, and exhibit looser corporate governance. In more recent, Guney et al. (2011) uses HHI as a subsidiary measurement of product market competition to investigate the interaction between industry concentration and financing decisions of firms. The findings suggest that at low and high end of product market competition, leverage is increased with lower competition, whereas at the medium intensity of competition, leverage and product market competition move together. As Guney et al. (2011) interpret, the relationship between leverage and product market competition is non-linear, depending on industry type, company size and firm’s growth opportunities. Besides, Kayo and Kimura (2011) uses HH index as a proxy of market concentration and HH index is found to be negatively related to leverage, suggesting that high concentrated industries may lead their firms to have a lower debt. Similarly, Xu (2012) adopts Herfindahl-Hirschman Index to measure the impact of domestic market concentration on leverage of firms, obtains that the market concentration on both book and market leverage of firms are strong and positive. This suggests that firms in industries with stronger market concentration tend to have more debt. As higher market concentration corresponds to low product market competition, these results are consistent with negative effect of industry competition on leverage ratios. Accounting for nonlinearity in the leverage and industry concentration relationship, Fosu (2013) uses the HH index as measure of competition and proves that firms in less concentrated industries significantly benefit from leverage whilst those in concentrated industries would suffer adverse effect of leverage. In conclusion, the marginal effect of leverage is positive across the relevant range of product market concentration.

In summary, industry effect reflect a set of correlated, but otherwise omitted factors. Firms in an industry experience common forces that affect capital structure decision. These can show a product market interaction or the nature of completion, and also suggest industry heterogeneity in the asset structure, business risk, or technology and regulations (Myers, 1984, Balakrishnan and Fox, 1993, Maksimovic, 1988, MacKay and Phillips, 2005). Industry factors do not have a unique interpretation. Other interpretation proposed by Gilson (1997), Flannery and Rangan (2006) show that managers use industry medium leverage as a benchmark as they contemplate their leverage level. Thus, industry medium leverage is usually employed as a proxy for target capital structure. More formal models are presented in Lemmon et al. (2008) that as a determinants of capital structure, medium industry leverage ratio has the greatest explanatory power in explaining the capital structure variance of firms. Hovakimian et al. (2004) provides evidence consistent with firms actively adjusting their debt ratios toward the industry median leverage level. In these empirical works, industry average leverage are found as an economically important determinant of firm's capital structure (Welch 2004; Frank and Goyal 2009; Leary and Roberts 2014; Faccio and Xu 2015). Welch (2004) shows a strong negative coefficient on industry deviation, indicating that firms are eager to move toward their industry's average debt ratio. Also, firms that have engaged in mergers and acquisitions activity tend to increase leverage and that firms that wander away from their industry average debt ratio seek to return it. DeAngelo et al. (2011) provide evidence indicating that the industry leverage has stronger explaining power in capital structure variation. Besides it, Leary and Roberts (2014) and Faccio and Xu (2015) find that peer's leverage (i.e., industry average leverage) is an important determinant of capital structure choice. In contrast, DeAngelo and Roll (2016) find that there is no systematic connection between leverage of firm and industry median leverage.

Other works on a relation exiting between the industry average debt ratio and firms' debt ratio due to the industry competition claiming that models of competition set up firm aggression as a function of financial and operational leverage. Chevalier (1995) finds that firms increase their prices after a leveraged buyout if other firms in the industry also have high leverage. If other firms in the industry have little debt ratio or are concentrated, they can afford to be more aggressive in pricing policy towards an entrant with high leverage. However, Lyandres (2006) states that the relationship between industry median leverage and firm leverage does not have an agreed upon interpretation. One of the interpretation is that industry leverage proxies for omitted factors. The competitive structure of the industry might be one of these factors.

2.2.2 Macroeconomic Conditions

Since Modigliani and Miller (1958), economists have contributed much effort to understanding firm's financing policies. While most of the early literature analyses financing decisions within firm specific level, macroeconomic conditions have been found to be important factor in analysing firm's financing decisions. Several studies raise a consideration to especially firm level characteristics and controlled for macroeconomic factors. For instance, among these theories, Levine (2002) summarises that better developed financial systems eases external financing constraints of firms. Hackbarth et al. (2006) claim that financing decisions reflect the state of economy. Since information regarding security issues is contemporaneous, it may be more useful in describing economic conditions than, infrequently reporting information in earning release. In more recent research, Levy and Hennessy (2007) develops a computable model explaining financing over the business cycle and notes that firm exhibiting low degree of financial constraints that have pronounced counter-cyclical leverage with much of the variation attributed to varying macroeconomic conditions. Further, firms that exhibiting higher degree of financial constraints do not exhibit these high pronounced counter-cyclical leverage or debt issue patterns. As suggested by Levy and Hennessy (2007), financing choices of firm vary systematically with macroeconomic conditions. However, despite the substantial development of literatures deriving from analysing traditional capital structure theories, the role of macroeconomic factors in capital structure and particularly, the impact of macroeconomic conditions on the adjustment speed of capital structure toward targets have been largely ignored.

As summarized by Kayo and Kimura (2011), the study on capital structure in a global perspective has at least two streams. In one of these stream, several studies compare the influence of financing policies of multinational and domestic firms on capital structure variance. However, results are mixed. Lee and Kwok (1988) tests a set of international environmental variables of political risk, international market imperfections, complexity of operations, opportunities for international diversification, foreign exchange risk and local factors of host countries on the firm related determinants, finding that multinational companies tend to be less leveraged than domestic companies and this is because of the higher cost of capital due to agency problems. Burgman (1996) indicates the similar results that multinational corporations appears to have lower target debt ratios than purely domestic firms and the international diversification does not appear to lower earnings volatility. Further, the specific international factors of exchange rate risk and political risk are found to be positively related to leverage. Other study of Chen et al. (1997) focus on a direct relation of international activities and capital structure finds that multinational companies have a lower debt ratio than domestic companies beyond the commonly accepted capital structure determinants. In addition, the level of international activities is positively related to the debt ratio, suggesting the more internationalization of firms, the less leverage the firms. The proposition of trade-off model, multinational companies should be able to carry more debt in their capital structure as they are able to diversify several less than perfectly correlated national economies. According to studies above, this proposition is not valid. According to Desai et al. (2004), multinational companies are financed with less external debt in countries with underdeveloped capital market or weak creditor rights, reflecting significantly higher borrowing cost arising from informational asymmetries, government policies, and poor constricting environment or agency problems across countries. However, Mansi and Reeb (2002) find the opposite that international activity increase firm leverage.

Akhtar (2005) demonstrate that the leverage level are not significantly different between multinational companies and domestic firms.

A more recent works Low and Chen (2004) tests the effects of international and product diversification on capital structure with 30 countries and shows that the more international diversification the firm has, the less leverage level the firm has. However, this results is mainly attributable to the U.S. Firms. For another, the product diversification is found to be positively related to firm leverage, indicating that firms with higher level of product diversification would be allowed to reduce their risk and thereby firms carry higher debt level. Other works Chkir and Cosset (2001) find that multinational companies with a high level of international and product diversification face a lower level of default risk that enable multinational companies to achieve higher level of leverage than domestic companies.

More recently, several studies Rajan and Zingales (1995), Booth et al. (2001), Antoniou et al. (2008), Beck et al. (2008) analyse the role of country characteristic as determinant of firm leverage. One important observation is that financing policy appears to have similar patterns of behaviour around the world, despite the evident institutional differences (Booth et al., 2001). For instance, Rajan and Zingales (1995) investigate the determinants of capital structure choice by selecting the sample in the major industrialized countries, G7 and finds that firm leverage is fairly similar across the G7 countries. This is especially in the influence of tangibility, market to book ratio, size and profitability thought the institutional differences between G-7 may be responsible for differences in capital structure. Booth et al. (2001) uses a new data set associating with developing countries to whether capital structure is portable across countries with different institutional structure. Similarly, the variables that are relevant for explaining capital structure in the United States and European countries are also relevant in developing countries (e.g. Brazil, India, Jordan, Pakistan, Thailand, Turkey, South Korea), despite the profound difference in institutional factor across thesis developing countries. In particular, profitability is one of the firm-level variable that shows high convergence in the comparison between countries.

Wald (1999) also analyse the factors correlating to capital structure by conducting a cross-country comparison of five countries, using empirical data from France, Germany, japan, the UK and the US. As noted, factors of risk, growth, firm size and inventories show different effect in countries, although variables associating with moral hazard, tax deduction, R&D, and profitability are similarly affecting the leverage across countries. This indicates that institutions differences between countries may be significant determinants of capital structure and the different agency conflict across countries may be significant in explaining difference in capital structure. Mahajan and Tartaroglu (2008) investigates the equity market timing hypothesis of capital structure in major industrialized G-7 countries and indicates that the leverage of firms is negative related to the historical market-to-book ratio in all G-7 countries. Also, firms in all G-7 countries except Japan, undo the effect of equity issuance and the impact of equity market timing attempts on leverage is short lived. This shows the common capital structure behaviour relating to market timing theories.

In addition, a number of studies emphasize that country macroeconomic or institutional factors and even culture difference may have a marked influence on capital structure. The link between bond market development and firm's access to capital market is one of the significant area that has been showed by a number of literature. These researches principally focused on firm's reliance on debt financing and its related agency problem and bankruptcy cost in accessing external financing. For instance, De Miguel and Pindado (2001) provide evidence that in countries where the bond market is inadequately developed, the advantage provided by private debt, which lessens the agency cost of debt, is not as great as the advantage provided by access to the bond market. Besides, financial intermediaries (e.g., banks) may have an advantage over bond markets after the capital is provided as ex post monitoring raises the probability of success and then they may be the preferred source of capital (Faulkender and Petersen, 2005). However, according to Faulkender and Petersen (2005), firms that have access to the public bond market as measured by having a debt rating, have significant more leverage than firms that need to borrow from financial intermediaries. This is because the costs of monitoring and imperfect financial contracting between firms and financial intermediates raise the costs of debt capital and thereby firms lower their desired leverage.

Further, De Jong et al. (2008) demonstrates that when bond market in a given country is highly developed with better protection of creditor right, and better legal enforcement, the roles of bankruptcy cost variables (tangibility, business risk and firm size) can be mitigated as the bond market structure provides protection for both creditors and borrowers. In this context, issuing and trading these bonds are easier and therefore firm leverage tends to be higher. In more recent works, Lemmon and Zender (2010) report that firms that can access the bond market have sufficiently stable cash flow, sufficiently large pools of exiting collateral and sufficient information transparency to allow access to relatively large amount of arms-length debt. As hypothesized by Myers (1984), firms that are able to issue arms-length debt most closely conform to the assumptions underlying the pecking order. Firms without the ability to access public debt market do not share these characteristics and have to borrow from banks and other financial intermediaries. Fan et al. (2012) find that firms in countries with larger government bond markets have lower debt ratios and shorter maturity debt. This indicates government bonds can influence the supply of debt capital that is available to the corporate market, implying that government bonds tend to crowd out long term corporate debt.

Other significant variable is equity market development associating with macroeconomic factors that has been analysed in the empirical literatures and theories rather more through the bond market development in macroeconomic conditions. According to Demirgüç-Kunt and Maksimovic (1996), the initial improvement in the functioning of developing stock market produce a higher debt-equity ratio for firms and thus more business for banks. In developed stock markets, further development leads to a substitution of equity for debt financing. In developing stock markets, large firms have more leveraged as the stock market develops. In more recent studies, Korajczyk and Levy (2003) provide evidence of how macroeconomic conditions affect capital structure choice. After correcting for the run-up in the equity market and the variation in the expected price reaction to an equity issue announcement, deviations from target leverage ratios that vary with macroeconomic conditions account for a significant amount of variation in issue choice. Deesomsak et al. (2004) presents evidence that as stock market activity increases, firm’s preference for equity over debt also increase. Therefore, stock market’s activity is expected to be inversely related to debt. Additionally, De Jong et al. (2008) explains that in contrast to the bond market, when stock market developed, firm leverage is lower because the broader supply of funds decreases the cost of equity. Considering the variables of growth opportunities and tangibly arising from agency cost theory, it is expected that when stock market are further developed, agency problems among different stakeholders can be mitigated as the developed stock market with security laws better protect both shareholders and creditors.

However, Booth et al. (2001) finds that there is no strong relation between bank and stock market development, broad macroeconomic factors and aggregate capital structure. This probably because the sample of developing countries encompasses a wide range of institutional characteristics. Bokpin (2009) also presents the findings regarding with the impact of macrocosmic factors on capital structure of firms and shows that development in the stock market has insignificant impact on firm's capital structure choices.

In addition to these direct effects of bond market and stock market development on firm leverage, the analysis of direct impact of country-specific factors has been used to explain the variation in capital structure across countries. Hackbarth et al. (2006) analyses that firms' restructuring thresholds are lower in good states than in bad state. Therefore, the adjustment speed should be faster in good macroeconomic conditions than in bad conditions. A set of macroeconomic factors including term spared, default spread, GDP growth rate and market dividend yield are employed by Cook and Tang (2010) to study the impact of macroeconomic conditions on the speed of capital structure adjustment, finding firms tend to adjustment faster toward target leverage when GDP increase. As one of the certain factors representing macroeconomic condition, GDP growth rate has been analysed in empirical studies. In these studies, the quality of the countries' institutions (GDP growth rate) affects leverage and the adjustment speed toward target leverage in significant (Drobetz and Wanzenried, 2006, Haas and Peeters, 2006). Öztekin (2015) asserts that high quality institutions results in faster leverage adjustment, whereas laws and traditions that safeguard debt holders relative to stockholders lead to a higher leverage.

Huang and Ritter (2009) employs contemporaneous measures of the statutory corporate tax rate and the GDP growth rate to deal with biases in estimates of the speed of adjustment toward target leverage, and find that the real GDP growth rate controls for growth opportunities. This indicates firms are more likely to fund their current growth opportunities with debt when GDP growth increase. Further, Bokpin (2009) selects inflation, GDP growth rate and central bank discount rate as proxy for macroeconomic condition, and shows that GDP per capita may portray growth for firms and an increase in retained earnings hence GDP per capita has a negative relationship with the capital structure variables. Kayo and Kimura (2011) analyse the influence of several macroeconomic variables on mean leverage of 40 different countries, find statically significant results with the fact that GDP growth has a negative relationship with debt. As showed by Kayo and Kimura (2011), GDP growth as an aggregate to the munificence of a given country, and provides investors with a good growth opportunities. Similarly, Jõeveer (2013) introduces GDP growth rate, inflation rate and corporate tax rate representing the country characteristics, finds that as a proxy for growth opportunities, the effect of GDP growth rate on leverage is negative. This suggest the growth of GDP would reduce the leverage of firms. Other studies provide opposite results. Hanousek and Shamshur (2011) documents that the GDP growth has a positive and significant relation with capital structure. Beside it, Mokhova and Zinecker (2014) find that the influences of GDP growth on capital structure in all countries that investigated are weak and non-significant.

Other studies analyse the direct impact of country specific factors, certain factors of inflation rate, corporate tax, interest rate, credit rating and other considerable country factor that significantly explain the variation in capital structure across countries. Frank and Goyal (2003) verify that there is no strong evidence support the fact that inflation rate affect leverage of firms. This result has been emphasized in Frank and Goyal (2009). Also, Desai et al. (2004) find that inflation does not appear to affect leverage. In recent works, Bastos et al. (2009) and Daskalakis et al. (2017) also obtain the evidence support that inflation is insignificant in capital structure variation. However, other studies find a great influence of inflation on leverage. Mokhova and Zinecker (2014) segments the macroeconomic factors as two groups represents fiscal and monetary policy of a country. The inflation rate belonging to the momentary policy is found to be strongly and negatively affect the total and short-term leverage of firms. As can be found, firms in economies in higher inflation are more likely to have higher bankruptcy cost (Jõeveer, 2013). Öztekin (2015) implies that higher expected inflation makes debt issuance chapter, and more debt in a firm’s capital structure, indicating that the inflation rate is strongly affect the leverage. (Bokpin, 2009, Hanousek and Shamshur, 2011).

In analysis of macroeconomic factor of interest rate, Bokpin (2009) shows that inflation positively influence the choice of short-term leverage level while interest rate positively influences firms to substitute long term debt for short term debt over equity. As the cost of debt, external factor of interest rate positively influences the short term leverage as the profit-motivated bank have tendency to increase loan to private sector. Earlier study Frank and Goyal (2004) provide empirical results that higher interest rate are correlated with less equity but more debt. Conversely, Bancel and Mittoo (2004) find a negative relationship between interest rate and debt. More corporate debt is issued when equity valuation level is low or interest rate are low (Halling et al., 2016). This finding is supported by Jõeveer (2013) that suggest a negative impact of interest rate on leverage. Mokhova and Zinecker (2014) reveals that in different countries, growth in interest rate may lead companies to increase their debt ratio because of tax benefit or decrease financial leverage in order to reduce bankruptcy risk. The interest rate both short term and long term has strong positive significant impact on capital structure in Germany and France while that has negative relationship with capital structure in Slovakia. The long-term rate and capital structure have weak relation in Poland, Hungary and Greece. Karpavičius and Yu (2017) assert that firms do not adjust their capital structure based on interest rate, except when they expect a recessionary period. During periods of recession, interest rate tends to be lower due to interventions by the Central Bank's monetary policy, but firms also lower their demand for external financing.

In addition to these direct impact of country factors, financial system comprising of bank-based country and market-based country is found to be associated with capital structure. Demirgüç-Kunt and Maksimovic (2002) summarize that the banking system and market system affect firm's ability to obtain financing in different ways, especially at lower levels of financial development. The development of market-based system is more related to long-term financing while the banking system is more related to the availability of short term financing. Later, Lööf (2003) claims that the speed of adjusting capital structure is faster towards the target in the equity-based system. This indication has been investigated by Haas and Peeters (2006) that better banking system enable firms to adjust capital structure easier towards their targets. Further, as Antoniou et al (2008) reminds, the capital structure is heavily influenced by the economic environment and its institutions, corporate governance practices, tax systems, the borrower-lender relation and especially the financial system. Firms in the market-based countries (UK, US) are found to have a less concentrated ownership structure, while in bank-based countries (German, Japan and French) the concentration is higher. This is probably because the agency perspective debt plays an important disciplinary role against manager's opportunistic behaviour and firms leverage would be higher in market-based countries. Ampenberger et al. (2013) further claims that firms in bank-based system, especially family firms, have lower leverage than firms in market-based system due to the concentrated ownership pattern with firms. However, Deesomsak et al. (2004) provide opposite argument that the close relationship between borrowing firms and lenders in bank-based system is more important determinant than market-based explanations. Thus, firms borrow easier in bank-based system.

Deesomsak et al. (2004) better legal environment encourage the development of capital markets and decrease the cost of capital, this leads to a positive relationship between legal environment and leverage. According to Fan et al. (2012), countries' legal system and tax system, the level of corruption and the preference of capital supplier explain a significant proportion of the variation in leverage and debt maturity ratio. Based on results, firms in countries that are viewed as more corrupt tend to use less equity and more debt, especially short term debt. While firms operating within legal systems that provide better protection for financial claimant tend to have capital structure with more equity, and relatively more long term debt. Beck et al. (2011) employ cost of property registration, property rights, credit information index and cost of contract enforcement as proxy of legal system, claiming that these several of legal and institutional environment across countries can explain the differences in the type and pricing of lending of firms. For instance, the lower share of loans in firms of developing countries caused by a higher cost of registering property, worse credit information environment, higher costs of enforcing contracts and worse protection of property rights. Tchakoute Tchuigoua (2014) uses legal origin, creditor rights index and corruption index representing the legal tradition of countries, and finds that has positive influence on capital structure but this influence is limited. Further, the leverage appears to be more important in common-law countries. According to several studies Daher (2017), Psillaki and Daskalakis (2009) , De Jong et al. (2008), Psillaki and Daskalakis (2009), Li et al. (2009), with better legal enforcement, capital suppliers are able to contain the risk of supplying capital because the assurance that in the event of default they can claim collectivized assets and preserve the value of their claims. This plays an important role in giving capital supplier incentive to extend more debt and equity, and impose more favourable term since contract ex-ante, knowing their rights are enforced by the law. In countries where laws are not strongly enforced and the subject to corrupt institutions, creditors resort to cutting credit facilities and arguing strict contract term to control risk of default (Chen, 2004, Öztekin, 2015, Giannetti, 2003). However, Cho (2014) and presents that strong creditor rights are associated with low long term leverage,

Other studies Daskalakis et al. (2017) find that the main determinants of the debt ratio is its lagged value across all three forms of leverage, indicating that the remaining firm and macroeconomic factors play a secondary role in their dynamic determination.

2.3 Corporate, Financial and Public Policy on Capital Structure

Many factors contributed to the capital structure variation of firms. This section reviews one important aspect of that variation, which referred to corporate, financial and public policy. Political news has dominated financial markets recently because government financial policies affect the markets (Stiglitz and Uy 1996; Pástor and Veronesi 2013). In earlier literature, the interest rate controls and directed credit programmes were found to impede the process of financial deepening (McKinnon 1993). Moreover, there are literatures which emphasize financial market imperfection, including asymmetric information and imperfect competition, that address conclusion that substantially qualify the predictions of the financial liberalizations thesis (Gertler 1991; Stiglitz 1993). The empirical literature on the effect of financial policies has been recently growing. Existing macro-econometric studies investigate a number of Asian economics, and reveal that the effect of financial restraints may be very large but vary considerably across countries (Arestis et al. 2002). In study of Asian, Rossi (1999) claim that given the bank’s central role in the payment system and in the mobilization and distribution of financial resources, the financial restraints, with the exception of effective regulation and supervision, may hamper financial development.

Stiglitz and Uy (1996) identified that government's financial policies have three elements: creating markets and financial institutions; regulating them; and providing rewards to firms that undertake priority activities in an exemplary manner. Based on the East Asian experience, Stiglitz and Uy (1996) describe that most governments' public policies relating to financial markets promoted savings and the degree of success determined how efficiently capital was allocated. In the study, there are five of the more important interventions are pointed out, which are promoting savings, regulating banks to fortify their solvency, creating financial institutions and markets, enforcing financial restraints, and intervening directly in the allocation of credit. These policies therefore led to high national saving rates in the East Asian countries. In a study of Finland, Hyytinen and Toivanen (2005) demonstrate that public policy can complement capital markets when capital-market imperfections retard innovation and growth. By studying the effect of government funding on R&D investment and the growth orientation of SMEs, Hyytinen and Toivanen (2005) show that firms are more reliant on external financing when they have more government funding.

Uncertainty of Economic Policy

Political news has been dominating financial markets recently (Pástor and Veronesi 2013). Due to the nature of policy decision making and implementation process, economic policies typically generate a large amount of uncertainty, which can impose profound impacts on the financial market and firm behaviour. Literature in relation to corporate finance has explored the association between economic policy uncertainty and asset prices, corporate and IPO activities (Brogaard and Detzel 2015). However, an understanding towards the effect of economic policy uncertainty on firm's capital structure choice, is still limited. Furthermore, prior research in this area has rarely paid attention to emerging or transition economies, where the financial markets tend to be highly regulated and prone to being influenced by government policy (Zhang et al. 2015).

Capital structure policy deals with the financing of firm's activities, with debt, equity and intermediate securities. In relation to economic policy, there are two alternative steams that are categorized by Zhang et al. (2015) as the supply effect and the demand effect. Supply effect of economic policy on capital structure is that uncertainty in policies can deteriorate the external financing environment. When economic policy uncertainty increases, the information asymmetry between borrowers and creditors becomes more severe and moreover, firm's future cash flows are more volatile because of the higher default risk. In this instance, according to Zhang et al. (2015) firms will lower their leverage ratios in order to seek financial flexibility because the uncertainty of policy can lead to higher external financing costs.

Based on this, empirical research on the financial market investigate that economic policy uncertainty increase the risk premium of municipal bonds (Gao and Qi 2012). For example, the offering yields of municipal bonds issued during election periods are higher than those of bonds issued during non-election periods in the. Gao and Qi (2012) state that the impact of polities on public financing costs varies with local economic conditions. Moreover, Francis et al. (2014) examines whether and how policies influence on a firm's cost of bank loans, given that political uncertainty greatly impacts firm level investment decisions. Firms with higher idiosyncratic political exposure face higher of debt and on the supply side, creditors with higher political exposures lead to additional loan price. As this paper noted, economic or public policies with uncertainty that imposes additional costs and more stringent non-price term on bank loan contracts at both aggregate and firm level (Francis et al. 2014).

In perspective of demand effect of policy, firms reduce their financing demands in face of increasing policy uncertainty (Bloom et al. 2007). Prior research examines when firm face high political uncertainty or restriction on financing channel, firm will be more conservative in making investment decision. According to Bloom et al. (2007), investment, in particular, for large manufacturing firm will respond more cautiously to a given demand shock at higher level of uncertainty and will have a convex response to positive demand shocks. Other studies tests that with policy uncertainty or restriction, firm will lower their investment level (Wang et al. 2014; Gulen and Ion 2015).

Based on Chinese listed companies, Wang et al. (2014) find out that when the degree of economic policy uncertainty is higher, firm stand to lower their investment, and therefore keeping the transparency and stability of the implantation of economic policies can improve corporate investment efficiency. However, Kang et al. (2014) argues that the effect of economic policy uncertainty on firm-level investment is greater for small and medium firms than very largest firms. In conclusion, both supply effect and demand effect assert a negative impact of economic policy uncertainty and restriction on capital structure of firm.

2.3 Conclusion

Chapter Two reviews the developments of the theoretical and empirical research of capital structure. It starts with highlighting the five main theoretical models of capital structure from the lately 1950s. Extant literature on capital structure analyse its determinants from various angles. A number of studies investigate why firms' financing strategy are affected by various financial factors including profitability, tax shield and market to time ratio. Other studies focus on the effect of economic and social on leverages of firms. This chapter reviews the fundamental theories that have been pointed out to be crucial in investigating the relationship between capital structure and its determinants.

Modigliani and Miller (1958) has been mentioned in studies of capital structure to be a fundamental model that initially provides the concept of capital structure. The various theories of capital structure differ according to richness of their assumption. In the scenario of Modigliani-Miller (MM) model, there are no taxes including personal and corporate, no risk and capital market that are perfect. This assumptions imply that real economic decisions are independent of capital structure. Therefore, the assumption regarding with tax irrelevance has been relaxed in later studies. When corporate taxes are introduced, a tax advantage for debt is created, since interest payments are deductible, and profit are not. In this case, the optimal capital structure consists of 100% debt (Modigliani and Miller 1963). In addition to corporate taxes, firms have to consider personal taxes in their decision about capital structure (Miller 1977; DeAngelo and Masulis 1980).

During the 1960s and 1980s, various economic studies introduced several theories of capital structure including trade-off theory, signalling theory, pecking order theory and agency theory. Based on Modigliani and Miller model, trade-off theory is introduced by Kraus and Litzenberger (1973) that firm balances the tax benefits of debt against the deadweight costs of financial distress and bankruptcy. As firms are allowed to deduct interest paid on debt from their tax liability, they favour debt over equity and this increases firms' value. This tax shield implies full debt financing of firms if without any additional and offsetting cost of debt.

The pecking order theory, proposed by Myers and Majluf (1984) and Myers (1984), is based on the assumption of asymmetric information between firm insider and outsiders and the resulting adverse selection problems. Managers of firms have more information than outside debt holders and shareholders and thus debt holders and shareholders observe financing decisions to infer information of a firm's prospects. Therefore the pecking order theory ranks financing sourcing depends on the degree they are affected by information asymmetry, where internal funds shows lowest, debt has the second and equity has the highest adverse selection costs. In pecking order theory' proposition, there is no predictions about an optimal capital structure and firm's capital structure is the results of the firm's financing requirements over time and its attempt to minimize adverse selection costs.

The signalling theory is another model of capital structure that developed by Ross (1977) based on the assumption of asymmetric information. It suggests that when there is information between the managers of companies and shareholders, changes in the capital structure by management are concerned by shareholders as signals of the future prospects of firms. Debt financing, according to signalling theory, is treated as a positive signal of better future prospects as debt financing would impose financial discipline on the management. Therefore, a new project with debt financing may have a positive signalling effect and shareholders will receive signal that the managers consider equity price of firms to be under-valued. This is way the firm decide to have debt financing rather than equity issuing when price of equity lower than their intrinsic value.

In 1970s, Jensen and Meckling (1976) introduce an entire area of study called "agency theory" that focus on the conflicts between different groups of shareholders, managements and debt holders. This model presents a further theoretical development that support the influence of diversification strategy on capital structure. Jensen and Meckling (1976) points out the disciplining role of debt on managerial behaviour in that it decreases manager's discretion regarding free cash flow. Therefore, agency theory supports the positive role of debt in reducing the strategy of manager to expand their own benefit. In addition, shareholder have incentive to transfer wealth from debt holders to shareholders through a strong increase in dividend or by issuing more senior debt, firms can alleviate the differences in information and interests between the shareholders and the debt holders due to the underinvestment problem and asset substitution problem. For instance, giving lenders a direct equity stake, convertible bonds or debt contract are the way firms to hedge the conflict between shareholders and bondholders arising from debt overhang, risk shifting and asset stripping.

In period of 2000s, Baker and Wurgler (2002) based on market timing hypothesis, summaries market timing theory of capital structure that explain a broader set of phenomena than current exists. According to Baker and Wurgler (2002), market timing theory primarily advocates that capital structure evolves as the cumulative outcome of past attempts to time the equity market. Thus, firms prefer equity when the relative cost of equity is low and prefer debt otherwise. There are two versions of market timing.

Evidences reviewed in this chapter usually confirm the prediction of trade-off theory and pecking order theory. Trade off theory proposes that leverage should be inversely related to bankruptcy cost but ignore the correlation between debt and profitability. Pecking order model provides the explanation for this relation. Agency theory is useful in explaining the effect of consequences arising from conflicts of shareholders, managers and bondholders on leverage. Furthermore, empirical evidence on signalling theory which predicts the positive market reaction on debt issuing are not significant and strongly support. There are strongly support for market timing theory that managers will issue securities until market conditions getting better.

There are several conclusions emerge from the development of macroeconomics and industrial conditions. a significant relationship between change in debt level at the micro conditions including GDP, inflation, interest, market competition and average industrial leverage. Firm specific factors arising from fundamental theories might not explain capital structure various in completely. Factors such as corporate governance, political conditions, economic development and other macro conditions are also empirically tested to be significantly affect capital structure. However, most evidences affirming that firm effects are more important than country or economic effects in capital structure decision although country-specific factor are significant in explaining differences between corporate financial structure and system.

Chapter Three: Hypothesis Development

This chapter explains the hypotheses set out in the research and the reasons behind for them based on the empirical and theoretical literature discussion in the previous chapter.

Based on an early study by Balakrishnan and Fox (1993), in recent research developments in transaction cost economics suggest that capital structure of a firm's may have more correlations with control factors of strategic and microeconomic importance than those that are purely financial. The preponderance of the studies on capital structure focus on an analysis of firm characteristics. More recently, the role of countries and industries in capital structure decisions have been analysed (Antoniou et al. 2008; Kayo and Kimura 2011). These studies provide details that, along with firm characteristics and macroeconomic determinants (e.g. GDP, capital formation, the development of capital market and financial systems) may also influence capital structure variations. Therefore, this chapter develops the hypotheses relating to regarding involved at a firm-specific level, an industry-specific level and a country-specific levels.

3.1 Firm Specific Factors

Capital structure decisions are primarily determined by a combination of factors that are significantly linked to the factors of firm characteristics. Having discussed the past studies of capital structure, this sector takes a more structured approach to identifying factors of capital structure on the firm specific level. According to an early study by Harris and Raviv (1991), "leverage increases with fixed assets, non-debt tax shield, investment opportunities, and firm size, and it decreases with volatility, the probability of bankruptcy, profitability, and asset intangibility". Drobetz and Wanzenried (2006) explain that observable factors of leverage should be related to capital structure theories as these factors are assumed to be a proxy for the fundamental forces that drive these theories. However, the results of empirical research are ambiguous and do not always follow the interpretations of theories. More recently, empirical research has provided more detail of leverage factors that relate to a specific economic environment.

This section discusses the hypothesis developed from firm characteristics. These factors are firm size, growth opportunities, non-debt tax shield, profitability, asset structure, liquidity, product uniqueness, tax shield, default risk and dividend pay-out. Concerning firm specific level, the trade-off theory, the pecking order theory and the agency cost theory are the three major theoretical frameworks that significantly influence capital structure.

Table 4.1 displays a summary of predictions of the trade-off theory, pecking order theory and agency cost theory regarding the relationship between leverage and major capital structure factors on a firm specific level.

Table 3. 1 Predictions of Capital Structure Theories

Factor	Trade-Off Theory	Pecking Order Theory	Agency cost Theory
Firm size	+	-	+
Growth Opportunities	-	+/-	-
Non-debt tax shield	+	-	-
Profitability	+	-	+
Asset Structure	+	-	+
Liquidity	+	-	+
Product Uniqueness	-	+	-
Tax Shield	+		
Default Risk	-	-	
Dividend Pay-out		+	-

3.1.1 Firm Size

The influence of firm size on capital structure is ambiguous in the research studies. Titman and Wessels (1988) assert that firms with larger size are more diversified and less likely to be susceptible to financial distress. As bankruptcy cost comprises of a large fixed and proportional component, it is more likely to be relatively higher in firms with smaller size (Haas and Peeters 2006). Therefore large firms should have more leverage than smaller firms and firm size should be positively correlated with leverage. According to predictions of trade-off, there is an inverse correlation between firm size and the probability of bankruptcy, and hence there is a positive relationship between firm size and leverage (González and González 2012). Additionally, large firms may have a reputation in the debt market and consequently lead to a lower agency costs of debt, relatively lower monitoring costs, less volatility of cash flow, and more benefits from the tax shield (Deesomsak et al. 2004). Due to the consideration of agency cost, the leverage level may be positively related to firm size.

It has been argued in pecking order theory that firm size is negatively related to leverage level. This is that larger firms have been around longer and have greater popularity. Adverse selection may be more important for these large firms based on greater assets and greater capital accumulations. Therefore, large firms will have less debt financing than small firms (Ozkan 2001). There is an important caveat that firm size can be identified as a proxy for information asymmetry between firm insiders and outsiders (Balakrishnan and Fox 1993). According to Parsons and Titman (2009) and Frank and Goyal (2003), large firms have lower adverse selection costs. Smaller firms may spend relatively higher cost to resolve information asymmetries with lenders and shareholders. In consequence, the cost of capital is higher for smaller firms that discourage the use of outside financing. Larger firms can issue equity more easily than small firms where severe adverse selection problem that result in a higher cost of adverse selection (Cassar and Holmes 2003). Accordingly, the pecking order theory predicts a negative relationship between leverage and firm size, "with larger firms exhibiting increasing preference for equity relative to debt" (Drobetz and Wanzenried 2006). In addition in this model, the transaction cost may affect the approach to financing as transaction cost is most likely a function of scale, with smaller scale financing resulting in relatively higher transaction cost (Cassar and Holmes 2003).

The measure of firm size is mixed in empirical research. Firm size is generally measured as the logarithm of total assets or sales and the maturity of the firm. Alternatively, size is captured by another batch of studies (Flavin and O'Connor 2010; Kurshev and Strebulaev 2015) as a dummy variable that takes the value of 1 if the firm has been listed on the stock market for more than a certain period, and 0 if less than a given period.

Similar to the empirical evidence of trade-off, the hypothesis is that

HF1: there is a significant positive relationship between firm size and leverage

3.1.2 Growth Opportunities

Myers (1977) suggests that the managers of firms with leverage have a motivation to engage in investments of underinvestment and asset substitution. The agency cost relating to debt is higher for firms with fewer growth opportunities because there is a stronger incentives for firms to avoid problems of underinvestment and asset substitution arising from shareholder and manager conflicts. Accordingly, the level of debt issued by a firm is negatively correlated to the growth opportunities including future investment opportunities, which will increase the value of firm when undertaken (Ozkan 2001). However, as Mason and Merton (1985) identify, "firms with more growth options are those that have relatively more capacity expansion projects, new product lines, acquisition of other firms and maintenance and replacement of existing assets". It is argued by Ozkan (2001) that, to some extent, firms raise funding with substantial risky debt will pass up many of valuable investment opportunities. Titman and Wessels (1988) also point out that firms in fast growing industries cause higher agency costs because of the flexibility in taking future investment.

Growth opportunities are treated as capital assets in Titman and Wessels (1988) who add value to the firm although they cannot be collateralized as well as fixed assets. In addition, growth opportunities cannot generate current taxable income. Thus, a firm with more growth opportunities would offset taxable income with only an appropriate amount of debt (Parsons and Titman 2009). This description is consistent with trade-off theory which explains that asset tangibility significantly affects the cost of financial distress. Also, according to Parsons and Titman (2009), a firm with growth opportunities is more likely to invest heavily in the future and then choose to keep financial slack for financing these investments. In this situation, firms with future growth opportunities, which can be a form of intangible assets, in other words, will have less debt than firms with more tangible assets because growth opportunities cannot be collateralized (Myers and Majluf 1984; Williamson 1988; Shyam-Sunder and Myers 1999). Additionally, according to these studies, the value of growth opportunities will drop precipitously when the firm enters bankruptcy, implying that expected bankruptcy cost for firms with more growth options will be higher. a large expected cost of bankruptcy will consequent in lower leverage in turn (Ozkan 2001).

The pecking order theory suggests a positive relationship between leverage and growth opportunities of a firm (Myers and Majluf 1984), which is the inverse of the agency cost and trade-off model. Firms with higher growth opportunities suggests a greater demand of capital. According to pecking order theory, debt will typically increase if capital on investment exceeds a firm's retained earnings, and will decease if capital is less than retained earnings. Hence leverage is predicted to be higher in firms with more investment opportunities (Frank and Goyal 2003). Alternatively, firms with high growth opportunities will be overvalued and thus have a motivation to attract more equity financing due to the favourable price of equity (Moeller et al. 2004).

In a number of studies, growth opportunities are suggested using the market to book ratio (Myers 1977; Rajan and Zingales 1995; Hovakimian et al. 2012). Other studies (Goyal et al. 2002; Kumar et al. 2017; Dang et al. 2018) use the change in the logarithm of total asset value , sales growth (Lang et al. 1996) or capital expenditure to assets (Harvey et al. 2004) to capture the future growth.

Similar to the empirical evidence of agency cost, the hypothesis is that

HF2: there is a significant negative relationship between growth opportunities and leverage

3.1.3 Non-Debt Tax Shield

A number of investments could have non-debt tax benefits that are uncorrelated to the approach of how firms finance these investment (Ozkan 2001). It is known that the reduction of tax liability increases the firm's free cash flow (after tax) due to the interest deducibility. In the absence of personal taxes, the interest tax shield increases the value of a firm (Graham and Harvey 2001). Hence, using debt has more advantage in tax deduction than equity. In practice, empirical studies of Bradley et al. (1984) and Delcoure (2007) provide evidence that a firm also has a non-debt tax shield available to it. For instance, depreciation and carry forward losses, similar to interest payment, are also widely used to shield tax. DeAngelo and Masulis (1980) devised a model where the non-debt tax shield "serves as a substitute for the payment of interest that is deductible in the calculation of corporate tax". Firms with larger amount of non-debt tax shields are predicted to have lower debts as these firms may not have sufficient taxable profits to achieve benefit from interest deduction. Accordingly, an inverse relationship is expected between the level of the non-debt tax shield and leverage. This prediction is consistent with relevant studies (de Miguel and Pindado 2001; Deesomsak et al. 2004; Delcoure 2007). In other research line, Bradley et al. (1984) involve investment tax credit and annual depreciation charges as a proxy of the non-debt tax shield, and find leverage positively impacted by the non-debt tax shield.

Titman and Wessels (1988) and Ozkan (2001) use the annual depreciation expense ratio to total assets as a proxy for a non-debt tax shield. Both studies find that the simple correlation between a non-debt tax shield and the measures of leverage is negative. However, there is a highly correlation between the non-debt tax shield and asset tangibility as firms with higher amount of depreciation may also correspondingly have large numbers of fixed assets, which act as collateral against debt.

The proxy of tangibility is not included in this hypothesis. Alternatively, the ratio of investment tax credit over total assets and the ratio of non-debt tax shield over total assets are also used to explain capital structure.

Similar to the empirical evidence of trade-off, the hypothesis is that

HF3: there is a significant negative relationship between non-debt tax and leverage

3.1.4 Profitability

The traditional trade-off theory of capital structure suggests a positive relationship between leverage and profitability with consideration of the bankruptcy costs and taxes (Modigliani and Miller 1963). Firms with greater profit are less likely to decline the leverage because the costs of financial distress and transaction are relativity lower in profitable firms. In addition to this, the more profitable a firm is, the more the firm is likely to shield its profit from taxes, especially by issuing debt. Thus, firms with more profit will borrow more as the likelihood of paying off the loans is greater (MacKie - Mason 1990; Gill et al. 2011). However, the dynamic trade-off model of capital structure (Fischer et al. 1989; Leland 1998; Hovakimian et al. 2004; Gaud et al. 2005) takes into consideration adjusting cost toward the target debt ratio and demonstrates that probability has a negative impact on leverage. This is because the dynamic adjusting of cost is offset when firms reset their capital structure. One reason for the difference between traditional trade-off tests and the dynamic trade-off model is that studies use past profitability while the model focuses on expected future profitability. Xu (2012) suggests that the debt ratio is affected by the balance of the present value of expected bankruptcy cost and the present value of the expected debt tax shield, both of which, depending on expected future profitability, may not be impacted by realized past probability. Therefore, a dynamic model of trade-off which assumes the cost of bankruptcy and tax shields to be adjusted in time, might resolve it with accurate measure.

The agency cost model proposes a positive relationship between profitability and leverage since the higher debt "helps to control agency problems by forcing managers to pay out more of the firm's surplus cash" (Jensen 1986). A stronger commitment to using a large fraction of pre-interest earning for debt payment suggest that profitable firms, which may have substantial free cash flow, will have more debt to equity ratio. This notion is also suggested by Ross (1977) in the signalling theory of capital structure that managers increase level of debt to show an optimistic future for the firm to external investors.

The hypothesised negative relationship between firm profitability and capital structure is developed in the pecking order theory of Myers (1984). Due to the information asymmetries between insiders and outsiders of firm, there is a "preference for inside financing over outside financing" (Cassar and Holmes 2003). Thus, a firm with higher profitability may have access to retained profit and then use it for internal financing rather than acquiring external financing sources (Fama and Jensen 1983; López-Gracia and Sogorb-Mira 2008; de Jong et al. 2011). Consequently, higher earnings lead to less leverage. The leverage of SMEs is found to be consistent with pecking order that is negatively associated with profitability (Hall et al. 2000; Forte et al. 2013).

There are several common measures for profitability that are frequently used in the literature. For instance, the return before interest, tax and depreciation (EBIT) to total assets (ROA) is used in recent studies of Hovakimian et al. (2004), Delcoure (2007) and López-Gracia and Sogorb-Mira (2008). Another proxy of the gross margin, which is the ratio of operating income to sales, is also frequently used (Gharaibeh 2015).

Similar to the empirical evidence of pecking order prediction, the hypothesis is that

HF4: there is a significant negative relationship between firm's profitability and leverage

3.1.5 Asset structure: Asset Tangibility/Liquidity

Titman and Wessels (1988) consider asset structure as a significant determinant of the capital structure, especially of a new firm. The degree that "the firm's assets are tangible and generic results in the firm having a greater liquidation value" (Harris and Raviv 1991). For instance, the tangibility of asset such as property, plant and equipment (PPE) can be described as an approach to measure the level of collateral that a firm can show to debtors. A high degree of asset tangibility provides debtors with a high level of guarantee since fixed assets can be liquidated in the situation of bankruptcy. Nevertheless, assets with low levels of tangibility have little collateral for debt holders if the firm was facing bankruptcy. In the perspective of static trade-off, tangibility has a significant effect on the costs of financial distress.

From the perspective of agency cost, pledging the tangible assets of firms as collateral or arranging a fixed charge that directly refers to the tangible assets of a firm may mitigate the agency cost of adverse selection and moral hazard. Jensen and Meckling (1976) and Galai and Masulis (1976) note that shareholders of the firms with leverage are prone to over-invest with an incentive of asset substitution that leads to shareholder and bondholder conflict. However, creditors can improve the guarantee of repayment when debt is secured against assets, resulting in a higher rate of interest. In brief, firms with high tangibility of assets will "have greater liquidation value and relatively easier access to finance and lower cost of financing, leading to firms absorbing a high level of debt" (Cassar and Holmes 2003).

Based on the agency problems of managers' and shareholders' conflict, Grossman and Hart (1982) argue that managers of firms with lower levels of asset which can be used as collateral will consume more perquisite. Managers of firm with high leverage will be less able to use excessive perquisites because of the disciplinary role of debt. Therefore, this disciplinary role of debt depends on firms with few tangible assets (Jensen 1986). This adverse relationship is also supported by the pecking order interpretation which predicts that firms with tangible asset are more sensitive to information asymmetries. Based on an interpretation of pecking order, firms with more tangible assets will be less likely to have an asymmetric information problem between insiders and outsiders and therefore this low information asymmetry associated with tangible assets will make issuing equity less costly. Therefore, leverage will be lower for firms with greater tangible assets (Graham et al. 2015)

The relevant studies suggest a positive relationship consistent with arguments between asset tangibility and leverage for SME firms (Cassar and Holmes 2003; Sogorb-Mira 2005). It has also empirically demonstrated that SMEs have a negative relationship between asset tangibility and debt ratio (Daskalakis and Psillaki 2008).

Tangibility of asset generally can be measured by using a variety of proxy variables, including the ratio of net property, plant and equipment (PPE) to total assets (Cassar and Holmes 2003; Delcoure 2007; González and González 2008; Margaritis and Psillaki 2010; Campello and Giambona 2013), the ratio of research and development (R&D) to sales and the ratio of capital expenditure to sales.

Similar to trade-off theory and agency cost theory, the hypothesis is that

HF5: There is a significant positive relationship between a firm's asset structure and leverage

3.1.6 Debt Tax Shield

Firms have a motivation to increase debt due to the benefit from the tax shield arising from interest deductibility (Modigliani and Miller 1963). The seminar work of Modigliani and Miller (1963) devises a trade-off model of capital structure positing that firms will exploit the tax deductibility of interest payment to reduce their tax payment and determine the leverage ratio by trading-off these benefits gained from tax against the shortcoming of debt financing (the cost of financial distress). For this reason, firms will prefer more debt financing to other financing resources when corporate tax rates are higher and hence the effective tax rate will be positively related to debt and, as Modigliani and Miller (1963) predict, the firm value will also increase with use of debt.

However, use of debt also increases the cost of financial distress. Kraus and Litzenberger (1973) and Graham (2006) show in a framework of state preference that "firms trade off bankruptcy cost with the tax advantage of debt to meet an optimal capital structure involving less than 100 percent of debt". Kim (1978) states that in a perfect capital market with friction of corporate income tax and bankruptcy cost, firms have a debt capacity that should be less than 100 percent and firms' debt ratio should be less than their debt capacity. In a word, the relationship between effective tax rate and debt ratio presents a non-linear curve based on the balancing between tax advantage and bankruptcy cost.

Furthermore, costs of non-bankruptcy which can be also be traded off against the tax benefits of debt are introduced in other studies. Jensen and Meckling (1976) posit agency cost of equity and agency cost of debt that relates to deadweight cost. Taxation is mostly concerned with having a deadweight cost as it gives firms an incentive to perform untaxed activities at the expense of taxed activities (Graham 2006) According to Smart (1998), a higher tax rate causes higher deadweight cost than a lower tax rate. Additionally, Myers (1977) refers to the cost of under-investment arising from agency problems of equity due to substantial debt overhang. These costs might have impacts on the association between effective tax rate and leverage.

Regardless of the type of cost, firms with other tax shields of operating loss carry-forward, depreciation expenses and investment tax credit decrease the demand of exploiting the debt tax shield (González and González 2012). DeAngelo and Masulis (1980) build up a model of corporate tax and various personal taxes debating that, if non-debt tax exists, a firm is likely to depreciate the full use of the debt tax shield. As DeAngelo and Masulis (1980) demonstrate, "the non-debt tax shield suggests a unique interior optimum leverage decision for each firm in market equilibrium", without being concerned with whether cost associated with debt is present or not. For this reason, firms with greater non-debt tax may have less motivation to increase debt from a tax shield perspective thus suggesting a negative relationship between leverage and effective tax rate.

Based on DeAngelo and Masulis (1980), Ross (1985) further explains that firms with an excessive amount of borrowing may become tax exhausted in the sense that the firm cannot use all the potential tax shield. With non-tax shield increase, the expected value of the tax shield will relatively decline and the incentive to use debt financing will diminish. Accordingly, another prediction based on a framework of trade-off proposes a negative relationship between effective tax rate and debt.

3.1.7 Liquidity

The impact of liquidity on the optimal leverage ratio of firms is another factor in explaining capital structure decision. Similar to tangible asset, “liquidity is the degree to which asset can be traded in the market without affecting its price” (Sharma and Paul 2015). According to Lipson and Mortal (2009), a more frequent trading activity and relatively smooth transitions in price characterize liquid asset. The necessity of liquidity as a factor of capital structure is showed by two groups of studies, one explaining the effect of transaction costs based on cost of equity and the other line explaining capital structure choice based on frameworks of trade-off , agency cost and pecking order theory (Morellec 2001; Myers 2001; Lipson and Mortal 2009).

As higher liquidity may increase the value of a firm in liquidation, the proposition of trade-off theory is that liquidity increases debt capacity because firms with higher liquidity ratio will have greater ability to pay off short-term obligations of liabilities. This implies a positive relationship between a firm’s liquidity position and its debt ratio (Shleifer and Vishny 1992; Ozkan 2001). According to Williamson (1988) and Shleifer and Vishny (1992), there is a positive relationship between asset liquidity and optimal leverage. Additionally, liquid source including free cash flow may give an incentive for managers to engage in overvalued investment, resulting in an agency problem of shareholders’ and managers’ conflict. The agency cost of Jensen and Meckling (1976) suggest that leverage is positively associated with liquidity as leverage can serve in a disciplinary role on management. However, firms with higher liquidity may use these assets to invest in new projects and, consequently, the liquidity ratio of firms will exert a negative impact on their leverage level (Ozkan 2001). As Myers and Rajan (1998) infer, the liquidity assets imply the extent to which these assets are manipulated by shareholders at the expense of bondholders. The lower asset liquidity may reduce the cost of debt, and as a result firms with lower liquidity use more debt.

The third implication is a hierarchy among sources of financing consistent with the explanation of the pecking order model. This hierarchy is a function of investment conditions. The hierarchy of financing is internal fund first, short-term debt second and external equity third. In accordance with the pecking order theory, liquidity is inversely related to leverage (Myers and Rajan 1998; Morellec 2001). However, if there is a shortage of internal funds, firms will avoid short-term debt and turn to issue equity due to the bankruptcy cost (Anderson and Carverhill 2011). Hence the effect of liquidity on leverage is relatively positive (Anderson and Carverhill 2011).

Other studies (Lipson and Mortal 2009) find that the liquidity of a firm's asset is correlated with the ease with which firms can raise external capital through stocks offering. According to Butler et al. (2005), shareholders have to be compensated for the transaction cost when trading shares. This transaction cost is viewed as an inclusion of the cost of equity financing and, based on transaction cost, Hennessy and Whited (2005) explain that lower liquid stocks are more likely to have a higher cost of issuance and then a higher cost of equity financing. In other words, firms which have more sufficient liquid equity may have a lower cost of equity than firms which have less liquid asset to the extent that capital structure decisions weigh the tax benefit and the cost of equity, and more liquid firms will use relatively more equity financing due to the lower transaction cost and naturally have less leverage (Udomsirikul et al. 2011).

Liquidity ratio have a mixed measure; the ratio of current assets to current liabilities is mostly used as a proxy for the liquidity of the firm's assets.

Similar to the empirical evidence of pecking order prediction, the hypothesis is that

HF6: there is a significant positive relationship between liquidity and leverage

3.1.8 Product Uniqueness

Firms generally invest in their specific assets in order to enhance their uniqueness and competitive advantage in markets (Foss and Mahnke 2002). This asset specific also heavily affects the firm's ability to borrow (Balakrishnan and Fox 1993). The specific asset of firms is mostly treated as an intangible asset is difficult to measure and evaluate. As Balakrishnan and Fox (1993) claim, the intangible asset comprising of research and development (R&D) and advertising cannot be redeployed to other purposes and also cannot be "used as collateral for borrowing debt". In the situation of bankruptcy and liquidation, the more specialized assets a firm has, the greater the loss in value the firm will face. The pre-emptive claims of the lender against such asset afford limited protection, and the cost of debt financing naturally increases. Therefore, intense investment in tangible assets has been prone to be associated with lower leverage as these assets cannot serve as collateral (Long and Malitz 1985; Simerly and Li 2000; Vicente-Lorente 2001). This interpretation is also consistent with the static trade-off model which predicts a negative relationship between leverage and intangibility of asset.

Intangible assets increase both the agency cost of shareholder-managers conflict arising from hidden information and hidden action, and the agency cost of shareholder-bondholder conflict such as asset substitution and under-investment problems (Myers 1977). Firms and industries with a high level of intensify in intangible assets will be subject to greater discretionary investment by the manager and which thus increases risks for the firm's specific assets. This is one of the factors which increases the expected agency cost of the firm and shortens its funding duration. Additionally, as assets become more specific, investors cannot recover their investment while debt holders cannot recover their lending. Shareholders and debt holders prefer to use physical assets to secure investment and loans rather than intangible assets which is mostly embedded in human capital. Therefore, firms with higher levels of specific asset should use less debt, as asset specificity significantly negatively affect liquidation value (Gompers 1995). Williamson (1988) proposes that redeployable asset are more suitable to the governance structures associated with debt. Alderson and Betker (1995) find that the liquidation cost and intangible assets of R&D is positively associated across firms. This means that the costs associated with knowledge asset investment is more than that for ordinary investment. Finally, firms whose value mostly relies on investment in specific asset (e.g. future growth option, R&D, advertising) will use less debt because shareholders or managers can choose investment strategies that are specifically detrimental to debt holders. Accordingly, with agency cost, a negative relationship between leverage and asset tangibility is expected in firms.

Another important implication from empirical studies is the proposition in favour of the pecking order hierarchy of financing sources devised by Myers and Majluf (1984). The pecking order hierarchy of capital structure suggest that internal sources are the first preferred option of firms for financing new investment, and debt financing is the second choice. As transaction of specific assets will be affected by information asymmetry between firm's insiders and outsiders, the firm may be reluctant to publish information to outside investors. Pecking order theory suggests that high level of leverage is associated with tangible asset. A firm will increase debt ratio when there is growth of intangible assets. As Aghion et al. (2004) who provide controversial results claim, although firms with specific assets (R&D) tend to increase more debt than firms with lower level of specific asset investment, the debt ratio declines with the scale of asset specification and the most R&D knowledge-based firms issue equity. This means a possible non-linear relationship (U-shape) between asset specification and debt ratio (Bartoloni 2013).

Titman and Wessels (1988) use three measure of asset specificity and the ratio of selling expenses over sales is the first one. This means that the more unique products the firm has, the more intensive selling effort the firm requires. The second one is the ratio of research and development (R&D) over sales, which measures the development of more unique products (Aghion et al. 2004; Faccio and Xu 2015; Fauver and McDonald 2015). The third is the rate at which employees resign their jobs. This is because employees of firms in the industries whose products are more highly technical and unique have less transferable skills and it is costly for them to leave their job (Teixeira and Queirós 2016; Peters and Taylor 2017). Myers (1977) considers a firm's market to book ratio as a measure of intangibility of asset as specific asset is considered as highly related to growth opportunities.

Overall, the degree of firm specificity characterizing the firm's aggregate assets makes a difference with regard to financing the cost of maintaining a certain capital structure.

Similar to the empirical evidence of trade-off theory and agency cost model, the hypothesis is that

HF7: There is a significant negative relationship between asset intangibility and leverage

Similar to the empirical evidence of trade off theory, the hypothesis is that

HF8: There is a significant positive relationship between effective tax rate and leverage

3.1.9 Distance from Bankruptcy (Bankruptcy cost)

The trade-off theory posits that firms use less debt when the expected costs of financial distress are at high level because the default risk will increase as the debt ratio rises. The benefit from debt will be constrained by the existence of bankruptcy costs that enable firms to pay their debt and meet their ongoing commitments (Scott 1977; DeAngelo and Masulis 1980).

According to Öztekin (2015), "the higher volatility of profit may imply a the greater probability of firms being unable to achieve their contractual claims as these claim come due". Capacity of debt of firms also decreases with a growth of earnings volatility that implies s negative correlation between earnings volatility and leverage (Ahmed Sheikh and Wang 2011). Several studies (Wald 1999; Fama and French 2002) use earning volatility as a proxy of distance to bankruptcy or default risk and explain that the financial distress cost is ultimately related inversely to a firm's debt level. Delcoure (2007), uses the standard deviation of the ratio of the earnings before interest and tax (EBIT) divided by total asset as the default risk. Nevertheless, this measure is argued by Joliet and Muller (2013) to be flawed, specifically for companies or industries where the value of EBIT is sometimes negative.

Another group of studies uses the Z-score as a multidimensional measure of bankruptcy risk which proposed by Altman (1968). As Chkir and Cosset (2001) show, this is a surrogate for a firm's expected bankruptcy cost. Graham (2000) uses the Z-score of Altman (1968) as modified by MacKie-Mason (1990) to represent the expected cost of financial distress, and the modified model is set out as:

Z score = 3.3 earnings before interest and tax EBIT+1.0 Sales+1.4 Retained Earnings+1.2 Working Capital)/Total Assets

The financially healthy companies with lower expected cost of bankruptcy or lower default risk will have smaller levels of debt. Corresponding with this interpretation, Byoun (2008); Kayo and Kimura (2011) provide evidence that the greater the value of the Altman Z score, the smaller the leverage a firm has, and thus the longer the distance from bankruptcy and smaller probability of default.

Similar to trade-off theory, the hypothesis is that

HF9: There is a significant negative relationship between distance from bankruptcy and leverage

3.10 Dividend

Dividend policy is one of the factors of capital structure while several determinants discussed above are also shown to affect capital structure. Easterbrook (1984) shows that there are dividends because firms are induced to float new securities suggesting that a firm's dividend decisions are correlated with the firm's financing decision. As Aggarwal and Kyaw (2010) explain, it is observed that a firm's dividend pay-out ratio influences its retention ratio and, thus, its capital structure.

Agency models assert that dividend payment and debt financing can reduce the agency problem correlated with information asymmetry. Based on the free cash flow hypothesis of Jensen (1986) and Jensen and Meckling (1976), paying dividends and issuing debt serve as a mechanism to reduce cash flow under management and therefore prevent agency problems. In view of agency costs and transaction costs, Rozeff (1982) summarizes that leverage is inversely associated with paying dividends. Chang and Rhee (1990) demonstrate that, when the effective capital gain tax rate is lower than the dividend tax rate, firms with higher pay-out ratios may issue debt more than firms with lower dividend payments. However, Antoniou et al. (2008) argue that, if increased dividend is a sign of increased future earnings, the firm's cost of equity will be consequently lower, favouring equity to debt. This presents a negative relationship between leverage and dividend payment, partially consistent with the interpretation of signalling theory and pecking order theory.

According to signalling theory, firms with a constant stream of paying dividends may have less asymmetric information when they enter the equity market. Given that dividend payments show a signal of increased financial health, more debt will be issued (John and Williams 1985; Miller and Rock 1985). Bhaduri (2002) shows that dividend payments reduce the level of internal earnings and increase the demand for external financing, including debt and equity.

Myers (1984) devised the pecking order theory of capital structure which arises if the costs of new securities issuance are higher than other costs and benefits of dividends and debt. Under this circumstance, dividend is less attractive for firms with a lower level of profitable asset in place, large current and expected investments, and high leverage (Fama and French 2002). Given the support of pecking order theory, Fama and French (2002) find that firms with higher profitability will pay more of their earnings as dividend payout ratio is negatively associated with investment opportunities and leverage. Adedeji (1998) describes another situation when firms borrow to pay dividends responding to an earning shortage because of reluctance to cut dividends, and hence leverage may be positively affected by dividend payment.

In addition, the impact of dividend policy on capital structure is also impacted by the nature of the company and the country-specific and institutional features factors which are under the control of the firm. Aggarwal and Kyaw (2010) posit that multinational firms that are large and diversified have higher debt capacity associated with lower dividend. Antoniou et al. (2008) found that the signalling value of dividend payments is higher in the U.S. and the U.K. than in France and Japan, where share ownership is concentrated and firms have closer ties with their lenders. Also, the tax provision affects the impact of payout policy on capital structure.

Similar to the empirical evidence of pecking order theory and signalling theory, the hypothesis is that

HF10: There is a significant negative relationship between dividend payment and leverage

3.2 Industry Effects

Previous studies suggest that a firm's characteristic of size, profitability, growth and age have a significant influence on its firm's capital structure. In addition, a number of studies (Bradley et al. 1984) argue that debt ratio of a firm is strongly related to industry classification even when regulated firms are excluded. Titman and Wessels (1988) explain, that the type of assets firm hold is influenced by debt levels. Hussain and Nivorozhkin (1997) show that several industries may assess loans with support from government policy. According to empirical studies (Darrat and Mukherjee 1995; Campello 2003; MacKay and Phillips 2005; Kale and Shahrur 2007), there is an industrial dummy variable that can control the effect of the inter-industry distinction in capital structure because firms belong to the similar industries that operates under the similar economic conditions.

Inter-industry effects are significant determinants of capital structure. Degryse et al. (2012) indicate that the trade-off theory of capital structure declares that firms have a target capital structure and this may be different between industries due to the evaluations of industry fixed effects. In view of the pecking order supposition, industry classification only affect capital structure if it serves as a proxy for a firm's financing deficit and there is no prediction can be inferred with respect to specific rules and regulations (Baker and Wurgler 2002). Industry specific factors can strongly explain the observed differences in leverage ratio among firms under different industries although several studies (Maksimovic and Zechner 1991; Balakrishnan and Fox 1993; MacKay and Phillips 2005) show a question that firm-specific characteristic is more significant than aggregate industry-level factors. As Balakrishnan and Fox (1993) declare, 53 percent of capital structure variation can be explained by firm specific effect and 11 percent by inter-industry difference. MacKay and Phillips (2005) show that industry-fixed effects can explain 13 percent of the capital structure variation a among firms.

"Industry effect is a significant factor for capital structure decisions either because firms use industry medium leverage as a benchmark for their own leverage ratio or because industry effect reflects a set of related but otherwise indirect factors" (MacKay and Phillips 2005). Harris and Raviv (1991) posit that the industrial classification of firms is an indispensable determinant of leverage and declare that "the leverages of industries in drug, instruments, electronic and food are consistently low while leverages of paper textile mill product, steel, airlines and cement are high". Additionally, firms in regulated industries (e.g. utility, telecommunications, banking and railroad) will have more stable cash flows and less expected cost of financial distress because the industry-specific regulatory structure governs the behaviour of regulated industries (Bradley et al. 1984; Berger and Bonaccorsi di Patti 2006; Graham et al. 2015). Graham et al. (2015) provide evidence that aggregate leverage of firms and leverage of the regulated industries remain quite stable over time while leverages of unregulated sectors significantly increase, approaching the level of indebtedness of regulated firms. Accordingly, the sectors including regulated firms (financial institutions and utilities), are mostly excluded in the sample from empirical studies because these sectors are regulated by specific rules and, in consequence, as "exogenous factors uncorrelated to financing activities that severely affect leverage level" (Bevan and Danbolt 2002).

A relation exists between the industry medium leverage level and a firm's debt level due to industry competition. Industry concentration which the degree of competition within the industry is one of the significant determinants affecting the leverage of the firm. If concentration is low, then the industry is considered to be competitive, while the industry is treated as monopolistic if concentration is high. According to MacKay and Phillips (2005), highly concentrated industries have higher leverage level and lower intra-industry dispersion. In a highly concentrated industry, there is greater risk level and more dispersion in risk than in a lower concentrated industry due to the lower market competition. However, portability and asset level are both substantially greater for concentrated industries implying that concentrated industries are collusive. In this situation, debt will be used by shareholders as a "disciplining mechanism to prevent managers from using the free cash flow for their own empire building purposes" (Baker and Wurgler 2002). Additionally, higher and more stable profitability and less dispersion in risk provide the prerequisites for increasing borrowing (Chevalier 1995; Kovenock and Phillips 1997; MacKay and Phillips 2005; Mitani 2014).

In contrast to highly concentrated industries in which leverage might be greater, Sanyal (2011) highlights the fact that concentrated industries with more intense competitors are more likely to hold lower debt while a lack of competition can result in a high level of debt. As Sanyal (2011) explains, intense rivalry relates to lower leverage ratio because firms may "present their toughness with a low debt level in order to avoid being preyed upon by other firms" (Brander and Lewis 1986). This influence may be greater in higher concentrated industries where the gain in market share is larger. Secondly, if there is a strong market competition among firms in a higher concentrated industry, stronger competition of market and higher performance will discipline managers. as Fosu (2013) claim, firms in industries with strong market competition do not have to use debt as a disciplinary mechanism and hence use less leverage.

Other determinants of industry specific levels such as the degree of technology or product innovation, and the existence of entry barriers have impacts on a firm's capital structure decisions. Maksimovic and Zechner (1991) investigate the correlation between the degree of technology and leverage, and declare that firms at the technological based industry have risk of cash flow and may have less debt ratio than firms at the technological fringe sector. This suggests that firms with higher technological ability use less debt. This result is supported by Almazan and Molina (2005) and MacKay and Phillips (2005) who observe that in industries where companies have different technologies, they will have more diversions of leverage. Furthermore, the nature of the assets (Shleifer and Vishny 1992), and industry dynamism and munificence (Kayo and Kimura 2011) are also treated as industry level impacts on capital structure.

Similar to the empirical evidence on the influence of industry concentration on capital structure is proxied by the traditional Herfindahl- Hirshman (HH) index as a measure of industry concentration, the hypothesis is that

HI1: There is a significant positive relationship between industry concentration and leverage

3.3 Country Effects

Previous research (Demirgüç-Kunt and Levine 1999; Booth et al. 2001; De Jong et al. 2008) find that capital structure variation of firm cannot only affected by factors at firm-specific level but also by factors at country-specific level. There are distinctions in the way leverage is impacted by country-specific factors even though the firm-specific factors are the same or similar (Booth et al. 2001). According to De Jong et al. (2008), factor with the country characteristics affect leverage choice through two channels. The first is the direct impact, that country specific factors determine the debt level of the firm in direct way. The second is the indirect effect, suggesting that factors in country specific levels affect the way "in which a firm's specific factors determine a firm's capital structure".

Many studies claim that more analysis needs to be done to gain insight into the effect of institutional factors on a firm's capitals structure (Desai et al. 2004; Fan et al. 2012). This study incorporates three different country specific variables including the financial system, capital market development and macro-economic conditions. The financial system is one of the factors that define if the country is market or bank based. According to Antoniou et al. (2008), the concentrated ownership of firms in market-based countries is lower, while the concentration of firms in bank-based countries is higher. Based on a perspective of agency, debt plays a disciplinary role, positing that firm leverage is higher in market-based countries. Capital market development is another factor including stock and bond market development on the debt level. De Jong et al. (2008) suggest that "when a bond market in a given country is highly developed, issuing and trading a bonds are easier". Conversely, when the stock market is developed in a given country, the aggregate leverage is lower as the broader supply of funding lowers the cost of equity. Microeconomic conditions relating to GDP and capital formation are also proved to have significant impact on leverage levels (De Jong et al. 2008; Cook and Tang 2010).

3.3.1 Financial System

A number of studies (Schmukler and Vesperoni 2001; Antoniou et al. 2008; Kayo and Kimura 2011) examine the "efficiency of different financial systems in the intermediation between saving and investment that affects capital structure variation". The comparison of bank-based and market-based models of organization is the focus of several studies. According to Schmukler and Vesperoni (2001), , banks provide the majority of credit to the economy in countries with bank-based systems. In countries based on market-based systems, firms raise funds in a capital market. The controversies surrounding the bank-based and market-based financial systems primarily relate to fewer countries. In the bank-based financial systems of France, Germany and Japan where markets have lower transparency and investor protection, banks serve as a major function in "mobilizing saving, allocating capital, overseeing the investment decision of corporate managers, and in providing risk management vehicles" (Demirgüç-Kunt and Levine 1999). In the market-based systems of the US and the UK where the market has high transparency and investor protection, "securities market shares centre stage with bank in terms of getting society's saving to firms, exerting better corporate control, and facilitating risk management" (Demirgüç-Kunt and Levine 1999).

Schmukler and Vesperoni (2001) put forward the idea that these two systems are better at providing capital for different firms. The bank-based system is better suited to establishing a long-term relationship between intermediaries and the borrower. In this situation, banks are interested in providing capital for start-up firms. As Stulz (2000) conjectures, banks are more effective in providing external funding to emerging and innovative firms that require staged financing as the bank can credibly commit to making additional capital available as the firm develop. This long-term relationship between firms and lenders has the potential advantage of insider monitoring. As Levine (2002) indicate, market-based systems are prone to offering liquid financial instruments to investors. Public markets, conversely, are better funding sources of established firms, typically those with plenty of tangible assets (Schmukler and Vesperoni 2001; Beck and Levine 2002). Therefore, an understanding of the market-based and bank-based systems' influence on the way that provide financing courses is crucial because they have direct influences that affect the sources of funds to firms (Schmukler and Vesperoni 2001; Levine 2002).

Based on the effects of financial systems, Antoniou et al. (2008) examine the factors of capital structure and express the option that the variables at firm specific level, in particular, the variable regarding with the agency cost of growth opportunities and tangibility, are more relevant for a firm's capital structure in market-based countries than for firms in bank-based countries. For example, the role of asset tangibility is expected to be more important in bank-oriented systems (France, German and Japan) than in capital market-oriented countries (the U.S and the U.K) since the demand for collateral is more pronounced in bank credit. Also, as Antoniou et al (2008) declare, firms in market-based countries are less concentrated in ownership structure, while in bank-based systems the ownership concentration is higher. Firm leverage will be higher in market-based countries, based on the understanding of the agency cost theory that debt plays an important disciplinary role against the managers' opportunistic behaviour. Empirically, there is little research which considers the effect of market or bank-based systems on leverage. The earlier studies of Schmukler and Vesperoni (2001) show that the difference between the influence of bank-based and market-based on capital structure variance is less important than other variables.

Similar to the empirical evidences of previous papers, the hypothesis is that

HE1a: there is a significant negative relationship between market-based system and leverage

HE1b: there is a significant positive relationship between bank-based country and leverage

3.3.2 Macroeconomic Conditions

There are several studies focusing on the relationship between macroeconomic conditions and capital structure variations. One of the most widely tested external macro-determinants of capital structure is Gross Domestic Product (GDP). As Bastos et al. (2009), Bokpin (2009) and Moradi et al. (2016) claim, there is a significant negative relationship between GDP and the capital structure variation of firms. Kayo and Kimura (2011) show that GDP growth has a negative relationship with debt ratio, considering GDP growth as an aggregate to the munificence of a country that is providing investors with good growth opportunities. To summarise, the boost in economic conditions and consequently growth in GDP leads to an increase in the company's profit, reducing the company's debt ratio.

Similar to the empirical evidence, the hypothesis is that

HE2: there is a significant negative relationship between GDP and leverage

The next variable associated with macroeconomics is the capital formation that is defined as the level of gross domestic capital mobilization. The variable of capital formation has an impact on corporate financial decisions since the increase in capital formation implies a more retained earnings that will be accumulated (De Jong et al. 2008). As pecking order theory suggests, leverage will decline during the expansion of economic since internal funds increase during expansion (Frank and Goyal 2003). However, the impact of this variable is not widely tested. De Jong et al. (2008) claim that capital formation has a negative effect on leverage because the capital formation mitigates the effect of bankruptcy costs on leverage.

Similar to the empirical evidence, the hypothesis is that

HE3: there is a significant negative relationship between capital formation and leverage

3.3.3 Debt Market Conditions

As a major sources of long-term capital, the development of bond market is concerned as one of the instrumental variables that determine capital structure of firms (Bolton and Freixas 2000; Kayo and Kimura 2011). In recent studies (Brigham and Houston 2012), conditions in the bond markets with short term and long term changes that can bear on a firm's optimal capital structure. For instance, a more access to bond markets can shift the leverage ratio of a company toward a higher level of debt, which results in a lower average cost of financing. Faulkender and Petersen (2005) contrast the firms which are able to raise funds from the bond market with firms that cannot, and they find that firms with boarder access to the bond market have higher debt level. This indicates a positive relationship between leverage and bond market development. This suggestion is supported by earlier research Booth et al. (2001) that "highly developed debt markets are associated with higher private sector debt ratios".

A developed debt market which facilitate the issuing and trading of public bonds may cause the higher leverage level in a country, while a developed stock market may have the opposite influence (Kayo and Kimura 2011). However, Kayo and Kimura (2011) show that bond market development has a negative effect on leverage while leverage is expected to be positively linked to bond market development. As Mittoo and Zhang (2010) explain, bond market development has influence on capital structure decision of a firm due to a potentially lower cost of debt financing and boarder accessing to debt financing. The cost of bank loans and private debt can be substantially more than the cost of debt in bond market due to the higher cost of active monitoring, information collecting, contracting, and suboptimal liquidation. These costs are suffered by borrowers, and thus, compared to firms which have broader bond market access, firms which depend on bank loan would remain a lower debt ratio.

Similar to the empirical evidence, the hypothesis is that

HE4: there is a significant positive relationship between bond market and leverage

3.3.4 Stock Market Conditions

The impact of stock market development on the capital structure choice of firms is also one of the macroeconomic determinants of capital structure that has been documented in a number of studies (Booth et al. 2001; Agarwal and Mohtadi 2004; Bokpin 2009). Welch (2004) asserts that "firms do not rebalance change in the market value of equity induced by stock returns". As Welch (2004) explains, the stock market is more important than all other factors affecting capital structure, at least in the short term. This is because, based on the assumptions of the market timing model, managers will not respond passively to counterbalance the valuation effects of market-driven factors but will pursue an active financing strategy and exploit “windows of opportunities” via equity issuance after an increase in stock price.

In line with the time-varying adverse selection interpretation, there is a negative relationship between stock price and leverage. A firm is more likely to issue equity when stock price is high and, therefore, this high stock price coincides with low adverse selection (Baker and Wurgler 2002). According to Bessler et al. (2011), if there is time-varying in the degree of information asymmetry, the magnitude of the resulting cost of adverse selection is to some extent under the firm’s control, and therefore the firm would issue shares when relatively less information asymmetry and lower adverse selection cost are expected by a firm (Lucas and McDonald 1990; Michaelas et al. 1999). Accordingly, in macroeconomic conditions, the market timing theory posits that the stock market performance has a negative impact on aggregate market leverage (Bokpin 2009). The degree of the development of stock market in a given country is defined as the stock market capitalization over the GDP (Bokpin 2009; Kayo and Kimura 2011).

Similar to the empirical evidence of market timing theory, the hypothesis is that

HE5: there is a significant negative relationship between stock market and leverage

3.4 Conclusion

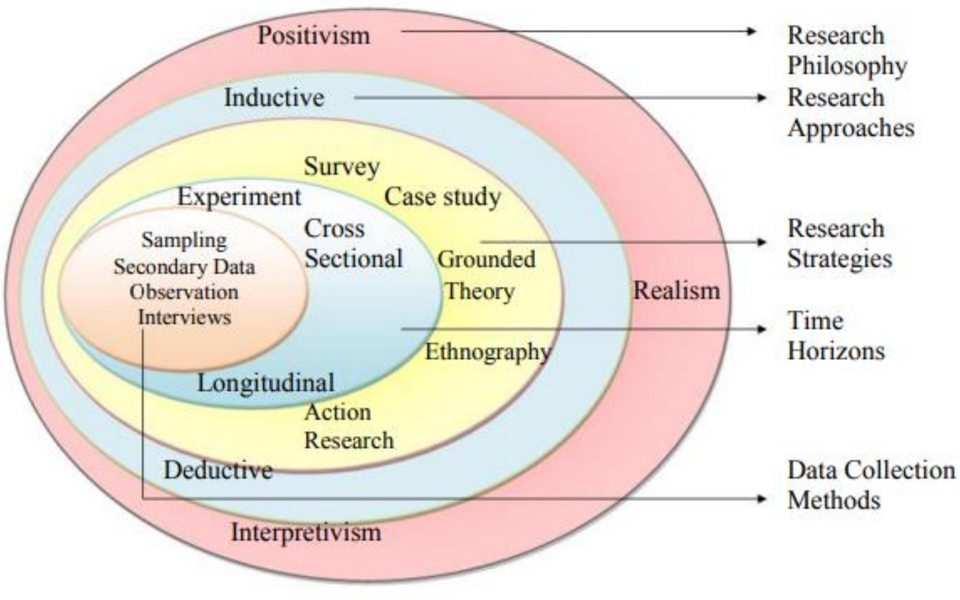
Chapter Three discusses the various hypotheses of firm, industry and country characteristics. A total of sixteen hypotheses have been selected for this research to test capital structure and its various relationship to key determinants. These hypotheses explore the relationship between the leverage ratio and firm size, growth opportunities, non-debt tax shield, profitability, tangibility, tax shield, liquidity, intangibility, the distance from bankruptcy, dividend, industry market competition, financial system, GDP, capital formation, debt market development and bond market development.

Chapter Four: Research Methodology

4.0 Introduction

As Silverman (1988) defines it, a research methodology is a general approach to studying research topics that establishes how to go about studying any phenomenon and how the research should be designed. Saunders (2013) also defines "research methodology as the theory of how research should be undertaken rather than specific techniques used to obtain and analyse data". In order to conduct research, Saunders et al (2000) develop a term for research methodology called a "research onion" to describe the different stages that need to be considered when planning an effective research philosophy. There are six multiple layers of the research onion that display the overall strategies of research methodology: research philosophy, approaches to the research, strategies to be used, the time horizon, and the data collection methods involved. These aspects of research methodology are considered in detail in this chapter.

Figure 4. 1: The Research Onion



Source: Saunders et al. (2009)

This chapter discusses the framework of the proposed methodology and the design that the research adopted in reaching the research objectives outlined in the preceding chapter. This chapter is outlined in four sections: section 4.1 describes the research paradigm and research philosophies strengthening this research. Section 4.2 discusses the data sources and data samples that are employed in this research. The descriptions of the variables including the dependent variable and explanatory variables are displayed in this section. Section 4.3 refers to the statistics and analysis methods that have been adopted to progress the data. Section 4.4 is the final section summarizing the whole chapter.

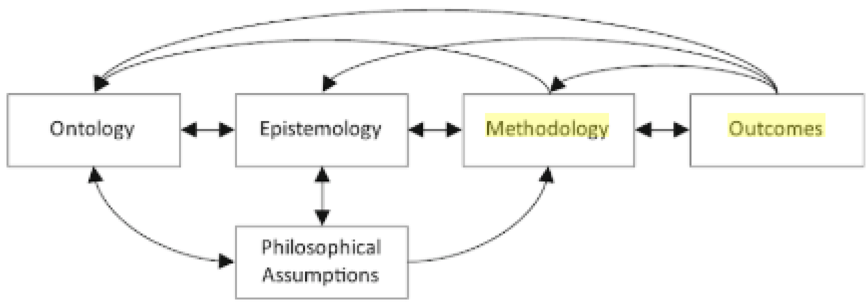
4.1 Research Philosophy

According to Bryman (2016), "a research philosophy refers to the fundamental set of beliefs concerning the nature of the reality being investigated". The research philosophy defines assumptions constructed about the phenomena of interest and thus predefines the ontological (i.e. realism versus nominalism), epistemological (i.e. positivism versus post-positivism or anti-positivism) and methodological scope of the study (Guba and Lincoln 1994; Lewis and Ritchie 2003). Morrison-Saunders and Hobson (2013) also suggest that the investigation philosophy implies the knowledge development and the nature of such knowledge. Therefore, a research with a philosophical stance, to some extent, helps the researcher to determine the assumptions created for a particular research (Flick 2011; Bryman 2012).

It is crucial to identify the extensive range of different philosophical assumptions. According to Burrell and Morgan (2017), the ontology and epistemology are two major philosophical assumptions that are widely used by social science research. Ontology including realism and nominalism is the philosophical study of nature of being or existence, and the epistemology including positivism and anti-positivism is the study of the theory of knowledge, considering the nature, scope and limitations of it (Walsh 2014). These two research philosophises are described in this section. There is another research philosophy, axiology, which is the study of quality, concerning with ethic and value. As this data analysis is dependent on quantitative method, axiology is not presented in this section. The relationship between the branches of research philosophies and methodology is displayed in Fig. 4.2.

According to Marsh and Furlong (2002), researchers' orientation to their research is shaped by their ontological and epistemological positions. Researchers distinguish and acknowledge their ontological and, epistemological position and accordingly, should be able to defend these positions against the critiques of others.

Figure 4. 2: The relationship between philosophy, methodology and outcomes



Source: Adapted from Schlegel (2015)

4.1.1 Ontology

Ontology is concerned with philosophical assumptions about the nature of reality (Easterby-Smith et al. 2008; Saunders et al. 2009). There are two positions that are identified by research regarding realism and nominalism. According to Holden and Lynch (2004), realism argues for the existence of a mind-independent reality while nominalism challenges this assumption and proposes the social world to be a product of labels and constructs to provide a basic reality structure. In brief, reality is a product of human interaction and collective actions, whereas nominalism is the world of social construction (Neve, 2015). In this situation, a study with ontological nominalism is required to recognize a precise objective based on real structure.

In the literature on research philosophy, a wide range of various philosophical positions and paradigms are discussed. As Niglas (2001) defines it, positivism and positivism are two big paradigms. Monette et al. (2013) recognise between positivist and non-positivist approaches. Saunders et al. (2009) contrast positivism, realism and interpretivism. Therefore, "positivism and interpretivism are briefly contrasted as two extreme poles on a continuum of philosophical direction" (Schlegel 2015).

According to Sharma (2011), Monette et al. (2013) and Hammersley (2010) and Schlegel (2015), "positivism is based on the ontological assumption of objectives, such as the notion that there is an externally existing world and things exist independently of people's beliefs and perceptions about them". Based on this proposition, positivism in research as is used in the social sciences, usually refers to a philosophical orientation that applies the method of the natural science to the social sciences (Rosenberg 2018). Positivist research aims to build up "casual explanation in the form of universal law by means of controlled observation and measurement and deductive theory testing" (Rose et al). Thus, it largely relies on quantitative method and research design such as experiment, survey and statistical analysis (Eriksson and Kovalainen 2008). Another important paradigm, interpretivism subsumed under ontology, is classified as a form of idealism. It believes that social reality is "created from interpretation of human perceptions and the exchange of meanings during a social interaction process" (Monette et al. 2013; Schlegel 2015).

4.1.2 Epistemology

Collins (2017) describes "epistemology as the study of the theory of knowledge, including the nature, scope and limitations of it". It is primarily concerned with propositional knowledge as it exists at the present moment in social reality. More diverse explanations of epistemology are found in the relevant literatures. Gill and Johnson (2002) define epistemology as "the branch of philosophy concerned with the study of the criteria by which we determine what does and does not constitute warranted or valid knowledge". Moreover, Saunders et al. (2009) and Bryman (2007) claim that epistemology concern the question of "what is regarded as acceptable knowledge is a discipline".

According to Burrel and Morgan (2006), epistemology is divided into philosophical aspects of positivism and anti-positivism. Positivism implies "the understanding of universal laws and the causality between variables". For social research, positivism uses deductive hypotheses for knowledge acquisition and testing by measuring reality. Research with positivist viewpoint should be objective and hence attempt to produce generalizable results (David and Sutton 2011). Anti-positivism, conversely, is loosely comprised of those approaches "which utilise qualitative research phenomenology, interpretivism or social constructionism, which represents the understanding of subjective meanings that the particular individuals involved create" (Burrel and Morgan 2006; Wang 2015).

Interpretivism, a form of epistemological philosophy, rejects the positivist assumption and integrates views from different intellectual traditions, "assuming a critical position towards the positivist idea that the model of the natural sciences can be applied to the social world" (Saunders et al. 2009; Monette et al. 2013; Schlegel 2015). According to Burrel and Morgan (2006), humans actively interpret the social world around them and do so within a specific socio-cultural context. Thus, understanding of the social world "requires an understanding of it from the point of view of the people directly involved in the social progress". This implies that the "interpretivist gains a deeper understanding of human thinking and behaviour and interprets people's action from their point of view" (Bryman et al. 2008). Therefore, interpretivism adopts an approach to acquiring knowledge which largely depends on developing an understanding of phenomena through deep-level investigation of those phenomena (Remenyi et al. 1998; Saunders et al. 2012). According to Saunders et al (2009), interpretivism does not suggest generality of outcomes, but rather provides results that are limited to a certain context.

Given that this research is based on the study of the relationship between capital structure and variables of specific levels of firm, industry and country, the positivism paradigm which relies specifically on scientific evidence, such as experiments and statistic, is primarily applicable.

Table 4. 1 Positivism and interpretivism: Ontology, Epistemology and Methodology, adapted from Carson et al. (2001)

Issue	Positivism	Interpretivism
Ontology	**Nature of "being"/ nature of the world** . Direct access to real world Reality . Single external reality	**Nature of "being"/nature of the world** . No direct access to real world Reality . No single external reality
Epistemology	**Ground of knowledge/relationship between reality and research** . Possible to obtain hard, secure objective knowledge . Focused on generalization and abstraction . Thought governed by hypotheses and stated theories	**Ground of knowledge/relationship between reality and research** . Understood through 'perceived' knowledge . Focused on the specific and concrete . Seeks to understand specific context
Methodology	**Focus of research** . Description and explanation **Role of researcher** . Detached, external observer . Clear distinction between reason and feeling . Aim to discover external reality rather than creating the object of study . Strive to use rational, consistent, verbal, logical approach . Seek to maintain clear distinction between fact and value judgements . Distinguish between science and personal experience **Techniques used by researchers** . Formalized statistical and mathematical methods	**Focus of research** . Understanding and interpretation **Role of researcher** . To experience what they are studying . Allow feelings and reason to govern action . Partially create what is studied, the meaning of the phenomena . Use of pre-understanding . Distinction between facts and value judgements less clear . Accept influence from both science and personal experience **Techniques used by researchers** . Non-quantitative

4.2 Development of Research Design

In the thesis, the research questions are the starting point of designing the framework and therefore a combination of a descriptive and quantitative approach are chosen to answer the research question which was introduced in Chapter one: " what is the determinants of capital structure", " are the capital structure determinants of UK and China SMEs driven by similar factor" and "is the size and structure of financial market an important factor in explaining any cross-country differences on SME capital structure".

4.2.1 Research Approach

As discussed in first section, the research based on a broadly positivist paradigm. Collis and Hussey (2009) point out that a positivist study is more likely to be concerned with ensuring that concept can be progressed, which hypothesis can be measured. Due to the nature of the objective being researched and sufficient literatures identified, the most appreciate approach in the research is an deductive approach. This method allows studies use a theory to develop a proposition and then design a research framework to test the proposition (Collins, 2010). In previous chapter, there are sixteen hypotheses generating from past studies that are tested in chapter five. As explained by Collins (2010), the explanation in causal relationship between variables is one of the important characteristic of research approach of deduction.

4.2.2 Research Strategy

The strategy identified is the "general plan" of how the research questions is answer (Saunders et al, 2003). In this thesis, an experiment approach is seen to be the strategy that undertaken to answer research questions. The reasons for this is that experiment strategy is usually associating with the deductive approach. Due the highly nature sciences of this research, a deep analysis of collected quantitative data by using descriptive and inferential statistics is adopted to answer the research questions. As pointed out by Hakim (2000), the purpose of an experiment is to study causal links; whether a change in one independent variable produces a change in another dependent variable. In the research, the links between multiple variables based on two sample set are progressed and the size of the change between variables are also considered and discussed. These needs, as well as the use of the deductive approach identified in previous section, suggested that an experiment approach is the appreciate strategy to take in this case.

The information required is gathered using a longitudinal approach. This is due to the data sample sets comprise both cross section and time series. As Menard (2002) states, longitudinal research designs can be showed by contrasting them with cross-sectional research designs. In cross-sectional design, data are collected on one or more variables for a single time. In longitudinal research, data are collected on one or more variables for two or more time period. In the research, data regarding with variables are collected for different times for different cases. This allow the measurement of change and explanation of change in variables. In addition to this, based on longitudinal strategy, a more in depth information can be gathered by facilitating a large number of data. This support the research aims by providing broader knowledge of context, allow more precise results to be made. Figure 4.3 shows the overview of research design in this research.

Figure 4. 3: Overview of Research Design

Source: Author

4.3 Sample and Data Description

This study uses the annual reports of companies over a period of 10 years from 2007 to 2017 by utilizing the FTSE AIM (Alternative Investment Market) All Share index of 780 firms and the SZSE (Shenzhen Stock Exchange) SME Price of 800 firms as the sample space for this study. The Alternative Investment Market (AIM) is a market regulated by the London Stock Exchange but with less demanding rules than the main market of the FTSE All Share Index. It is the combination of the primary 50 companies (FTSE AIM UK 50 Index), the second largest 100 companies (FTSE AIM 100 Index) and the FTSE AIM All-Share Index in the all range market capitalisation. Thus, the sample is based on listed firms of varied range but mostly medium listed firms. In the UK, the aim of the AIM is to provide an easy route to market for smaller companies but it has also attracted larger companies searching for a looser regulatory ride (Stevenson, 2012). In addition, the SZSE SME Price Index set up the Small and Medium-Size (SMEs) listed firms with lower entry barriers. The FTSE AIM All Share and the SZSE SME Price are choice samples for this study due to the international characteristic of capital structure data.

Data in this study consist of heterogeneous firm specific, industry specific and country specific levels for the period 2006 to 2017. For the firm specific level, this research chose firms from all sectors as listed on the FTSE and SZSE. To consistent with previous literature which discussed the need for separation of financial firms and non-financial firms, this research shows results of the sample space including and excluding financial firms (Rajan and Zingales 1995). The sample firms in the FTSE are divided into sectors as defined by the Industrial Classification Benchmark (ICB). The firms in the SZSE follow the standard of the CNINFO Industry Classification Benchmark. These classifications aid in the sectoral analysis that the research aims to undertake in this thesis.

The use of the sample years 2007 to 2017 in the study is to capture all the available data disclosed by these listed firms. The SZSE SMEs Price Index establish was formally established with a ceremony at the Shenzhen Stock Exchange in 2004. The gap between the years 2004 to 2006 provides at least three years of available data. As suggested by De Jong et al. (2008), the selection of this time-period "involves a trade-off between the number of countries that can be included in the study and the availability of enough firm-specific data". Moreover, as Adrian and Shin (2010) summarize, leverage increases when a subprime boom exists. The financial crisis of 2007 was the opposite of a subprime boom and that was one of the reasons why firms changed their capital structure. The sample year in the study aids in the analysis of capital structure change after the financial crisis.

The sample data is constructed in the following manner. Firstly, as Fama and French (2002) show, firms in the financial sector (banks, insurance companies and investment trusts) are removed from the sample set. This is because financial services industries have the potential bias associated with heavy regulation. Secondly, all firms with missing financial data for variables in the regression model during the sample period are withdrawn. This aims to address a relatively balanced panel data analysis that avoids the multicollinearity problem among variables and increases the degree of freedom and efficiency. Due to these considerations, firms are chosen that have at least three years continuous time series observations during the period 2007-2017, resulting in a final sample of firms and observations. Table 3.4 and Table 3.5 below illustrate the industries and the number of firms on the FTSE AIM All Share index and the SZSE SMEs Price index under each sector, their total space of the net market capitalisation in GBP Million, and the average price-earnings ratio.

Table 4. 2 Summary of FTSE AIM All Share Companies by ICB Code

		FTSE AIM All-Shares	
ICB Code	ICB Industry	No of Firm	Market Cap (£ m)
0001	Oil and Gas	101	7801.64
1000	Basic Materials	132	6241.04
2000	Industrials	158	17734.67
3000	Consumer Goods	56	12023.41
4000	Heath Care	87	13148.06
5000	Consumer Services	101	19172.97
6000	Telecommunications	9	1,814.73
7000	Utilities	10	462.94
8000	Financials	153	19,927.59
9000	Technology	121	12,927.45
Total		929	111,319.68

Source: LSE, FTSE AIM All share constituents in May, 2018

Table 4. 3 Summary of SZSE SMEs Board Companies by CNI Code

		SZSE SME Board	
CNI Code	CNI Industry	No of Firm	Static PE
C01	Energy	15	19
C02	Materials	169	23.6
C03	Industrials	241	30.59
C04	Consumer Discretionary	161	29.35
C05	Consumer Staples	66	31.82
C06	Heath Care	65	42.5
C07	Financials	22	14.03
C08	Information Technology	139	34.83
C09	Telecommunication Services	25	45.33
C10	Utilities	8	16.84
Total		911	

Source: CNI, Shenzhen Market SME Board in May, 2018

4.3.1 Data Sources

This study uses secondary data sources to collect economic and financial accounting data for analysing. Following Ozkan (2001), Harvey et al. (2004) and Antoniou et al. (2008), the data source for leverage and firm-specific variables analysis in the study is the Datastream database which provides both financial performance data on firms and the market value of shares for quoted firms in a number of countries. Data on country-specific variables are collected from a variety of sources, mainly from World Development Indicators, UK Office for National Statistics, China State Statistical Bureau and the Financial Structure Database of the World Bank (De Jong et al. 2008). The additional country-specific variables such as GDP growth rate are taken from the Datastream and Thomson One database.

4.3.2 Dependent Variables

The existing literature investigates firms' capital structure as a multidimensional construct dependent variable that is used to appraise a firm's financing approach and financial performance capacity (Shleifer and Vishny 1992; Kochhar 1996; Cassar and Holmes 2003; Lemmon and Zender 2010; Margaritis and Psillaki 2010). Following the studies of Titman and Wessels (1988), Berger et al. (1997) and Lemmon et al.

(2008), capital structure in the research is measured by using both accounting based value and market based value. The distinction between these two general categories of variable remuneration is important for the design of incentives in the research as they represent different aspects of capital structure of firms (Berger et al. 1997; Gentry and Shen 2010; Verbeke and Merchant 2012).

Early empirical studies (Rajan and Zingales 1995; Cook and Tang 2010) consider the book value of leverage ratio as the main measure of capital structure. According to Nakano and Purevdorj (2014), book value which is based on accounting data is better suited to represent short-term reference value as it interprets historical information. Furthermore, a measure of leverage based on accounting data is widely used due to easy accessibility and availability from financial statement, especially for the data of quoted firms. However, investors are more concerned about the market value of a company's debt and equity even though the accounting based measures are important (Brigham and Houston 2012), because leverage ratios based on market value are likely to explain long term trends in financing decisions (Nakano and Purevdorj 2014). Furthermore, the ability of accounting based value to explain and estimate the economic or business event and market reaction is limited (Hall et al. 2007; Chattopadhyay et al. 2016); market based models have more explanatory power than strictly accounting based models (Hillegeist et al. 2004; Welch 2004) and, therefore, capital structure should be based on the future market value.

A distinction can be made between the market value and book value of debt and equity when measuring capital structure (Gossy 2008a). Book value, as Getzmann et al. (2014) state, shows a better reaction to the manager's target capital structure. Market value model is unable to reflect fundamental alternations caused by a firm's decision making as it is more concerned with market reaction which does not directly affect the firm (Frank and Goyal 2009; Uysal 2011; Hovakimian et al. 2012). Bowman (1980) and Titman and Wessels (1988) state that "the misspecification arising from using the book value measure is fairly small". Secondly, "values of the variables of capital structure can be measured as a "point-in-time-value" at the end of the research period or by an arithmetic average of the annual value over the period of the research" (Gossy 2008a). The advanced measurement in studies of Barton and Simko (2002) is "capable of capturing the target capital structure mix of the firm that is independent of random year-to-year fluctuations". Despite the criticism for and against the use of accounting-based models, most of the papers use several measures to account for both the market and the book value of capital structure.

Previous studies use either gearing (i.e. debt over equity), or leverage ratio (i.e. debt over the sum of debt and equity) to empirically measure capital structure. According to Gossy (2008a), the formula for "leverage ensures that the measure is constrained within the range zero (0) to one (1), while that for gearing guarantees a non-negative value". Rajan and Zingales (1995) argue that the most relevant measure depends on the objective of the research. For instance, when a study analyses the association between agency problem and debt, the appropriate measure of leverage may be the total debt of the firm. Nevertheless, if the study measures the factor of financial distress to debt, the interest coverage ratio may be relevant. According to Hooy et al. (2013), the proxy to capital structure should have a clear-cut definition relating to how the firm is financed. Other studies define leverage to include debt-to-total assets, debt-to-net asset, debt-to-capitalization and total liabilities-to-total assets, measures in both book and market based models (Titman and Wessels 1988; Chung 1993).

Following De Jong et al. (2008), Degryse et al. (2012) and Titman and Wessels (1988), the dependent variables of this research are the measures of short-term leverage and long-term leverage which are measured as the ratio of total short-term debt to total firm value and ratio of total long-term debt to total firm value. For long-term debt, firm value is the sum of total long-term debt and firm equity market value. For short-term debt, firm value is the sum of total short-term debt and firm equity market value. Dependent variables in the research are grouped into short-term leverage and long term leverage rather than an aggregate measure of total leverage.

As De Jong et al. (2008), claim, as short term debt consists largely of trade credit which is influenced by different determinants, the examination of total debt may generate results that are difficult to interpret. However, Titman and Wessels (1988) argue that "small firms may be more leveraged than large firms and may borrow short term loans rather than long-term due to the lower fixed costs associated with this alternative". The sample space of this research covers the companies of the FTSE AIM All Share and the SZSE SMEs Price Index, which primarily offer an easy route to market for smaller companies. Besides, short-term debt is a significant variable in examining the presence of agency cost and information asymmetries. Thus the inclusion of short-term debt in the composition of capital structure aid in the sectional analysis that this research aims to make. As Titman and Wessels (1988) indicate, the equity value of debt ratio is scaled by both book value and market value that may then make it possible to separate the impact of capital structure suggested by theory.

4.3.3 Independent variables

Theoretical and empirical studies have shown a number of different financial management performance measures in investigating the determinants of capital structure. From the review of this literature on capital structure determinants, particularly of those studies focusing on quoted SMEs firms, this study selected ten (10) variables on a firm specific level.

As discussed in Chapter Two, the literature review, there are several variables arising from theoretical analysis that are associated with trade-off theory, pecking order theory, signalling theory, agency cost theory and market time theory. These variables have been empirically examined and considered by previous studies as the main proxies to determine the capital structure of a firm. These are: 1) Firm size, which comprises elements such as total assets, total sales and market capitalization (Lemmon et al. 2008). The size of the firm can be measured by the log of the firm's total asset; 2) Growth opportunities, which is the investment or project with potential opportunity to grow significantly, acquiring profit for the investor (Myers 1977). This is expressed by the market to book value (price-earnings ratio); 3) Non-debt tax shield (NDTS), which comprises of investment tax credit, advertising expenses and others that cannot claim allowable deduction (DeAngelo and Masulis 1980). It can be measured as the depreciation of fixed assets by total assets; 4) Profitability, the ability of a company to use financial resources to generate revenues in excess of expenses (Titman and Wessels 1988). It is illustrated as earnings before interest and taxes (IBIT) divided by total assets; 5) Asset tangibility (Tang), the percentage of property, plant and equipment (PPE) within a company (Bevan and Danbolt 2002; Antoniou et al. 2008). It is described as the ratio of PPE to total assets; 6) Effective tax rate (EATR), which involves personal tax on capital income having the advantage of deduction in tax (Fan et al. 2012). It can be considered as the total defined as tax/earnings before tax; 7) Liquidity, which is also defined as current ratio, including cash, market securities, and inventories. It is measured as the ratio of current assets divided by current liability; 8) Product Uniqueness, which is an effective method for attracting consumers and inciting them to purchase the company's product, relating to the asset tangibility of a company. It can be the ratio of research and development (R&D) expenditure over sales. Research and development (R&D) is the capital that the company spent on innovation of new products and services each year. It is crucial for survival and competitiveness of firms with specific industries. According to Antoniou et al. (2008), research and development expense is a common proxy for both the firm's tangibility and debt-substitute to benefit from the tax-shield (DeAngelo and Masulis 1980); 9) Distance to bankruptcy or default risk, which explains the "distance between the expected value of the assets of the company and the default point and then splits this difference by an estimation of the volatility of the company" (De Jong et al. 2008). The research uses Z-score by Altman (1968) as the proxy of distance to bankruptcy. For empirical analysis of capital structure in practice, there is a determinant associated with specific characteristics that has been examined and 10) Dividend pay-out ratio, which should be determined by its impact on the shareholder value. It stands for the sustainability of a company's dividend and the potential for it to grow. It is a measure of the percent of a company's earnings that are paid out as dividend.

4.3.4 Control Variables

Following most of the literature, this study includes variables that indirectly to affect the short-term debt ratio and long-term debt ratio of firms in the regression models. To review the findings and discussion in past studies (Bancel and Mittoo 2004; Frank and Goyal 2009; Psillaki and Daskalakis 2009; Kayo and Kimura 2011; Degryse et al. 2012), six variables have been employed as control variables that have a significant impact on the overall firm's capital structure decisions as they "provide a mean to control for variation in variables that are correlated with both the violation event and the propensity to issue debt" (Roberts and Sufi 2009). Using these variables also enables this study to ascertain a comparative analysis of the influences on capital structures of a firm.

This study groups the control variables according to industry characteristics and the economic environment. Regarding the variable of industry characteristics, this research uses the traditional Herfindahl-Hirschman (HH) index to analyse the influence of industry concentration on a firm's leverage. Kayo and Kimura (2011) find that factors of industry play a significant role in determining a firm's leverage in countries that include the UK and China.

Firms in concentrated industries significantly benefit from leverage whilst firms in less concentrated industries are more likely to have adverse effects of leverage (Opler and Titman 1994). Thus, analysing the relevance of industry characteristics and capital structure is included in the research. According to previous literature (McEachern 2011), the Herfindahl-Hirschman index measures "all firms based on the distribution of the firm's sales across its various business segments".

In global perspective, the study on capital structure has at least five country variables, which are stock market development, bond market development, financial systems, GDP growth and capital formation. As Chui et al. (2002) emphasize, factors of country macroeconomic and even cultural differences may have a significant influence on capital structure. De Jong et al. (2008) present evidence that the more developed a country's bond market, the larger the leverage of the firm. Nevertheless, a firm's leverage will be lower when the stock market is developed because the boarder sources of financing decreases the cost of equity. The study tests these two effects of stock market and bond market on a firm's capital structure choice, hypothesising that the more developed the stock market of a country, the less the firm's debt ratio and the more developed the bond market of a country, the higher the firm's debt level.

In addition to stock market and bond market development, the study also follows Kayo and Kimura (2011) to test the variable of financial systems that determine whether the country is market or bank based. According to Antoniou et al. (2008), firms in the country where is market-based have a lower concentrated ownership structure, while firms in bank-based countries have a higher ownership concentration. As the agency theory which proposes a significant disciplinary role of debt in manager's opportunistic behaviour is important for analysing a firm's financing choice, this research uses financial systems as factors to assume that firm leverage is higher in market-based countries. Following previous studies, the financial system is a dummy variable in the study equal to 1 if the country's financial system is market-based and zero if it is bank-based.

This study also includes the role of gross annual capital formation (CAPITAL) that can have significant impact on capital structure decision of firms. De Jong et al. (2008) claim that, "with a higher level of available funds from capital formation, high profitability and liquidity further decrease the use of debt among domestic firms". Firms in the countries which have a better environment and healthy economic conditions, are given multiple source of financing. Additionally, an increase in domestic capital formation implies more opportunities to accumulate and more retained earnings to be accumulated. The indirect effect of domestic capital formation, eventually, occurs when factors of macroeconomic and institutional features influence the determinant of leverage (Delcoure 2007; De Jong et al. 2008; Cook and Tang 2010). GDP growth is the fourth country as GDP growth is an important prerequisite to the capital market development (Booth et al. 2001; Psillaki and Daskalakis 2009; Fan et al. 2012).

Table 3.4 below presents the construction of dependent variables, independent variables and control variables. In this table, the name, description and measures of the variables based on the firm specific level, industry specific level and country specific level are presented in detail. This list of dependent variables, independent variables and control variables are based on based on Kayo and Kimura (2011) Titman and Wessels (1988), Booth et al. (2001)

Table 4. 4: Summary of Dependent Variables Used in the Regression Model

Variables	Acronym	Description
Dependent Variables -Leverage (Market value and Book value)		
Long-term debt		
Market leverage	LTDMV	Ratio of long-term debt to total firm value, where total firm value is the sum of long term debt and market value of firm equity
Book leverage	LTDBV	Ratio of long-term debt to total firm value, where total firm value is the sum of long term debt and book value of firm equity
Short-term debt		
Market leverage	STDMV	Ratio of short-term debt to total firm value, where total firm value is the sum of short term debt and market value of firm equity
Book leverage	STDBV	Ratio of short-term debt to total firm value, where total firm value is the sum of short term debt and book value of firm equity

Independent Variables (Firm Level)

Firm Size	SIZE	Log of firm's total assets
Growth Opportunities	GROWTH	Market to book value
Non-debt Tax shield	NDTS	Deprecation of fixed assets by total assets
Profitability	ROE	Earnings before interest and taxes (IBIT) divided by total assets
Asset Tangibility	TANG	The percentage of property, plant and equipment (PPE) within a company
Effective tax rate	TRATE	Total defined as tax/earnings before tax
Liquidity	LIQUIDITY	Current assets divided by current liability
Product Uniqueness	InTANG	Research and development (R&D) expenditure over sales
Distance to bankruptcy	DBKRT	Z-score
Dividend Pay	DIV	Dividend payout ratio: Dividend pay/firm's net income

Control Variables

Industry	HH	Market concentration: Herfindahl-Hirschman index
GDP Growth	GDP	Annual growth of gross domestic product
Capital Formation	CFMT	Average of annual gross capital formation as a proportion of GDP in each country
Bond Market	BOND	Ratio of private and public bond market capitalization to GDP
Stock Market	STK	Ratio of Stock market capitalization to GDP

4.4 Data Analysis Method

This section aims to briefly describe the analytical method for addressing the study. According to Gacitúa-Marió and Wodon (2001), a methodological approach for accessing research include a theory on how a research question can be achieved. This research method is a way of implementing research design that included collecting, organizing and analysing data. Andrew et al. (2011) state that specification of the data analysis method and strategy made by a particular study is a key task of the research design process which helps to connect the research question and objective. In a word, data collection and analysis method of analysis is unique to the research project.

The process of data analysis starts by collecting raw data from various data sources with secondary data sources. The second process is transforming raw data into meaningful information with the application of analytical method that can be managed for purposes of planning, decision making, evaluation and audit (Hinton 2006). To obtain the findings, it is essential to select the most suitable method of data analysis to achieve the research objectives. Therefore, this research set out several research objectives for analysing data depending on the research questions.

Firstly, to investigate the impact of characteristics of firm, country and economic level on the capital structure in various industries from 2007 to 2016. Secondly, to examine the correlation between capital structure and factors affecting it in the form of linear or non-linear regression. Finally, an improvement in the financial environment can play a role of mediation in creating the context to make better relations between a firm's specific level determinant and the capital structure decision. Then, to understand the role of mediation in the relationship between corporate capital structure and economic determinants is another objective (e.g. financial system).

This study follows the process of descriptive statistics, bivariate data analysis and multivariate data analysis to answer research questions.

4.4.1 Descriptive Statistics

The first step in achieving the objectives described above is to get an insight into the use of descriptive statistics to aid analysis of data from an elementary viewpoint. According to Zikmund et al. (2013) and Collis and Hussey (2013), descriptive statistics are the statistical procedures used to describe the main features of the sample data for quantitative items. This statistical procedure describes the relationship between variables in a sample or population through the measures of central tendency (i.e. mean, mode and median), the variability of the data relative to position and relationship. According to Filler and DiGabriele (2012), "descriptive statistics attempts to summarize a data set quantitatively rather than being used to support inferential statements about the population that the data are thought to represent". As Ali and Bhaskar (2016) state, the formal analysis are generally along with descriptive analysis when it presented in the study, particularly when data analysis draws its main results with use of inductive statistical analysis.

4.4.2 Bivariate Analysis

In univariate analysis, there is only one variable is analysed at a time. In bivariate analysis, the analysis of a relationship between two variables or parameters (called x and y) is described at the same time (Comuzzie et al. 1997). Parameter x is generally defined as the independent while y is identified as the dependent variable. The method of bivariate statistics describes the "strength of the relationship between the two variables, either by a single parameter such as Pearson's correlation coefficient for linear relationships, or by equation obtained by regression analysis" (Trauth et al. 2006). As Trauth et al. (2006) explain, the equation which describes the relationship between x and y is can be used to estimate and "predict the y-response from arbitrary x's within the range of the original data value used for regression". This is especially importance if one of the two parameters is difficult to measure. Hence, the relationship between the variable of x and variable of y is mainly predicted by regression analysis on data with a small training set.

The study uses Pearson's correlation in estimating the magnitude of the linear relationship by calculating a regression analysis equation. According to

Randolph and Myers (2013), Pearson's correlation coefficient, or Pearson's r ranges from -1 to +1, signifying the value between a perfect positive linear correlation and a perfect negative linear relationship. It is important to recognize that the correlation coefficient of 0 means no linear relationship. The further the coefficient is from 0, the stronger the association of the variables x and y. To summarize, the closer the value of the coefficient is to +1, the stronger the positive direction between two variables. "The closer the value of the value is to -1, the stronger the negative direction". The closer the value is to 0, the weaker the link between variables (Tavakoli 2012). The formula for Pearson's correlation display is as below:

$$r = \frac{\sum_{i=1}^{n}(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^{n}(X_i - \bar{X})^2}\sqrt{\sum_{i=1}^{n}(Y_i - \bar{Y})^2}}.$$

where Xi is the value of the variable of the observation. Yi is the value of the dependent variable for the i^{th} observation; $\bar{X}$ is the mean value of the independent variables, $\bar{Y}$ is the mean value of the dependent variables; n is the number of observations in the sample (Anderson and Carverhill 2007). In regression model, if there is an established correlation between X and Y, it may or may not be because X influences Y or vice versa. The study also selects the correlation matrix to test the multicollinearity problem through the inclusion and exclusion of variables in the model.

4.4.3 Multivariate Analysis

When the observation involves three or more variables at a time, a multivariate technique is used to examine those sets of variables. The multivariate analysis consists of a collection of methods that aims to describe the mutual relationship between the given variables where the independent variables explain one or more of the dependent variables (Rencher and Christensen 2012). In this form of analysis, all the independent variables may be represented by continuous data or, alternatively, represented by mixed continuous and nominal data (Krzanowski 2000; Neelankavil 2015).

The multivariate analysis involves the format of multiple regression, discriminant analysis and factor analysis (Schuerman 2012). Regression analysis is used in this research because it allows the investigation of the relationship between capital structure and factors affecting capital structure (e.g. firm specific level, country specific level) to be described in a multi-dimensional approach. According to Wang (2011b) , regression analysis involves multiple possible causes and the multivariate analysis which considers joint impact of multiple causes aids in accessing the overview maps.

4.4.3.1 Panel Data

Panel data is a form of longitudinal data which consists of a cross-sectional dimension with the subscript of i as an indicative sign and the time series dimension with a subscript of t containing repeated observations of a selection of variables (Pedace 2013; Cuadras and Rao 2014; Biorn 2016). According to Hsiao (2007); Harris and Sevestre (2008), panel data of econometrics is one of the most exciting recent developments in the field as analysis of panel data has the major advantage of "double dimension". This enables research to account for unobservable factors as long as these factors can be captured during a fixed time. It is noted by past studies (Hsiao 2007) that panel data analysis provides more accurate inference of model parameters that improve the efficiency of econometric estimates in the case where time-series tend to infinity ($T \rightarrow \infty$). Panel data has more degrees of freedom and sampling variability than cross-sectional data with panel T=1 or time series data which with panel N=1 (Hsiao 2007). Second, according to Hsiao (2007), panel data analysis provides more capacity for capturing the complexity of behaviour than does a single cross-section or time series data through controlling the impact of omitted variables and uncovering dynamic relationships. This form of analysis allows examination of the effects of missing and unobserved variables from the explanatory variables (MaCurdy 1981; Matyas and Sevestre 1996; Andreß et al. 2013). Also, it simplifies the computation and statistical inference associated with nonstationary time series analysis by "invoking the central limit theorem across-sectional units to show that the limiting distributions of many estimators remain asymptotically normal" (Levin et al. 2002; Hsiao 2007).

A widely used panel data model, according to Hsiao (2007), is to "estimate the effects of observed explanatory variables x, are identical across cross-sectional unit i, and over time t, while the effects of omitted variables can be decomposed into the individual-specific effects μ_i, time specific effects λ_t, and individual time-varying effects, $\delta_{it} = \mu_{it}$", as follows:

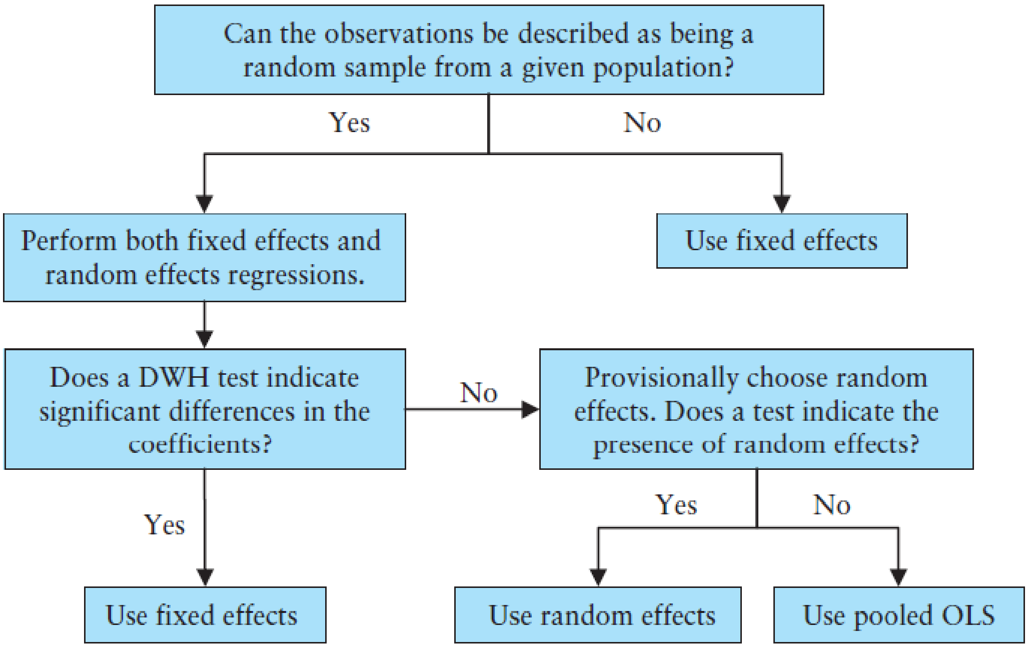
$$Y_{it} = a + x'_{it}\beta + \mu_i + \lambda_i + \varepsilon_{it}, i = 1 \ldots., N \; and \; t = 1 \ldots \ldots, T$$

where i denotes the cross-section dimension regarding space such as industries, countries and regions, and t is the time series dimension of year, month, quarter and daily. In this linear regression model, x_{it} is a vector of observations K explanatory variables, β is a k vector of unobserved coefficients. This equation can be estimated using the approach of $\varepsilon_{it} = \mu_i + \varepsilon_{it}$ or $\varepsilon_{it} = \mu_i + \lambda_i + \varepsilon_{it}$.

Various types of panel data analysis are estimated among relevant studies. Balanced panel data, in which the same individual is observed in all periods under consideration, is one of the most popular panel data analysis. The coverage of balanced panel data sets can be described as $i = 1, \ldots.., N; t = 1, \ldots.., T$ where i is the subscript for the unit of observation and t is the subscript for the time-period, and one sample contains N units and T time-periods. The second category is unbalanced panel data analysis which presents non-equal unit observations in all periods. For instance, unbalanced panel data at firm level may have only one or two annual observations available for particular firms in time. According to Andreß et al. (2013), "regression models for unbalanced panel data are considered as extensions of regression models for balanced panel data. All statistical software packages which can estimate panel models can also deal with unbalanced data". The panel data analysis is performed as either a random effects model or fixed effects model. Whether random effects or fixed effects is econometrically more appropriate primarily depends upon the correlation of the individual effects with regressors. Thus, to identify whether the cross-section effects of each individual are constant, fixed or random is the first objective in this section.

To select an appropriate model, the study refers to Dougherty (2011) who proposes a panel data selection technique (Figure 3.6). This graph illustrates in which circumstances a particular model should be followed. The selection of the model is decided after the utilization of statistical tests and all the models are discussed in the next sections.

Figure 4. 4: Choice of Regression Model For Panel Data



Sources: Adapted from Cuong and Canh (2012)

4.4.3.1.1 Pooled OLS Regression

In panel data analysis, the pooled OLS regression is one of the typical regression models which can be used if observations are independent. As Mertens et al. (2016) explains, pooled means treating all individual years or combinations of unit and time data as unique and independent observations. In other words, there is no distinction between cross-section and time-series that combines all the data together. Thus, this combination can resort to normal OLS (ordinary least squares) estimation as in a cross-sectional analysis. In pooled OLS regression, both the intercept and the slope parameters are assumed to be homogeneous. Under certain assumptions, the pooled OLS estimator can be used to obtain a consistent estimator of β, by adding data over the period t and cross-section i into a single long regression model. The pooled OLS model is written as follows:

$$y_{it} = \alpha + x'_{it}\beta + u_{it}$$

If $\mathrm{E}(x'_{it}u_{it}) = 0, t = 1, 2, \dots, T.$, then pooled OLS estimation is consistent.

The pooled OLS model assumes that the error term u_{it} is uncorrelated with all values of regressors x_{it}. The regression of y_{it} on x_{it} and an intercept leads to an inconsistent estimator of β if the individual effect which included in error item u_{it} is correlated with the regressors.

In this case, a pooled OLS estimator cannot be used since the fixed effect model is appropriate. In conclusion, pooled OLS regression is a straightforward approach to simply analyse the estimators by assuming that all parameters are the same for each cross-section (e.g. firm, region). However, it does not recognize potential within individual variation as it treats all variability as between variables, ignoring the fact that observations are nested within individuals (Melguizo et al. 2011). This, as Gossy (2008b) argues, leads to inflated sample size, biased coefficients, and underestimations of errors. Mostly, the results become restrictive and unrealistic. This study considers unbalanced panel data as a sample and requires that it generate unbiased and consistent parameters. Thus, two other models of Fixed Effect (FE) and Random Effect (RE) are more appropriate to use (Cameron and Trivedi 2005).

4.4.3.1.2 Fixed Effect Model (FE)

In the fixed effect model, the slope coefficients β for all sampled observations are assumed to be fixed parameters throughout but there are variations in the intercepts. The correlation between individual specific effects and the independent variables is allowed in the fixed effect model and, therefore, it is always consistent in the absence of endogeneity or errors ε_{it} in the variable (Snorrason 2012).

The fixed effect model is estimated as follow:

$$y_{it} = x'_{it}\beta + \alpha_i + \gamma_t + \mu_{it}$$

Where y_{it} is the tth observation at tracking section i (i=1,2,3), γ_t is a time-varying intercept that captures all of the variables that affect y_{it} and that vary over time but are constant cross-sectionally (Arellano and Honoré 2001). It is noted that the fixed-effect models are used t to control for unobservable heterogeneity that is constant over time.

In the fixed effect model, each μ_i and $\mu_i + \gamma_t$ is considered as an unknown parameter that needs to be estimated. The residual μ_{it} (idiosyncratic error) is uncorrelated with the explanatory variable in each time period, thus independently and identically distributed as:

$$cov\,(\mu_{it}, \mu_{it'}) = 0, \forall t' \neq t and\ cov(\mu_{it,}\mu_{jt}) = 0, \forall j \neq i.$$

Egger (2002) and Baltagi (2008) suggest that, when the focus of a study is on the causes of changes within units of firms, regions or countries, the fixed effect model is an appropriate design for sample examination. To summarize, fixed effects panel data regressions is suitable to distinguish the cross-sectional and intertemporal effect. Despite the wide use of fixed model, the disadvantage is noted that there are plenty of parameters to be estimated resulting in loss of degrees of freedom. Also, the time-invariant variables (e.g. price,) are removed in fixed effect panel regression that causes the instability of the regressors (mean values and deviations from mean values). Another shortcoming is the problem of multicollinearity arising when individual and time explanatory variables combine with heterogeneity.

4.4.3.1.3 Random Effect Model

Unlike the fixed-effect model, the random effect model can be used to choose the value of a variable by being randomly selected from the population of all possible levels. In the random effect model, the individual effect follows an unknown distribution and thus takes part in the random disturbance term. Also, the explanatory variables are not correlated with the individual specific effect, in contrast to the fixed-effect model. In the random effect model, the Generalized Least Square (GLS) is designed for the analysis. A model is interpreted as

$$y_{it} = x'_{it}\beta + \alpha + \gamma_t + e_i + u_{it}$$

In the random effect model, α is still an overall mean, which is an unknown constant, and the intercepts for each cross-sectional unit are assumed to arise from this common intercept α (Brooks 2014). Also, there is a random variable e_i that varies cross-sectionally but is constant over time. The intercept in the model is assumed to be away from individual observation error term u_{it} and explanatory variable x'_{it} (Verbeek 2008; Brooks 2014). It is noted that the random effect model assumes the strict exogeneity of the explanatory variables, where

$$\mathrm{E}\ (u_{it}|X_{it}, \dots, X_{iT}, c_i, g_i) = 0$$

The random effect model is considered a more efficient estimation tool as it provides greater degrees of freedom (Baltagi 2008). Thus, a better use of the information value of patent data is made under random effect estimators. Another advantage is generating a coefficient estimate of both time-variant as well as time-invariant explanatory variable that complement the limitation of the fixed effect model (Kennedy 2003). Nevertheless, the random effect model may be a problem when the explanatory variables are dependent on the error item, which is usually the case in producing a biased estimator. The random effect model may generate inconsistent results as the model assumption is violated.

4.4.3.1.4 Econometric Model Analysis

The model below is designed to investigate the relationship between capital structure and the determinants affecting it. Based on the discussion of data analysis, the general multivariate regression estimation is described as:

$$LEV_{itkl} = \delta + \beta_1 Size_{it} + \beta_2 Grow_{it} + \beta_3 NDTax_{it} + \beta_4 Prof_{it} + \beta_5 Liquidity_{it} + \beta_6 Tax_{it} + \beta_7 RD_{it} + \beta_8 DBKRT_{it} + \beta_9 Div_{it} + \beta_{10} CapExp_{it} + \beta_{11} Industry_{it} + \beta_{12} Eco_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where i is the firm unit; t is the time period; δ is the constant; Size represents firm size; Grow is growth opportunities of firm; NDTax is non-debt tax shield; Prof is profitability; Liquidity is current ratio; Tang is tangibility; RD is research and development expenses; DBKRT is distance from bankruptcy; Div is dividend payment; CapExp is capital expenditures; Industry is HH index, Eco is all economic variables of the country; μ_i is the unobservable individual effects which is different and specific to each firm within the sample group; λ_t is the parameters of time dummy variables; ε_{it} is the standard error item.

Under this model, each intercept is considered as the outcome of a random deviation from the mean intercept. The intercept here is assumed to be free from any error related to any particular observation as it is drawn from distribution for each unit. The RE model also assumes strict exogeneity where

$$E(e_{it}|\boldsymbol{X}) = 0, E(u_i|\boldsymbol{X}) = 0 \Rightarrow E(\varepsilon_{it}|\boldsymbol{X}) = 0.$$

4.4.3.1.5 Hausman Test

The Durbin-Wu-Hausman (DWH) test generally called the Hausman Test is the most widely used examination to choose between a random effects and fixed effects approach by firstly testing whether unobserved heterogeneity of each unit ε_i and explanatory variables x_{it} are correlated. According to Hausman (1978), since a fixed effect is consistent when unobserved heterogeneity ε_{it} and explanatory variables x_{it} are correlated, but a random effect is inconsistent, a statistically significant difference is interpreted as evidence against the random effects assumption. The Hausman test for correlated random effects examines if

$$\mathbf{cov}(Z_{ijt}\alpha_{ij}) = \mathbf{0}$$

The Hausman test can be estimated as follow:

$$\mathrm{H} = (\beta\mathrm{FE} - \beta\mathrm{RE})'[\mathrm{var}(\beta\mathrm{FE}) - \mathrm{var}(\beta\mathrm{RE})]^{-1}(\beta FE - \beta RE) \sim X^2 k$$

where $\beta FE = (\beta_0^{FE}, \beta_1^{FE}, \ldots, \beta_k^{FE})$ is a vector of fixed effect estimates and k is the dimension of the slope vector β.

Thus $H_0 = cov(\eta_i : x_{it} = 0$

$H_1 = cov(\eta_i : x_{it} \neq 0$

The null hypothesis is that the individual and time effects are not correlated with the regressors x_{it} (Ullah 1998). Firstly, it assumes that both the FE and RE are consistent under the null hypothesis (H_0). If the test statistic rejects the null hypothesis when the fixed effects dummy variable is close to zero, then a random effect model is more efficient and should to be applied. Secondly, if the rejection of the null hypothesis due to a large value of the Hausman test statistic implies that the individual specific effects are uncorrelated with regressors then fixed effect is presented.

In briefly, the Hausman test tests “whether the difference between parameter estimator of fixed effect or random effect models is statistically meaningful” (Snorrason 2012). According to Erçetin (2015), the difference of fixed and random effect models is about the relationship between the fixed-time effects and descriptive variables. The estimator of fixed effect should not be preferred over the random effect estimator except all fixed time factors which relate to other descriptive variables can be measured (Gunasekara et al. 2013).

Random effects will be unbiased if the unobserved heterogeneity and the explanatory variables are uncorrelated, and it will be more efficient as irrelevant variables do not exist. However, if the correlation between the explanatory variables and the unobserved heterogeneity is stronger, then a fixed effect estimate is used. Fixed effect estimators can be used to access the consistent estimation of the intercepts.

4.4.3.1.6 Reverse Causality

After deciding on the regression analysis model, it is important to discuss a potential problem of capital structure and the factors affecting it. This is the matter of reverse-causality bias which assumes that the hierarchical determinants of firm, country and macroeconomic level affects capital structure and vice. It is known that firms with higher leverage or lower leverage over equity may be involved in activities that change the firm and country characteristics. In general, explanatory variables in x_i that are correlated with the equation's error term ε_i are defined as endogenous. The reverse causality is a form of the endogenous. It is essential to test whether this assumption is valid because virtually all relevant empirical studies that attempt to clarity the connection between capital structure and determinants of firms and country potentially suffer from significant endogeneity problems.

Börsch-Supan and Köke (2002) provide a detailed description of" how endogeneity problems can arise from reverse causality (where the direction of causality is unclear), sample selectivity, omitted variables, or measurement error of explanatory variables". The consequence of endogeneity is that the OLS is biased and inconsistent, which in turn implies that both the point estimates of the coefficients and interference will be invalid. To some extent, Rajan and Zingales (1995) alleviate the endogeneity problem by taking the explanatory variables as past years' average of the factors. However, the use of panel data can be a more appropriate method to reduce this problem. According to Verbeek (2008), "a panel data set contains repeated observations for the same firms over a period of time. The availability of repeated observations on the sample firms allows estimating more realistic model than a single cross-section series can do".

More precisely, panel data covers the change in leverage on the firm unit over a time serious. As studies (Ozkan 2001; Campello 2003; King and Santor 2008) claim, the reason that individual firms choose different leverage ratios can be explained by panel data. Also, it is suitable to show the model based on a given firm that has different leverage ratios at different points in time. According to Cameron and Trivedi (2005) and Bollen and Brand (2010), if the omitted variables are time invariant, there is a simple estimator of fixed effect panel that can present robust results of regression. Problems of endogeneity can be reduced as panel data provides instrumental variables which are not available in cross-section data.

As this study uses a form of panel data as a sample, the consideration of reverse causality or endogeneity problems are not included.

4.4.3.1.7 Sensitive Analysis

Sensitivity analysis (SA) is the research of how much the "uncertainty in the input data of a model is reflected in the accuracy of the output results" (Dimov et al. 2017). According to Petty et al. (2015), sensitivity analysis is developed to classify the most significant forces that ultimately affect the success or failure of a project by determining how the variance of one particular input variable affects the distribution of possible net present values or internal rates of return. This is measured by changing one input variable's value but remaining all other input variables' value constant (Hamby 1994). A number of sensitivity analysis techniques are developed and used to test for the presence of errors, accuracy and validity of a model (Pannell 1997). These models heavily rely on special hypotheses that associated with the behaviour of the model. For instance, the "linearity, monotonicity and additivity of the relationship between input and output parameters of the model" are all included in the model (Saltelli et al. 2004). Among the quantitative methods, variance-based methods are most often used. According to Dimov et al. (2017), the main idea of sensitivity analysis techniques is to appraise how the variance of model input contributes to the variance of model output.

For the study, sensitivity analysis has the advantage of revealing the degree of robustness of the results obtained by the change in the value of a variable or a set of them, and comparing the results with those obtained in the deterministic analysis (Loucks and Van Beek 2017). As sensitivity analysis is important for obtaining reliable results, it holds especially for outlier detection and problem of heteroscedasticity and autocorrelation.

The problem with outliners

An outlier is an unusual data point that happens within a pattern regime. An outlier is not pattern change but an aberrant data value caused by a one-time shock to a system, a data collection error, or simply an extreme value by chance (Armstrong 2001). Outliers are known to bias estimated model parameters. Sensitivity analysis is a commonly suggested approach for outlier detection and the criteria include deleting observations and the effect of their absence on an average (Ancev et al. 2017). In a sensitivity analysis, the technique of Box Plot which provides a clear picture of statistical information including features of medians, quartiles, ranges and outliers is used in this study for detecting outliers in the panel data to access the cleaning and lining sample collection (Scheiner and Gurevitch 2001). Winsorization used to derive a robust estimate of the error terms on the sensitivity means is the most common approach to addressing the problem of outliers (Wilcox 2011). The advantage of winsorizing is that it preserves the information that replaces the highest or lowest value in a data distribution but protects against the negative effect of outliers. Secondly, trimming of data is an alternative widespread approach of handling the problem of outliers in a distribution of data, in which outlier values are removed instead of being transformed to other value (Salkind 2010). Winsorization and trimming both fall within a field known as robust statistics. For the study, it is important to remove invalid data from the unbalanced panel because the elimination of one extreme observation will not influence on other section and time series.

Heteroscedasticity and Autocorrelation (Serial Correlation)

The general assumption of the linear regression model is homoscedasticity or constant. This explains that the variance in the values of the independent variables are assumed not to affect the variance of the dependent variables. As Washington et al. (2003) conclude, the assumption of homoscedasticity is not always present in the model. The failure of this assumption is heteroscedasticity. In this view, the variance of the distribution of the dependent variables of the model, corresponding to each set of values of the independent variables, is not constant (Seddighi et al. 2000).

The Breusch-Pagan test is widely used to verify the problem of heteroscedasticity. Breusch and Pagan (1979) built up this test as a Lagrange Multiplier (LM) test for the null of homoscedasticity versus the general alternative that error variance depends in linear form on some regressors. It tests the model's null hypothesis $(H_0: \alpha = 0)$ of homoscedasticity against the alternative hypothesis $(H_0: \alpha \neq 0$) that variance is some function of more than one explanatory variables. Since heteroscedasticity is caused by measure error, the non-existence of constant variance after the test signifies heteroscedastic, and the existence of constant variance in the Breusch-Pagan test predicts homoscedasticity. There are two alternative tests for solving the problem of heteroscedasticity, White's test (White 1980) and the Goldfeld-Quandt test. These two tests are also widely used but have more limited utility (Lim 2011; Kaufman 2013) and therefore this study adopts the Breusch-Pagan test to uncover the problem of heteroscedasticity. Once standard errors are obtained, the Roust Standard Errors instrument is adopted in the research to control heteroscedasticity (Chevalier 1995).

The autocorrelation, also known as the serial correlation test is also conducted since the penal data estimation normally violates the condition of independent error and is identically distributed with constant variant (Elhorst 2014). This problem occurs when in a regression, the error term observations of different cross sections in different time series are correlated. There are two types of serial correlations that affect the efficiency of the estimators. "With first-order serial correlation, errors in one time period are correlated directly with errors in the ensuing time period and, with positive serial correlation, errors in one time period are positively correlated with errors in the next time period" (Wooldridge 2010; Baum et al. 2017). The existence of serial correlation in panel data aggravate the standard errors and causes the results of regression to be less efficient. The Wooldridge Test for diagnosis of autocorrelation is applied in the study as it has become increasingly attractive due to the relativity few assumptions and ease of implementation (Drukker 2003). For this reason, Drukker (2003) claims that the Wooldridge Test might be less powerful than the more highly parameterized test; however, it will be more robust when testing for serial correlation in the idiosyncratic errors of a linear panel data model because it can fit both the Fixed and Random Effects models together under any general conditions (Wooldridge 2010).

4.4.4 Non-linearity Test

The non linearity model is a continous nonlinear multivariate approximation to the real form of the response (Erçetin 2015). This relationship implies that an independent variable does not have a constant effect on the dependent variable. In nonlinear regression, the independent variables are assumed to interact with each other in a multiplicative fashion to dependent variables (Franzese and Kam, 2009; Eby and O'Neill, 1977;Tsai, 2013). In general, nonlinear estimation involves finding the best fitting relationship between the value of a dependent variable and the values of a set of one or more independet varaibles (Hill et al. 2006). The nonlinear model can be interpreted as:

$$\mathrm{E}(Y_i) = \alpha + \beta X_i^2$$

Where Y is the dependent variables and X is the independent varaible with a squre term to present as nonlinear relationship. Using non-linearity is widely exitence in studies of Fattouh et al. (2005) who consider a non-linear relation between firm's leverage and their detminnants. The traditional view of Modiglian and Miller focues on the cost of equity have a non-linear relatsionip with the gearing ratio. The non-lienear relationhip can illustrated as U-Shaped or inverted U-Shaped depending on the parametor β. To test the direction of U-shape, studies test to observe whether within the invervial, there are values that decrease at low interval value and increases at high interval value. The U-Shape relationship is presented as quadratic form of panel data model as:

$$Y_{it} = \alpha + \beta x_{it} + \gamma f x_{it} + \zeta z_{it} + \varepsilon_{it}, i = 1, \ldots\ldots n$$

where Y_{it} is the dependnent vairable (leverage), x_i is the independentt variable (firm size, growth opportunities, liquidity), z_i is the control variables (Bond or

Stock based market), ε_{it} is the error item, f(x_{it}) is the quadratic x_i^2 that make the equation curved (Managi 2011; Hussen 2012).

Non-linear models have an advantage in examing the relationhip between two variables due to the parameter coefficient which explains "a few signficant increases or reductions in a variable which will influence other variables. It not only explains the direction of the existing relationship but also helps in explaining how far the change in performance go in relationship to the variables" (Warner 2008). However, Lind and Mehlum (2010) argues that the use of the quadratic term alone to test non-linear relationships may encounter a problem when the responses are monotonically increasing or decreasing implying that linear and quadratic terms may be highly correlated (Hocking 2013).

4.5 Conclusion

Chapter four provides a discussion on the research methodology proposed for this research. It provides a comprehensive discussion of the various and progressive procedures that the study uses to answer to the research questions. The FTSE AIM All Share Index of 610 listed firms is selected as the UK sample and the SZSE SMEs Index of 608 listed firms are selected as the Chinese sample of the study covering the period from 2007 to 2017. The underlying reason for the period selection is that it captures the determinants of capital structure decisions within the environment of financial crisis and economic recovery. This is motivated by Deesomsak et al. (2004) who carries out a similar exploration this tendency on companies' leverage levels in from the Asia Pacific region during the financial crisis of 1997.

The financial data and information of firms' characteristic are sourced from the Datastream, and economic data is collected from the World Bank Database. The second section of this chapter describes the dependent variables, the independent variables and the control variables associated with the analyses undertaken. Additionally, there is a discussion of the methodology of panel data quantitative analysis that is adopted in the study with a detailed introduction of various tests relating to a suitable model. The mediation test and associated steps of the mediation test are also explained in the following section. For the robustness of the model, the sensitivity analysis of all the diagnostic tests is explained in this chapter.

Chapter Five: Descriptive Analysis and Discussion of Results

5.0 Introduction

This chapter investigates and examines the relationship between the variables including dependent and explanatory variables in the economic models which have been specified in the previous chapter. The first section presents the analysis of the descriptive statistics of the variables describing the basic features of the data and providing simple summaries and explanations relating to the sample data and the measures. This section describes the taken from the UK AIM market and China's SMEs Board.

This chapter also analyses the descriptive statistics obtained from the data that will form the platform for the conduct of this research and discusses various aspects of the two stock markets under study. The second section performs hypothesis testing to establish a correlation matrix and ensure that there are no impediments to running, the panel regression analysis in relation to multi-collinearity.

5.1 Descriptive Analysis of the Sample

After following thoroughly the sample selection criteria outlined in chapter Five, 514 firms listed on the FTSE AIM All Share and 760 firms listed on the Shenzhen SME Board Market qualified to be used for analysis in this study. In Figure 5.1, the sampled firms in the AIM and their distribution across the 8 ICB sectors (excluding the Financial Sector and Utilities Sector) are presented. The most dominant sector is the Industrial Sector having 108 firms and weighting 21.01% of the total firms sampled. The second large sectors in the sample are Technology which has 86 firms (16.73%) and the Basic Materials with 81 firms. The smallest sectors in the sample are the Consumer Goods and Telecommunication sectors with 44 firms and 4 firms respectively. The Oil & Gas Sector, Heath Sector and Consumer Services Sector have 10.3%, 10.3% and 8.18% firms respectively.

Figure 5. 1: Sampled Firms in the FTSE AIM All Share

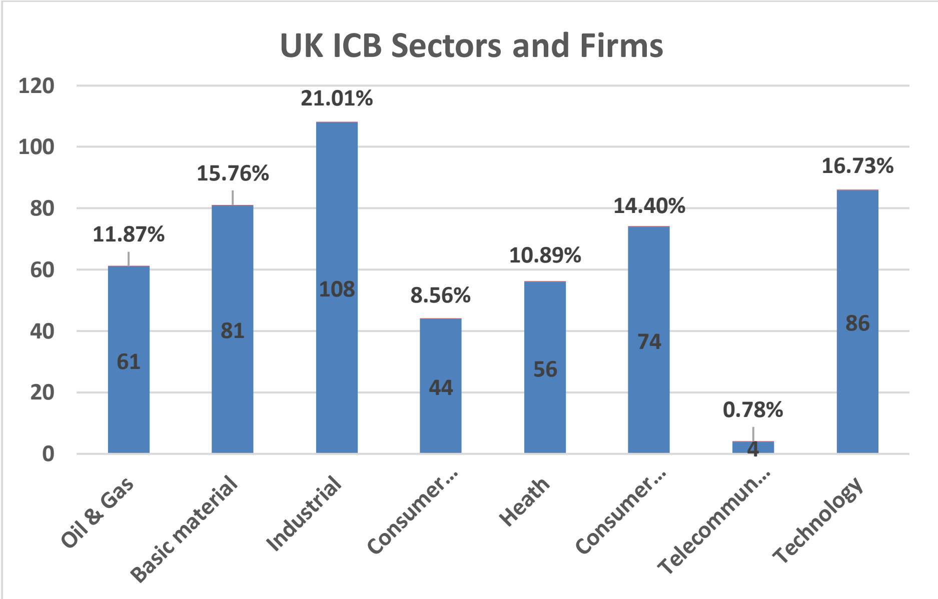


Figure 5.2 represents the sampled firms in the Shenzhen SME Board Market based on distribution across the 8 CNI sectors (excluding the Financial Sector and the Utilities Sector). The largest sector in the SME Board Market is the Industrial Sector with 288 firms weighting 37.89% out of the total firms in the sample. The second most sectors are Consumer Staples which has 182 firms (23.95%) and Material with 134 firms (17.63%). The Telecommunication, Energy and Consumer Discretionary sectors occupy the least proportion in the sample with weights 0.26%, 1.84% and 4.21% respectively. In addition, the Heath care and Information Technology sectors also comprise 6% and 8.03% in the sample after criterial procedure of sample selection. Compared with the ICB Sectors in the AIM, the distribution of sectors in the SME Board Market is uneven. From Figure 5.2, it can be seen that firms in the SME Board Market are mostly concentrated in the manufacturing sectors of Industrials, Consumer Staples and fundamental sector of Basic Materials. The distributions of firms in tertiary industries (Telecommunication; Technology) and high-end service sectors (Heath care; Consumer Discretionary) are far below.

Figure 5. 2: Sampled Firms in the SZSE SME Market

5.2 AIM Consolidated Descriptive Statistics

Given that one of the objectives of this thesis is to investigate the hierarchical determinants of capital structure that exist in several ICB and CNI sectors, the summarised descriptive statistics are consolidated and presented in Table 5.1 and Table 5.2 in appendix. As explained in previous section, the data selected in this thesis is unbalanced as not all the information from the period of 2007 to 2017 is captured due to the missing data on variables. From Table 5.1, the highest observation of 4100 is filtered for the Industrial Sector in AIM while the Telecommunication sector in AIM with the lowest observation of 153 is represented.

In the Industrial Sector, the average value of the variable DBKRT (distance to bankruptcy) is 0.24 with a minimum score of -1062.13 and a maximum score of 9.81. The scores of DBKRT in Industrial Sectors is one of lowest by comparison with DBKRT in other ICB sectors. The quantity recorded for variables of LIQTY (liquidity) and InTANG (asset intangibility) are on the lower side. In this sector, the average percent of liquidity is 2.45% while the minimum number is 0.04% and the maximum number is 214.78%. The mean value of asset intangibility is

27.02% with a minimum of 0 and a maximum of 95.42%. Additionally, the Industrial Sector has the highest average dividend payout ratio with 15.95% while the maximum payout ratio is 98.84 and the minimum is 0. From quantity recorded, it can be seen that the average value of the industry market concentration index is 0.33 with a minimum of 0.51 and a maximum of 0 over the period of the sample years. This means that the Industrial Sector in AIM is a highly concentrated market. For dependent variables of leverage, the short term debts in market value and book value have an average value of 70.18% and 5.24% respectively. It suggests that the short term debts in this sector are the highest across all the ICB sectors. With long term debts, the average level among the firms over the sample year are also far greater (next to the Telecommunication Sector). The records for the mean value of long term debt in market value and book value are 66.52% and 7.31% respectively.

The Technology Sector has 3262 observations out of the total observations in the period of the sample. The variable of GROWTH (growth of opportunities) has a mean of 4.91% and the variable of InTANG (intangibility of asset) has an average record of 39.31%. The mean value of these two variables are higher than the other sectors. However, the variables of TANG (asset tangibility) has a mean value of 7.01% which is the lowest among all the sectors. This is explained by the fact that the Technology Sector has more intangible assets such as intellectual property rights, patent rights, talents reserve and brand perception rather than fixed assets. In addition, the recorded mean value of the variable LIQTY (liquidity) is 2.41% with a minimum of 0.15% and a maximum of 81.58%. The variables of DBKRT (distance to bankruptcy risk) in Technology has an average score of 0.43 with a minimum score of -19.86 and a maximum of 7.88. It is noted that the mean value of liquidity in the Technology sector is at a lower level while the average level of distance to bankruptcy is one of the highest across all sectors. It can be inferred from this result that lower asset tangibility and liquidity do not produce the problem of bankruptcy in the Technology Sector. Also, the Technology Sector has lower leverage level in both the short term and long term. The maximum leverage of short term in book value recorded is 66% and the minimum is 0% with an average level of 5%. It is provisionally deduced that the Technology Sector generally does not rely on short term debt.

The Basic Material Sector has 2870 observations for the sampler years which is the third largest sector represented in this descriptive statistics table. Due to the concentration of heavy industries under the Basic Material Sector, the problems of capital turnover can be the greatest consideration for them, and the recorded maximum value of 99.83% and minimum value of 0 for the variable of Liquidity with an average value of 8.91% are normal. Nonetheless, the recorded values for variables of ROE (profitability) and DBKRT (distance to bankruptcy) are the lowest with mean values of -141% and -1.58 respectively. The minimum profitability in Basic Material Sector is -26234.8% while the maximum profitability is 104% with a standard deviation of 1504. It can be inferred that profit margin in this sector might be slashed to the bone in an attempt to keep turnover moving. Also, the quality level between firms in this sector is uneven. This is further supported by the higher quantity for the variable of industry market concentration with a mean of 0.22. The Basic Material Sector in AIM might be an oligopoly market. Additionally, growth opportunity is recorded as 2.44% which is the highest in all AIM sectors. For the variables of leverage, both short-term debt and long term debt are lower than other sectors. The average short term debt in market value is 35.97 with a highest level of 100% and lowest level of 0. The average long term debt in market value and book value are 29.3% and 3.18% respectively which is far below the second lowest debt in Oil & Gas Sectors. It is likely that the Basic Material Sector does not rely on debt financing.

Though the Telecommunication Sector has 153 observations that are captured in the period of the sample year, the average level of firm specific variables of InTANG (intangibility of asset) is far above. The recorded values for InTang in the Telecommunication Sector is 37.5% with a minimum of 0 and a maximum of 98.56%. The average asset tangibility is 27.97% with a maximum of 86.46% and a minimum of 0. The lower level of physical assets might cause difficult financing due to the lack of pledge. The recorded for variable of liquidity shows 1.66% in mean value and 5.64% as the maximum value suggesting that the firms in the Telecommunication Sector do not have strong paying ability for short term debts. The industry variable of market concentration has a mean of 0.01 while the minimum market concentration is 0 and maximum market concentration is 0.11. Thus, the Telecommunication sector may not be a captive market with such lower indices. For variables of leverage, the mean recorded for short term leverage in market value and book value are 62% and 1.8% respectively. For long term leverage, the mean of the market value is 76% and short term value is 20%. In a word, the quantity recorded for leverage in Telecommunication sectors are at the higher range of all AIM sectors. Also, it is notable that the level of long term leverage in this sector is slightly higher than that of short term leverage, which might increase the financial risk of firms. As recorded in Table 5.1, the average score of distance to default is 2.28 indicating that firms were not likely to go bankrupt over the sampler year.

The Consumer Goods sector has the second fewest observations with 1528 among all the sectors over the period. The variable of growth opportunities has a mean of 0.54% with a maximum of 63.36% and minimum of -885.85%. The lowest quantity recorded for growth opportunities indicates a slow growth of industry development. The average value of ROE is on the negative side at -8.68% with maximum of 938% and minimum of -1270%. Such a huge range between maximum and minimum profitability indicates uneven development of the sub sector under the Consumer Goods. The quantities for short term leverage are the highest across all the sectors as average leverage in market value is 70.82% and in book value is 7.72%. Long term leverage on the other side recorded the mean of 57.93% in market value and 7.58% book value. An explanation could be that the firms in the Consumer Goods sector rely on debt finance especially short liquidity loans. However, the lower average liquidity with 2.51% in this sector represents a weak ability for paying short term debt.

One other sector with the third least observations is the Heath Care Sector which has 2091 observations. The value for the variable of ROE is the lowest across all the sectors with a mean value of -40% while the maximum is 945% and minimum is -2727%. The variable of TANG (asset tangibility) has the second lowest mean value of 7.93% and the smallest value and largest value range from 0 to 93.39%. Correspondingly, the recorded data for the variable of InTANG (asset intangibility) is the second highest among all the sectors with an average value of 32.62%. Similar to the Technology Sector, the intangible assets in the Heath Care Sector is more to be considered than the fixed assets, as the sub-sectors under heath care (Heath Care Equipment and Services, Pharmaceuticals and Biotechnology) may have more patent rights and intellectual property rights. The lowest quantity for industry market concentration is 0.01 with a maximum of 0.02 and minimum of 0.006.

The number of observations in the Oil & Gas Sectors is 2320; the quantity recorded for the firm specific variable of ROE (profitability) and DBKRT (distance to bankruptcy) are significantly lower than the others. For instance, the average recorded value of ROE is -52.7% with a minimum of -5429% and maximum of 1810% and the average score of distance to default is -3.87 with a minimum of -699 and maximum of 13. From these results, it can be inferred that firms in the Oil & Gas industry are heading for bankruptcy and there is a downturn in the sector. With regards to the recorded data for HH (industry market concentration index), the mean is 0.1 while the minimum market concentration within the Oil & Gas industry is 0 % and maximum market concentration is 1.11. Compared with other sectors, the recorded value for HH in the Oil & Gas Sectors is at the medium range. It is noted that the recorded on leverage levels in the sector is far behind the other sectors. The short term leverage has a mean value of 40% in market value and 4% in book value. The mean of long term debt in market value is 32% with a minimum of 0 and a maximum of 100%. The long term debt in book value has an average of 4%. It can be concluded that the firms in the Oil & Gas sector may rely on equity financing.

The final sector to be considered based on the descriptive statistics is the Consumer Services sector with 2465 observations. As recorded in the Consumer Services sector, the average growth is 4% while the maximum is 1310% and the maximum is 81.2%, showing fast growth of this sector. It could be deduced that firms in this sector are fast growing. The mean of short term leverage in the market value is 63.24% and in book value is 4.07%. The average long term leverage in market value is 59% while that in book value is 7.9%. It is noted that the average leverage ratios in this sector are at the higher range of all. Regarding records of liquidity, the mean value of 2% suggests a problem of debt paying in the short term. However, the average percentage of tangible assets is 21% and this can be the collateral for borrowing.

5.3 SMEs board Consolidated Descriptive Statistics

Table 5.2 displays the descriptive statistics analysis of CNI Sectors of the SME Board Market. It can be seen that the Industrial Sector has the highest observations of 9704 after filtering the sample space while the Telecommunication Sector has the fewest observations of 78. This is similar to the descriptive statistics analysis of the ICB Sectors of AIM.

The Industrial Sector recorded 9704 observations out of the total observations over the period of sample. The recorded values for most variables in the Industrial Sectors are at the average level of all sectors. The variable GROWTH has a mean of 3.79% while the maximum is 834.46% and minimum is -0.95%. Profitability has an average percent of 7.52 with a minimum of -193.53% and a maximum of 48.69%. The mean values of these two variables are slightly below the average level of all sectors while the standard deviations are higher than the average level. It could be inferred that the profit distribution under the Industrial Sector remains highly unequal. Also, the market competition of the Industrial Sector is stronger than other sector as the industry market concentration index is the lowest with an average value of 0.01, a maximum of 0.02 and minimum of 0.008. For dependent variables, the short term leverage has a market value has a mean of 88.58 and short term leverage in book value has a mean of 12.28%. The long term leverage have average value of 47.09% for market value and 3.3% for book value. Considering the higher level of leverage, it could be suggested that the Industrial Sector in the SME board market may be inclined to debt financing.

The Consumer Staples Sector has the second largest number of among the sectors with 5867 units. The average level of ROE is 7.52 which is also at the average level of all sectors. The minimum and maximum value of ROE is -591.18% and 48.69% respectively showing the largest standard deviation of 21.51. The variable of asset tangibility recorded the second highest average value of 27.79% with a maximum of 77.35% and minimum of 0.1% by the firms in this sector. It can be inferred that the Consumer Staple Sector relies on a large amount of fixed assets which is in accordance with the characteristics of manufacturing. The average market concentration of the Consumer Staple Sector is 0.03 with a largest value of 0.1 and smallest of 0.02. This shows the competition in this sector is intense. Additionally, the average level for both short term and long term leverage are at the medium range. The short term leverage in market value and book value has a mean of 85.5% and 12.89% respectively. The average level of long term leverage in market value is 47% and in book value is 3.4%.

The third sector to be considered based on the descriptive statistics is the Basic Materials Sector which is the third largest sector represented with 4664 observations. It is noted that the quantity for variables of growth opportunities, profitability and asset intangibility are quite close to the lowest records of all sectors. The variable of GROWTH has a mean value of 3.27% with a maximum of 61.10% and minimum of -79%. The mean value of ROE is 6.88% while the maximum is 55.66% and minimum is -271.42%. For the variable of dividend payout ratio, an average of 21% is recorded with a maximum of 99.46 and minimum of 0. These may give investors the signal in a negative signal. Additionally, the Basic Materials sector has the highest recorded value for the variable of asset tangibility with mean value of 36% as the manufacturing relies on large amounts of equipment, machinery and other fixed assets. The average market concentration is 0.02 which is on the lower side of all sectors. From the leverage, it can be seen that short term leverage in market value and book value are 95.03% and 17.26% respectively. The long term leverage in market value is 57.8% and in book value is 4.52%. The quantities for leverage are significantly higher than other sectors, indicating that the borrowing requirement in the Basic Material sector is huge.

In addition to these three sectors that firms are mostly concentrated in, Information Technology ranks fourth to discuss descriptively with 2076 observations. Between the mean values of leverage in short term and long term, the data recorded the highest average value of 77.52% for short term leverage in market value while book value has a mean of 8.12%. The average leverage of long term values is lower compared to those of the short term, the recorded data for market value is 35.66% and for book value is 2.33%. The overall leverage level in the Information Technology sector is similar to the Heath Care sector. Regarding the quantity recorded for firm specific variables, the mean, minimum and maximum value of profitability, liquidity and dividend payout ratio are at the average range of all the sectors. The mean of asset tangibility is 17.95% which is the second lowest compared to other sectors. The average asset intangibility however represents a higher level of 9.51%. These indicate that the firms in the Information Technology sector might have difficulty with debt financing due to the lack of collateral.

The sector with the fewest observations is the Telecommunication Sector which has 78 units. Due to the uniformity of the sub-sector under the Telecommunication sector, recording the average short term leverage in market value of 22.82% and in book value of 0.57% is not extraordinary. The mean of long term leverage in market value is 8.59% and in book value is 0.08% which are the lowest mean values across all the sectors. Additionally, the industry market concentration has the highest mean value, 0.57, with the highest maximum value 0.68 and highest minimum value 0.52. It can be deduced that the market in the Telecommunication sector has a strong monopoly. The recorded data for variables of liquidity is an average of 13.69% with the smallest and largest values ranging from 0 to 57.96%. Such a high level of liquidity (the second highest mean is 6%) in this sector suggests a strong short term solvency for firms. Also, the variable of InTang (intangible asset) records the largest mean value in this sector of 11% with a maximum of 56.97% and minimum of 0.05%. It appears that the firms in the Telecommunication sector have plenty of intellectual property.

Though the number of observations for the Oil & Gas sector is 450, the quantity recorded for both short term and long term leverage are on the higher side. For short term leverage, the mean values are 93% and 13.95% for market value and book value respectively. The long term leverage has a mean value of 58.72% in market value and 5.77% in book value. From these results, it can be seen that the Oil & Gas sector rely on a high level of debts. Also, the quantity recorded for variables of profitability, liquidity and distance to default are the lowest of all sectors. For example, the mean of ROE is 4% with maximum of 41.89% and minimum of -368.76%, which is even lower than the average level of all sectors. The mean of distance to bankruptcy is 1.13 and liquidity is 2.25% but both of them are not far behind the average levels of all sectors. The industry market concentration index is 0.25 with a maximum of 0.37 and minimum of 0.2. It can be concluded that some firms in the Oil & Gas sector are virtually monopolizing the market.

The Consumer Discretionary sector is one of the fasting-growing sectors in the SME Board market. From the descriptive statistical analysis, it can be seen that this sector has the highest average value of growth opportunities with at 4.63% and the highest maximum value of growth opportunities with at 422.89%. On average, this sector might have a brighter outlook according to the value recorded. For the other firm specific variables, the average values of profitability and asset tangibility are 7.51% and 26.85% respectively which are in the medium ranges. It is notable that the Consumer Discretionary sector has the lowest liquidity which is 1.9% with a maximum of 19.11% and minimum of 0.23%, indicating a weak debt paying ability. Additionally, the average score of variable of distance to bankruptcy is 1.52 with maximum 6.17 and minimum -2.43, which are the highest of all sectors. Nevertheless, the score of 1.52 which is less than 1.8 suggests a strong probability of bankruptcy. The average level of leverage for the short term in market value is 80.9% with the maximum of 100% and the minimum of 0 whereas in book value it is 9.85% with the maximum of 39.27% and minimum of 0. The average records for long term leverage are on the higher side of all sectors. The long term leverage in market value has a mean of 45% while book value has a mean of 3.69%. From these results, it can be seen that the firms in the Consumer Discretionary sector might rely more on long-term leverage than short term leverage.

In the Heath Care sector, 1543 observations are recorded over the sample period. From the Table 5.2, it appears the sector has a higher mean value of GROWTH at 4.51% indicating a brighter industry outlook. Correspondingly, the average profitability in the sector is the highest of all the sectors. This is a recorded mean of 11.73% with maximum profitability of 51.16% and minimum of -52.46%.

Also, the mean value of 6.2% in this sector with maximum of 190.87% and minimum of 0.52% indicates a strong ability to pay short-term debt. Regarding the average level of leverage, this sector has a mean value of 74% and 9.5% for short term leverage in market value and book value respectively. Also, the average level of long term leverage in market value is 38.37% and in book value is 2.37%. Among all the sectors, the leverage ratios in the Heath Care sector are on the lower side.

5.4 Correlation and Multi-collinearity

The Table below displays the variance inflation factor (VIF and tolerance) test used to determine the possibility of multi-collinearity and correlation between the variables in this study. The VIF test is programmed to measure how much the estimated variance of the i^{th} regression coefficient is increased above what it would be if R_i^2 equalled zero and a situation in which the i^{th} variable is orthogonal to the other variables in the analysis (O'Brien 2007). As noted by O'brien (2003), VIF provides a reasonable and intuitive indication of the effects of multi-collinearity on the variance of the i^{th} regression coefficient. In the Tables below, Table 5.3 shows that the highest value of VIF for the independent variables for the sample of AIM is 1.87. Table 5.4 shows the highest value of VIF for the independent variables for sample of the SME Board Market is 1.78. These highest values of VIF are still below the standard threshold of VIF of 5. It is an indication that there is no evidence of multi-collinearity in the independent variables for both samples.

Table 5. 1: Variance Inflation Factor (VIF) test for Multi-collinearity with AIM

Variable	VIF	SQRT VIF	Tolerance	R-Squared
SIZE	1.49	1.22	0.67	0.33
GROWTH	1.00	1.00	1.00	0.00
NDTS	1.57	1.25	0.64	0.36
ROE	1.02	1.01	0.98	0.02
TANG	1.71	1.31	0.58	0.42
TRATE	1.32	1.15	0.76	0.25
LIQUIDITY	1.06	1.03	0.95	0.05
InTANG	1.74	1.32	0.57	0.43
DBKRT	1.12	1.06	0.89	0.11
DIV	1.24	1.12	0.80	0.20
GDP	1.87	1.37	0.54	0.46
CFMT	1.27	1.13	0.79	0.21
BOND	1.45	1.20	0.69	0.31
STK	1.72	1.31	0.58	0.42
HH	1.06	1.03	0.94	0.06
STDMV	2.51	1.58	0.40	0.60
STDBV	1.56	1.25	0.64	0.36
LTDMV	2.61	1.62	0.38	0.62
LTDBV	1.66	1.29	0.60	0.40
Mean VIF	1.53			

Table 5. 2: Variance Inflation Factor (VIF) test for Multi-collinearity with SMEs Board Market

Variable	VIF	SQRT VIF	Tolerance	R-Squared
SIZE	1.49	1.22	0.67	0.3292
GROWTH	1.08	1.04	0.92	0.0772
NDTS	1.21	1.10	0.83	0.174
ROE	1.37	1.17	0.73	0.2712
TANG	1.38	1.17	0.73	0.2746
TRATE	1.15	1.07	0.87	0.134
LIQUIDITY	1.36	1.17	0.73	0.2661
InTANG	1.32	1.15	0.76	0.2448
DBKRT	1.65	1.28	0.61	0.3943
DIV	1.13	1.06	0.89	0.1148
GDP	1.01	1.01	0.99	0.0132
CFMT	1.72	1.31	0.58	0.4169
BOND	1.78	1.33	0.56	0.4388
STK	1.51	1.23	0.66	0.3394
HH	1.05	1.02	0.96	0.0446
STDMV	1.66	1.29	0.60	0.3959
STDBV	1.78	1.33	0.56	0.437
LTDMV	2.16	1.47	0.46	0.5369
LTDBV	2.01	1.42	0.50	0.5035
Mean VIF	1.46			

Before progressing all the variables in a regression model, the Pairwise Pearson's correlation matrix is also carried out. Table 5.5 and Table 5.6 in appendix present the Pearson's correlation between independent variables, control variables and dependent variables. As per the hypothesis in Chapter 4, leverage is positively correlated with firm size, asset tangibility, effective tax rate, liquidity, industry market concentration and net debt to GDP. Also, the leverage is negatively correlated with growth opportunities, non-debt tax shield, profitability, asset intangibility, distance to bankruptcy, dividend, GDP, gross capital formation and stock market capitalization.

Table 5.5 shows from the sample of AIM that both short term and long term leverage are positively correlated to the variables of No-debt tax shield, profitability, asset tangibility, effective tax rate, intangible assets, and dividend pay-out ratio, gross capital formation and industry market concentration, and are negatively associated with liquidity and stock market capitalization. From these results, it can be seen that the correlations between all the leverage and the variables of non-debt tax shield, profitability, asset intangibility, dividend payment and gross capital formation are not in accord with the hypotheses. The positive association between all the leverage and the variables of asset tangibility and effective tax rate, and the negative association between all the leverage and the variable of stock market capitalization are in line with conditions of hypotheses.

Further, several correlations are found to have mixed results. The short term leverage and long term leverage in market value are negatively related to growth opportunities while the long term leverage in book value is positively correlated with growth opportunities. Also, the short term leverage are all negatively related to GDP and conversely, the long term leverage are all positively correlated to GDP. Also, some significant correlations between the independent variables and dependent variables are marked with star (*).

Table 5.6 presents the sample of the SME Board market. The leverages including short term and long term are all positively related to the variables of firm size, asset tangibility, and stock market capitalization, and all negatively associated with the variables of growth opportunities, non-debt tax shield, profitability, tax effective rate, liquidity, asset intangibility, distance to bankruptcy, dividend pay out, GDP and capital formation. Besides the effective tax rate and liquidity, other correlations in the Table meet the assumptions. Also, the correlations between leverage and variables of net debt to GDP and industry market concentration are mixed. The short term leverage in market value is positively associated with net debt to GDP while the short term leverage in book value and the long term leverage are all negatively related to net debt to GDP. The correlation between the long term leverage in book value and industry market concentration is negative while the long term leverage in market value and short term leverage show a positive relationship with industry market concentration.

Table 5.7 shows the differences between the hypothesis and the results. From Table 5.5 and Table 5.6, the most significant correlations are found between explanatory variables and explained variables with the highest absolute value at 0.29 in the sample of AIM, and 0.27 in the sample of the SME Board Market. These are not seen as problematic as the maximum threshold is 0.9 in the Pearson correlation. With regard to VIF tests under the Pearson correlations, it can be concluded that there is no problem of multi-collinearity in samples and therefore data analysis can proceed.

Table 5. 3: Hypotheses and Pearson's Correlation

	HYPOTHESIS (LEVERAGE)	AIM (LEVERAGE)	SME (LEVERAGE)
SIZE	+	+	+
GROWTH	-	MIX	-
NDTS	-	+	-
ROE	-	+	-
TANG	+	+	+
TRATE	+	+	-
LIQUIDITY	+	-	-
INTANG	-	+	-
DBKRT	-	MIX	-
DIV	-	+	-
GDP	-	MIX	-
CFMT	-	+	-
BOND	+	MIX	MIX
STK	-	-	+
HH	+	+	MIX

5.5 Conclusion

The chapter presents analyses and results and analyses based on the secondary data being utilised to address research questions that are developed in this thesis associated with the capital structure and its determinants. Using a sample of 510 firms from AIM All Share index and a further sample of 759 firms from SMEs

Board market index between 2007 and 2017, the regression models selected have been the subject of Poolability, Hausman selection, heteroscedasticity and serial correlation tests to confirm their suitability and these include Pearson correlation coefficient analyses and fixed effect panel data analysis to establish the use of the fixed effects model. The descriptive statistics have been analysed and indicate that the average short-term leverage and long term leverage varies according to the sectors. For instance, the Consumer Goods sectors of AIM has the highest average short-term leverage ratios whereas the Basic Materials sector has the lowest average short term leverage ratios. In the SMEs Board, the Basic Material sector has the highest average short-term leverage ratios and the Telecommunication sectors has the lowest value. It is also observed that independent variables relating to capital structure in the various sectors have been fluctuate within the period of the sample. For example, the mean of profitability in AIM's business sectors shows a significantly difference over the period but, the mean of firm size remains constant. In the context of SMEs Board, the mean of firm size within the sectors remains at almost in the same level but the mean of tangibility shows a different values.

Chapter Six: Panel Regression Test Results and Discussion

This chapter uses an unbalanced panel data model to examine the linear relationship between capital structure and its key determinants and tests the validity of the model and seeks to answer research questions posed. Initially, the chapter uses Poolability and Hausman tests to establish the validity of using a fixed effects model and to test for heteroscedasticity and serial correlation. The regression analysis, first, discussed the sectoral results which are essentially industry related. The second element of the empirical analysis covers the full sample and examines the dummy variable effects of industry, time and financial system. The regressions are run separately for the AIM and SMEs Board data and the results discussed with appropriate comparative interpretation. The sectoral results show a differing response to the explanatory variables dependent on specific sectors. However, the aggregate results indicates that the industry-specific variable has a strong influence on capital structure. Additionally, the results indicate that industry, time and country dummy variables have a significant effect on both market and book value leverage in the period 2007 and 2017. Overall, the results show significant relationship when capital structure and its determinants are designed as a multi-dimensional construct.

6.1 Poolability and Hausman Tests

"One of the major issues for models using panel data is whether or not the parameters, intercepts and slope coefficients are the same for all cross-sections, since these parameters represent cross section specific characteristics (Baltagi 2008). The Poolability test essentially widens the database of the time series of cross sections that test the stability of the parameter estimates. The simplest Poolability test has as its null hypothesis the OLD model: $y_{it} = \alpha + \beta' X_{it} + \nu_{it.}$ while the alternative hypothesis is the Fixed Effect (FE) model estimated as: $y_{it} = \alpha + \beta' X_{it} + \mu_i + \nu_{it}$. Also, the presence of individual effects is tested in this section with consideration of F statistics. The Hausman Test is also used to distinguish between Random Effect (RE) and Fixed Effect (FE) models in the panel data. The results of samples of the AIM and the SME Board Market are shown in Table 6.1

Table 6. 1: Hausman Test

	AIM	SME Board Market
STDMV	Prob>chi2 = 0.0000	Prob>chi2 = 0.0000
STDBV	Prob>chi2 = 0.0000	Prob>chi2 = 0.0000
LTDMV	Prob>chi2 = 0.0000	Prob>chi2 = 0.0000
LTDBV	Prob>chi2 = 0.0000	Prob>chi2 = 0.0000

The data shows Prob>Chi2=0.0000 indicating that the Fixed Effect model is the optimal model to progress unobserved heterogeneity and provide the best linear unbiased estimates in BLUE

6.2 Heteroskedasticity and Serial Correlation Results

After deciding on the Fixed Effect (FE) model, the issues of heteroscedasticity and serial correlated are also tested in the model. This section tests the heteroscedasticity and serial correlation by carrying out the modified White test for heteroscedasticity. It is found that Prob>chi2-0.0000, indicating the presence of heteroscedasticity and that the null hypothesis is rejected. The serial correlation test which is performed by using the Wooldridge Test leading to a Prob>F=0.0000, shows that there is no serial correlation in the model and thus the null hypothesis is accepted. As used in studies (Hoechle 2007), the section uses fixed effect regression with Driscoll and Kraay standard error (XTSCC) to correct for heteroscedasticity. According to Hoechle (2007) , XTSCC is effective in panel data with a shorter period compared to the number of panels (i.e., T<N).

6.3 Sectoral Result Analysis

Table 6.2 and Table 6.3 below show the consolidated panel regression model of fixed effect covering all the sectors in the ICB and CNI apart from the Financial and Utilities Sectors which are omitted due to the particularity of these two sectors. The results of both independent variables and control variables are included in the Table because the differences in coefficient and direction between control variables are significant in the sectors. The standard errors which are presented in parentheses are the panel corrected standard errors. The problems of heteroscedasticity which was discussed in the preceding section are corrected in the Tables. It can be seen from Table 6.2 and Table 6.3 that firm specific variables, industry specific variables and country specific variables are tested to identify the association with capital structure. This section aims to investigate the capital structure decisions of each sector regarding this relationship and therefore the results below are presented to achieve this objective.

6.3.1 Oil & Gas Sector

The Oil & Gas Sector based on AIM

Table 6.2: The Sectoral Regression Results on Oil & Gas Sector in AIM

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Oil & Gas	**SIZE**	17.02***	-0.353	17.85***	3.061***
		(2.744)	(1.244)	(3.791)	(0.543)
	GROWTH	-0.0878**	-0.0135	0.00271	-0.0119*
		(0.0393)	(0.0143)	(0.00792)	(0.00624)
	NDTS	0.230***	0.0114	0.297**	0.0261
		(0.0737)	(0.0260)	(0.120)	(0.0210)
	ROE	-0.00564***	-0.000229	0.00245	-0.00351***
		(0.00184)	(0.00135)	(0.00213)	(0.000914)
	TANG	0.398***	-0.00970	0.400***	0.0701***
		(0.0550)	(0.0103)	(0.0555)	(0.0140)
	TRATE	0.174	0.105***	0.0860	-0.00754
		(0.138)	(0.0343)	(0.156)	(0.0274)
	LIQUIDITY	-0.00952	-0.00214	0.000600	0.000817
		(0.0128)	(0.00140)	(0.00796)	(0.00121)
	InTANG	0.259***	0.00135	0.196***	0.0175
		(0.0628)	(0.0103)	(0.0664)	(0.0141)
	DBKRT	-0.0499*	-0.0897***	-0.0643*	-0.0834**
		(0.0290)	(0.0242)	(0.0376)	(0.0368)
	DIV	-0.411	-0.111***	0.0662	0.00544
		(0.256)	(0.0323)	(0.139)	(0.0326)
	GDP	-1.605	-0.0754	-2.221***	-0.110
		(0.971)	(0.207)	(0.768)	(0.0894)
	CFMT	-1.385	0.671	-0.0630	0.324**
		(1.992)	(0.479)	(0.886)	(0.137)
	BOND	-0.0652	0.0145	-0.238***	-0.00425
		(0.0954)	(0.0264)	(0.0480)	(0.00926)
	STK	-0.242	-0.0369	-0.294*	-0.00196
		(0.205)	(0.0438)	(0.149)	(0.0235)
	HH	-4.119	-0.132	-17.74***	-0.305
		(8.256)	(1.756)	(5.511)	(0.884)
	Constant	-1.774	-2.217	-13.48	-17.01***
		(48.30)	(11.25)	(25.26)	(3.559)
	R^2	61	61	61	61

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Starting with the Oil & Gas Sector, it is found that all the dependent variables of leverage including market values and book values have a positive relationship with firm specific variables of firm size, non-debt tax shield and asset intangibility. These results are complicated as the variable of firm size is hypothesised (see H1) that to be positively associated with leverage, and the variables of non-debt tax shield and asset intangibility are assumed (see H3 and H8) that to be negatively related to leverage. Non-debt tax shield and asset intangibility do not meet the assumptions which have been discussed in the preceding chapter. The positive association between firm size and leverage shows that relatively large firms tend to be more diversified and less prone to bankruptcy, and therefore large firms should be more highly leveraged (Ang et al. 1982; De Jong et al. 2008). According to Titman and Wessels (1988), tax deductions for depreciation and investment tax credits are regarded as substitutes for the tax benefits of debt financing. Consequently, firms with more non-debt tax shields relative to their expected cash flow include less debt in their capital structure. However, the relationship between debt tax shields and non-debt tax shields is not substitutional. In income statements, the expense of depreciation is recognized before income tax and, therefore, the tax benefit of debt financing and non-debt tax shields can be the a parallel or a successive relationship. In this case, firms with large non-debt tax shields might not reduce debt financing in capital structure as they can gain benefit from both tax benefits of debt financing and non-debt tax shields. Furthermore, the positive association between asset intangibility and leverage goes which against the hypothesis.

In addition, negative relationship between all the dependent variables of leverage and distance from default, GDP, stock market capitalization and industry market concentration are recorded. The results of the variables of distance from default, GDP and stock market capitalization support the studies of Booth et al. (2001), De Jong et al. (2008). The results of industry concentration (HH index) indicates that highly concentrated industries may lead their firms to have lower debt, which is in contrast to the hypothesis and the results of MacKay and Phillips (2005).

As expected, growth opportunities in this sector have a negative relationship with short term leverage in market value, short term leverage in book value, and long term leverage in book value but a positive relationship with long term leverage in market value. These negative relationships are demonstrated in the studies of Rajan and Zingales (1995); Booth et al. (2001); Bevan and Danbolt (2002) and explain the disciplinary role of debt in decreasing the conflict of interest between managers and shareholders caused by excessive free cash flow (Jensen 1986). However, based on the measures build variable, growth opportunities are defined as market to book value in the research. In Myers (1984), Villalonga and Amit (2006), the ratio of market to book is also defined as a proxy for the intangibility of firms. Either way, both theoretical hypotheses predict a negative relationship to market.

Profitability also shows a negative relationship with leverage excepting long term leverage in market value in the Oil & Gas sector. Similar to growth opportunities, different predictions can explain the influence of probability on leverage. While pecking order hypothesised a negative relationship, trade-off suggests a positive relationship (Kayo and Kimura 2011). In this study, the hypothesis of pecking order prevails as an explanation for the lower level of debt in the most profitable firms in the Oil & Gas sector within AIM.

Another firm variable, tangibility, shows a positive relationship with leverage excluding short term leverage in book value. The positive influence of tangibility suggests that the collateral aspect of fixed assets is a significant driver for the firms in the Oil & Gas sector in AIM. Studies of Rajan and Zingales (1995), Bevan and Danbolt (2002) find the same relationship for firms in the UK.

For the country macroeconomic variables, stock market development significantly reduces the long term leverage in market value. Similar to analysis of Kayo and Kimura (2011), as firms in this sector have an alternative to "finance investments and growth through a more flexible source of capital (e.g. equity), they prefer to have less leverage". However, bond market development also shows a negative relationship with leverage in this sector. Besides, GDP has a negative influence on debt especially a significant negative relationship with long term leverage.

The Energy Sector based on the SMEs Board

Table 6. 3 The Sectoral Regressions Results on Oil & Gas Sector in SMEs Board

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Energy	**SIZE**	24.55**	-0.742	58.88***	11.69***
		(8.074)	(3.053)	(10.50)	(1.254)
	GROWTH	-0.430	-0.205	-0.395	0.350*
		(0.369)	(0.175)	(1.273)	(0.175)
	NDTS	-1.299**	-0.591***	-2.315***	-0.264**
		(0.573)	(0.172)	(0.591)	(0.106)
	ROE	-0.0217	0.0214	-0.178*	-0.0626***
		(0.0328)	(0.0135)	(0.0916)	(0.00855)
	TANG	-0.456***	-0.137**	-0.375	0.261***
		(0.0910)	(0.0509)	(0.261)	(0.0364)
	TRATE	0.201*	-0.0359	-0.719**	-0.0687***
		(0.106)	(0.0282)	(0.296)	(0.0180)
	LIQUIDITY	-4.574***	-1.843***	-5.374***	0.296**
		(0.457)	(0.373)	(0.877)	(0.103)
	InTANG	2.248***	0.00811	-1.687*	-0.278**
		(0.496)	(0.111)	(0.902)	(0.100)
	DBKRT	-2.463	-1.006	-0.668	1.820**
		(2.616)	(0.941)	(4.095)	(0.785)
	DIV	-0.000284	-0.0171	-0.176	-0.0401
		(0.0479)	(0.0174)	(0.175)	(0.0228)
	GDP	0.0543	0.0145	-0.0412	-0.000578
		(0.0328)	(0.0168)	(0.0894)	(0.0118)
	CFMT	-9.390***	1.153	-10.26*	-1.157**
		(2.265)	(1.033)	(5.745)	(0.382)
	BOND	-0.567**	-0.0685	0.257	-0.0148
		(0.208)	(0.0806)	(0.483)	(0.0532)
	STK	-0.212	0.331***	-0.754	-0.132***
		(0.231)	(0.0899)	(0.459)	(0.0427)
	HH	29.38	2.268	295.9***	7.836
		(17.20)	(5.825)	(47.61)	(4.958)
	Constant	86.25*	18.88	-229.5**	-63.97***
		(42.00)	(18.85)	(78.76)	(7.279)
	R^2	0.5972	0.5972	0.5972	0.5972

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

With regarding to the Energy Sector of the SMEs Board Market, it is found in Table 6.3 that all the leverage including market value and book value has a significant negative relationship with the non-debt tax shield. This is different from results of the Oil & Gas sector in AIM where a positive relationship between non-debt tax shield and debt is present. The negative influence of a non-debt tax shield is significant suggesting that firms with a high level of non-debt tax shields can deduct from taxable income. This relationship is in line with studies of DeAngelo and Masulis (1980) which predict an inverse relationship between the amount of the non-debt tax shield and leverage. However, the studies (DeAngelo and Masulis 1980; Ozkan 2001) present a capital structure model where non-debt tax shield serves as a substitute for the interest expenses which are deductible in the calculation of corporate tax. As discussed in the previous section, the non-debt tax shield and the debt tax shield are not substitute and therefore the interpretation of this literature are not correct.

The positive and significant relationship is that between the variable of firm size and debt except for short term leverage in book value. This is similar to the results in the sample of AIM. A positive relationship is based on the hypothesis that large firms are more transparent and are able to suffer the costs of debt financing through a higher volume, or because large firms are more diversified and this therefore reduces the bankruptcy risk (Titman and Wessels 1988). According to Rajan and Zingales (1995), a negative relationship corresponds to the hypothesis that a smaller level of asymmetric information in larger firms can allow them to issue new equity without a concomitant decrease in market value. As expected, profitability shows a negative relationship with leverage except for the short term leverage in book value. In particular, the negative relationship of long term leverage to both market value and book value and profitability is at a significant level. This is in line with the pecking order prediction but contradicts the trade-off interpretation.

As can be seen from Table 6.3, the analysis provides evidence of a significant negative relationship between leverage except for long term leverage in book value and firm variables of tangibility and liquidity. The negative influence of tangibility suggests that the collateral aspect of fixed assets might not be a leverage driver for the firms in the SME Board Market. Also, the positive coefficient of tangibility for long term leverage in book value is consisted with the pecking order theory which suggests fixed assets have a significant influence on long term leverage rather than short term leverage in the Energy sector. Similar to tangibility, a high level of liquidity can be the guarantee for paying short term debt and therefore it can be regarded as a leverage driver for firms. The significant negative influence of liquidity on leverage is consistent with the interpretation of Ozkan (2001) that liquidity can be manipulated by shareholders at the expense of bondholders. Intangibility is another firm variable that has a significant positive relationship with leverage. It could be inferred that the collateral value of the intangible asset is becoming more significant, especially the value of business licenses or a special permit (e.g. oil concessions, mining rights) in the Energy Sector.

With regarding to the macro-economic conditions, the variable of capital formation has a significant negative impact on leverage excluding the short term leverage in book value. This is consistent with De Jong et al. (2008) who claim that, with a high level of available funds from capital formation, high profitability and liquidity further reduce the use of debt among the firms in the energy sector. Additionally, bond market development only has a significant negative relationship with short term leverage in market value. This implies that the in countries with a higher bond market development, firms in the Energy sector are not likely to take more debt, but the effects of firm variables are also reinforced. However, the stock market development has a significant positive relationship with short term leverage in market value and a significant negative relationship with long term leverage in book value. With the development of the stock market, firms tend to mitigate the use of debt in the long term. For industry variables, the only leverage ratio that is significantly influenced by industry market concentration is the long term leverage in market value that shows a negative relationship.

6.3.2 The Basic Material Sector and the Material Sector Analysis

The Basic Material Sector based on AIM

By analysing the results from the Basic Material sector of AIM in Table 6.4, all the leverage in both market value and book value has a significant and positive relationship with firm size, asset tangibility, effective tax rate, but a negative relationship with liquidity, distance from bankruptcy, and industry market concentration. The positive influence of firm size on all the leverage ratios is in line with Ozkan (2001), Bennett and Donnelly (1993); Psillaki and Daskalakis (2009) who present evidence that large firms have a higher debt ratio due to the diversified lower probability of bankruptcy. The positive influence of asset tangibility can explain why a firm with a high level of fixed asset will issue as much secured debt as possible. Also, as a result of effective tax rates, firms with high effective corporate tax rates have a higher proportion of debt at their capital structure level. This is in line with the hypothesis of Modigliani and Miller (1963), DeAngelo and Masulis (1980) that firms with high effective corporate tax have a higher leverage ratio.

Table 6. 4 Regression Results on Basic Material Sector of AIM

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Basic Material	**SIZE**	24.69***	2.793***	20.21***	2.527***
		(2.753)	(0.838)	(2.434)	(0.850)
	GROWTH	-0.0646	-0.0106	-0.101*	-0.0562**
		(0.0700)	(0.0323)	(0.0601)	(0.0231)
	NDTS	0.136	0.113*	0.103	0.0225
		(0.113)	(0.0587)	(0.117)	(0.0681)
	ROE	0.00136***	0.000338**	0.000490	2.42e-05
		(0.000506)	(0.000155)	(0.000720)	(0.000150)
	TANG	0.0176*	0.0159***	0.0163*	0.0165***
		(0.0102)	(0.00394)	(0.00944)	(0.00566)
	TRATE	0.0106***	0.00129**	0.0106***	0.00179***
		(0.00295)	(0.000509)	(0.00235)	(0.000665)
	LIQUIDITY	-0.218**	-0.0233*	-0.159**	-0.0199**
		(0.104)	(0.0128)	(0.0691)	(0.00897)
	InTANG	-0.554**	-0.0595	0.0632	0.0551
		(0.245)	(0.106)	(0.312)	(0.107)
	DBKRT	-0.444***	-0.278***	-0.380***	-0.191**
		(0.134)	(0.0700)	(0.137)	(0.0866)
	DIV	-0.452	0.163	0.943	-1.164***
		(0.762)	(0.344)	(0.863)	(0.325)
	GDP	0.779	-0.122	-0.559	-0.111
		(0.652)	(0.132)	(0.523)	(0.148)
	CFMT	3.782***	0.961***	0.708	0.345
		(0.970)	(0.264)	(0.818)	(0.251)
	BOND	0.130**	0.0273	-0.173***	-0.0400***
		(0.0634)	(0.0175)	(0.0338)	(0.0108)
	STK	-0.0490	-0.0519***	0.120***	0.0235**
		(0.0561)	(0.0113)	(0.0393)	(0.00970)
	HH	-6.800***	-1.360**	-6.521***	-1.577***
		(1.974)	(0.565)	(1.358)	(0.428)
	Constant	-128.8***	-19.95***	-65.40***	-12.28*
		(23.37)	(5.647)	(19.09)	(6.371)
	R^2	0.1423	0.1423	0.1423	0.1423

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In this sector, firms with greater liquid equity have lower leverage and prefer equity financing when raising capital. The preceding reviews show that liquidity may have a mixed impact on capital structure. For instance, firms with higher liquidity ratio may support a relatively higher debt ratio because of the greater ability to pay short term obligation (Ahmad et al. 2012). This will imply a positive relationship between a firm's liquidity ratio and debt ratio. However, the negative relationship in this sector could infer that firms with greater liquidity may use these assets to finance their investments and, consequently, use less debt (Ozkan 2000). The second negative and significant relationship is that between distance from bankruptcy and all the leverage. Thus, the financially heathy firms in the Basic Material sector tend to have lower levels of debt which corresponds to the explanation of trade off (Byoun 2008).

Industry market concentration also plays a significant role on all the leverage. In contrast to the study of MacKay and Phillips (2005) which claims that highly-concentrated industry has higher levels of leverage and lower intra-industry dispersion, the relationship between the industry concentration and all the leverage are significantly negative. This could be mainly due to the characteristics of the Basic Material sector.

The results considering the other variables are mixed. For instance, the variable of firm size only has a significant negative relationship with long term leverage while the profitability of the firms in this sector shows a significant positive relationship with short term leverage. Regarding country variables, capital formation and short term leverage show a significant positive relationship. The bond market development has a significant positive relationship with short term leverage in market value, and a significant negative relationship with long term leverage in both market value and book value. By contrast, the stock market development has a significant positive relationship with long term leverage in market value and book value, but has a significant negative relationship with short term leverage in book value. It can be concluded that the influences of bond market and stock market on capital structure in the Basic Material sector have opposite effects.

The Material Sector Based on the SMEs Board market

Table 6.5 Regression Results on Basic Material Sector in AIM

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Materials	**SIZE**	-2.009*	0.426	55.23***	7.321***
		(1.082)	(1.348)	(4.827)	(0.936)
	GROWTH	-0.402***	-0.169***	-2.362***	-0.112
		(0.0944)	(0.0499)	(0.456)	(0.0720)
	NDTS	0.166	0.133*	-0.718	-0.0391
		(0.143)	(0.0732)	(0.526)	(0.0858)
	ROE	0.0503***	0.0176	0.172*	-0.00361
		(0.0111)	(0.0148)	(0.103)	(0.00824)
	TANG	-0.0260	-0.0249	0.242*	0.0854***
		(0.0339)	(0.0342)	(0.135)	(0.0161)
	TRATE	0.158*	-0.0292	-0.469***	-0.0468***
		(0.0825)	(0.0192)	(0.106)	(0.00918)
	LIQUIDITY	-2.758***	-0.804***	-1.225***	0.00483
		(0.132)	(0.0956)	(0.385)	(0.0474)
	InTANG	-0.0353	-0.244***	-0.238	-0.000575
		(0.0563)	(0.0286)	(0.147)	(0.0188)
	DBKRT	-1.663***	-4.637***	2.415	0.938**
		(0.601)	(0.427)	(3.278)	(0.377)
	DIV	-0.0311**	-0.0306***	-0.154***	-0.0187***
		(0.0145)	(0.00405)	(0.0580)	(0.00677)
	GDP	0.00344	0.00154	-0.0367	-0.00597
		(0.00826)	(0.00449)	(0.0381)	(0.00513)
	CFMT	-5.713***	3.356***	42.61***	6.006***
		(1.502)	(0.694)	(6.863)	(1.079)
	BOND	-0.0988***	-0.00699	0.393**	0.0705***
		(0.0313)	(0.0197)	(0.167)	(0.0229)
	STK	-0.159***	0.0907***	2.345***	0.237***
		(0.0541)	(0.0249)	(0.195)	(0.0364)
	HH	-256.0***	192.2***	2,141***	276.9***
		(68.17)	(38.59)	(289.0)	(49.46)
	Constant	193.4***	-17.07	-859.8***	-125.1***
		(24.62)	(18.18)	(105.1)	(18.56)
	R^2	0.1104	0.1104	0.1104	0.1104

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In the Material sector of the SME board market, the statistical analysis shows more complicated results. Firstly, it can be seen from Table 6.5 that only the variables of dividend payment, capital formation, stock market development and industry concentration show significant relationships with all the leverage ratios in both market value and book value. It appears that the overall influence of country variables on leverage in the Material sector are more significant than firm variables. The significant and positive relationship of leverage ratios and dividend payout is consistent with the interpretation of Bhaduri (2002), Frank and Goyal (2003) that dividends are the signal of financial heath to outsiders. In this sector, firms with a constant stream of dividends may have less asymmetric information in the equity market. Dividend payments lessen internal funds and increase external financing. With regard to significant country variables, capital formation shows a negative relationship with short term leverage in market value but a positive relationship with short term leverage in book value and long term leverage. This suggests that the firm tends to have external financing of debt even though the level of gross domestic capital mobilization is increasing. Similar to capital formation, the stock market development has a positive relationship with short term leverage in market value and a negative relationship with the other three. The positive relationships are not consistent with the hypothesis suggesting that, with the development of the stock market, firms in these sectors still prefer to have debt financing. Furthermore, the influences of industry concentration on firm leverage are mostly negative which indicates that the Energy sector with a higher concentrated market will have lower leverage.

Secondly, variables of firm size, growth opportunities, effective tax rate, liquidity, distance from default and bond market development have a significant relationship with three of the leverage ratios. In the Energy sector, firm size has a significant negative relationship with short term leverage in market value and a significant positive relationship with long term leverage. The positive association of firm size is consistent with the hypothesis of trade-off theory that large firms may be able to incur lower transaction costs associated with debt (Psillaki et al. 2010). The negative influence of firm size may be consistent with indications that size can be a proxy for the information outside investors have, and therefore should increase their preference for equity relative to debt (Rajan and Zingales 1995).

The negative relationships between growth opportunities and the leverage ratios are consistent with the studies of Rajan and Zingales (1995), Bevan and Danbolt (2002) and Booth et al. (2001) which point out the “disciplinary role of debt in alleviating the conflicts of interest between managers and shareholders caused by excessive free cash flow”. By comparison with the Basic Material sector, the significant relationships between effective tax rate and leverage excepting the short term leverage in market value in the Energy sector are negative. Also, the significant relationship between the liquidity and leverage ratio excepting the long term leverage in market value are negative. Additionally, the distance from bankruptcy has a negative relationship with short term leverage but a positive relationship with long term leverage.

Considering the macroeconomic conditions, the short term and long term debt measuring in both market and book value are significantly associated with macroeconomic factors excepting GDP growth. An explanation for these results can be the high sensitivity of the sector to the change in business environment and the diversified financing channels. This is probably because companies in the Basic Material sector supply materials for construction or other service industries which depend on strong economy. In these macro factors, capital formation has the largest value of coefficients, suggesting that the accumulation of capital is the greatest motivation for the Basic Material sector to increase leverage. Along with this, with the bond market developed, firms in this sector would reduce short term loans but borrow more long term loans. It can be noted that firms in the sector that obtain leverage at low costs will benefit over the long term. In addition, debt financing in the sector is greatly related to market concentration. The outcomes obtained in this sector are consistent with MacKay and Phillips (2005) that high-concentrated industries have higher level of leverage and lower intro-industry dispersion. This explains why firms in the sector gaining a large market share would borrow more especially long term debt.

6.3.3 Industrial Sector Analysis

The Industrial Sector based on AIM

The Industrial sector is one of those sectors that is expected to have a great impact on the capital structure. As seen from the results, most of the relationships between the variables of firm specific; industry characteristics and country characteristics and the leverage ratios are significant to varying degrees. Firstly, the coefficient of variables of firm size, growth opportunities, tangibility and dividend payout all accord with hypotheses at a statistically significant level. For instance, the positive impact of firm size and tangibility on leverage indicates the prediction of trade-off theory and signalling theory, while the negative association of growth opportunities and dividend payout demonstrate the assertions of trade-off and agency theory. Also, liquidity shows a significantly negative correlation to all the leverage ratios. This may be possibly because the firms in the sector with more liquid equity prefer equity financing due to the lower cost of equity (Lipson and Mortal 2009).

Table 6. 6 Regression Results on Industrial Sector of AIM

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Industrials	**SIZE**	16.04***	-1.484*	9.952***	2.475***
		(3.542)	(0.878)	(3.612)	(0.931)
	GROWTH	-0.00313	-0.0147**	-0.0259	-0.00696
		(0.0117)	(0.00649)	(0.0566)	(0.00711)
	NDTS	-0.0326	-0.0242	-0.0518	0.0978***
		(0.0724)	(0.0238)	(0.101)	(0.0196)
	ROE	0.00522*	-0.00526***	-0.0151**	-0.00127
		(0.00300)	(0.00163)	(0.00635)	(0.00145)
	TANG	0.166	0.0614***	0.283**	0.118***
		(0.145)	(0.0184)	(0.120)	(0.0249)
	TRATE	-0.0732	-0.0526***	0.137	0.00451
		(0.129)	(0.0136)	(0.101)	(0.0190)
	LIQUIDITY	-0.557***	-0.0671**	-0.220***	-0.00595
		(0.125)	(0.0298)	(0.0701)	(0.00881)
	InTANG	0.114	-0.0128	0.368***	0.126***
		(0.0856)	(0.0138)	(0.0848)	(0.0125)
	DBKRT	0.0225	0.00503**	-0.0472***	-0.00364**
		(0.0200)	(0.00251)	(0.00952)	(0.00170)
	DIV	-0.0813**	-0.0155*	-0.106***	-0.0441***
		(0.0406)	(0.00795)	(0.0326)	(0.00769)
	GDP	0.202	-0.312***	-0.177	-0.147*
		(0.481)	(0.0719)	(0.371)	(0.0746)
	CFMT	-1.911**	-0.510***	0.616	-0.334***
		(0.909)	(0.139)	(0.703)	(0.120)
	BOND	-0.228***	-0.0487***	-0.0455	-0.0535***
		(0.0556)	(0.00833)	(0.0436)	(0.00808)
	STK	0.00668	0.0194***	0.0540**	-0.00689
		(0.0410)	(0.00676)	(0.0258)	(0.00549)
	HH	23.45	1.307	12.25	-22.69***
		(42.13)	(5.631)	(34.30)	(6.949)
	Constant	35.92	21.60***	-7.014	8.189
		(34.77)	(6.034)	(35.13)	(6.372)
	R^2	0.078	0.078	0.078	0.078

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Other notable variables with firm characteristics are profitability and distance from bankruptcy. Profitability has a significantly positive relationship with short term leverage in market value but a significantly negative relationship with short term leverage in book value and long term leverage in market value. This could be linked to the problems of underinvestment and new projects being mispriced so pecking order hypothesis may not be the only reason. The distance from bankruptcy shows a positive relationship with short term leverage but a negative relationship with long term leverage. This suggests that the trade-off hypothesis might only be supported over the long term. The financially heathy companies with low bankruptcy likelihood in the sector might have stronger ability for paying short-term debt and therefore might have a higher level of short term debt.

Regarding the macroeconomic, the capital formation and bond market development are the most significant variables that have huge influence on capital structure in the Industrial sector. With respect to capital formation, the results indicate that the more retained earnings at country level are accumulated, the less leverage firms have. From the results, it can also be concluded that the more developed the UK bond market, the smaller the leverage of firms in the Industrial sector. In contrast, the less developed the UK stock market, the larger the leverage of firms in this sector even though the findings are not strong. This result is consistent with the empirical analysis of Kayo and Kimura (2011) who use more than 20 countries including the UK as sample space.

The Industrial Sector based on the SMEs Board Market

Similar to the Industrial sector of AIM, the coefficient of firm size, growth opportunities and industry market concentration in this sector are accord with the hypothesis to a significant level. Furthermore, all the leverage ratios are also significantly influenced by the variables of dividend pay-out and capital formation as expected from the hypotheses. Other variables with significant coefficients are tangibility, liquidity, distance from bankruptcy, dividend payout and bond market development. The tangibility in this sector is negatively related to short term leverage but positively related to long term leverage. This could be linked to the fact that, as non-debt portion of liabilities does not need collateral, tangibility is therefore expected to affect long term debt rather than short-term debt. In addition, the coefficient of liquidity in statistical analysis is contrary to expectations. The significant negative sign of liquidity indicates that the stronger the ability of short-term debt paying the firm holds, the less leverage the firm hold. This may be possibly because firms in this sector show a greater reliance on equity financing.

Similar to AIM, the variable of distance from bankruptcy has a significant negative relationship with short term leverage. Regarding variables of country characteristics, the bond market development and stock market development are the two factors that have inverse influences on leverage which are contrary to the anticipated findings. Consistent with the Industrial sector in the UK, firms in the Industrial sector of the SMEs board market reduce the level of debts when the bond market is developed. Further, firms tend to increase their long term leverage with the development of the stock market.

Table 6. 7 Regression Results on Industrial Sector of SMEs

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Industrials	SIZE	7.866***	1.529*	38.17***	4.285***
		(2.585)	(0.780)	(7.527)	(0.915)
	GROWTH	-0.152***	-0.0688***	-0.120***	-0.00962*
		(0.0280)	(0.00391)	(0.0368)	(0.00491)
	NDTS	0.0842	-0.106***	0.428	0.0585
		(0.128)	(0.0251)	(0.263)	(0.0488)
	ROE	-0.0716**	0.00880	-0.282**	-0.00196
		(0.0297)	(0.0104)	(0.112)	(0.0155)
	TANG	-0.0624*	-0.0554***	0.236***	0.101***
		(0.0329)	(0.0101)	(0.0746)	(0.0201)
	TRATE	-0.0415	-0.0409***	-0.133**	-0.00692
		(0.0528)	(0.00593)	(0.0531)	(0.00496)
	LIQUIDITY	-3.885***	-0.889***	-1.423***	0.0200
		(0.246)	(0.0791)	(0.382)	(0.0351)
	InTANG	-0.0407	-0.164***	-0.0135	0.0206
		(0.0747)	(0.0159)	(0.152)	(0.0223)
	DBKRT	-2.039**	-3.688***	1.884	-0.351
		(0.982)	(0.197)	(2.690)	(0.469)
	DIV	-0.0170	-0.0299***	-0.161***	-0.0135***
		(0.0192)	(0.00621)	(0.0489)	(0.00470)
	GDP	-0.00652	0.00363	-0.00672	0.00410
		(0.0178)	(0.00360)	(0.0478)	(0.00580)
	CFMT	-4.630***	-2.030***	-15.61***	-1.237***
		(1.535)	(0.396)	(4.588)	(0.471)
	BOND	-0.151**	-0.0663***	-0.413**	-0.0531**
		(0.0643)	(0.0163)	(0.183)	(0.0257)
	STK	0.199	0.00912	0.947***	0.0962***
		(0.123)	(0.0211)	(0.258)	(0.0294)
	HH	-822.0***	-306.5***	-3,025***	-207.4**
		(241.8)	(57.17)	(818.8)	(92.50)
	Constant	120.6***	43.42***	20.47	-8.760
		(17.34)	(4.012)	(55.17)	(6.851)
	R^2	0.0895	0.0895	0.0895	0.0895

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.3.4 Consumer Goods Sector Analysis

Consumer Goods sector based on AIM

Table 6.8 Regression Results on Consumer Goods Sector

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Consumer Goods	**SIZE**	-4.196	-4.964***	-13.11**	-10.75***
		(8.879)	(1.746)	(5.986)	(2.824)
	GROWTH	0.0777***	0.0183**	0.0952**	0.0164
		(0.0189)	(0.00902)	(0.0453)	(0.0125)
	NDTS	-0.0106	-0.0778	-0.115	0.0306
		(0.143)	(0.0469)	(0.179)	(0.0683)
	ROE	0.00576	0.00447	-0.0190*	0.00211
		(0.0109)	(0.00343)	(0.0108)	(0.00430)
	TANG	0.392*	0.00530	0.320**	0.0169
		(0.223)	(0.0427)	(0.153)	(0.0597)
	TRATE	0.0247	-0.136***	0.0839	0.0353
		(0.110)	(0.0319)	(0.202)	(0.0396)
	LIQUIDITY	-2.318***	-0.547***	-1.836**	-0.0897
		(0.707)	(0.184)	(0.785)	(0.172)
	InTANG	0.347**	-0.0431	0.0681	0.178***
		(0.136)	(0.0416)	(0.114)	(0.0630)
	DBKRT	0.0313	-0.431***	0.735**	-0.00596
		(0.286)	(0.0987)	(0.302)	(0.223)
	DIV	0.0238	-0.0343***	-0.0628	-0.0759***
		(0.0440)	(0.00689)	(0.0631)	(0.0141)
	GDP	-0.0978	-0.351*	1.322	0.203
		(1.005)	(0.175)	(1.019)	(0.244)
	CFMT	-2.591*	-0.609**	-0.817	0.0204
		(1.432)	(0.254)	(1.399)	(0.311)
	BOND	0.00285	-0.0302*	0.111	0.0878***
		(0.0873)	(0.0167)	(0.0833)	(0.0203)
	STK	-0.0564	0.00335	-0.0482	0.0299
		(0.0510)	(0.0140)	(0.0538)	(0.0188)
	HH	-11.44	2.943	61.64	2.285
		(49.42)	(8.286)	(44.92)	(14.27)
	Constant	133.6**	45.16***	94.83**	41.47**
		(60.06)	(10.74)	(36.47)	(18.80)
	R^2	0.1221	0.1221	0.1221	0.1221

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In the Consumer Goods sector, the general influences of variables at firm level and country level on capital structure are not significant. A number of traditional theoretical variables such as profitability, tangibility, effective tax rate and intangibility do not have large influences as anticipated by studies. Furthermore, the impact of macro-economic conditions is not statistically significant in the model, which indicates that the firms in the Consumer Good sector are almost unaffected by the change in the macro-economic environment.

The Consumer Goods Sector is one of the few sectors where the variable of firm size is significantly negatively related to leverage. Theoretically, the relationship between size and leverage is expected to be positive because large firms may be more diversified and thus less exposed to the risk of bankruptcy (Chkir and Cosset 2001; Modugu 2013). The negative impact of firm size may be possibly because the larger firms in the Consumer Goods sector have a more centralized ownership, and therefore have more control over managers. In line with theoretical suggestion of Friend and Lang (1988), that "managers do not need to increase debt to reduce the risk of personal loss resulting from bankruptcy". Additionally, when firm size is used as a proxy for the probability of default, it should not be strongly positively correlated to leverage in countries where the cost of financial distress is in the lower range (Rizov 2008). Another probable cause for the negative relationship is the information asymmetries between insiders within a firm and the capital market that are expected to be lower for large firms. Thus, large firms should be more capable of issuing information sensitive securities (Titman and Wessels 1988).

In the Consumer Goods sector, the impact of the liquidity is completely opposite to that expected. The findings are in line with the view of Ozkan (2001), that the "liquidity of firms exerts a negative impact on a firm's borrowing decisions". The coefficient estimates of the liquidity ratio are significant at 1% level. This negative influence on leverage could be a potential conflict between shareholders and bondholders of firms. As noted, the liquidity of a firm can be taken as evidence to suggest the extent to which these assets can be manipulated by shareholders at the expense of bondholders (Ozkan 2001). As a consequence, the positive influence of the liquidity of a firm's leverage could not be shown.

Consumer Goods sector based on SME Board

The Consumer Goods sector in the SME Board market shows different statistical estimates to the Consumer Goods sector in AIM. In this sector, the coefficient estimates of most variables are significant at 1%, showing greater influences of these variables on capital structure. It is also clear from the results that the impact of country variables in this sector are stronger than that in the Consumer Goods sector of AIM. For instance, the capital formation, development of bond market and stock market all have significant relationships with leverage.

Table 6.9 Regression Results on Consumer Goods Sector of SMEs

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Consumer Stamples	**SIZE**	9.571***	1.367	29.59***	3.469***
		(3.153)	(1.131)	(8.466)	(0.400)
	GROWTH	-0.117	-0.0840**	-0.398	-0.00674
		(0.126)	(0.0348)	(0.246)	(0.0119)
	NDTS	-0.177	-0.0814*	-0.0756	0.00402
		(0.128)	(0.0435)	(0.164)	(0.0142)
	ROE	-0.00733	-0.0182**	-0.0865	-0.0222***
		(0.0303)	(0.00810)	(0.0583)	(0.00478)
	TANG	0.155***	-0.0156	0.395***	0.0730***
		(0.0487)	(0.0246)	(0.0921)	(0.0114)
	TRATE	-0.0831	-0.0670***	-0.495***	-0.0278**
		(0.0746)	(0.0183)	(0.127)	(0.0126)
	LIQUIDITY	-1.417***	-0.325***	-0.353***	-0.00425
		(0.217)	(0.0754)	(0.133)	(0.0127)
	InTANG	-0.0403	-0.125***	0.726***	0.0833***
		(0.0672)	(0.0188)	(0.113)	(0.00870)
	DBKRT	-2.495**	-3.705***	6.658***	0.684**
		(1.205)	(0.477)	(2.123)	(0.263)
	DIV	-0.103***	-0.0463***	-0.303***	-0.0273***
		(0.0186)	(0.00895)	(0.0335)	(0.00283)
	GDP	0.00868	0.0158**	0.0257	0.00261
		(0.0224)	(0.00695)	(0.0468)	(0.00308)
	CFMT	-1.844	-2.139***	-6.516*	0.118
		(1.865)	(0.775)	(3.637)	(0.165)
	BOND	-0.336***	-0.193***	-0.671***	-0.0476***
		(0.104)	(0.0408)	(0.217)	(0.0115)
	STK	0.483***	0.0197	0.681*	0.0301*
		(0.185)	(0.0595)	(0.408)	(0.0174)
	HH	25.32	-3.829	-70.93*	-9.205***
		(16.44)	(5.366)	(39.71)	(2.223)
	Constant	63.20***	47.98***	-50.43	-20.04***
		(24.05)	(8.126)	(44.13)	(1.797)
	R^2	0.0903	0.0903	0.0903	0.0903

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

As anticipated, the relationships between the variable of firm size and leverage are all positive while that in the Consumer Goods sector of AIM shows negative relationship. In addition to this, the coefficient of growth opportunities, non-debt tax shield, profitability, tangibility, dividend pay-out and capital formation are all in line with the hypotheses. Other variables such as effective tax rate show a negative relationship with all the leverage ratios. As Chen (2004) describes, tax effects predicted by the trade-off model are rather limited in China as the state is the controlling stakeholder of firms and the owner of banks as well as the beneficiary of tax. This is induced that firms in this sector use equity finance as much as possible. Therefore, equity finance in this sector is preferred to debt.

It is notable that the influences of bond market development and stock market development on leverage ratios in the Consumer Goods sector of the SME board market are similar to the Consumer Goods sector of AIM. The firm will reduce the level of leverage with development of the bond market, and increase the level of leverage with development of the stock market.

6.3.5 Heath Care Sector Analysis

Heath Care Sector Based on AIM

From the results, the variable effects on both the short-term leverage ratio and the long-term leverage ratio are discrepant. In the Heath Care sector of AIM, the short-term leverage is generally more affected than long-term leverage to the effect of these variables. Following the contracting hypothesis, the results associated with growth opportunities indicate that firms in this sector with more growth opportunities are likely to issue more short-term debt and less long-term debt. According to Titman and Wessels (1988), the cost resulting from agency relationships is likely to be higher for firms in growing industries, which have more flexibility in their decisions for future investment. Expected future growth should be negatively associated with long-term leverage. However, the agency problem will be mitigated when firms have short-term debt rather than long term. In other words, the short-term debt might be positively related to growth rate if growing firms substitute short-term financing for long-term financing. This is supported by Michaelas et al. (1999).

For the country variables, it can be seen that the capital formation, bond market development and stock market development show a significant relationship with both short-term leverage and long-term leverage. It is notable that the sign of stock market development is in line with the hypothesis that firms are likely to issue less debt with development of the stock market.

Table 6. 10 Regression Results on Heath Care Sector of AIM

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Heath Care	**SIZE**	14.55***	-3.509***	19.46***	-3.422***
		(3.107)	(1.010)	(4.024)	(0.984)
	GROWTH	0.0220**	0.0116**	-0.0100	-0.000233
		(0.00945)	(0.00471)	(0.00934)	(0.00239)
	NDTS	0.156	0.0289	0.0906	-0.0228
		(0.116)	(0.0271)	(0.107)	(0.0263)
	ROE	0.00751*	0.00120	-0.00803	0.000353
		(0.00387)	(0.000976)	(0.00614)	(0.00184)
	TANG	0.782**	0.105***	0.551**	0.143***
		(0.297)	(0.0290)	(0.274)	(0.0349)
	TRATE	0.0156	-0.0661***	-0.232	-0.0714**
		(0.129)	(0.0229)	(0.215)	(0.0279)
	LIQUIDITY	-0.746***	-0.0455***	-0.725***	-0.00823
		(0.102)	(0.0151)	(0.0987)	(0.0524)
	InTANG	0.198***	0.0242*	-0.00592	0.0457**
		(0.0654)	(0.0138)	(0.0604)	(0.0196)
	DBKRT	0.227	0.491***	-0.796	-0.614*
		(0.666)	(0.171)	(0.573)	(0.348)
	DIV	-0.322***	0.0419***	-0.535***	-0.0560**
		(0.107)	(0.0136)	(0.106)	(0.0219)
	GDP	-1.774***	-0.472***	-0.411	0.0302
		(0.487)	(0.103)	(0.522)	(0.0837)
	CFMT	-4.640***	-0.407***	-2.469**	-0.137
		(0.763)	(0.106)	(1.070)	(0.191)
	BOND	-0.578***	-0.0488***	-0.441***	-0.0245
		(0.0456)	(0.00611)	(0.0935)	(0.0181)
	STK	-0.0110	-0.0188**	-0.119*	-0.0224
		(0.0597)	(0.00765)	(0.0609)	(0.0135)
	HH	-639.5***	-4.740	30.29	-115.2***
		(165.2)	(30.07)	(284.4)	(38.92)
	Constant	98.68***	28.78***	44.16*	24.18***
		(27.92)	(4.982)	(25.36)	(5.098)
	R^2	0.1214	0.1214	0.1214	0.1214

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Heath Care Sector Based on the SMEs Board Market

In the SMEs Board market, the leverage is generally more affected by the variables with firm characteristics than the variables with country characteristics. With regarding to the firm variables, the firm size, growth opportunities, tangibility, effective tax rate, liquidity, intangibility and dividend pay-out ratio are all significantly related to short term leverage and long term leverage. The effect of growth opportunities on capital structure in the Heath Care sector is positive and significant for AIM but it is negative and significant for the SMEs Board Market. The negative and significant effect of growth opportunities is in line with the hypothesis which proposes that the agency conflict between shareholder and bondholders arises from asset-substitution and underinvestment (Rajan and Zingales 1995; Booth et al. 2001). Also, the effect of tax rate on leverage are all negative for both panel regressions but it is significant for the SMEs board and non-significant for AIM. A possible explanation is that firms in this sector may have already found a stable source of financing which provides them with a new pecking order of retained profit, then equity finance, and lastly debt (Chen 2004).

The firm variables of liquidity and intangibility are two significant factors that do not support the hypotheses. As the results show, firms with more liquidity tend to borrow less while firms with a high level of intangibility have more debt. According to the hypothesis, firms with more liquid and reversible assets are more leveraged because they have enough liquid assets to can cover the arrears if they are not able to repay the short-term liabilities. However, Williamson (1988) also adds that the level of debt is limited by the liquidity and it depends on the average usage of the debt in the particular industry. In the Heath Care sector of the SMEs board market, the negative coefficient of liquidity can be explained by the fact that firms with more liquidity might be financed by their internal resources. Furthermore, the intangible assets in this sector play an increasingly important role as most of the sub-sectors (Medical Devices, Equipment and Hospital Supplies; Medical Insurance; Pharmaceutical & Related Segments) under the Heath Care sector are knowledge-based. It is important to investigate the impact of intangible assets on capital structure decision with empirical data (Lim et al. 2018). Examples of intangible assets in the sector might include intellectual property, medical certification, medical patent and state licensure that have strong effects on the leverage of technology firms with low tangible asset intensity. Therefore, it can be concluded that intangible asset influence leverage level in this sector as much as tangible assets.

Leverage in the Heath Care sector is also heavily influenced by the industry concentration. The results show a support to hypothesis that "firms in concentrated industries cluster around higher leverage, whereas firm in competitive industries carry less leverage and are more widely dispersed" (MacKay and Phillips 2005). This is not consistent with recent theory and evidence by Kayo and Kimura (2011) but supports the evidence by Lyandres (2006).

Table 6. 11 Regression Results on Heath Care Sector of SMEs

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Heath care	**SIZE**	-1.134	3.257***	28.55**	2.973**
		(7.024)	(1.105)	(11.69)	(1.220)
	GROWTH	-0.807**	0.0302	-3.315***	-0.0953*
		(0.397)	(0.0741)	(0.885)	(0.0539)
	NDTS	0.790	0.754***	0.189	-0.257**
		(1.057)	(0.133)	(1.040)	(0.117)
	ROE	0.00754	-0.0344	-0.640***	-0.0412**
		(0.174)	(0.0584)	(0.192)	(0.0159)
	TANG	0.458***	0.0300	0.653**	0.0844***
		(0.139)	(0.0398)	(0.267)	(0.0290)
	TRATE	-0.367*	-0.100***	-0.460	-0.0849**
		(0.200)	(0.0206)	(0.356)	(0.0321)
	LIQUIDITY	-0.849***	-0.136***	-0.481***	-0.0455***
		(0.279)	(0.0494)	(0.160)	(0.0164)
	InTANG	0.478***	0.104**	0.664***	0.00326
		(0.173)	(0.0441)	(0.190)	(0.0227)
	DBKRT	-8.601*	-3.227**	2.552	-0.268
		(4.640)	(1.370)	(4.915)	(0.461)
	DIV	-0.128**	-0.0311***	-0.240***	-0.0205***
		(0.0496)	(0.00907)	(0.0627)	(0.00617)
	GDP	-0.0246	0.00517	0.0466	0.000824
		(0.0315)	(0.00694)	(0.0501)	(0.00358)
	CFMT	-3.258**	0.566	9.237	1.283**
		(1.306)	(0.385)	(6.261)	(0.495)
	BOND	0.0337	-0.136***	-0.310	0.0248
		(0.163)	(0.0318)	(0.346)	(0.0215)
	STK	0.577***	0.0352	0.0612	0.00465
		(0.178)	(0.0470)	(0.383)	(0.0370)
	HH	50.08	94.30***	600.8***	45.51**
		(72.71)	(13.09)	(190.3)	(21.15)
	Constant	113.0***	-13.51***	-249.6**	-31.74***
		(39.63)	(4.609)	(106.9)	(10.97)
	R^2	0.1781	0.1781	0.1781	0.1781

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.3.6 The Telecommunication Sector Analysis

The Telecommunication Sector based on AIM

The Telecommunication sector in both AIM and the SME board market is considered as a special sector as the observations in this sector are significantly fewer than in other sectors. The Telecommunication sector in AIM appears to have a mixed significant relationship between explanatory variables and leverage ratios. For instance, as Deesomsak et al. (2004) indicate, the relationship between leverage and firm size, while positive as expected, is not statistically significant with the exception of long term leverage in book value. However, this is consistent with the prediction of trade-off theory which suggests a positive relationship between firm size and leverage. Also, the impact of growth opportunities on leverage excluding the long term leverage in book value is significant and negative. This supports the prediction of agency theory that high growth firms use less debt since firms do not expect to expose themselves to restrictions imposed by creditors. It is also consistent with studies on the same topic (Michaelas et al. 1999).

The estimated coefficient of the non-debt tax shield does not have the predicted negative direction and but has a statistically positive association with leverage ratios. There is no significant evidence that the non-debt tax shield has heavy influence on leverage in the Telecommunication sector as the estimated coefficients for this variable are not significant at the 10% level. Nevertheless, one explanation could be the measure of the variable that may be for some other effects. For instance, “firms with higher depreciation ratios are more likely to have a higher proportion of tangible assets and fewer growth opportunities in their investment opportunities set” (Ozkan 2001). This in turn implies a positive effect of non-debt tax shield on leverage. Also, the prediction of a positive relationship between tangible assets and leverage is not confirmed by the statistical analysis. All the leverage in the Telecommunication sector is negatively influenced by the growth of tangibility. From the perspective of pecking order, firms with few tangible assets are more sensitive to information asymmetries and thus issue debt rather than equity when there are external financing demand (Harris and Raviv 1991). The negative relationship between tangibility and leverage shows a support for pecking order theory prediction and indirectly explains the positive sign of the non-debt tax shield.

Table 6.12 Regression Results on Consumer Services Sector of AIM

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Telecommunication	**SIZE**	14.87	-0.650	0.198	12.68*
		(7.756)	(1.319)	(0.124)	(4.455)
	GROWTH	-7.155*	-0.512*	-0.0261*	0.692
		(2.635)	(0.197)	(0.0101)	(0.483)
	NDTS	0.231	0.0115	0.000945	0.0421
		(0.296)	(0.0186)	(0.00165)	(0.0605)
	ROE	0.0231	0.0120	0.000825	-0.146**
		(0.0914)	(0.00770)	(0.000486)	(0.0302)
	TANG	-0.959	-0.0513	-0.00249	-0.264*
		(0.452)	(0.0483)	(0.00273)	(0.0862)
	TRATE	0.213	0.0126	0.000545	0.0603
		(0.252)	(0.0179)	(0.00120)	(0.0492)
	LIQUIDITY	-5.238	-0.495	-0.00890	-1.300
		(2.475)	(0.339)	(0.0183)	(0.626)
	InTANG	0.479	0.0303	0.000359	0.147**
		(0.239)	(0.0164)	(0.00123)	(0.0380)
	DBKRT	0.118	-0.0935	-0.000762	0.903**
		(0.590)	(0.0455)	(0.00310)	(0.187)
	DIV	-0.132	-0.0261**	-0.00510**	-0.104*
		(0.195)	(0.00699)	(0.00150)	(0.0404)
	GDP	1.426	0.200	-0.0122	-0.529
		(1.636)	(0.207)	(0.0131)	(0.638)
	CFMT	1.863	-0.591	0.0186	2.167**
		(2.407)	(0.316)	(0.0103)	(0.563)
	BOND	0.149	0.0311	0.000117	0.156*
		(0.246)	(0.0182)	(0.00141)	(0.0507)
	STK	0.00563	-0.0139	0.000151	0.0137
		(0.124)	(0.0122)	(0.000501)	(0.0411)
	HH	-658.2***	-15.85**	0.0366	-13.85
		(100.9)	(4.659)	(0.408)	(15.08)
	Constant	-14.87	16.10	75.22***	-85.66**
		(65.78)	(8.597)	(0.546)	(24.10)
	R^2	0.5554	0.5554	0.5554	0.5554

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In this sector, other variables that have significant impacts on leverage are profitability, intangibility, distance from bankruptcy, dividend payment, capital formation, development of the bond market and industry concentration. The coefficient of profitability is positive but not significant excluding the long term leverage in book value which shows a negative relationship with profitability. The positive sign of profitability is consistent with trade-off and signalling theory and the negative sign of profitability is accordance with the prediction of the pecking order model (Rajan and Zingales 1995; Wald 1999). The positive coefficient of intangibility goes against the suggestion of Myers (1984) who claims that firms holding valuable intangible assets tend to borrow less than firms holding mostly tangible assets. One explanation for this could be that the market for intangible assets in the Telecommunication sector such as trademarks, patents, licenses and other highly technical property have developed significantly in the period of the sample years, making the most of intangible assets that traded as tangible assets (Botta 2014). Moreover, the variable of dividend payout has a significantly positive relationship with leverage. Consistent with signalling theory, the increase dividend is used as a mechanism for financial signalling to outsiders regarding the stability and growth prospects of the firm. Firms in the sector with higher dividend payout ratios tend to have more external financing of debt.

Considering the industry and country variables, the industry concentration only has significant influence on short term leverage with a negative coefficient. This was firstly demonstrated by MacKay and Phillips (2005), Kayo and Kimura (2011) who reported that firms in highly concentrated industries will have lower debt. Besides, the long term leverage in book value is significantly positively influenced by both the bond market development and the capital formation. According to De Jong et al. (2008), an increase in capital formation implies greater retained earnings to be accumulated and the usage of this source of equity negatively affects leverage. This interpretation is not supported by the results. In addition, the development of the bond market seems to encourage the growth of leverage ratio particularly the long term ratio. It seems likely that when the bond market in the UK is highly developed, using and trading these bonds is easier.

The Telecommunication Sector based on the SME Board Market

In the Telecommunication sector of the SME board market, there is no statistically significant coefficient for either firm variables or country variables. One explanation could be that the sample observations in this sector are only based on two firms and this might not provide sufficient data sources to test the relationship between those variables and capital structure. Even so, a brief description of estimated coefficients is indispensable in this sector.

Table 6. 13 Regression Results on Telecommunication Sector of SMEs

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Telecommunication	**SIZE**	164.0	5.514	20.51	-0.146
		(52.18)	(2.078)	(22.66)	(0.311)
	GROWTH	-1.892	-0.0413	-0.527	-0.00159
		(1.166)	(0.0305)	(0.447)	(0.00326)
	NDTS	1.828	0.0434	-0.659	-0.00547
		(3.174)	(0.101)	(1.037)	(0.0141)
	ROE	4.905	0.217	1.585	0.0268
		(1.960)	(0.0622)	(0.585)	(0.00961)
	TANG	2.108	0.0717	-0.244	-0.00802
		(0.590)	(0.0225)	(0.144)	(0.00201)
	TRATE	1.370	0.0498	0.357	0.00477
		(0.905)	(0.0342)	(0.142)	(0.00178)
	LIQUIDITY	2.682	0.108	0.289	0.00112
		(1.004)	(0.0350)	(0.252)	(0.00357)
	InTANG	-0.542	-0.0663	0.721	0.00742
		(1.173)	(0.0362)	(0.409)	(0.00555)
	DBKRT	5.504	-0.474	-10.31	-0.315
		(47.12)	(1.575)	(14.53)	(0.220)
	DIV	-0.629	-0.0245	-0.137	-0.00232
		(0.344)	(0.0122)	(0.0721)	(0.00104)
	GDP	-0.0655	-0.00324	0.0465	0.000491
		(0.102)	(0.00365)	(0.0434)	(0.000475)
	CFMT	-6.242	-0.156	2.194	0.0976
		(8.618)	(0.332)	(2.494)	(0.0342)
	BOND	1.123	0.0485	-0.497	-0.00752
		(0.903)	(0.0323)	(0.200)	(0.00238)
	STK	0.663	0.0128	0.0672	-0.00529
		(1.709)	(0.0557)	(0.462)	(0.00585)
	HH	-99.02	-3.853	89.25	2.177
		(139.5)	(4.098)	(35.18)	(0.511)
	Constant	-1,014	-34.09	-163.7	-0.585
		(304.4)	(11.28)	(137.5)	(1.871)
	R^2	0.9658	0.9658	0.9658	0.9658

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Firstly, it can be seen that the influence of country variables on short term leverage is contrary to that on long term leverage. The macroeconomic variables of GDP, capital formation, and industry concentration are found to be negatively related to short term leverage and positively related to long term leverage. The bond market development is positively correlated to short term leverage but negatively correlated to long term leverage. Additionally, stock market development has a positive relationship with leverage excepting for the long term leverage in book value. The differences between the impact on short term leverage and long term leverage probably reflects the high transaction cost or risky factors that firms have in the Telecommunication sector when they issue debt. With the growth of GDP and capital formation, firms are more a willing to use a higher level of equity to finance new investment in the short term but prefer more debt in longer term investment. Also, according to Titman and Wessels (1988), by borrowing more short term, firms are particularly sensitive to temporary economic condition that use longer term financing.

For the firm variables in this sector, it appears that the coefficient of non-debt tax shield, profitability and intangibility show inverse results by comparing the hypotheses. For instance, profitability has a positive relationship with all the leverage in both market value and book value, supporting the suggestion of pecking order theory that firms prefer raising capital firstly from retained earnings, secondly from debt and thirdly from issuing new equity (Myers 1984). Furthermore, the positive relationship between intangibility and long term leverage can explain the fact that the Telecommunication sector has intangible assets including patents, license and trademarks which can be considered as tangible assets.

6.3.7 Consumer Services Sector Analysis

Consumer Services Sector Based on AIM

The panel regression results analysis presents six firm variables of firm size, tangibility, liquidity, intangibility, distance from bankruptcy, and dividend pay-out ratio that significantly influence the leverage level in the Consumer Services sector. The relationships between tangibility and leverage are positive except for the coefficient of tangibility with short-term leverage in book value. Further to this, the intangibility in the sector also has a positive relationship with leverage ratios apart from short-term leverage in book value. This is possibly because the sub-sectors under the Consumer Services sector including Retail, Media, and Travel & Leisure are typical service sectors. In these sectors, firms are more likely to have intangible assets due to their reliance on intellectual property. It can be inferred that firms with higher tangibility and intangibility have on average higher financial leverage in the Consumer Services sector.

Table 6. 14 Regression Results on Consumer Services Sector of AIM

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Consumer services	**SIZE**	31.63***	0.832	18.30***	1.954*
		(4.689)	(0.570)	(5.627)	(1.026)
	GROWTH	0.000589	-0.00878***	0.00472	0.0133***
		(0.0110)	(0.00209)	(0.00745)	(0.00356)
	NDTS	0.0249	-0.117***	0.0854	-0.00832
		(0.120)	(0.0265)	(0.102)	(0.0240)
	ROE	0.00570	0.00500	-0.0203*	0.000938
		(0.0141)	(0.00302)	(0.0103)	(0.00245)
	TANG	0.341**	-0.0288*	0.350***	0.0335*
		(0.133)	(0.0147)	(0.117)	(0.0191)
	TRATE	0.0851	-0.0240**	0.280**	0.00924
		(0.0736)	(0.0112)	(0.124)	(0.0170)
	LIQUIDITY	-0.763**	-0.0780	-0.438*	-0.0973*
		(0.301)	(0.0826)	(0.224)	(0.0545)
	InTANG	0.459***	-0.0500***	0.356***	0.0172
		(0.0945)	(0.0168)	(0.0620)	(0.0147)
	DBKRT	-0.482***	-0.259***	-0.290***	-0.305***
		(0.0641)	(0.0241)	(0.0435)	(0.0219)
	DIV	-0.154*	-0.0170**	-0.232***	-0.0624***
		(0.0830)	(0.00701)	(0.0547)	(0.00741)
	GDP	-1.459*	-0.468***	-0.0290	0.0981
		(0.860)	(0.0956)	(0.725)	(0.226)
	CFMT	-5.802***	-0.512**	-1.689**	-0.855***
		(1.245)	(0.224)	(0.795)	(0.318)
	BOND	-0.0470	0.00731	-0.0949	-0.0382**
		(0.0796)	(0.0135)	(0.0724)	(0.0149)
	STK	0.0690	0.0253**	0.103	-0.0191*
		(0.0769)	(0.0108)	(0.0864)	(0.0109)
	HH	-367.1***	-42.81***	22.17	-60.38*
		(125.2)	(15.49)	(100.5)	(35.14)
	Constant	8.522	11.27**	-18.53	20.07**
		(36.96)	(4.632)	(17.60)	(7.865)
	R^2	0.1595	0.1595	0.1595	0.1595

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The capital structure decisions in this sector are found to be negatively linked with distance from bankruptcy. These findings could be explained by trade-off prediction that financially healthy companies in this sector tend to have a smaller level of debt (Byoun 2008; Kayo and Kimura 2011). Moreover, the dividend pay-out ratio is negatively associated with all the leverage ratios. As the signal of financial health to outsiders, a firm with a constant stream of dividend is considered to have less asymmetric information when entering the stock market (Bhaduri 2002). The negative relationship indicates that dividend payment of firms in this sector decreases the amount of internal funds and increases the need for external financing.

From the country variables, it can be seen that only the capital formation is significantly correlated to leverage ratios. Besides this, the GDP only has a significant negative relationship with short-term leverage. The empirical evidence shows the stock market development and bond market development have little impact on the capital structure choice of firms in the Consumer Services sector. Furthermore, strong evidence is found against the hypothesis of industry concentration effects on capital structure that shows that highly-concentrated industries (HH index) have higher levels of leverage and lower intra-industry dispersion (MacKay and Phillips 2005). This is probably due to different characteristics of the sector.

The Consumer Services Sector Based on the SMEs Board Market

In the SMEs Board market, the Consumer Services sector is greatly affected by the factors of firm size, profitability, tangibility, liquidity, intangibility, distance from bankruptcy and industry concentration. In comparison, the variable of profitability has a significant and negative relationship with leverage in the SMEs Board market, while the influence of profitability on the leverage level of firms in the Consumer Services sector of AIM are not strong. There is a positive relationship between profitability and leverage.

From table 6.15, it can be inferred that tax considerations are of little interest to firms in SMEs Board. One of the explanation can be that firms are not interest in generate high profits and therefore less likely to debt or non-debt items for tax shield (Pettit and Singer, 1985). However, as Daskalakis et al. (2017) claim, for those small firms which have higher level of difficulty to access debt financing, the use of non-debt tax shields (NDTS) could be the main alternative to reduce any tax burdens. Thus, non-debt tax shields can be either not related or negatively related to debt (Titman and Wessels, 1988). In studies, NDTS is measured as the ratio of total depreciation expenses to total assets.

Table 6. 15 Regression Results on Consumer Services Sector of SMEs

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Telecommunication	**SIZE**	164.0	5.514	20.51	-0.146
		(52.18)	(2.078)	(22.66)	(0.311)
	GROWTH	-1.892	-0.0413	-0.527	-0.00159
		(1.166)	(0.0305)	(0.447)	(0.00326)
	NDTS	1.828	0.0434	-0.659	-0.00547
		(3.174)	(0.101)	(1.037)	(0.0141)
	ROE	4.905	0.217	1.585	0.0268
		(1.960)	(0.0622)	(0.585)	(0.00961)
	TANG	2.108	0.0717	-0.244	-0.00802
		(0.590)	(0.0225)	(0.144)	(0.00201)
	TRATE	1.370	0.0498	0.357	0.00477
		(0.905)	(0.0342)	(0.142)	(0.00178)
	LIQUIDITY	2.682	0.108	0.289	0.00112
		(1.004)	(0.0350)	(0.252)	(0.00357)
	InTANG	-0.542	-0.0663	0.721	0.00742
		(1.173)	(0.0362)	(0.409)	(0.00555)
	DBKRT	5.504	-0.474	-10.31	-0.315
		(47.12)	(1.575)	(14.53)	(0.220)
	DIV	-0.629	-0.0245	-0.137	-0.00232
		(0.344)	(0.0122)	(0.0721)	(0.00104)
	GDP	-0.0655	-0.00324	0.0465	0.000491
		(0.102)	(0.00365)	(0.0434)	(0.000475)
	CFMT	-6.242	-0.156	2.194	0.0976
		(8.618)	(0.332)	(2.494)	(0.0342)
	BOND	1.123	0.0485	-0.497	-0.00752
		(0.903)	(0.0323)	(0.200)	(0.00238)
	STK	0.663	0.0128	0.0672	-0.00529
		(1.709)	(0.0557)	(0.462)	(0.00585)
	HH	-99.02	-3.853	89.25	2.177
		(139.5)	(4.098)	(35.18)	(0.511)
	Constant	-1,014	-34.09	-163.7	-0.585
		(304.4)	(11.28)	(137.5)	(1.871)
	R^2	0.9658	0.9658	0.9658	0.9658

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.3.8 Technology Sector Analysis

Technology Sector based on AIM

The Technology sector of AIM is found to be significantly related to firm specific variables rather than industry and country specific variables. Table 6.2 shows that the variables of firm size, growth opportunities, non-debt tax shield, tangibility, intangibility and distance from bankruptcy have significant impact on the leverage level of firms in the Technology sector. Regarding macro-economic conditions, the variables of GDP, capital formation, the bond market development are found to be significantly related to only one or two of the leverage ratios. It can be inferred that the change of macro-economic conditions does not have dramatic effects on the firm's capital structure in the Technology sector of AIM.

Literature on capital structure has concentrated on the competition between tax deductibility of debt and other non-debt tax shields. This competition makes the expected relationship between debt and non-debt tax shields inverse. This hypothesis has been the subject of empirical testing. However, the contradictions found in the results propose a possible explanation that the relationship between debt and non-debt tax shields is positive. As Ozkan (2001) indicate, it might be because it is a proxy for other things than non-debt tax shields. For example, "firms with higher depreciation ratios are also more likely to have relatively fewer growth options in their investment opportunities set" and relatively more tangible assets, and vice versa. This implies a positive relation between the depreciation ratio and the leverage ratio. Further, a very important characteristic of the technology sector is that firms have more intangible asset based on knowledge and information. Regarding the positive relationship between intangibility and debt level, the intangibility can be treated as a tangible asset in this sector. Therefore, firms in this sector might have less tangible asset and more growth options in their investment opportunities set.

A remarkable feature of most sectors of AIM is the significant influence of country variables on capital structure. In the Technology sector of AIM, it is significant that the short term leverage in market value is negatively influenced by the GDP and positively related to the capital formation. Further, the long term leverage in market value is negatively associated with the bond market development. However, the country variables do not have far-reaching effects on the capital structure of firms in this sector over the sample years.

Table 6. 16 Regression Results on Technology Sector of AIM

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Technology	**SIZE**	-2.849	-3.308***	5.207*	-4.952***
		(3.354)	(0.423)	(2.976)	(1.016)
	GROWTH	-0.126***	-0.00288	-0.137***	-0.0186***
		(0.0169)	(0.00276)	(0.0196)	(0.00701)
	NDTS	0.476***	0.00370	0.460***	0.0756**
		(0.110)	(0.0219)	(0.113)	(0.0359)
	ROE	0.00406	0.0115***	0.0168	0.00783
		(0.0107)	(0.00316)	(0.0178)	(0.00883)
	TANG	1.001***	0.0986**	1.232***	0.250***
		(0.105)	(0.0427)	(0.151)	(0.0582)
	TRATE	0.0149	-0.0292*	0.0862	-0.0197
		(0.0984)	(0.0171)	(0.0764)	(0.0280)
	LIQUIDITY	-0.334	-0.0148	-0.567*	-0.0963*
		(0.286)	(0.0490)	(0.304)	(0.0487)
	InTANG	0.562***	0.0139	0.595***	0.0974***
		(0.0542)	(0.0146)	(0.0863)	(0.0192)
	DBKRT	-0.442	-0.946***	-1.916**	-0.904***
		(0.696)	(0.188)	(0.832)	(0.292)
	DIV	-0.119*	-0.00590	-0.118**	-0.0141
		(0.0671)	(0.00710)	(0.0512)	(0.00925)
	GDP	-1.534***	-0.151	-1.410*	-0.448
		(0.518)	(0.113)	(0.845)	(0.332)
	CFMT	1.017*	-0.0277	0.537	0.499
		(0.549)	(0.129)	(0.822)	(0.375)
	BOND	-0.102	-0.0222	-0.233**	-0.0576
		(0.0682)	(0.0140)	(0.109)	(0.0506)
	STK	0.0450	-0.000723	0.0411	0.00772
		(0.0273)	(0.00635)	(0.0321)	(0.0146)
	HH	104.3	-81.84**	38.14	-76.98
		(243.2)	(37.88)	(377.9)	(158.3)
	Constant	15.98	20.52***	-1.412	17.70*
		(12.42)	(3.378)	(22.56)	(9.393)
	R^2	0.1647	0.1647	0.1647	0.1647

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Technology sector based on the SMEs

For the Technology sector in the SMEs, the fixed effect regression performed better than for the Technology sector in AIM. Except for the firm size which has significant influence on leverage in most of the sectors, growth opportunities, profitability, tangibility, liquidity, intangibility and distance from bankruptcy are indicated to be significantly related to some of the leverage measures. Comparing the coefficient of liquidity to other significant firm characteristics, it can be seen that Liquidity has the largest, and thus liquidity greatly affects the debt ratio. As liquidity can be interpreted as a measure of ability to pay debt, a firm with higher liquidity has a stronger ability to borrow debt especially short term debt. However, in the Technology sector, firms with stronger debt capacity are more negative towards debt financing. This result might come from the fact that the Technology firms are more reliant on equity financing due to the lower cost of equity financing. Furthermore, the Technology sector as a whole has a higher profitability coefficient which would indicate that it follows the pecking order prediction that internal funds play the dominant role in financing. Other characteristics such as tangibility and distance from bankruptcy have a significant relationship with long term debt while the characteristic of intangibility has a significant influence on short term leverage. Though the Technology firms are considered to have relatively less fixed assets, the fixed asset has influence on long term leverage. Considering the positive influence of financial health on long term leverage, it appears that firm characteristics would have greater significant influence on long term capital structure decisions of Technology sector firms. In addition, the intangible assets in the sector increase long term debt but reduce short term debt. This is probably because the collateralization of intangibles has significantly increased over the period of sample time. This trend is related to a lender's demand for high yielding assets and changes in markets for intangibles.

In the Technology sector of the SMEs board market, the firm variable effects are greater than the influences of country variables. Capital formation has a significant correlation with the long term debt measuring market ratio and book ratio though the coefficient enters into a negative relationship to market ratio and a positive relationship to book ratio. Based on Kayo and Kimura (2011), when the stock market is developed, firm leverage is lower because the broader supply of funds decreases the cost of equity. The results obtained in the section show that stock market development increases leverage especially long term leverage. This is probably because when companies in the Technology sector have an alternative to finance investment and growth through a more flexible source of capital, they prefer to raise debt financing.

Table 6. 17 Regression Results on Technology Sector of SMEs

ICB Sectors	VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
Technology	**SIZE**	16.07***	0.874	29.81***	3.374***
		(4.620)	(1.092)	(6.341)	(0.497)
	GROWTH	-0.743***	0.0509	-1.466***	-0.000131
		(0.242)	(0.0538)	(0.453)	(0.0321)
	NDTS	-0.248	-0.106**	0.204	-0.00526
		(0.219)	(0.0426)	(0.212)	(0.0146)
	ROE	-0.292**	-0.0154	-0.475	-0.117***
		(0.137)	(0.0438)	(0.294)	(0.0370)
	TANG	0.200	0.0645	1.005***	0.0817***
		(0.177)	(0.0434)	(0.130)	(0.0170)
	TRATE	-0.0195	-0.0396***	0.0760	-0.00288
		(0.0574)	(0.0145)	(0.0999)	(0.0109)
	LIQUIDITY	-4.301***	-0.958***	-1.801***	-0.00422
		(0.294)	(0.161)	(0.352)	(0.0233)
	InTANG	-0.348**	-0.194***	0.269*	0.0317
		(0.132)	(0.0280)	(0.135)	(0.0220)
	DBKRT	2.544	-0.861	21.22***	2.869***
		(3.307)	(1.140)	(7.096)	(0.687)
	DIV	-0.0475	-0.0184	-0.180***	-0.0137**
		(0.0403)	(0.0128)	(0.0535)	(0.00610)
	GDP	0.0134	0.00719	0.00623	-0.00419
		(0.0234)	(0.00681)	(0.0399)	(0.00334)
	CFMT	-4.854	-1.290	-19.08***	1.047**
		(3.872)	(0.942)	(4.529)	(0.496)
	BOND	-0.172	-0.0514	-0.193	0.0396*
		(0.241)	(0.0577)	(0.254)	(0.0205)
	STK	0.177	0.0427	0.808**	0.0702**
		(0.220)	(0.0685)	(0.305)	(0.0268)
	HH	-81.48	-19.08	-446.3**	11.77
		(139.5)	(36.80)	(169.5)	(17.01)
	Constant	58.93	26.20**	41.19	-38.10***
		(40.99)	(12.01)	(71.31)	(7.604)
	R^2	0.1228	0.1228	0.1228	0.1228

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.3.9 The Econometric Model

This study further analyses the relationship of capital structure and the factors affecting it in the country in addition to the sectorial analyses presented above. The table below shows the results of the capital structure and its determinants. The objective of this section is mainly to present the overall outcome of pooling all the sectors of AIM and the SMEs board market. In AIM, it is observed that the short term leverage and long term leverage are significantly positively related to Firm Size, Non-debt tax shield, Asset tangibility and Intangibility but significantly negatively correlated with Liquidity, Dividend payment, GDP and Bond market development. Also, it can be noted that the Industry concentration tends to correlate significantly and negatively with long-term leverage but non-significantly and negatively with short-term leverage. This might suggest that firms with greater industry concentration tend to use less long-term leverage. This finding probably reflects the fact that firms in high market concentration industries prefer to use retained profit or equity financing rather than long-term debt. Moreover, the Capital formation which was expected in this thesis to be negatively related to the leverage ratios in market value measure leverage (short-term and long term). This is probably because the leverage in market value are greatly affected by economic conditions. Other variables of profitability, the effective tax rate, the distance from bankruptcy and the stock market development do not present significant and regular influences on the leverage ratio over the sample year.

In the SMEs board market, short-term leverage and long-term leverage are significantly positively related to the firm size, the asset tangibility, the stock market development and the industry concentration but significantly negatively related to the effective tax rate, the liquidity, the dividend payment ratio and the bond market development. Further, the growth opportunities and the capital formation are significantly negatively related to short-term leverage while Profitability is significant and positively related to long term leverage. This difference in the growth opportunities, according to Titman and Wessels (1988), indicates that the agency cost of the shareholder-debt holder is likely to be higher for firms in growing industries, which have more flexibility in their choice of future investments. Moreover, Intangibility is strongly negatively correlated to short-term leverage in book value but strongly positively related to long-term leverage. Similarly, the

Distance from bankruptcy has a strong and negative influence on short-term leverage while it has a strong and significant positive influence on long term leverage in market value.

It is undeniable from the results that the role of the country variable of Capital formation is significant for a firm's capital structure in both samples when the short-term leverage in market value, the short-term leverage in book value, the long-term leverage in market value and the long term leverage in book value are used as proxies. Similarly, evidence is presented that the leverage ratios are strongly sensitive to bond market development. In general, a further increase in capital formation and bond market development causes the leverage level of firms in both markets to increase. Further, Table 6.4 shows that the GDP has a more significant influence in AIM than in the SMEs board market. In a word, firms in AIM tend to have higher leverage ratios when the UK GDP decreases. Though the direction of the GDP and the leverage ratio relationships in SMEs are all positive, the evidence is not strong enough to be worth noting. Moreover, the influence of the Industry concentration in AIM is stronger than that in the SMEs board market. Firms in higher market concentration industries are more likely to borrow higher, both short-term and long-term, based on AIM. A similar result is also shown by the Stock market development. Though the Stock market development in AIM shows a significant and positive relationship with long term leverage in book value, the effect of the stock market development in the SMEs board market is found to be strongly positive when related to short term leverage ratios and strongly negative when linked to long term leverage in book value.

In brief, firms in AIM are more likely to use long term debt after controlling for country-specific effects. According to Daskalakis and Psillaki (2008), this is probably because the attitude of banks towards firms in AIM are driven by consideration of long-term benefits. It may also reflect unwillingness on the part of firms in AIM to accept short term debt at prohibitively high transaction costs of debt service. Firms in the SMEs board tend to borrow short-term debt rather than long term probably due to the risk considerations of banks or the high cost of debt services in the country.

In addition to the country-specific variables, the variables with firm characteristic consideration are also very important for both AIM and SMEs. It is widely accepted that Firm size is a significant factor in the capital structure of firms. The results for AIM indicate that the leverage in book value is negatively impacted by firm size while the leverage in market value shows a positive link to firm size. For the SMEs, the effects of firm size on leverage are positive. Similarly, there is evidences are observed that the other firm variables of Liquidity, tangibility, intangibly and dividend payment are also the major drivers for a firm's capital structure decisions in both markets.

Though the other variables with firm characteristics are widely accepted by past studies to have significant influence on capital structure, there is not sufficient evidence to be worth noting. For instance, growth opportunities, non-debt tax shield and profitability are considered as important factors for capital structure. In this study, the effect of these factors on leverage is not significant in both panel regressions. A possible explanation is that firms in both markets may have found a stable source of financing which make these factors less important.

It appears that the variables of unexpected winner which are not widely accepted in the literature are found to significantly link with the capital structure of firms in both markets. For instance, intangibility and dividend payment in this research show a significant effect on a firm's leverage level in both the short term and the long term. A similar negative association is shown between dividend payment and leverage and a positive relationship between intangibility and leverage. It can be inferred from this result that the measure of appraising the value of asset structure and the source of financing for those firms has been changing which has affected the overall sample in this study. In this research, the relationship should be analysed from a sectoral perspective based on industrial dummy variables and year dummy variables rather than collectively as was done in previous studies to get a clearer understanding and insight on the different actions and reactions in the sector.

Table 6.18 The Consolidated Regression Results of AIM and SMEs Board Market

VARIABLES	*(1)* **STLVM (AIM)**	*(1)* **STLVM (SMEs Board Market)**	*(2)* **STLVB (AIM)**	*(2)* **STLVB (SMEs Board Market)**	*(3)* **LTLVM (AIM)**	*(3)* **LTLVM (SMEs Board Market)**	*(4)* **LTLVB (AIM)**	*(4)* **LTLVB (SMEs Board Market)**
SIZE	11.39***	6.921***	-2.049***	0.550	10.49***	29.25***	-1.108*	3.928***
	(1.668)	(2.234)	(0.416)	(0.889)	(1.910)	(7.382)	(0.587)	(0.691)
GROWTH	-0.0169	-0.122***	0.00115	-0.0397***	-0.0270**	-0.108	-0.00219	-0.00900
	(0.0134)	(0.0279)	(0.00434)	(0.0147)	(0.0128)	(0.0705)	(0.00326)	(0.00800)
NDTS	0.0630*	-0.102	0.00273	-0.0520**	0.109**	-0.199	0.0491***	0.00212
	(0.0377)	(0.0971)	(0.0102)	(0.0252)	(0.0429)	(0.185)	(0.0142)	(0.0262)
ROE	0.000967	-0.0173	0.000285***	-0.00134	4.95e-05	-0.0928**	-4.18e-05	-0.0240***
	(0.000620)	(0.0175)	(0.000102)	(0.00726)	(0.000625)	(0.0458)	(0.000147)	(0.00702)
TANG	0.522***	0.153***	0.0584***	-0.00146	0.470***	0.331***	0.101***	0.0863***
	(0.0479)	(0.0280)	(0.00713)	(0.0192)	(0.0470)	(0.0679)	(0.0112)	(0.0102)
TRATE	0.0187	-0.0310	-0.0121	-0.0486***	0.0858*	-0.253***	-0.00598	-0.0159***
	(0.0468)	(0.0414)	(0.00801)	(0.00673)	(0.0463)	(0.0661)	(0.0113)	(0.00498)
LIQUIDITY	-0.0864**	-1.656***	-0.0110**	-0.357***	-0.0505*	-0.683***	-0.00338	-0.0217**
	(0.0396)	(0.277)	(0.00523)	(0.0804)	(0.0264)	(0.146)	(0.00381)	(0.00861)
INTANG	0.197***	0.0662	0.00963**	-0.116***	0.161**	0.215**	0.0408***	0.0284**
	(0.0581)	(0.0574)	(0.00440)	(0.0183)	(0.0663)	(0.100)	(0.0119)	(0.0123)
DBKRT	-0.0103	-2.445***	-0.0384*	-3.265***	-0.0462**	3.998*	-0.0322	0.419
	(0.0201)	(0.682)	(0.0213)	(0.233)	(0.0204)	(2.045)	(0.0234)	(0.311)
DIV	-0.128***	-0.0637***	-0.0205***	-0.0369***	-0.126***	-0.214***	-0.0423***	-0.0184***
	(0.0341)	(0.0156)	(0.00448)	(0.00580)	(0.0253)	(0.0379)	(0.00336)	(0.00315)
GDP	-0.919***	-0.00486	-0.279***	0.00617	-0.874***	0.00749	-0.134***	0.00407
	(0.264)	(0.0144)	(0.0703)	(0.00457)	(0.204)	(0.0351)	(0.0422)	(0.00380)
CFMT	-1.653***	-0.135**	-0.0613	-0.0843***	-0.566**	-0.448***	0.0471	-0.0489***
	(0.246)	(0.0556)	(0.129)	(0.0203)	(0.232)	(0.146)	(0.0432)	(0.0130)
BOND	-0.177***	0.282***	-0.00817	0.0599**	-0.184***	0.918***	-0.0246***	0.0742***
	(0.0233)	(0.0944)	(0.00605)	(0.0284)	(0.0141)	(0.255)	(0.00432)	(0.0217)
STK	-0.00964	39.01***	0.000553	7.024**	0.0298**	22.05	-0.00123	-5.583***
	(0.0240)	(11.96)	(0.00544)	(2.723)	(0.0138)	(24.17)	(0.00301)	(1.887)
HH	-3.589	50.91***	-0.137	20.70***	-5.405***	-132.4***	-1.139***	-22.07***
	(3.085)	(12.90)	(0.762)	(5.344)	(0.743)	(42.48)	(0.194)	(3.939)
Constant	32.33***	20.70***	13.87***	0.550	11.25*	29.25***	9.089***	3.928***
	(9.290)	(5.344)	(2.867)	(0.889)	(6.470)	(7.382)	(2.165)	(0.691)
Observations	18703	25122	18,703	25122	18,703	25122	18,703	25122
Number of groups	510	759	510	759	510	759	510	759

6.3.10 Discussion of Sectional Results

The starting point for this section is an analysis of whether industry dependency affects the capital structure of a company in these two countries. The separate regressions on each sector which are exhibited in Table 6.2 and Table 6.3 indicate that the industries studied are influenced differently. The capital structure in various sectors reflect differently to the firm-specific variables and country-specific variables. With the R^2 ranging from 0.09 to 0.24, the indication is that using the same model for each industry may not be fair in the sense that the debt ratio could be governed by different factors for different industries (Talberg et al. 2008). The Financial sector and the Utilities sector, for instance, are known to have a number of mandatory regulations and heavy governance on capital requirement from government to protect their financial stability (Frank and Goyal 2003; Korajczyk and Levy 2003). This is clearly indicated in the current analysis that the Oil &Gas sector, the Basic material sector and the Industrial sector are known as being sensitive to general market conditions, since they are associated with high initial expenses. Further, the Oil & Gas sector is a capital-intensive industry with high operating margins (Talberg et al. 2008). The Consumer goods sector is assumed to be more stable, owing to the fact that the daily necessities such as food is a basic need. Also, the Telecommunication sector and the Technology industry are representative of the new economy. The firms in these sectors have a relatively small amount of fixed assets compared to the other industries but have a strong market outlook. Thus, the industry dummies may measure the degree of interaction between product market characteristics and debt level.

In AIM, the leverage level in the Oil & Gas sector and the Basic Material sector are found to be greatly influenced by the firm variable of firm size and the industry variable of market concentration as the coefficient of firm size and industry concentration is much higher than other variables. As can be seen from Figure 51 and Figure 52 in the appendix, leverage level in these two sectors is positively related to firm size while industry concentration play a role in decreasing the leverage level. Besides, macro-economic conditions appear to be more important in the Oil & Gas sector and the Basic Material Sector. Compared to firms in AIM, one most interesting result for these two sectors in the SMEs is the large covariate of industry concentration. It can be seen from Figure 59 and Figure 60 that the coefficient of industry market concentration in both the Oil & Gas sector and the Basic Material sector are significantly higher than for other variables. This indicates that the leverage level is heavily affected by industry concentration in these two sectors, especially in long term debt ratios. Further, the coefficient of firm variables in the sectors of Oil & Gas and Basic Material of SMEs does not have a big value. Overall, the fixed assets in the Oil & Gas industry is considered to be higher specificity compared to the other industries. However, this proposition might not be supported by the empirical results in this section.

The Industrial sector is one of the secondary sectors with higher technical progress than the primary sector. In the Industrial sector of AIM, the firm variable of firm size and the industry variable of concentration show a large effect on the leverage level of firms. Figure 53 shows an outline including all the explanatory variables of leverage ratios in the Industrial sector. Other variables do not show a much stronger effect on debt ratios. In the SMEs board, the regression coefficient of firm size and industry market concentration in the Industrial sector retains a strong role in affecting debt level. This is especially shown by the large coefficient of industry concentration in Figure 61. Besides this, the leverage level in this sector is also heavily correlated to liquidity, distance from bankruptcy, capital formation and bond market development. It can be inferred that the change in debt level in the Industrial sector of SMEs is more reliant on economic factors than on firm specific variables.

In the Consumer goods sector of AIM and the SMEs board market, the average effect of firm size on leverage ratio is smaller than that in the Industrial sector. However, firm size and industry market concentration still have a great effect on leverage in this sector, this is especially so for the influence of industry market concentration on the market ratio of long term debt. In AIM, the liquidity and capital formation are found to be greatly relevant in affecting leverage level though only short term leverage in market value is significantly higher than other measures of capital structure. In SMEs, the liquidity also greatly affects short term leverage in market value. The results also suggest that a rise in financial stability of firms in the sector causes short term leverage to be decreased. It appears that apart from liquidity and distance from bankruptcy, country variables of capital formation greatly influences leverage except for the long term leverage in book value.

Besides the great effect of firm size and industry market concentration on debt ratios, there is also evidence that the country variable of capital formation has influence on leverage ratios in both markets. In SMEs, distance from bankruptcy is also shown to be greatly related to leverage while in AIM, the effect of GDP on short term leverage in market value is significantly higher than other variables. As the Health Care sector is defined as a post-secondary sector with a significant knowledge base, the sub-sector under Health Care is relatively simple. Further, the Health Care sector is one of the fast growing industries and thus it is reasonable that in AIM the average effect of country variables is stronger than firm variables.

The Consumer services sector belongs to the service industry comprising of banking, communication, wholesale and retail trade. Similar to the sectors which have already been discussed, firm size and industry concentration in AIM and the SMEs board market also have a great effect on leverage ratios. As can be seen from Figure 56 and Figure 64, the debt ratios of the consumer services sector in two markets are also greatly affected by capital formation and this effect in SMEs is much higher than that in AIM. Also, the liquidity and distance from bankruptcy play a significant role in affecting the leverage ratio of consumer services sector of the SMEs board market. Considering country variables, the effects of GDP and stock market development in AIM is higher than that in SMEs while the capital formation and bond market development in SMEs have a deeper impact.

As the Telecommunication sector in these two markets is based on fewer companies, the results probably are representative in explaining the factors of capital structure decisions. In AIM, the effect of firm size in the sector is much greater on the firm's short term leverage in market value and long term leverage in book value. This effect on long term leverage in book value is significant smaller than other measures in the SMEs board. Apart from firm size, the influence of industry concentration on the long term leverage market in AIM is sharply decreased. Also, growth opportunities is found to be greatly related to short term leverage in market value in these two markets. These findings are reasonable and support the hypothesis of agency theory. Further, the profitability, effective tax rate, liquidity and distance from bankruptcy are heavily linked to leverage ratios in SMEs. However, the covariates of country variables in AIM play a more significant role in capital structure decisions. It seems that the sectors of the SMEs Market relies more on firm variables while the Telecommunication sector of AIM is more determined by country variables.

In the Technology sector, the model performs similarly with significant results regarding firm size and industry market concentration. The largest value coefficient of firm size in SMEs is much bigger than that in AIM. Also, the effects of industry market concentration in SMEs are larger than those in AIM. Compared to these, tangibility, capital formation and GDP in AIM play a significant role in influencing the market ratio of leverage. In the SMEs board, the leverage is more affected by non-debt tax shield, liquidity, financial default risk and capital formation. The Figures 58 and 64 show that the country variables in AIM are more important and the value of coefficients of firm variables is bigger in SMEs.

In conclusion, firm size and industry concentration occupy very significant positions in capital structure decisions in each sector of both markets. In AIM, the coefficient of firm size in the Technology sector is the smallest and that in the Consumer Goods sector is the largest. Additionally, the coefficient of industry market concentration in the Oil & Gas sector is the smallest while the Health Care sector is the largest. The coefficient of industry concentration in the Consumer goods sector is the smallest and that in the Oil & Gas sector is the largest. For firm size, the Health Care sector in SMEs has the largest coefficient while the Heath Care in AIM is the smallest. Talberg et al. (2008) suggest that size can be interpreted as a measure of asymmetric information; when a larger company is more transparent, more stakeholders have access to information. Also, large size firms can also be assumed to be more diversified and have more stable financial heath and, thus, can afford higher level of leverage. In this way, creditors might consider firm size as an important factor for lending money. This might be especially significant in the Consumer Goods sector of AIM and the Health Care sector of SMEs. Moreover, a clear distinction between competitive and monopolistic firms is also important for creditors because industry concentration influences performance which might be considered as industry profitability.

6.4 Dummy Variables Results Analysis

6.4.1 The Industry Effect

Firstly, the fixed effect models outlined in Table 6.5 and Table 6.6 below include a number of industry dummy variables of AIM and the SMEs board market, which replace the intercept. These are regression coefficients and t-statistics of the industry dummies. From Table 6.5, it can be seen that almost all of the industry dummy coefficients are significantly different from zero at the 1%, 5% and 10% level of significance, indicating that industry excepting the Telecommunication sector exhibits a significant effect on the capital structure of firms in AIM though the directions of coefficient are mixed. The value of the Telecommunication sector is not shown as this is the omitted industry in the fixed effect model. Table 6.6 shows that, in the SMEs board, the short term leverage is found to be very relevant in the industry effect while this effect does not strongly affect the long-term leverage.

Table 6. 19 Regression Coefficients of Industry Dummies (AIM)

VARIABLES	(1) STLVM	(2) STLVB	(3) LTLVM	(4) LTLVB
1.Oil*Gas	-14.61***	2.005***	-36.11***	-15.83***
	(3.118)	(0.354)	(2.877)	(0.938)
2.Basic Material	-10.74***	1.403***	-29.88***	-15.52***
	(3.127)	(0.331)	(2.891)	(0.933)
3.Industrial	25.19***	4.318***	8.797***	-9.778***
	(3.135)	(0.307)	(2.913)	(0.939)
4.Consumer Goods	24.80***	6.751***	-2.546	-10.06***
	(3.324)	(0.404)	(3.141)	(0.989)
5.Health Care	-0.531	2.135***	-14.53***	-12.52***
	(3.201)	(0.352)	(2.974)	(0.952)
6.Consumer Services	10.36***	2.506***	-6.651**	-10.78***
	(3.101)	(0.305)	(2.871)	(0.939)
7.Telecommunication	Omitted	Omitted	Omitted	Omitted
8.Technology	7.435**	2.363***	-2.899	-11.20***
	(3.087)	(0.304)	(2.863)	(0.934)
R-squared	0.207	0.092	0.241	0.141

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.20 Regression Coefficients of Industry Dummies (SMEs)

VARIABLES	(1) STLVM	(2) STLVB	(3) LTLVM	(4) LTLVB
1.Energy	53.05***	7.300***	20.47	0.0900
	(9.769)	(2.736)	(12.91)	(1.152)
2.Material	62.92***	11.84***	22.14	-2.224
	(11.00)	(2.712)	(20.47)	(1.824)
3.Industrials	59.35***	7.497***	20.08	-2.160
	(11.24)	(2.751)	(20.86)	(1.824)
4.Consumer Staple	55.54***	8.356***	18.17	-2.295
	(10.95)	(2.678)	(20.04)	(1.746)
5.Heath Care	52.86***	7.835***	16.92	-2.313
	(10.79)	(2.682)	(19.66)	(1.727)
6.Consumer Discretionary	43.96***	5.967**	12.26	-0.839
	(9.506)	(2.851)	(13.90)	(1.477)
7.Telecommunication	Omitted	Omitted	Omitted	Omitted
8.Technogy	50.87***	4.322	12.40	-2.428
	(11.33)	(2.727)	(20.27)	(1.756)

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Moreover, in Figure 6.1 and Figure 6.2, the coefficients of the industry dummies which were obtained in analysis of short-term leverage and long-term leverage are presented. By looking at Figure 6.1 and Figure 6.2, it can be seen that in AIM, industry has an effect on short-term leverage as well as long-term leverage while industry only has an effect on short term leverage in the SMEs board market. It is concluded that the difference between the magnitude of the industry effect on short term and long term debts varies across industries. This provides strong support for hypothesis 16 which predicts that the industry difference is relevant in firms' capital structure level. It is also interesting to point out that, the industry effect in AIM is less on short-term debt ratios compared to long term debt ratios in the Oil & Gas sector, the Basic Materials sector, the Industrial sector, the Consumer Goods sector, the Health Care sector and the Technology sector but the industry effect is bigger on short term leverage in the Consumer services sector. In SMEs, although the industry effect on long term leverage is not significant in the regression model, the industry effect is bigger on short term debt ratios than long term debt ratios in all industries.

Figure 6.1: Coefficient of Industry Dummy Variables for Leverage (AIM)

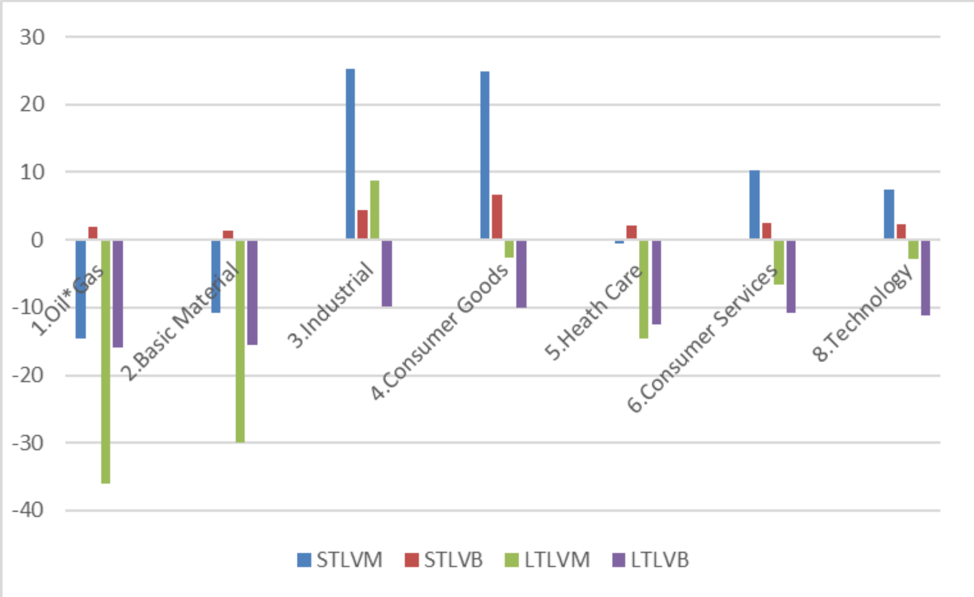
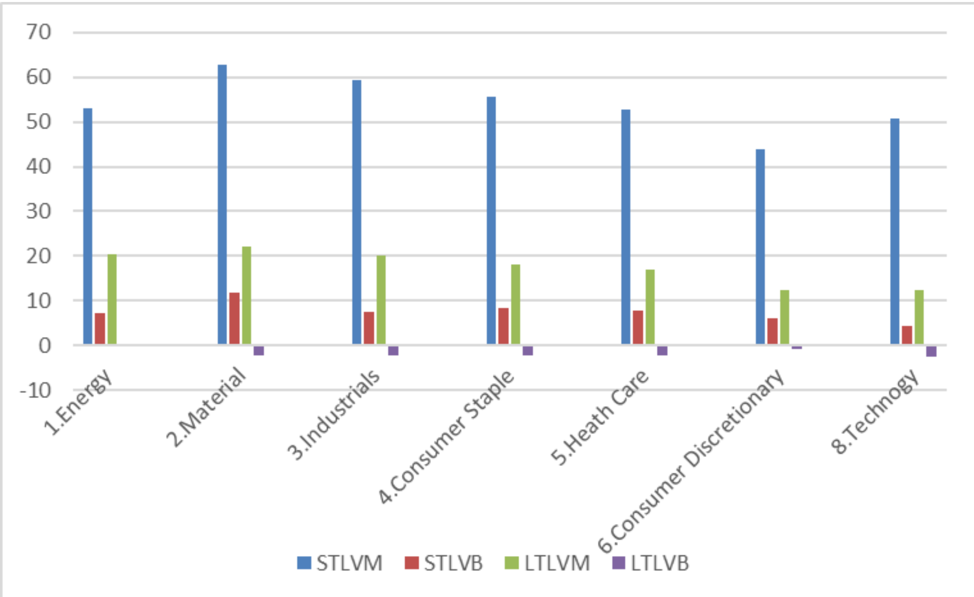


Figure 6.2: Coefficient of Industry Dummies Variables for Leverage (SMEs)



According to Talberg et al. (2008), the industry dummies is used to measure the extent of interaction between product market characteristics and the debt level. Firms in product market where the industrial dummy effect is found, firms are expected to have lower level of debt, ceteris paribus, than firms in product market which the industrial dummy effect is less significant.

6.4.2 The Time Effect

In Figure 6.3 and Figure 6.4, the coefficients of the time dummies which obtained in the analyses of the period from 2007 to 2016 are plotted. On the other axis of these two figures the percentage change in real GDP over the period is plotted. In Figure 6.3, there is a distinct pattern in the value of the time dummy coefficients for the short-term and long term debts. This pattern exhibits a negative relationship with the percentage change of real GDP. It is noted that this negative relationship is more evident for time dummies of short term debts. Additionally, the effect of time dummies is contrasting on short term debts and long term debts over the sample years. The observed time structure in the value of the time dummies indicates that the economic boom (2007 to 2008) had a negative effect on long term debts. After 2008, the long term debts significantly increased during the economic recession but, on the whole, they were decreasing after 2009. It is clear that there is a complicated positive relationship between the values of time coefficient of long term debts and economic growth. This suggests that firms of AIM tend to raise higher levels of long term debt when economic conditions improve. However, this tendency has not been significant since 2013. In effect, as can be seen from the results, the time effect is not significant on both short term and long term debts. This is especially true for the recession period.

The average short term debt ratios in the sample firms of AIM appear to be increasing during economic boom periods and decreasing during period of economic recession, though the effect of the time dummy on short term debts recovered slightly in the period of 2013 to 2015. It appears that the firms of AIM are sensitive to temporary micro-economic changes. Integrating the results displayed in Figure 6.3, the firms of AIM appear to be relying less on long term debt and more on short term debt at the beginning of economic booms. During the periods of economic recession, firms tend to borrow more long term debts than short term debts. With the stability of economic development, the tendency to borrow short term debts has been increasing while long term debts have been decreasing. Ultimately, the tendency to borrow both short term and long term is equal.

According to Michaelas et al. (1999) and Diamond and Rajan (2001) , firms might have to raise short term debt to fill the financial gap when economic booms occur. However, during the early period of economic recession, major investments would require long term finance and this would push the long term debt ratio up. Subsequent to this, firms might have accumulated retained profit and the short term debts probably would be paid off. In this circumstance, in the process of being established and this may results in the need for long term debt. As the economic started to steady, demand for short term and long term debts returned to a normal level.

Figure 6.3: Coefficients of Time Dummy Variables for Leverage (AIM)

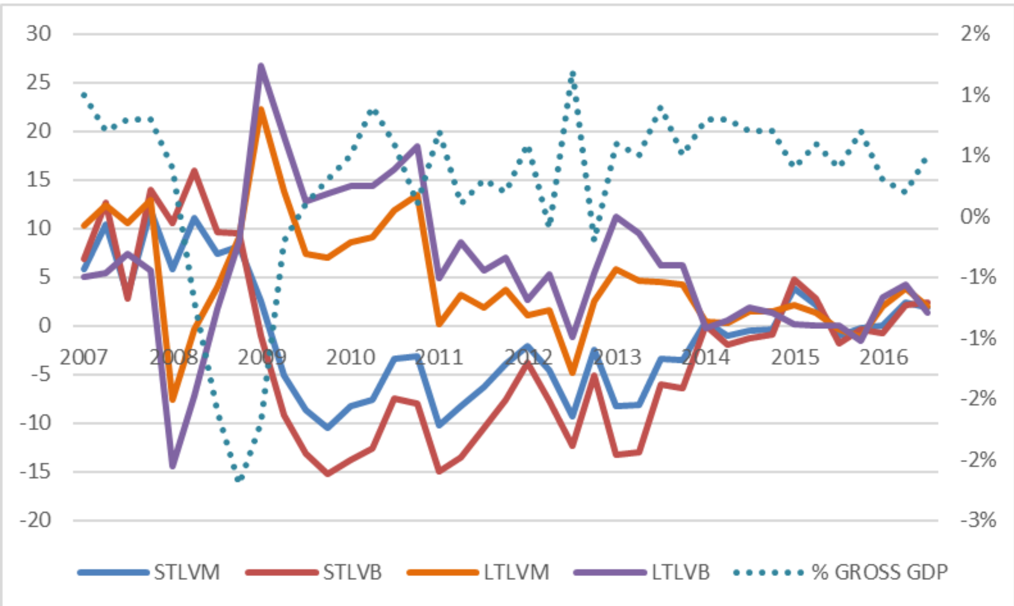


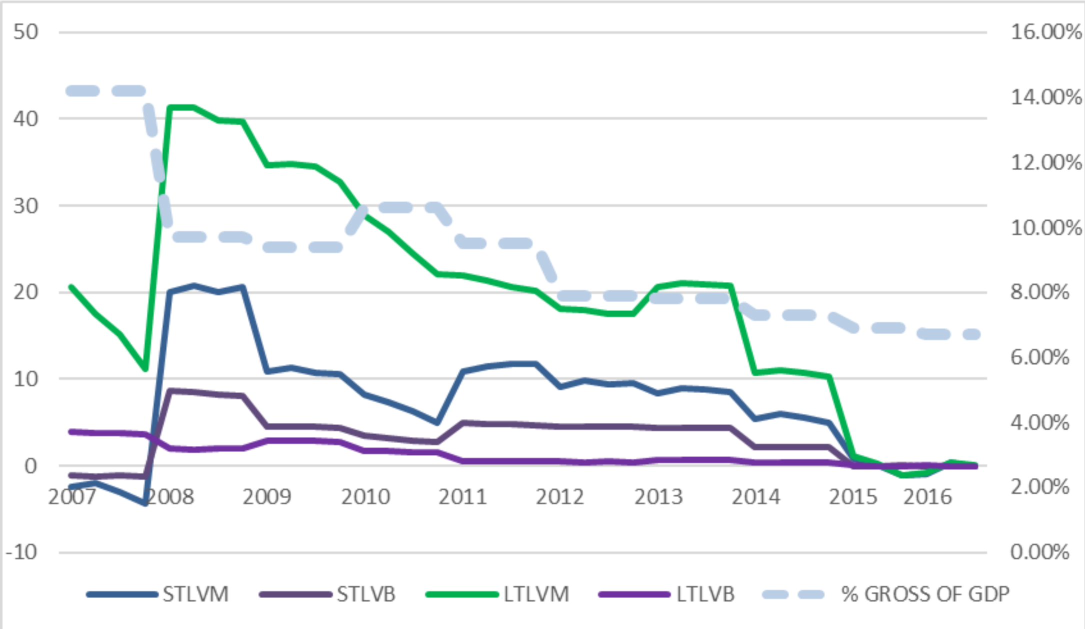
Figure 6.4 exhibits the time dummy coefficients for the short term and long term debts in the SMEs board market. As can be seen from the results, the effects of time dummy on leverage ratios in Figure 6.4 are more significant than those in Figure 6.3. However, the distinct pattern in the values of the time dummy coefficients for short term and long term debts is not as evident as they are in AIM. In the SMEs board market, the short term debt ratios in Figure 6.4 are more affected by time dummies than the long term debt ratios.

The observed time structure in the values of the time dummies of short term debt ratios indicates that the initial stage of an economic boom has a negative effect on gearing ratios of firms in the SMEs market. During the period of economic recession (2009 to 2010), the average short term leverage ratios in the sample firms appear to be decreasing. Since 2010, the economic conditions have declined overall and this has positively affected the short term debt ratios. The amount of fluctuation on short term leverage ratios during the period of economic boom and recession were in narrow range, indicating that the degree of sensitivity with which firms in SMEs react to micro-economic change was not strong.

Figure 6.4 also indicates the opposite situation of long term debt. It is clear that there is a positive relationship between the values of the time coefficients of long term debt and economic conditions. This positive relationship is especially significant for the long term debt ratio in book value. At the beginning of the economic crisis, the time coefficient of long term debt in market value sharply declined but largely increased in 2008 as the firms in the SMEs market could not raise a higher level of long term debt to start new investment. Since 2008, the time coefficient of long term debt in book value has been steadily falling. For the long-term leverage in book value, the time coefficient does not show a significant change over the sample years regardless of economic growth.

The firms in the SMEs market seem to be relying more on long term leverage and less on short term debt over the sample years. At the early stage of the economic boom, the importance of short term leverage was less than that of long term leverage. This was probably due to the shortage of financing; firms would have to reduce the short-term debt level to react to the economic crisis. As the economy begins to grow, influence of the short-term leverage (book value) starts to increase. In the long term, the time coefficients of short term leverage (book value) and long-term leverage (book value) are within a narrow range. For the leverage in market value, the tendency was to follow the change of economic conditions during the sample years. As the overall trend of the economy was decreasing in China in the period of 2007 to 2016, the time coefficients of short-term and long-term debt ratio in market value was showing a downward trend. It can be observed that there were time specific effects on the gearing ratios of firms in SMEs.

Figure 6.4: Coefficients of Time Dummy Variables for Leverage (SMEs)



The regression results of time dummies variable, Table 6.8 and Table 6.9 for both AIM and SMEs Board are presented in Appendix.

6.4.3 Financial System Effect

Table 6.7 presents the coefficients of the financial system dummies, obtained in analyse of short term and long-term leverage. As can be seen in Table 6.7 almost all the financial system dummy coefficients are at the 1% or 10% of significance, meaning that the financial system exhibits a great effect on the capital structure of firms in both countries. The table shows that the coefficients of the financial system that are market based have a positive effect on a firm's leverage while the bank-based system has a negative effect on market effect leverage ratios. This provides strong support for Hypothesis 13 that firms in market-based countries might have less concentrated ownership due to the financing channel, while in bank-based countries the concentration is higher (Demirgüç-Kunt and Levine 1999; Beck and Levine 2002). As explained by Antoniou et al. (2008) and De Jong et al. (2008) , from the perspective of agency theory, debt plays a disciplinary role against the a manager's opportunistic behaviour, and a firm's leverage is higher in market-based countries. The long-term leverage in market value is most affected by the financial system.

It also needs to be pointed out that, although the effect of a bank based market on short-term debt ratio in market value and the effect of the market based on short term leverage in book value are not in line with the hypothesis (Beck and Levine 2002), it can be deduced that firms in AIM tend to have more leverage as the UK is considered as a market-based country and the firms in SMEs would have less debt.

Table 6. 21 Regression Coefficients of Financial System Dummies

VARIABLES	(1) STLVM	(3) STLVB	(4) LTLVM	(5) LTLVB
SMEs (BANK)	-2.997	3.063*	-44.84***	-5.634***
	(6.710)	(1.593)	(8.246)	(1.830)
AIM (Market)	2.997	-3.063*	44.84***	5.634***
	(-6.71)	(-1.593)	(-8.246)	(-1.83)
R-squared	0.267	0.255	0.148	0.122

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.5 Conclusion

The results of the regression indicate a number of significant relationships between most of the independent variables and measures of capital structure. However, their significance varies dependent on the market involved and the sector in which the firm resides. For example, liquidity is found to be significantly related to the capital structure in the Health Care, Consumer Goods and Basic Material Sectors (the First and Secondary industries) of AIM whilst it does not have any significant influence on the knowledge-based sectors (i.e. the Technology sector). Furthermore, in the context of SMEs Board, bond market development is positively significant in relation to capital structure measures in the Health Care sector but shows a negatively relationship with the leverage ratio in the Material, Industrial and Consumer sectors. The majority of insignificant relationships could imply a failure in the protocols involved in the capital structure decisions making process when changes are required. When all the sectors were aggregated, the majority of significant firm specific variables could possibly indicate the impact of firms' business activities and managements in relation to the financing decisions taken. This conclusion is supported by the fact that firm characteristics including firm size, growth opportunities, tangibility, liquidity, intangibility and default risk have statistically significant coefficients in majority of regression models. Furthermore, the results in relation to the country specific variables of GDP, capital formation, bonds, and the stock market show varying degrees of positivity and negativity which are often predicted on the whether firms are on AIM or SME board. The only universal results relate to GDP and capital formation which are negative for all firms which supports the pecking order theory that debt ratios are lowered when firms can reply on internal resources brought about by favourable market conditions. Also, the industry-specific variables which relate to the market concentration of particular sectors are found to have a strong influence on capital structure possibly due to the different market characteristics prevalent in each. Overall, the results show differing significant relationships when capital structure is measured across short- and long-term market and book values. There are key issues which influence the significance of the various determinants. On AIM short- and long-term leverage relate positively but negatively to liquidity and dividend payments. On the SMEs board market, short term and long term leverage are also relate positively to firm size and to country specific variables but negatively to the effective tax rate, the liquidity and dividend payments.

Furthermore, the results show that industry, time and country dummy variables have a significantly positive effect on both market value and book value leverage in period of 2007 to 2017.

Chapter Seven: Results And Discussion Of Alternative Appraoches To Capital Structure Analysis And Their Use As A Robustness Test

7.0 Introduction

This chapter serves as a robustness check but also covers three further sets of analysis, namely an examination of non-linear relationships, the use of a balanced panel based on a reduced sample size and an evaluation of any cumulative effect of each determinant on capital structure. The analyses are restricted to the full data samples of the AIM market and SMEs Board and run separately to allow comparisons to be made. The complexity of the process of constructing a capital structure together with the complex interaction of market conditions and agency issues may results in any relationship being non-linear which predicates the decision to include this analysis. The use of restricted data forming a balanced panel was taken to provide a robustness test and provide reassurance that missing data in the unbalanced panel had not caused a distortionary effect. The cumulative effect was measure using lagged explanatory variables to observe whether there was a time dimension to the formation of capital structure. The results indicate that firm-specific variables can influence the linearity of the results and create a non-linear effect. The balanced panel and the cumulative effect results reveal no significant differences in the results seen in chapter six thus providing a robustness check which confirms the previous findings.

7.1 Non-Linear Relationship

The other objective of this section is to explore the non-linear relationship of capital structure and its determinants in both AIM and the SMEs board market. The study supports the argument by Fattouh et al. (2005) that the capital structure and its determinants can be a negative or positive linear or can be a U-shaped or an inverted U-shaped. Thus, a linear relationship might not always allow for insight into any existing relationship.

7.1.1 Non-Linearity of Independent Variables

To test the robustness of the results, this section performs a number of additional regression to analyses the robustness of the results obtained in this research. Firstly, the previous section uses an alternative measure of the explanatory variables. Specifically, the logarithm of firm variables such as the logarithm of total assets as a measure of size (LogSIZE^2), the market to book ratio (LogGROWTH^2), the return on equity (LogROE^2), the ratio of tangible asset to total asset (LogTANG^2), the effective tax rate (LogTRATE^2), the current ratio (Log LIQUIDITY^2), the ratio of intangible asset to total asset (LogInTANG^2), the value of distance from bankruptcy (LogDBKRT^2) and the ratio of dividend pay-out (LogDIV^2), are used as alternative indicators of firm size, growth opportunities, non-debt tax shield, profitability, tangibility, effective tax rate, liquidity, intangibility, distance from bankruptcy and dividend payment. As can be seen from Table 7.1 and Table 7.2, the regression results of non-linearity are similar to those obtained in linearity, except for the coefficients of logarithms of variables that show greater value than the coefficient of the original variables. Most of the empirical studies tests the determinants of capital structure by using regression model of a linear relationship. Due to the complex interaction of market conditions, agency problems and bankruptcy cost, the relationship may in fact be non-linear (Guney et al. 2011). Further, factors in different quartiles have different degrees of sensitivity to change in the capital structure.

7.1.2 Non-Linear Relationship in AIM and SMEs

Table 7.1 and Table 7.2 respectively present the non-linear relationship starting with the relationship between capital structure and firm-specific variables on the basis of measuring market value and book value for the AIM and the SMEs board market. From both tables, it is apparent that the relationship between capital structure and its factors is statistically significant and non-linear. Further, Figures in the appendices provide a series of graphs of the U-shaped and inverted U-shaped relationships to explain the data in both tables.

Figure 1 to Figure 40 in the appendix show the pictorial link between leverage ratios and their firm specific variables in AIM and the SMEs board market. It can be seen that a non-linear relationship exists among firms in both markets. In the Figures, firms in AIM tend to experience less short-term leverage in market value when firm size increases in the short-term but not in the long-term. It appears that firms with a size greater than an Index of 1 continue to experience an increase in short term leverage in market value. However, the short-term leverage in market value of firms in the SMEs board market remains a positive growth trend with an increase in firm size. The non-linear relationship between long term leverage in book value and firm size presents a similar curve. When a different measure of capital structure (book value) is tested, a U-Shaped curve is found to suggest a negative relationship where a continuous increase in firm size results in a fall in short term leverage in book value in AIM, while the U-Shape shows close to a linear and positive relationship between the firm size and short term leverage in book value in the SMEs board market. The long-term leverage in book value for both markets presents different curves compared to other leverage ratios. In AIM, the U-Shape is found to present a positive relationship when the long-term leverage in book value is increased with the growth of firm size but the firm size in the SMEs board initially shows a negative impact on long term leverage in book value. When the firm size gets closer to an index of 18, the long-term leverage in book value starts growing.

Table 7. 1: Non-linear Relationship with Capital Structure in Market Value

	Short Term Leverage Market value		Long Term Leverage Market Value	
VARIABLES	**AIM**	**SMEs Board Market**	**AIM**	**SMEs Board Market**
SIZE	11.39***	7.747***	10.49***	31.33***
	(1.668)	(2.495)	(1.910)	(8.058)
LogSIZE^2	***137.6****	***53.03****	***128.5****	***313.4****
	(21.78)	***(10.04)***	***(20.83)***	***(36.82)***
GROWTH	-0.0169	-0.122***	-0.0270**	-0.107
	(0.0134)	(0.0276)	(0.0128)	(0.0705)
LogGROWTH^2	***-3.909****	***-5.059****	***1.093***	***-0.351***
	(1.385)	***(0.745)***	***(1.880)***	***(1.359)***
NDTS	0.0630*	-0.0872	0.109**	-0.162
	(0.0377)	(0.0987)	(0.0429)	(0.186)
LogNDTS^2	***3.219***	***1.544***	***0.373***	***-2.778****
	(2.301)	***(0.948)***	***(2.120)***	***(1.020)***
ROE	0.000967	-0.0182	4.95e-05	-0.0949**
	(0.000620)	(0.0174)	(0.000625)	(0.0455)
LogROE^2	***-6.878****	***-3.690****	***-8.985****	***2.632****
	(2.504)	***(0.432)***	***(1.776)***	***(1.305)***
TANG	0.522***	0.156***	0.470***	0.340***
	(0.0479)	(0.0269)	(0.0470)	(0.0665)
LogTANG^2	***5.433****	***-0.735***	***6.472****	***6.714****
	(2.170)	***(0.791)***	***(2.198)***	***(0.931)***
TRATE	0.0187	-0.0291	0.0858*	-0.248***
	(0.0468)	(0.0414)	(0.0463)	(0.0647)
LogTRATE^2	***-0.445***	***0.670****	***1.063***	***-2.760****
	(0.882)	***(0.340)***	***(0.988)***	***(0.671)***
LIQUIDITY	-0.0864**	-1.654***	-0.0505*	-0.678***
	(0.0396)	(0.275)	(0.0264)	(0.144)
LogLIQUIDITY^2	***-33.64****	***-26.09****	***-14.55****	***-1.270***
	(3.253)	***(0.868)***	***(3.338)***	***(1.258)***
InTANG	0.197***	0.0639	0.161**	0.209**
	(0.0581)	(0.0573)	(0.0663)	(0.0993)
LogInTANG^2	***1.694****	***1.439****	***5.180****	***0.286***
	(0.857)	***(0.208)***	***(1.418)***	***(0.443)***
DBKRT	-0.0103	-2.448***	-0.0462**	3.988*
	(0.0201)	(0.686)	(0.0204)	(2.089)
LogDBKRT^2	***-2.703***	***11.43****	***-7.777***	***-14.07****
	(3.332)	***(0.801)***	***(4.721)***	***(3.105)***
DIV	-0.128***	-0.0647***	-0.126***	-0.216***
	(0.0341)	(0.0153)	(0.0253)	(0.0375)
LogDIV^2	***-8.617****	***-0.511***	***-13.70****	***-4.635****
	(2.533)	***(0.326)***	***(2.267)***	***(0.582)***
GDP	-0.919***	0.0271**	-0.874***	0.0458*
	(0.264)	(0.0119)	(0.204)	(0.0260)
CFMT	-1.653***	-1.105	-0.566**	-4.025*
	(0.246)	(0.928)	(0.232)	(2.149)
BOND	-0.177***	-0.145***	-0.184***	-0.486***
	(0.0233)	(0.0469)	(0.0141)	(0.158)
STK	-0.00964	0.250**	0.0298**	0.330**
	(0.0240)	(0.101)	(0.0138)	(0.135)
HH	-3.589	49.05***	-5.405***	-52.90***
	(3.085)	(9.793)	(0.743)	(15.31)
Constant	32.33***	30.21*	11.25*	-467.8***
	(9.290)	(15.43)	(6.470)	(53.58)
Observations	18,703	16,369	18,703	16,369

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7.2: Non-linear Relationship in Capital structure in Book Value

	Short Term Leverage Book value		Long Term Leverage Book Value	
VARIABLES	**AIM**	**SMEs Board Market**	**AIM**	**SMEs Board Market**
SIZE	-2.049***	1.024	-1.108*	3.968***
	(0.416)	(0.996)	(0.587)	(0.754)
LogSIZE^2	***-0.0750***	***5.039***	***11.81****	***35.74****
	(2.068)	***(4.116)***	***(3.372)***	***(3.718)***
GROWTH	0.00115	-0.0394***	-0.00219	-0.00898
	(0.00434)	(0.0146)	(0.00326)	(0.00801)
LogGROWTH^2	***-0.0314***	***0.437****	***0.385***	***0.465****
	(0.205)	***(0.210)***	***(0.250)***	***(0.133)***
NDTS	0.00273	-0.0435*	0.0491***	0.00285
	(0.0102)	(0.0237)	(0.0142)	(0.0262)
LogNDTS^2	***-0.186***	***1.519****	***-0.928****	***-0.611****
	(0.281)	***(0.150)***	***(0.386)***	***(0.107)***
ROE	0.000285***	-0.00182	-4.18e-05	-0.0241***
	(0.000102)	(0.00732)	(0.000147)	(0.00697)
LogROE^2	***-0.0496***	***0.180***	***0.0451***	***0.360****
	(0.163)	***(0.240)***	***(0.385)***	***(0.170)***
TANG	0.0584***	0.000577	0.101***	0.0864***
	(0.00713)	(0.0185)	(0.0112)	(0.00995)
LogTANG^2	***-0.234***	***-0.489****	***2.067****	***1.107****
	(0.193)	***(0.142)***	***(0.272)***	***(0.0770)***
TRATE	-0.0121	-0.0475***	-0.00598	-0.0158***
	(0.00801)	(0.00671)	(0.0113)	(0.00493)
LogTRATE^2	***-0.345****	***-0.240****	***-0.422****	***-0.435****
	(0.136)	***(0.0721)***	***(0.233)***	***(0.0469)***
LIQUIDITY	-0.0110**	-0.356***	-0.00338	-0.0216**
	(0.00523)	(0.0794)	(0.00381)	(0.00866)
LogLIQUIDITY^2	***-4.976****	***-7.468****	***-0.677****	***0.977****
	(0.416)	***(0.479)***	***(0.283)***	***(0.150)***
InTANG	0.00963**	-0.117***	0.0408***	0.0283**
	(0.00440)	(0.0186)	(0.0119)	(0.0124)
LogInTANG^2	***-0.429****	***-0.557****	***0.672****	***-0.180****
	(0.0824)	***(0.127)***	***(0.175)***	***(0.0687)***
DBKRT	-0.0384*	-3.267***	-0.0322	0.418
	(0.0213)	(0.242)	(0.0234)	(0.312)
LogDBKRT^2	***0.557***	***-2.254****	***-1.495****	***-1.651****
	(0.439)	***(0.851)***	***(0.619)***	***(0.402)***
DIV	-0.0205***	-0.0375***	-0.0423***	-0.0184***
	(0.00448)	(0.00570)	(0.00336)	(0.00311)
LogDIV^2	***-0.0643***	***0.282****	***-0.738****	***-0.499****
	(0.106)	***(0.0685)***	***(0.329)***	***(0.118)***
GDP	-0.279***	0.00843***	-0.134***	0.00228
	(0.0703)	(0.00318)	(0.0422)	(0.00342)
CFMT	-0.0613	-0.499**	0.0471	-0.114
	(0.129)	(0.229)	(0.0432)	(0.146)
BOND	-0.00817	-0.0970***	-0.0246***	-0.0498***
	(0.00605)	(0.0224)	(0.00432)	(0.0156)
STK	0.000553	-0.0219	-0.00123	0.0155
	(0.00544)	(0.0299)	(0.00301)	(0.0185)
HH	-0.137	2.436	-1.139***	-9.672***
	(0.762)	(2.066)	(0.194)	(1.921)
Constant	13.87***	17.77***	9.089***	-60.36***
	(2.867)	(5.897)	(2.165)	(6.252)
Observations	18,703	16,369	18,703	16,369

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Such non-linear relationships could be due to the applications of both trade-off and pecking order models. There is an argument suggesting that firm size is related to the information asymmetry problems on which the pecking order theory depends. Larger firms tend to have lower information asymmetries because they are required to submit information to the financial monitors whereas smaller firms are only required to produce a straightforward annual report (González and González 2012). Therefore, the greater the information asymmetry, the greater the validity of the propositions of pecking order theory where the level of debt decreases with the growth of the firm size. With an increase in firm size, the direct bankruptcy cost is relatively less than the cost of external equity financing. This explains the uptrend in the U-Shape curve which indicates a positive relationship between the debt ratio and firm size.

Growth opportunity is found to have a non-linear relationship among firms in AIM and the SMEs board market. For firms in AIM, an inverted U-Shape is shown in both short-term and long term leverage in market value. This implies that firms with more investment opportunities have less leverage probably because "greater investment opportunities are associated with a lower free cash flow and less need for the disciplinary role of debt over manager behaviour" (González and González 2012). Also, from agency cost perspective, firms with more growth opportunities have more agency conflicts between shareholders and creditors as shareholders of these firms are likely to underinvest and greater possibilities of risk-shifting substitution. For firms in the SMEs board market, a U-shaped relationship implies that, in both the short term and the long term, great investment opportunities lead to strong financing needs resulting in the issuing of more debt. Considering the measure of leverage in book value, a U-shaped curve is observed in short term leverage for both market. The long term leverage in book value has similar results with the leverage ratio in market value.

Profitability is found to only have a significant non-linear relationship in market value for both markets. This is probably because the reaction of market value of firms in both markets are sensitive to the change in profitability. Though both markets have a non-linear connection in the short term, those in AIM firms have a U-shaped curve while in the SMEs board market firms show an inverted U-shaped relationship. The profitability in both markets starts with a negative and significant coefficient in all parts of the distribution with the scale of the coefficient increasing in absolute value when the debt moves up to capital distribution. This suggests that, in both markets, an increase in internal funds is related to a decrease in short term leverage especially for highly leveraged firms (Fattouh et al. 2005). However, when the measure of long term leverage in market value is tested, the U-shape is found in firms in the SMEs board market while in AIM firms present an inverted U-shape. Such non-linear relationships in the SMEs board are probably because the taxes, agency cost and bankruptcy costs push more profitable firms towards higher leverage. Profitable firms will have more free cash flow and more marginal benefit of using debt to discipline managers (González and González 2012). In Figure 24, the coefficient between SMEs firms' profitability and long term leverage in market value in the distribution eventually turns positive.

An intriguing result is found when the non-linear relationship between the non-debt tax shield and leverage ratios are tested. From the results, it can be seen that the estimated coefficient on measures of non-debt tax shield is not significant for the leverage ratio in market value. In the measure of book value, an inverted U-shape is found over short term leverage in the SMEs board and long term leverage in both markets when the non-debt tax shield increased. This implies that firms which have a non-debt tax shield such as depreciation, would have a stronger incentive to use debt from a tax shield point within a certain range. With further growth of non-debt tax shield, firms start to use less the debt because the benefit gained from the non-debt tax shield might decrease.

For asset tangibility and leverage in market value, it is found that tangibility in AIM shows a linear relationship with leverage in both the short term and the long term. The short term leverage in the market value of the SMEs board market starts at the highest point when asset tangibility starts to increase. After a while, the impact on short term and long term leverage in market value starts to be eliminated as the value of tangibility increases. The return then drops to a critical point and rises when tangibility continuously increases. However, for tangibility and leverage in book value, the non-linear relationship is observed among the firms in both markets. An inverted U-shaped relationship is found between the asset tangibility and short term leverage in AIM while in the SMEs board market, the relationship between them is

U-shaped. The long term leverage in book value and tangibility for both markets show a U-shaped. The non-linear relationship with the U-shaped curve relates to the fact that asset tangibility starts with a significant and positive coefficient in most parts of the distribution but becomes negative after a point. As Fattouh et al. (2005) present, this is probably because the availability of fixed assets can be treated as collateral to reduce the marginal cost of debt but eventually, this effect may cease to be valid for high values of debt when collateral may be provided insufficient to ensure that the firm is able to borrow short term or long term funds.

The intangibility of assets is also found to have a significant non-linear relationship with both short term leverage and long term leverage among firms in AIM and SMEs board markets. From Figure 8 7, it is observed that a U-shaped non-linear relationship between short term leverage in market value and intangibility exists in AIM while the relationship between them in SMEs shows an inverted U-shape. However, the relationship of long term leverage in market value and intangibility shows a linear curve for both markets. For the leverage in book value and intangibility, it is also examined that a non-linear relationship exists in both markets. The intangibility is found to have an inverted U-shaped relationship with short term leverage in AIM but a U-shaped relationship with short term leverage in the SMEs board market. Equivalently, the tangibility relationship with long term showed U-shaped in both markets. Though the surface camber of the figures is different, the coefficient of intangibility on leverage in market value is negative and significant for most of the distribution for both markets but finally becomes positive. This supports the fact that intangible asset might have a lower value than fixed asset when there is bankruptcy and this would increase the cost of financial distress associated with the use of debt. Also, agency costs arising from conflicts between shareholders and bond holders will be greater if the firm does not have tangible assets because the probability of risk-shifting by shareholders will be greater. As González and González (2012) support, the results indicate that with the increase in intangibility, firms are more subject to information asymmetries, and may issue debt rather than equity when there is need for external financing.

Figure 7, Figure 17, Figure 27 and Figure 37 in the appendix also show a pictorial link between capital structure and liquidity in AIM and SMEs board market firms. It can be seen that a non-linear relationship exists among firms involved in both markets. Based on the measure of market value, the AIM firms tend to borrow less with liquidity increases in both the short term and the long term. Though the non-linear relationship between leverage and liquidity in SMEs is U-shaped in the short run and an inverted U-shape in the long run, the SMEs board firms would experience less leverage in both the short term and the long run with the effect of liquidity increases. It appears that firms with more liquidity have lower leverage and prefer internal retained profit or equity financing when raising capital. It seems that firms with more liquidity may have a stronger ability or willingness to pay short term leverage. Regarding the measure of book value, liquidity shows a negative and significant coefficient in all parts of the distribution for both markets though the direction of the parabola is contracting in both the short-term and the long term. The short term leverage in book value in both markets shows a U-shaped relationship with liquidity but in the SMEs board market, an inverted U-shape is found linked to long term leverage. As Ozkan (2001) infers, liquidity may have a mixed impact on the capital structure. After the breakthrough point, firms with more liquidity may begin to support a relatively higher leverage because they have ability to suffer the cost of short term obligations when they fall due.

A significant result is found when the non-linear relationship between effective tax rates and leverage measuring in book value for both markets are tested. Though firms in both markets have a non-linear relationship in both short term and long term, those in AIM firms have an inverted U-shaped link between effective tax rates and short-term leverage while the SMEs firms show a U-shaped relationship. In the table, effective tax rate starts with a negative and significant coefficient in all parts of the distribution with the value of the coefficient increasing in absolute value as the debt moves up to capital distribution. This suggests that firms with a higher level of effective tax in both markets would use less short-term debt. The non-linear relationship between effective tax rate and long-term leverage for both markets reveals an inverted U-shaped curve in normal distribution. In Figure 36, the leverage starts at the lowest point when effective tax rate increases. After a while, the effect on the long-term leverage reaches the highest point and starts to decrease as effective tax rate increase. It can be inferred that firms with a higher effective tax rate should use more debt to obtain a tax shield gain within limits. However, the benefit resulting from the tax shield would be eliminated if the long-term leverage continues to increase and the desirability of debt financing at the margin varies negatively with the effective marginal tax rate.

Regarding the relationship between distance from bankruptcy and capital structure, the findings for the impact of distance from bankruptcy on leverage in market value are not significant for either market while distance from bankruptcy and leverage in book value are observed to have a significant non-linear relationship. Short term leverage in book value in the AIM firms has a U-shaped link while the SMEs board firms reveal an inverted U-shaped relationship. In Figure 19, the distance from bankruptcy starts with a significant and negative coefficient in the distribution in AIM but a significant and positive coefficient in the distribution in the SMEs board market. This means, in the short term, that firms in AIM tend to hold a higher level of leverage with an increase of distance from bankruptcy. However, firms in the SMEs board start at a higher level of short term leverage with the distance from bankruptcy. After a breakthrough point, the effect on short term leverage appears to be decreased as the value of distance from bankruptcy increases. It is a similar story in the distance from bankruptcy and long-term leverage in book value for both market. As Figure 39 shows, the firms in AIM and the SMEs board market show an inverted U-shaped curve and the estimated coefficients on measures of distance from bankruptcy are all negative in most parts of the distribution. This may occur because at higher levels of leverage the probability of bankruptcy is high but, when the effect of distance from bankruptcy increases, the working capital associated with short-term financial health also increases, leading to an increase in the ability to pay short term debt.

The final firm specific variables that significantly affect the capital structure of firms in AIM and the SMEs board market is dividend payment. However, both market firms show a sharp decline in leverage in both the short term and the long term at the increase in dividend payment ratio. This can be related to the fact that firms paying more dividend have less leverage. Figure 10, Figure 20, Figure 30 and Figure 40 in the appendix show the pictorial curve of the relationship between dividend payment and capital structure and there is slight non-linearity among firms in both markets. Based upon further consideration of the Figures, an inference could be made that a possible U-Shaped relationship could be occur if the value of dividend payments stayed negative for longer among the firms in AIM and the SMEs board. This can be explained by the conflict between stock holders and debt holders causing the agency cost of debt as the dividend pay-out should be determined in terms of its impact on the shareholder value. The issue of dividend pay-out is important in that firms use dividends as a mechanism for financial signalling to outsiders concerning the stability and growth prospects of the firm. Grounded in the agency costs of shareholders and debt holders, the ability of firms to issue debt instruments is limited when shareholders are over over-protected. Further, it can also be inferred that profitable firms or firms with fewer investments are likely to incur higher cost of debt resulting from dividend payments than from interest income payments. From the inverted U-Shapes which are approximated by a linear relationship in the Figures, it seems firms in both markets do not tend to balance the cost and benefit when deciding on equity and debt financing.

7.1.3 Non-Linearity in Capital Intensive and Non Capital-Intensive Sectors

To identify the sectors as capital intensive or non-capital intensive, this section uses the percentage of asset tangibility as the measure. Due to the difference in the amount of capital held by firms or sectors that are categorised from studies Shaw et al. (2005), Rumelt (1982) to be capital intensive such as sectors with heavy investment in marketable plant and equipment, this research observes the medium asset tangibility of sectors as the yardstick for capital intensive and non-capital intensive. The medium asset tangibility for the sectors in AIM is 20.7%. Based upon this, the sectors of Oil & Gas (27.79%), Basic Materials (19.84%), Consumer Goods (22.15%), Telecommunications (27.97%) and Consumer Services (21.59%) are defined as capital intensive industries. Other sectors of the Industrials (15.24%), Health Care (7.94%) and Technology (7.01%) are non-capital intensive sectors. Considering the difference in capital capacity in both markets, the boundary in the SMEs Board is 25.87%. The Energy sector, the Material sector, the Consumer Goods sector and the Consumer Services sector are characterised as capital intensive industries while the Industrial sector, the Health Care sector, the Telecommunications sector and the Technology sector are non-capital intensive. With the use of bivariate analysis, each firm specific variable corresponding with a capital structure measure. The pictorial diagrams are shown in the appendix and this indicates the non-linear relationship in a simple intuitive way.

Table7.3 and Table 7.4 in appendix show the results of the link between capital structure and its factors in AIM and the SMEs board market with demarcation of the capital intensive and non-capital intensive firms. The results show that the non-linear relationships among firms that are respectively capital and non-capital intensive are significantly different. However, the significance of regression coefficients for both markets is not statistically marked, meaning that the impact of firm-specific factors on leverage ratios when separated into capital intensive and non-capital intensive is less than expected. For instance, there are tangibility, liquidity and intangibility and distance from bankruptcy in the AIM showing a non-significant relationship with most of the leverage ratio of firms, both capital intensive and non-capital intensive.

In AIM, the coefficient of firm size in firms that are non-capital intensive is greater than in capital intensive firms. In the SMEs board, firm size, growth opportunities, non-debt tax shield, profitability, liquidity, distance from bankruptcy and dividend pay-out ratio are presented with significant evidence of non-linear relationships.

The Figure in Part 2 of the appendix shows that there is a distinct pattern in the value of coefficients for capital intensive and non-capital intensive firms in both AIM and the SMEs board market. In AIM, the results indicate that firm size heavily affects the leverage ratio in the market value of non-capital intensive firms and this effect is much bigger than in capital intensive firms. However, there is no obvious distinction between the coefficient of firm size on the leverage of firms in capital intensive and non-capital intensive sectors for SMEs. It can be seen that, in both capital intensive and non-capital intensive firms, the effects of firm size on long term leverage in market value are far greater than the effects of firm size on other proxies of capital structure.

In AIM, firms with more growth opportunities in capital intensive sectors tend to use less short term debt but have a higher long term debt level. In non-capital intensive sectors, although there is a positive relationship between growth opportunities and long term leverage in market value, other measures of capital structure are negatively impacted by the increase of growth opportunities. Overall, the effect of growth opportunities on leverage is bigger in capital intensive than non-capital intensive firms. This might be related to the fact that fast growing capital intensive firms have relatively higher tangible assets that cannot support a high leverage ratio in the short term due to the fear of debt holders that firms might pass up valuable investment opportunities. In SMEs, the results of growth opportunities are the opposite to AIM. Figure 42 shows that the effect of growth opportunities on leverage is significantly more far-reaching in the non-capital intensive sector than in the capital intensive sector. It also indicates that firms which have a relatively large proportion of intangible assets tend to have a higher long term leverage.

The non-relationship of non-debt tax shield and capital structure is another point that has been the concern of this section. In AIM, the non-debt tax shield in non-capital intensive firms is found to have a positive non-linear relationship with leverage in market value but a negative non-linear relationship with leverage in book value. In capital intensive firms, the negative non-linear relationship exists in short term leverage in market value. This probably because capital intensive firms have higher tangible assets and thus have higher depreciation ratio. In SMEs, the non-debt tax shield is strongly negatively related to long term leverage in the capital intensive sector while, in the non-capital intensive, the non-relationship between them is positive. This huge difference indicates that, though capital intensive firms have a relatively large proportion of tangible assets, the advantage of resorting to debt as a tax shield might be stronger. However, non-capital intensive firms might not have a large proportion of tangible asset but probably have relatively more growth options in their investment opportunity sets, implying a positive relation between the non-debt tax shield and leverage ratios.

In AIM, profitability starts with a negative coefficient in most parts of the distribution with the size of the coefficient increasing in absolute value as the debt to capital distribution in non-capital intensive firms grows. When the profitability in capital intensive firms increases, the leverage in market value would increase but the leverage in book value would decrease. From Figure 44, it can be asserted that firms in the non-intensive sector will choose retained earnings as their main source of financing investment rather than external financing probably due to the conditions of asymmetric information. In the capital intensive sector, the preference of retained earnings is explained by the negative relationship between profitability and leverage in book value. In SMEs, the difference between capital intensive and non-capital intensive firms is not significant except for the effect of profitability on long term leverage in market value. The coefficient of profitability in the capital intensive sector shows a negative value on long term leverage in market value, indicating an inverted U-shaped curve while the coefficient of profitability shows a positive value that indicates a U-shaped curve. In general, firms with more profit in the capital intensive sector would have less debt in both the short term and the long term but firms in non-capital intensive sector will borrow more, especially highly profitable firms.

The non-linear relationship between intangibility of asset and leverage in capital intensive and non-capital intensive firms is also analysed in this section. In AIM, the intangibility has a negative influence on short term leverage but it has a positive impact on long term leverage of firms in the non-capital intensive sector. The effect of intangibility in the capital intensive sector relates positively to most measures of capital structure except for the short term leverage in book value. From Figure 48 it can be asserted that firms with more intangible assets in the capital intensive sectors tend to borrow more while those in the non-capital intensive sectors are likely to have less debt in the short term. This is probably related to the fact that intangible assets play an increasingly important role in the economy, especially in a knowledge based economy. Non-capital intensive firms are technology-related and hold plenty of patents, intellectual property rights and knowledge based assets. This might result in an increase in leverage, particularly for long term leverage. In SMEs, firms with more intangibility in the capital intensive sector are more likely to have higher leverage in market value but less leverage in book value, whereas firms in the non-capital intensive sector are more likely to reduce leverage. In other words, the influence of intangibility in capital intensive firms is greater than for those that are non-capital intensive.

Regarding the impact of probability of bankruptcy on the firm’s capital structure choice, there is large variation in the magnitude and sign of the estimated coefficients for both markets as the conditional distribution increases. In the capital intensive sector of AIM, firms with less possibility of bankruptcy tend to have higher leverage in market value but less leverage in book value. This tendency occurs in the firms in the non-capital intensive sector of SMEs. Figure 49 in the appendix shows that the overall situation of firms in the non-capital intensive sector of AIM and the capital intensive sector of the SMEs board is similar to that firms with a lower default risk will have lower levels of debt in both the short term and the long term. In other words, the non-linear relationships of distance from bankruptcy and capital structure of capital intensive and non-capital intensive firms is different in each market. This is probably because the financially health firms might have sufficient capital surplus and thus internal financing will be the preference. However, firms with good financial health might still have higher levels of debt because they have a greater ability to the cost of the debt. Overall, the difference in the effect of distance from bankruptcy between the firms in capital intensive and non-capital intensive sectors is more significant in AIM than in the SMEs board.

7.2 Dependent variables

Empirical studies on capital structure generally use in different measures of leverage to be dependent variables. According to Kayo and Kimura (2011), one “important difference between the alternative measures refers to which equity value (market or book) should be used as the proxy of the leverage ratio”. A number of empirical studies use market value leverage (Balakrishnan and Fox 1993; De Jong et al. 2008) and others focus on book value leverage alone (MacKay and Phillips 2005). Studies such as Booth et al. (2001); Byoun (2008) Lemmon et al. (2008) use both measures of market value and book value to present capital structure.

As Barclay et al. (2006) show, leverage in book value can be a better measure because it captures the assets’ value in place rather than growth options which reflected by present market value. It is an appropriate way to recognize a negative marginal debt capacity of growth options. A similar proposition is also asserted by Antoniou et al. (2008); Kayo and Kimura (2011), that the decision of debt issue based on market value can distort future investment decisions. As these studies point out, it is vital to understand that funding needs to raise assets in place rather than indicate growth option investments which may occur in the future. However, the use of book value may rely on distortions rooted in accounting rules, the fact that equity in book value could be negative as the correlation between book and market value could be weak if the firm’s size is small. In this case, market value provides a realistic measure of leverage as market value relies on the intrinsic firm value (Kayo and Kimura 2011). In a word, book leverage reflects that “the debt used to finance assets in place, while market value shows the level of the firm’s financial slack” (Kayo and Kimura 2011).

To address this issue, this research adopts both market value and book value leverage as the dependent variables. As can be seen from Table 6.4, there are several differences in coefficient estimation. In the fixed effect model of the AIM sample, for instance, a change is observed in the role of growth opportunities, effective tax rate and stock market development in short term leverage in market value and short term leverage in book value, and a contrasting role for firm size, profitability, effective tax rate, capital formation and stock market development in long term leverage in market value and long term leverage in book value. Similar results appear in the fixed effect model of the SMEs board, the variables of tangibility and GDP having a different impact on short term leverage in market value and book value while the role of non-debt tax shield and stock market development is the opposite in market value and book value for long term leverage. As the discussion above explain, the book value of leverage is tantamount to funding for asset in place, market value of leverage suggesting the level of the firm's financial slack, it is reasonable to find a different relationship.

For instance, based on a trade-off assumption, a given firm of large size in AIM may increase the level of debt so as to operate business projects. By contrast, a negative relationship with market value may be expected. According to the "extent that market value incorporates the present value of potential financial distress", firms of large size might reflect a high present value of financial distress thereby resulting in deduction of the firm's value and decrease in the market value of leverage (Kayo and Kimura 2011; Kurshev and Strebulaev 2015)

7.3 Balance data

A panel data set, especially on individuals or firms with missing years for at least some cross-sectional units in the sample, is called an unbalanced panel. The panel regression in this study resorted to an unbalanced panel regression method so as to maximize the use of all available data. A number of studies use a balanced panel data model to simplify the analysis (Daskalakis and Psillaki 2008; Chen et al. 2011) as using a balanced panel sample could introduce certain biases in the sense that only firms operating for the whole period would make up the sample. As summarized in Table 7.5 and Table 7.6, this section employs balanced panels to examine the stability of the relationship between leverage and the explanatory variables. The firms that went public before 2007 and related data between 2007 and 2017 which all available to the explanatory variables as well as the measure of leverage, are chosen in samples. To gain an impression as to whether balanced and unbalanced panels convey different or similar information, Tables 7.5 and 7.6 compare descriptive statistics and report the results of fixed effects regression over different measures of leverage based on balanced and unbalanced panels.

The findings in 7.5 show that the coefficient associated with explanatory variables and the significance of the coefficients are different between balanced and unbalanced panel. Firstly, the effect of firm size on book ratio of short term and long term debt are significantly negative for an unbalanced panel but significantly positive for a balanced in panel. Also, profitability is found to be significant and positively related to book ratio of short term debt based on unbalanced panels while it shows a positive relationship for balanced panels. For country variables, capital formation plays a different role in market ratio of long term debt depending on whether the panel is balanced or unbalanced. Besides, the stock market development shows a positive influence on book ratio of short term debt with unbalanced panel data but a negative influence on book ratio for short term leverage with balanced panel data. Similar results also occur to the coefficient of industry concentration on book ratio of short term leverage. The second interesting finding from Table 7.5 is that the coefficient of explanatory variables associated with balanced panel data is more significant than the coefficient of explanatory variables relating to unbalanced panel data.

In balanced panel regression based on the SMEs board market, 456 firms are deleted due to the missing cross section unit. From Table 7.6, it can be seen that firm variables of growth opportunities, profitability, tangibility, liquidity and intangibility in the SMEs board market show different effect when balanced and unbalanced panels are compared. Growth opportunities in the SMEs board have a significant and negative relationship with book value of short term leverage for an unbalanced panel but a positive correlation with book value of short term leverage in a balanced panel. Further, profitability in unbalanced panels is found to be negatively linked with market ratio of short term and long term debt and these links are positive and significant in a balanced panel. Tangibility is positively related to short term leverage in market value and book value in an unbalanced panel and negatively related to these two measures of leverage in a balanced panel. In an unbalanced panel, liquidity decreases the effect of affecting book ratio of long term leverage. In a balanced panel, liquidity increases the role of influencing the book ratio of long term leverage. For intangibility, it is found that the market ratio of short term debt is inversely influenced in a balanced and unbalanced panels. The Table also indicates that the country variable of GDP, stock market development and the industry variable of market concentration have opposite roles in influencing the capital structure in these two panels. However, the effect of these micro-factors are not significant, indicating that the role of these variables in borrowing are limited, both in balanced and unbalanced panels. To conclude, the overall effect of variables on the measure of leverage in both panels are similar.

7.4 Explanatory Variables Measures Lagged Back 1 Year (4 Quarters) Based on UK Sample

Another robustness test is to test the power of lagged values of capital structure. The lag values for the proxies of leverage are used to replace the non-lag values in order to ensure that there is an extended effect on leverage. First, the capital structure measures are lagged 4 quarters (1 year) back to investigate whether explanatory variables of the previous year would have a different impact on current capital structure. Based on results presented in Table 7.7 and Table 7.8 below, it is found that in AIM, though lagged back a year, firm variables of non-debt tax shield, tangibility, intangibility, distance from bankruptcy, dividend pay-out significant affect the leverage. It is notable that these firm variables were also found to be significantly related to leverage before they were lagged. This could imply that the effect of them on leverage is persistent. Another variable, firm size, which formerly was found to be significantly related to leverage has a non-significant relationship with book ratios of short term and long term leverage after it was lagged. Similar results are also observed with liquidity which is significantly negatively correlated to leverage before it is lagged but, after it is lagged, this correlation become insignificant. It seems that firm size and liquidity only have influence on leverage in the current year and the effects are not persistent over time.

When compared to micro factors in AIM from Table 7.7, it can be seen that GDP, capital formation, bond market development and stock market development significantly influence leverage after they are lagged back. This is related to the fact that the roles of lagged country variables in adjusting current capital structure are all significant. However, the effects of these microeconomic variables on a firm's choice of leverage are not great before they were lagged. It can be inferred that the change in micro-economic conditions has no great effect on the current financing decisions of firms but, taking the long-term perspective, the micro economic conditions could be highly significant drivers of a firm's financing choice.

7.5 Explanatory Variables Measures Lagged Back 1 Year (4 Quarters) Based on China Sample

The findings in the SMEs board market is different from the case in AIM. As Table 7.8 exhibits, the coefficient of the lagged firm variables of size, non-debt tax shield, liquidity, intangibility and dividend pay-out start at a significant level. Further, these factors in the current year are also found to be significantly associated with current leverage. This could be explained in that capital structure is the cumulative outcome of past valuations of these factors. Some measures of firm variables would not significantly affect the measures of leverage after they are lagged. For instance, tangibility of asset which was used to be significant and positively associated with market ratios and book ratios of leverage has positive and significant influence on market ratio of short term leverage and book ratio of long term leverage. Though the hypothesis relationship is found for two measures of leverage, the study cannot assert that the effects of tangibility completely disappear. Further, the significant impact of distance from bankruptcy on measures of leverage does not apply in the case of distance from bankruptcy which is lagged back. The significant result of lagged value only exists for the book ratio of long term leverage. Finally, effective tax rates eliminates its influence on measures of leverage with the lagging effect. According to accounting rules, the effective tax rate for the annual fiscal period must be estimated at the end of each interim period and applied to year-to-date interim income from ordinary continuing operations. Thus, the effective tax rate might not have a persistent effect on a firm's future financing decisions.

The influences of past microeconomic valuations on capital structure are persistent. Considering capital formation, the relationships with market ratios and book ratios of short term leverage are found to be significant based on the lagged value. After lagging the value of capital formation, the influences on leverage are all significantly negative. This is probably related to the fact that the capital formation of a country can foster the long term trend of economic growth and, thus, capital structure is the cumulative influence of past capital accumulation.

Further, the bond market is found to have a significant negative impact on the measures of leverage before it was lagged. Though the observed negative relationship is only significant for book ratios of short term and long term leverage, it still indicates a relevant insight into the change of capital structure when bond market value is lagged back for one year. Stock market development, however, is only significantly related to the book ratio of long term leverage with lagged effect, though the effects of stock market development on leverage are significant and positive before it was lagged. This is slightly different from Baker and Wurgler (2002) who suggest that the equity market in past time attempts to accumulatively affect the capital structure.

Industry concentration recorded a significant and positive relationship with leverage excluding the market ratio of long term leverage in lagged effect, and it shows a negative and significant relationship with long term leverage in non-lagged effect. The empirical lagged effect of industry concentration suggests that the lagging of concentration to the current long term leverage can be responsible for the long term leverage dynamic.

7.6 Leverage Measures Leading Forward 1 Year (4 Quarters) based on UK Sample

Due to the significant findings after a lag in the explanatory variables measures, it became relevant for the reverse situation to be considered as well. This is when leverage ratios are moved a year forward to investigate whether the current year's factors have a significant impact on the future financing decisions of firms. The findings are presented in Table 7.9 and Table 7.10 below where it appears that, even after 1 year, some measures of leverage are significantly affected by factors including firm specific variables and macroeconomic conditions. With regard to Lemmon and Zender (2010), a firm's initial factors in determining the future value of leverage firstly suggests that an important component missing from existing specifications is a time-invariant factor. Secondly, most existing determinants seem to contain relatively little information about leverage which is associated with time-invariant factor.

Firstly, it was found in Table 7.9 that firm size would only have a significant and positive impact on the leading market value of short term and long term leverage but it also has a significant relationship with leverage in both market value and book value before leverage were led. Both Table 7.9 and Table 7.10 show that the relationship between firm size and leverage is positive. This could imply that the effect of the firm's size obtaining from the current year would be constant over time. Further, the findings for non-debt tax shield, liquidity and distance from bankruptcy are similar to firm size when led leverage measures are used. For instance, the non-debt tax shield is originally significantly positively related to leverage while liquidity and distance from bankruptcy are significantly negatively related to leverage. However, the significant effect of these factors does not persist when leverage is lead forward 1 year. The results could imply that future long term leverage would increase when the non-debt tax shield in the current year increases and when distance from bankruptcy decreases. Also, an increase in current liquidity would decrease the future market of short term leverage. Other firm variables of tangibility, intangibility and dividend pay-out remain significant influences on measures of leverage after leading forward the leverage. This suggests that future capital structure choice is strongly related to historical values of tangibility, intangibility and dividend pay-out.

For the country variables, it can be seen that the GDP which is initially found to negatively influence leverage, has a significant and positive impact on leading leverage. This indicates that GDP on leverage in the current year and leverage in the future are opposite effects. Previously, De Jong et al. (2008), Booth et al. (2001) analysed the influence of several macroeconomic variables including GDP on leverage and found mixed results. One possible explanation could be that the accumulative growth of the gross domestic product suggests that a better economic market would increase a firm's debt paying ability. Thus, the long term growth of GDP would increase motivation for debt financing. Another explanation could be that the findings for bond market development are the same for the original results when leading leverage measures are used. The bond market development in AIM shows a negative influence on leverage on both market and book value and these significant and negative influences on leading leverage. One interpretation is that, compared with other micro factors, the financing decisions of firms in the SMEs market are sensitive to the change of in bond market development.

7.7 Leverage Measures Leading Forward 1 Year (4 Quarters) based on China Sample

The results for the effects of explanatory variables on leading leverage in the SMEs board are shown in Table 7.10. It illustrates that some determinants are highly statistically significant related to the leading dependent variable. For instance, firm size which is formerly found to have a significantly positive link to the market ratio and book ratio of the leverage, has a significant and positive impact on leverage after leading it forward. Further, the long term impacts of firm size on short term leverage are relatively larger when compared to the results of the initial effect on leverage, suggesting a degree of stability and continuity of firm size in the SMEs board. Also, the coefficient estimates on tangibility and intangibility experience an increase in the market and book leverage both before and after the dependent variables of leverage. However, the effects of tangibility and intangibility on future leverage becomes smaller and this might suggest a gradually dissipated influence of them. The findings for liquidity are similar when leading leverage measures are used. It can be seen from Table 7.10 that the negative impact of liquidity extends to leverage in future year. The dividend pay-out is another firm specific factor that remains a significant and negative role in influencing all the dependent variables after leverage is lead forward.

However, it can be seen from Table 7.10 that firm variables of effective tax rate and dividend from bankruptcy do not remain a persistent influence on dependent variables after leading forward the measures. In particular, the effects of distance from bankruptcy on future capital decisions are mixed as the short term debts are negatively linked to distance from bankruptcy but long term leverage has a positive influence on it. This could indicate that, though the effective tax rate and the firm's financial health play a significant role in impacting current capital structure choice of firms in the SMEs board market, this significance would be gradually eliminated in subsequent years.

The findings for country variables are different when leading measures of leverage are used. For instance, originally, capital formation is negatively associated with all dependent variables but only significantly related to short term leverage. After leading forward 1 year, all leverage ratios are significantly affected by capital formation. This could indicate that the influences of capital formation on future leverage are stronger than that on current leverage. Also, bond market development is the only country variable in SMEs that remains significant effect on leading measures of leverage excepting the market long term leverage ratio. Different to bond market development, stock market development only retains a significant relationship with book long term leverage where a negative relationship is established between stock market development and all leading measures of leverage ratios. However, the coefficient of stock market development is originally significant and negative. The finding could be explained by hypothesising that a continuation of stock market development in the long term suggests less asymmetric information in the market, and lower cost of equity financing provides motivation for firms in AIM to reduce debt financing. Another important result in this Table is the significant and positive effect of industry concentration on a firm's debt level. This significant effect is only present where a positive relationship is found between industry concentration and short term leverage in market value, and a negative relationship between industry concentration and long term leverage in book value. It can be inferred that the long-term impact of industry concentration is relatively small on the future decision of capital structure when compared to that on current debt level.

In conclusion, the explanatory variables in AIM do not have a strong and persistent influence on future leverage in SMEs; the persistence of explanatory variables in future capital structure choice is slightly more than that in SMEs. The firm variables of firm size, liquidity, intangibility and dividend pay-out and the macro-factors of capital formation and bond market development in both markets greatly impact current and future leverage ratios. Further, the difference between these countries, sample selection concerns, and other potential founding effects would limit the explanatory power of inferences. Following studies by Huang and Ritter (2009), Lemmon et al. (2008), González and González (2012) and Daskalakis and Psillaki (2008), the analysis of lagged explanatory variables and leading dependent variables can provide new insight into the tendency of capital structure for firms in AIM and SMEs, as well as a sample robustness check for results based on both markets.

However, as Michaelas et al. (1999) mention, while the "variable has an economically small impact of its own, the existing influences as a whole would have an economically important impact on capital structure". Further, the extent of variables' effect in the future is uncertain, beyond its importance relative to other measureable variables (Lemmon et al. 2008).

7.8 Developed and emerging countries

Table 4.13 shows the complete fixed effect coefficient model that applies to two samples: developed countries (AIM) and emerging countries (the SMEs board). For the sample of the developed country, this research analyses the UK Alternative Investment Market. The sample of the emerging country is based on the Chinese SMEs board market. By analysing these two countries separately, this thesis intends to verify whether the similar drivers of firm leverage can apply to developed as well as emerging countries. In other words, it is interesting to observe if theories of capital structure which developed in the UK might apply to other environments. In the section on Economic Models, the analysis of country effects were shown in Table 6.6. In brief, it is observed that there is only one covariate regarding with the firm characteristic of liquidity which shows the same signs and statistical significance between two countries. Other covariates of firm specific variables show different effects on different measures of leverage. For instance, the coefficient of firm size has the same significant and positive relationship with market short term leverage and long term leverage in both developed and emerging countries. Covariates of non-debt tax shield have the opposite effect as it is positively related to leverage in the developed country but negatively linked to leverage ratios in the emerging country.

The covariates regarding country variables and bond market development, show differing effects depending on the country's development level. In the developed country, the bond market development is significant in explaining a decrease in a firm's leverage. For the emerging country, however, in turn, bond market development plays a significant role in increasing the leverage level. Further, the GDP in the developed country is negatively associated with a firm's leverage while in the emerging country, these relationships are positive. It can be seen from Table 5.24 that the effect of GDP in the developed country is much more significant than that in the emerging country. Another important difference relates to capital formation, which has a significant and negative influence on the market ratio of leverage in both countries. However, capital formation is no longer significant in accounting for book leverage. This probably related to the fact that market ratio incorporates a more precise perspective of the leverage corresponding to potential micro-economic conditions. A significant effect for market ratio indicates a degree of sensitivity to adjustment in target debt level when firms cope with the change of economic environment in both countries.

The most important difference between the two countries bears on the country variable of stock market development. Though the covariates of stock market development show different effects on the country specific level, the absolute value of coefficient of stock market development in the emerging market is much higher than that in the developed country. This is an important issue that raised in this research that future studies might further analyse. For instance, in countries with advanced stock market development, firms are rely more heavily on debt. The industry variable shows different effects when developed and emerging countries are compared. In results, industry market concentration shows a significant role in emerging country.

7.9 Conclusion

Regarding the robustness tests provided in the chapter, the comprehensive insight into how capital structure variance depending on its determinants under different circumstances. Firstly, the findings in the non-relationship regression models suggest that firms' activities in place can improve or decrease their marginal benefit of changes. The impact of firm characteristic has marginal effect on capital structure which the effect of its determinants depends on the level of their coefficient.

Furthermore, the regression results based on balanced data that shows the significant effect on factors with firm-specific, industry-specific and country level on leverage of firms in AIM and SMEs board. This proves the stability of regression results of panel data in the research.

A third test for robust test is to look at the power of lagged values of the leverage. It is noted from results that although this chapter subtract the four-quarters lagged value from the current value of the explanatory variables, leverages of firms in AIM and

SMEs board were still significant affected by firm, industry and country level variables. This proves that past value of the explanatory variables are still correlated with debt ratio of firms in both market in future one year.

Chapter Eight: Summary, Conclusion and Recommendations

8.0 Introduction

The selection of capital structure in the context of corporate finance which is allied to "asset values, bank solvency, and the availability of credit to the business community" (Agarwal 2013), has received wide attention from a variety of practioner and academics in recent years . The trade-off between debt and equity in a firm's financing structure is the primary cause of influencing the value of the firm. For this reason, firms need to choose a financing-mix assists in maximising the value of equity. However, there are a large number of studies which find that a financing mix or the combination of debt and equity financing does not impact the value of shareholder's equity and that financing decisions in relation to capital structure is irrelevant.

Most of the empirical literature on capital structure examines the relationship between the factors of firm characteristics and leverage ratios. The majority of published findings from this area of research line, is the positive relationship between firm size and leverage ratios together with the positive relationship between tangibility and leverage. This suggests that larger firms with more tangible assets tend to use more debt in their capital structure. Furthermore, firms with stronger profitability, higher market-to-book ratios (growth opportunities) and higher intangible assets use less debt. Other area of studies (Booth et al. 2001; Antoniou et al. 2008; De Jong et al. 2008) analyse the role of macroeconomic conditions in affecting the financing decisions of firms, suggesting that, apart from firm characteristics, country-specific factors can also influence a firm's capital structure. However, comparing the majority of studies that analyse firm-specific factors as determinants of capital structure, most of the literature does not explore the roles of country and industry. Although several studies add dummy variables representing different countries and industries, only a few of them include variables with country characteristics and, these include studies from Hall et al. (2000); MacKay and Phillips (2005); Kayo and Kimura (2011); Fan et al. (2012).

The current study develops the work on capital structure by utilising panel data to investigate the influence of firm, industry and country level determinants and the dummy effects of time, industry and financial systems on the leverage of firms on AIM and the SMEs board markets. Due to the multi-level nature of these determinants, this study uses multi-dimensional analysis in order to address all levels simultaneously. The main element includes a sectoral analysis which indicates how capital structure is constructed in each sector over the time period of the sample. Furthermore, the comparison of capital structure in the UK and China is included to determine financing behaviour when different macroeconomic conditions are present. The third part looks at the effects of time, industry and financial system which demonstrates that capital structure decisions vary when time periods, firm type and marketplaces change.

A summary, conclusion and recommendations resulting from the current study are presented in this section. Furthermore, a discussion on financial policy implications, limitations of the research and suggestions for future research are also provided. This chapter is structured as followed: Section 6.1 shows a summary of the research methodology and data analysis performed. Section 6.2 provides a brief discussion of the findings and contributions of the research. Section 6.3 presents the financial policy implications. The contribution of the study with reference to the findings is presented in section 6.4 and section 6.5 provides a summary of limitations and a discussion of the potential for future research.

8.1 Data and Research Methodology

The study uses secondary data to investigate the research questions which are (i) what are the determinants of corporate capital structure decisions from a sectoral perspective. In this research, secondary data is used to assess the influence of time, firm, industry and country on firm leverage's variance. (ii) Is the relationship between capital structure and the factors affecting it in a non-linear curve in samples of AIM and SME Board? (iii) What are the direct and indirect influences of the characteristics of firm, industry and country on firm leverage? To determine the hierarchical relationship between these different levels, the research uses a multi-level dimensional analysis by estimating panel fixed effects with the use of secondary data. The construction of the secondary data is developed by using some of the major elements of corporate financial performance, industry market competitiveness and macro-economic conditions in the period including the economic crisis (2007 to 2017).

One of the samples consists of 510 firms filtered from a population of 718 firms from the FTSE AIM All Share index. The other sample consists of 759 firms drawn from a population of 884 firms from the Shenzhen SMEs board market. There are three selection criteria that are applied in this study. Firstly, firms with inadequate financial data which cover more than three financial years are excluded from the sample. Secondly, firms without relevant data of financial performance are also deleted from the sample. Finally, utilities and financial services firms are excluded. After these criteria have been applied, 510 firms from AIM and 718 firms from the SMEs board qualified providing unbalanced panel data based with the necessary financial performance and macroeconomic variables.

8.2 Finding and Context

The descriptive statistics indicate that, overall, the FTSE AIM All Share and the SZSE SMEs Board companies have both the similarities and differences in their behavioural characteristics. This is determined by the coefficients' signs and the magnitude of the independent variables. On average, 71% of the total 718 firms in AIM and 85.9% of the 884 firms in SMEs Board are investigated in an empirical analysis over an 11-year period. Empirical evidence is found to support the arguments in the studies that there are both positive and negative influences of firm specific and country specific factors on a firm's capital structure. This thesis attributes similarities and differences in the factors determining capital structure to the commonality of the institutional characteristics of the UK and Chinese' market. This may be related to the fact that AIM and SMEs Board are similar with regard to firm size, growth opportunities, tangibility, liquidity, intangibility, dividend, capital formation and stock market development but different with regard to non-debt tax shield, profitability, GDP and bond market development. The current research argues that, based on the measures of firm specific and macroeconomic variables used, the influence of these variables on a firm's leverage is supported in literature. The observed results in this thesis are consistent with prior studies (Modigliani and Miller 1963; Jensen and Meckling 1976; Myers 1984). For example, some of the results that are supported by the existing literature include the firm specific factors of size (Titman and Wessels 1988; Chen 2004), growth opportunities (Myers 1984; Michaelas et al. 1999), non-debt tax shield (DeAngelo and Masulis 1980), profitability (Myers and Majluf 1984), effective tax shield (Michaelas et al. 1999), tangibility (De Jong et al. 2008), liquidity (Ozkan 2001; Lipson and Mortal 2009), intangibility (Balakrishnan and Fox 1993), distance from bankruptcy (Kayo and Kimura 2011), macroeconomic factors of GDP, capital formation, bond market and stock market development (Antoniou et al. 2008; Bokpin 2009; Cook and Tang 2010) and industry concentration (Kayo and Kimura 2011; Xu 2012).

Regression estimates, in literature, using AIM and the SMEs board market data show the non- linearity of the relationship between a firm's capital structure and factors arising from firm specific and macroeconomic conditions. There is evidence of U-shaped and inverted U-shaped relationships. For example, the link between growth opportunities and short term leverage in book values in AIM and the SMEs board market are all U-shaped but the link between tangibility and short term leverage in book value is U-shaped on the SMEs Board and inverted U-shaped on AIM. Additionally, it is observed that a linear relationship is evident between measures of leverage ratio and firm sand country specific factor when firms are classified into capital intensive and non-capital intensive groups. The results are mixed, some being U-shaped and others inverted U-shaped. For example, in AIM, the non-linear relationship between non-debt tax shield and short term leverage in market value is U-shaped in capital and non-capital intensive firms while in relation to book value it is inverted U-shaped in capital intensive firms and U-shaped in non-capital intensive firms. The results are similar to the findings found by Fattouh et al. (2005)where the estimated effect of the explanatory variables at different quantiles of the distribution are vary.

The non-significance of independent and control variables probably indicates that there could be mediation or substitution variables that catalyse the effects of those variables on measures of capital structure. Also, the relationship between capital structure and its elements of influence cannot be generalised as positive or negative without consideration of the magnitude of the variables, types of firms and the sectors with which firms are engaged.

8.3 Policy Implications and Recommendations

The policy implications of this thesis emanate from the results debate on what needs to be established to ensure the borrowing facilities available to SMEs meet their liquidity requirements. First, financial policy makers and equity providers need to recognize that the borrowing requirements of SME businesses are not consistent over the sample time or across sectors. From the results, there are several variations in the borrowing of SMEs on AIM and the SMEs board, and this may be related to changes in the wider economic condition of the marketplace, particularly in the period of economic crisis, or related to specific industry characteristics. Therefore, it can be the situation that financial policies relating to SMEs and the lending policies of creditors change over time and across countries to match the variation in the borrowing requirement of SMEs.

8.3.1 The Policy of Financing Channels

It is noted that SMEs tend to firstly use retained profit followed by debt finance when additional funds are needed. This course of action follows the pecking order hypothesis of Myers (1984) and can be "constrained by the availability of funds which is partly determined by the asset structure and the financial position of the firm as well as macroeconomic factor". Thus, the challenge for policy makers could be the provision of an environment in which firms are able to earn and retain sufficient profit in their business to raise a greater number of economically viable projects (Michaelas et al. 1999). Additionally, it is found that SME firms are also highly reliant on equity financing and their debt structure is also prone to floating debt financing making long term planning difficult. This is probably because the main channels where SMEs can obtain external debt financing such as bank loans, are restricted due to the structural problems in the bond market which is a big limitation. Therefore, it is a further implication for policy makers, who advise regulatory authorities to ensure the provision of an active and sustainable strategy in benchmarking the cost of debt (i.e, interest rate) or alternatively direct financing channels. Furthermore, as Bank (2012) indicates, the corporate credit fixed-income market in China faces a challenges in establishing a sub-market where debt issuers accept with lower credit ratings to reduce the barriers of entry for small and medium companies. These firms with a lower credit rating or are smaller in size that are subject to market failure have to rely on higher-cost bank loans to access the fixed-income market raise money (Bank 2012). SMEs with lower credit ratings would have legal restrictions on risks stipulated by regulators if they plan to enter the market. This market failure demands a more flexible policy which will enable SME firms with lower ratings to be accepted by the market and have the ability to issue bonds when necessary.

However, AIM firms can increase borrowing to the extent that higher profitability leads to an increase in leverage. Since the 2008/2009 banking crisis, the Bank of England has decreased the base rate. By the end of 2016, the interest rate was 0.25% and raised to 0.5% in 2017. The decreasing interest rate in the UK primarily influenced the AIM firms' capital structure by affecting the cost of debt capital. As a rule, economic crises are associated with lower economic growth and inflation rate and this would result in a lowering of interest rates. During a period of economic recovery or expansion, loan providers have a tendency to increase loans to the private sector if interest rates are rising, and this would positively affect the speed of adjustment to capital structure (Wanzenried 2006). Thus, the main goal for policy makers in this situation is to adjust the amount of money supply or interest rates in a timely manner to stabilize the economy dependant on economic conditions, particularly for small and medium companies which are sensitive to changes in the cost of capital.

AIM firms would reduce borrowing as the bond market developed and increase the debt ratio as the stock market developed. This could be related to the influence of the inflation rate which is fixed by central banks and influences interest rate changes together with other monetary tools because changes in inflation rate influences the credit and reinvestment risk. As noted by Mokhova and Zinecker (2014), the higher inflation rate is hypothesised to negatively affect both the debt market and stock market and, thus, the returns on debt and equity should be high, which adversely affects the cost of capital. The UK annual rate of inflation rose to its highest level in 2011 and then sharply decreased to 0% in 2015. The UK annual inflation rates during the period of economic crisis and recovery are much higher than in the period before the crisis. This is probably related to the policy of monetary easing. Therefore, this is another implication for policy makers responsible for providing an environment in which AIM firms are able to benefit from monetary policy which affects the demand for money.

8.3.2 The Tax Policy

It can be inferred that tax and bankruptcy considerations are the significant drivers of the SMEs board firms' capital structure choice. However, referring to tax based theories (Modigliani and Miller 1963; Shyam-Sunder and Myers 1999; Fama and French 2002; Leary and Roberts 2010), the influence of a tax shield is negative as SME firms would use less debt when the effective tax rate increases. Furthermore, there is little evidence to support any impact of the non-debt tax shield on SMEs choice of capital structure. Though the Enterprises Income Law came into force since 2008 which attempts to create a fair environment, it seems that the current Chinese tax regime does not provide any incentives or compensation to SME firms for retained profit, as corporation tax or income tax is charged on retained profit. Though corporate income tax remains at 25%, unchanged for many years, a number of "stealth" taxes, transaction costs associated with taxes and other miscellaneous tariffs, are charged, and many "minor" taxes gradually increased which boost, significantly, the overall tax burden. Such a heavy tax burden seems to reduce the motivation for borrowing, especially for small and medium firms which are not easily able to repay debt. According to an investigation into the Chinese Entrepreneurs Survey System, 36.1% of medium-sized entrepreneurs and 49.5% of small entrepreneurs over the first quarter of 2010, were operating at a profit-making level much lower than average. Additionally, 15.7% of medium-sized entrepreneurs and 17.6% of small entrepreneurs were running at a loss (Xingyuan et al. 2015). These figures suggest that policy makers should provide tax incentives for small and medium firms. For example, small and medium companies, especially newly established firms, could be encouraged by reducing the effective tax rate or excepting various additional taxes levied. Furthermore, tax policies for small and medium firms could be introduced in term of depreciation relief, reduction in certain deductions and, overall a more favourable regime could be introduced. Additionally, the industrial structure and regional development for SMEs board firms are different and this should be recognised by policy makers who could tailor business strategies to take into account.

The current U.K. tax regime is seen as appropriate because it provides little incentive or compensation to AIM firms in relation to retained profit. As the most direct method of financial assistance, which is conducive to capital formation, the impact of tax shields on AIM firms was minimal over the period of the economic crisis and recovery. This gives scope for fiscal policies that provide incentives, probably in the form of tax allowances, to retain the profit of firms and encourage firms' investment in growth oriented strategies. As noted by Michaelas et al. (1999), this initiative can enable small and medium firms to provide a contribution to economic performance. During the period of economic recovery, it is more appropriate for government to introduce fiscal policies based on tax returns that encourage small business owners to expand their investments, especially in the long term, rather than use tax cuts that could directly accelerate consumer spending (Devereux et al. 2018).

8.3.3 Industry Policy

Categorising firms into capital and non-capital intensive in the AIM and the SMEs Board market is another step for policy makers to provide bespoke financing as they have different degrees of sensitivity to changes in the explanatory variables. Capital intensive refers to industries that require a large amount of capital investment and therefore have a high degree of fixed assets. Thus, firm size, measured by scale of assets, non-debt tax shields (depreciation), tangibility and the financial situation are shown to significantly affect firms' capital structure decisions. However, for those firms in non-capital intensive sectors based on services and knowledge, profitability, liquidity and macroeconomic factors have a significant impact on financing decisions, especially in the case of short term funding. Regulators could consider grouping firms into capital or non-capital intensive categories to offer regulations that accord to their specific financing needs. It may also be helpful to the management of firms to identify how the change in internal and external environments affect corporate funding activities. Policy makers could consider providing a broader capital market with different financial sources to allow for capital intensive firms to raise sufficient funding.

8.3.4 Legal System

In relation to policy implications, it cannot be overlooked that the legal system relating to shareholder and creditor rights might explain differences in firms' capital structure in both markets. As noted in this study, small and medium firms are sensitive to the country-specific factors that shows a heterogeneity in institutional features of macroeconomic environments, in particular, bond market development. Therefore, a better legal environment which provides for the stability and development of capital markets and, enables small and medium firms in both markets operate in a virtuous circle. For example, the balance of control rights between creditors and shareholders as a means of mitigating any conflict relating to incentivisation entails changes in financing policy (Daher 2017). Similarly, legal systems relating to the legal enforcement of a country's of the financial contract and, consequently, the supply of debt capital should be addressed. With better legal enforcement, "creditors are able to contain the risk of borrowers because of the assurance that in the event of default they will be able to claim collateralized assets and preserve the value of their claim" (Daher 2017). Therefore, the challenge for policy makers is to improve public governance and strengthen laws which enable firms to achieve better financing outcomes including in the long term, in both markets, especially in a developing market where firms need more long term loans for their operations.

8.3.5 Public policy

From a public policy perspective the conclusion of this research is that, in general, the policy of financial restraint has played a key role in the financial market development in China. This is consistent with finding of Stiglitz and Uy (1996) that in the East Asian, financial restraint enhance the ability of firms to increase their equity, and hence their level of investment and their ability and willingness to take prudent risk. However, as Zhang et al. (2015), Wu and Yue (2009) and Allen et al. (2005), although China is still regarded as a transition economy moving from a planned towards to market-based economy, the supply of financing sources is usually limited. As the primary source of financing in financial market in China is bank loan and the majority of the banking industry in China are owned by central state and local governments, firms are extremely sensitive to variation in government policy. It can be seen that public policies implemented in China, to some extent, should be classified as financial repression rather than financial constraints.

Thus, the challenge for policy maker is to aim at increasing financial supply rather than extracting rent from the SMEs in private sector. The policy of financial restraint to enhance the ability of firm in increasing their equity should create rent opportunities for the SMEs, and reduce the bank's moral hazard, encouraging financial intermediaries to provide goods and services that undersupplied in purely competitive markets such as regulating loans and absorbing more deposits (Zhao and Zhu 2017).

Furthermore, the approach used to implement financial policies should be financial restraint tools, such as interest margin protection to maintain positive real interest, rather than controlling the interest rate to keep the nominal interest rate below the inflation. Also, the policy associating with the financial system, including state-owned financial institutions should provide loose environment that make those institutions become more commercially with indirect or moderate government intervention. This would provide development space and policy support for SMEs in China.

According to Stiglitz and Uy (1996), the public policies in East Asia are far more stable than those in most other developing countries. Another challenging for policy maker in China is to provide stable macroeconomic environment with low and predictable inflation rate, and no high tax.

8.4 Contribution

The primary contribution of this thesis to the financial and economic literature is the analysis of the hierarchical and dimensional construct of corporate capital structure choice. The study promotes the idea that the influence of firm, industry and country determinants together with the dummy effect of time, industrial and financial system on financing choice differ depending on the measure used. The suggestion is that capital structure should be measured with various proxies from a multiple rather than only one dimension of the construct of the debt to equity ratio. This study supports the argument by Titman and Wessels (1988) that "some of the theories of capital structure have different implications for the different types of debt, and the coefficients in the structural model may differ according to whether debt ratios are measured in terms of book and market value". The methodology of Kayo and Kimura (2011) is strongly supported in this study, and that is the basis upon which financial leverage is measured in this research. It is noted that there is a cross-sectional correlation between the book value and market value of debt and thereby any misspecification due to using book or market value is probably fairly small. Nonetheless, such cross-sectional correlation does not indicate a substitutional relationship between these two measures where one could simply be the most preferred indicator for analysis. As noted by Kayo and Kimura (2011) and Cook and Tang (2010), the book value leverage ratios are less the subject of non-controllable firm factors. It is also found that the book leverage ratio has a lower degree of fluctuation than the market leverage ratio over the sample period. Both the market-based and book valued-based leverage ratios are relatively low in the stock market expansion periods of the sample. These findings are similar to the study, confirming that those existing conclusions are supported by the different methodology used in this research.

There is also sufficient evidence that both the short-term and long term leverage measures are, to some extent, are significantly affected by time, firm, industry and country specific determinants when both market and book value measures are used. The measure of short and long term debt is only covered in a narrower sense such as that which is interest-bearing and excludes any allowance for default provisions (Baker and Martin 2011). However, it incorporates the fact that assets can be offset by specific non-debt liabilities. For instance, as Rajan and Zingales (1995) indicate, "an increase in the gross amount of trade credit leads to a reduction in this leverage, and given that the level of accounts payable and accounts receivable may jointly be influenced by industry consideration, it seems appropriate to use a measure of leverage". In this study, the analysis is in line with Mokhova and Zinecker (2014) that long term leverage is more significantly influenced by country variables. In general terms, the average short-term debt ratio of small and medium firms appears to increase during periods of economic recession and decreases as the economic conditions in the marketplace improve. This indicates the sensitivity of small and medium firms to macro-economic changes. Also, average long term debt ratios change in relation to economic growth.

The study also provides statistical evidence to support existing literature by emphasizing the impact of time, firm, industry and country on the variance of firm leverage and analyses the direct and indirect influences of these characteristics. The samples includes all non-financial and utility firms of a small and medium size listed on AIM and SMEs board that have more than 10 years' observations after the economic crisis. The groups comprise more than 1500 small and medium firms from the UK and Chinese stock markets, with data from 2007 through to 2017. The more recent data, provides the opportunity to evaluate firms' capital structure with post financial crisis information and consequently makes a major contribution to the debate. It is found that the impact of several firm-specific factors such as firm size, tangibility, growth opportunities, liquidity, intangibility and dividend pay-out on a cross-country capital structure is significant. In particular, the impact of intangibility observed in the samples is not consistent with a conventional prediction of capital structure theories promulgated in theories such as trade-off and agency. The analysis of country-specific and industry factors on leverage indicates that GDP, capital formation, bond market development and market concentration have a significant influence on capital structure. The central conclusion from the empirical analysis is that capital structure of small and medium sized businesses is dependent on the sectors' context and, consequently, any analysis should be undertaken within the sectors related to those firms. A random selection of firms across sectors would be meaningless. The most notable features that were observed in the research include the high asset structure variable coefficient of primary industries and the overall high debt ratio for the Technology sector in AIM. The differences in the influence of industry on capital structure is not significant in the SMEs market. It is inferred in the study that the capital structure of small and medium firms based on AIM and the SMEs board markets is time and industry dependent.

Finally, the study also adds a new dimension to the knowledge of AIM firms and SME Board firms' financing behaviour by analysing the non-linear relationship that has not received at degree of focus in capital structure research. This suggests that research on the relationship between capital structure and its drivers of variance can benefit from using this non-linear approach in the field of corporate finance. As suggested by Fattouh et al. (2005), the use of non-linear relationship regression estimators demonstrates empirically to how capital structure variance differs between firms at different segments of the leverage distribution. Thus, after running the linear regression model, the current study explores the non-linear relationship that may exist based on the samples. It is found that firms in both the developed and emerging market, show a non-linear U-shaped or inverted U-shaped relationship (Bokpin 2009; Margaritis and Psillaki 2010; Hewa Wellalage and Locke 2015). The results in this research are significantly wider-reaching than that of Fattouh et al. (2005) which was based on UK firms. It is imperative for firms' capital structure decision makers in both AIM and the SMEs board markets to build up their financing models and financing channels to suit the impact of a firm's characteristics on the debt ratio. It cannot be asserted that firm characteristics must be either positively or negatively related to the change in debt when there is a marginal effect for each element to vary over time. In this instance, it is essential for firms to manage time lags as the change in firm characteristics may not immediately influence the financing mode but would have a reverse effect on leverage in future years.

8.5 Limitations and Future Studies

Although the research has endeavoured to ensure a deep, thorough and robust analysis, there are inevitably some limitations that cannot be overlooked. Firstly, samples of firms are taken from two specific markets, AIM UK and the SMEs Board, China; both contain what are referred to as small and medium firms. There are different types of marketplaces in the UK and China and the selected samples in this research might not be significantly representative of other markets. Furthermore, the current study identifies several firm-specific determinants of a firm's leverage primarily based on the most accepted theoretical frameworks of capital structure, such as trade-off models, pecking order theory, agency cost theory and signalling theory. A large number of studies conducted to date investigate the extent to which these factors influence the capital structure of firms. In the future, the role of microeconomic determinants in financing choice is another avenue for exploration. Furthermore, studies in this area can also depend on an expansion of industries, other markets, market comparison, or inclusion of other variables, for example, the other significant corporate operating variables including CEO compensation, CEO tenure, audit fees and nominating committees which could all affect capital structure (Talberg et al. 2008). Dasilas and Papasyriopoulos (2015) show that corporate governance was one of the determinants of the debt levels in the crisis period. A further example, is the reputation of auditors and credit rating agencies which provide firms with the necessary certification to support any increase in debt requirement. Furthermore, the influence of financial policy and legal systems can be examined in future investigations as firms in the private sector, especially in the small business sector might be sensitive to changes in these two areas. The fiscal policies of corporate tax rates, base interest rates and inflation rates together with any changes to legal systems relating to creditor or shareholder rights protections can also be the subject of future lines of research.

Furthermore, the lack of sufficient financial data from companies listed on AIM and the SMEs board market, and the absence of other macro-economic factors are one of the major limitations in this thesis. At the outset, this research attempted to gain specific data on firm characteristics such as Research & Development expense, earnings per share, market share, investment credit and the firm's age in the period 2007 to 2017. However, it was found that only a few AIM firms and SMEs Board report on this data and thus the thesis was compelled to drop the hypothesis associated with these specific area or to use alternative measures with proxy data. Furthermore, the major macroeconomic factors of GDP, capital formation, bond and stock market development is measured by annual rather than quarterly data due to the limitation of the source. The drawbacks in the data complicated the data filtering process and made it difficult to investigate the relationship between capital structure and these particular factors. Future research in capital structure might select more than one database to acquire relevant data for their variables.

Another limitation in this study is the fact that causality tests including Granger causality, were not performed in depth due to length constraints. This technique, in the context of capital structure, was developed by Guo and Suliman (2010) to address the issue of whether corporate operating characteristics including time-invariant and firm-specific effects caused any changes. Though the causality tests for explaining the variables arising from agency cost, trade-off and pecking order theories is not, according to previous studies, comprehensive, it is more revealing than correlation-based analysis. Nonetheless, it is a limitation that the causal relationship for macro-economic markets is not widely covered by existing studies. In other word, investigating a causal relationship might be better than concentrating only on correlation. Therefore, future research could use causality test to assess the impact of macroeconomic conditional variables on capital structure.

As presented in chapter 4, the current research utilised the fixed effect regression model using lagged explanatory and dependent variables to investigate whether there was any delayed effect which influenced current capital structure and by inference whether the current variables would influence future capital structure. The variable were lagged quarterly at on year intervals thereby limiting the lagged period to twelve month. No attempt was made to extend the lagged time period.

The study uses secondary data to examine the relationship between capital structure and its determinants. However, the findings in the current research might be explained from different perspectives by using primary data, as data collection in this form can be designed to match the objectives of the research in question. According to Smith and Smith (2008), using both secondary and primary data increases the opportunity to conduct comprehensive research in the field of corporate capital structure choice.

whilst this approach may serve to explain some of the contradictions seen in this research using secondary data, the use of primary data gleaned from questionnaires or interviews with decision making managers might discover some more specific. Nevertheless, this research provides a significant contribution to knowledge with a comprehensive analysis of the variance between listed SMEs on UK and Chinese stock markets and their behaviour in relation to capital structure formation. Additionally, it provides a holistic interpretation of a significant number of firm characteristic, industry, market and macro-economic variables providing new insight in how firms determine their capital structure in both the UK and China, identifying any variations and covering the important sector of small and medium enterprises.

Reference and Bibliographies

Abhyankar, A. and Dunning, A., 1999. Wealth effects of convertible bond and convertible preference share issues: An empirical analysis of the UK market. *Journal of Banking & Finance*, 23 (7), 1043-1065.

Adedeji, A., 1998. Does the pecking order hypothesis explain the dividend payout ratios of firms in the UK? *Journal of Business Finance & Accounting*, 25 (9‐10), 1127-1155.

Adedeji, A., 2002. A cross-sectional test of Pecking Order Hypothesis Against Static Trade-off Theory on UK data.

Adrian, T. and Shin, H. S., 2010. Liquidity and leverage. *Journal of financial intermediation*, 19 (3), 418-437.

Agarwal, S. and Mohtadi, H., 2004. Financial markets and the financing choice of firms: Evidence from developing countries. *Global Finance Journal*, 15 (1), 57-70.

Agarwal, Y., 2013. *Capital structure decisions: Evaluating risk and uncertainty*. John Wiley & Sons.

Aggarwal, R. and Kyaw, N. A., 2010. Capital structure, dividend policy, and multinationality: Theory versus empirical evidence. *International Review of Financial Analysis*, 19 (2), 140-150.

Aghion, P., Bond, S., Klemm, A. and Marinescu, I., 2004. Technology and financial structure: are innovative firms different? *Journal of the European Economic Association*, 2 (2‐3), 277-288.

Ahmad, Z., Abdullah, N. M. H. and Roslan, S., 2012. Capital structure effect on firms performance: Focusing on consumers and industrials sectors on Malaysian firms. *International review of business research papers*, 8 (5), 137-155.

Ahmed Sheikh, N. and Wang, Z., 2011. Determinants of capital structure: An empirical study of firms in manufacturing industry of Pakistan. *Managerial Finance*, 37 (2), 117-133.

Ahuja, N. L., Dawar, V. and Arrawatia, R., 2015. *Corporate finance*. PHI Learning Pvt. Ltd.

Aivazian, V. A., Ge, Y. and Qiu, J., 2005. The impact of leverage on firm investment: Canadian evidence. *Journal of corporate finance*, 11 (1-2), 277-291.

Alderson, M. J. and Betker, B. L., 1995. Liquidation costs and capital structure. *Journal of Financial Economics*, 39 (1), 45-69.

Ali, Z. and Bhaskar, S. B., 2016. Basic statistical tools in research and data analysis. *Indian journal of anaesthesia*, 60 (9), 662.

Allen, D. E., 1993. The pecking order hypothesis: Australian evidence. *Applied Financial Economics*, 3 (2), 101-112.

Allen, F., Qian, J. and Qian, M. J. J. o. f. e., 2005. Law, finance, and economic growth in China. 77 (1), 57-116.

Almazan, A. and Molina, C. A., 2005. Intra‐Industry Capital Structure Dispersion. *Journal of Economics & Management Strategy*, 14 (2), 263-297.

Alti, A., 2006. How persistent is the impact of market timing on capital structure? *The Journal of Finance*, 61 (4), 1681-1710.

Altman, E. I., 1968. Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The journal of finance*, 23 (4), 589-609.

Altman, E. I., 1984. A further empirical investigation of the bankruptcy cost question. *The Journal of Finance*, 39 (4), 1067-1089.

Ancev, T., Azad, M. S. and Hernández-Sancho, F., 2017. *New Directions in Productivity Measurement and Efficiency Analysis: Counting the Environment and Natural Resources*. Edward Elgar Publishing.

Anderson, R. and Carverhill, A., 2007. Liquidity and capital structure.

Anderson, R. C., Mansi, S. A. and Reeb, D. M., 2003. Founding family ownership and the agency cost of debt. *Journal of Financial Economics*, 68 (2), 263-285.

Anderson, R. W. and Carverhill, A., 2011. Corporate liquidity and capital structure. *The Review of Financial Studies*, 25 (3), 797-837.

Andrade, G. and Kaplan, S. N., 1998. How costly is financial (not economic) distress? Evidence from highly leveraged transactions that became distressed. *The Journal of Finance*, 53 (5), 1443-1493.

Andreß, H.-J., Golsch, K. and Schmidt, A. W., 2013. *Applied panel data analysis for economic and social surveys*. Springer Science & Business Media.

Andrew, D. P., Pedersen, P. M. and McEvoy, C. D., 2011. *Research methods and design in sport management*. Human Kinetics.

Andrikopoulos, A., 2009. Irreversible investment, managerial discretion and optimal capital structure. *Journal of Banking & Finance*, 33 (4), 709-718.

Ang, J. S., Chua, J. H. and McConnell, J. J., 1982. The administrative costs of corporate bankruptcy: A note. *The Journal of Finance*, 37 (1), 219-226.

Ang, J. S., Cole, R. A. and Lin, J. W., 2000. Agency costs and ownership structure. *the Journal of Finance*, 55 (1), 81-106.

Antoniou, A., Guney, Y. and Paudyal, K., 2008. The determinants of capital structure: capital market-oriented versus bank-oriented institutions. *Journal of financial and quantitative analysis*, 43 (1), 59-92.

Antweiler, W. and Frank, M., 2006. Do US stock markets typically overreact to corporate news stories?

Arellano, M. and Honoré, B., 2001. Panel data models: some recent developments. *Handbook of econometrics.* Elsevier, 3229-3296.

Arestis, P., Demetriades, P., Fattouh, B., Mouratidis, K. J. I. J. o. F. and Economics, 2002. The impact of financial liberalization policies on financial development: evidence from developing economics. 7 (2), 109-121.

Armstrong, C. S., Guay, W. R. and Weber, J. P., 2010. The role of information and financial reporting in corporate governance and debt contracting. *Journal of Accounting and Economics*, 50 (2-3), 179-234.

Armstrong, J. S., 2001. *Principles of forecasting: a handbook for researchers and practitioners*. Vol. 30. Springer Science & Business Media.

Arosa, B., Iturralde, T. and Maseda, A., 2013. The board structure and firm performance in SMEs: Evidence from Spain. *Investigaciones Europeas de Dirección y Economía de la Empresa*, 19 (3), 127-135.

Arosa, C. M. V., Richie, N. and Schuhmann, P. W., 2015. The impact of culture on market timing in capital structure choices. *Research in International Business and Finance*, 35, 180-196.

Arrow, K. J., 1984. *The Economics of Agency*. STANFORD UNIV CA INST FOR MATHEMATICAL STUDIES IN THE SOCIAL SCIENCES.

Asif, J., Abbas, S. K. and Hassan, H. A., 2018. Valuation Based Test of Market Timing Theory.

Atkin, M. and Glen, J., 1992. Comparing corporate capital structures around the globe. *The International Executive,* 34 (5), 369-387.

Autore, D. and Kovacs, T., 2005. The pecking order theory and time-varying adverse selection costs. *Unpublished manuscript. Virginia Tech University*.

Aybar-Arias, C., Casino-Martinez, A. and Lopez-Gracia, J., 2003. Capital structure and sensitivity in SME definition: a panel data investigation.

Bahng, J. S. and Jeong, H.-C., 2012. Nonlinear behaviors in capital structure decisions in Australian firms. *Review of Pacific Basin Financial Markets and Policies*, 15 (03), 1250012.

Baiman, S., 1990. Agency research in managerial accounting: A second look. *Accounting, Organizations and Society*, 15 (4), 341-371.

Baker, H. K. and Anderson, R., 2010. *Corporate governance: A synthesis of theory, research, and practice*. Vol. 8. John Wiley & Sons.

Baker, H. K. and Martin, G. S., 2011. *Capital Structure and Corporate Financing Decisions: Theory, Evidence, and Practice*. Wiley.

Baker, M. and Wurgler, J., 2000. The equity share in new issues and aggregate stock returns. *the Journal of Finance*, 55 (5), 2219-2257.

Baker, M. and Wurgler, J., 2002. Market timing and capital structure. *The journal of finance*, 57 (1), 1-32.

Balakrishnan, S. and Fox, I., 1993. Asset specificity, firm heterogeneity and capital structure. *Strategic Management Journal,* 14 (1), 3-16.

Baltagi, B., 2008. *Econometric analysis of panel data*. John Wiley & Sons.

Bancel, F. and Mittoo, U. R., 2004. Cross-country determinants of capital structure choice: a survey of European firms. *Financial Management*, 103-132.

Bank, A. D., 2012. *ASEAN+3 Bond Market Guide*. Asian Development Bank.

Barclay, M. J., Marx, L. M. and Smith Jr, C. W., 2003. The joint determination of leverage and maturity. *Journal of corporate finance*, 9 (2), 149-167.

Barclay, M. J. and Smith, C. W., 1995. The maturity structure of corporate debt. *the Journal of Finance*, 50 (2), 609-631.

Barclay, M. J., Smith, J., Clifford W and Morellec, E., 2006. On the debt capacity of growth options. *The Journal of Business*, 79 (1), 37-60.

Barnea, A., Haugen, R. A. and Senbet, L. W., 1980. A rationale for debt maturity structure and call provisions in the agency theoretic framework. *the Journal of Finance*, 35 (5), 1223-1234.

Bartoloni, E., 2013. Capital structure and innovation: causality and determinants. *Empirica*, 40 (1), 111-151.

Barton, J. and Simko, P. J., 2002. The balance sheet as an earnings management constraint. *The accounting review*, 77 (s-1), 1-27.

Baskin, J., 1989. An empirical investigation of the pecking order hypothesis. *Financial management*, 26-35.

Bastos, D. D., Nakamura, W. T. and Basso, L. F. C., 2009. Determinants of capital structure of publicly-traded companies in latin america: an empirical study considering macroeconomic and institutional factors. *RAM. Revista de Administração Mackenzie*, 10 (6), 47-77.

Baum, C. F., Caglayan, M. and Rashid, A., 2017. Capital structure adjustments: Do macroeconomic and business risks matter? *Empirical Economics*, 53 (4), 1463-1502.

Bayless, M. and Chaplinsky, S., 1996. Is there a window of opportunity for seasoned equity issuance? *The Journal of Finance*, 51 (1), 253-278.

Beck, T., Demirgüç-Kunt, A. and Maksimovic, V., 2008. Financing patterns around the world: Are small firms different? *Journal of Financial Economics*, 89 (3), 467-487.

Beck, T. and Levine, R., 2002. Industry growth and capital allocation:: does having a market-or bank-based system matter? *Journal of financial economics*, 64 (2), 147-180.

Bell, K. and Vos, E., 2009. SME capital structure: The dominance of demand factors.

Bennett, M. and Donnelly, R., 1993. The determinants of capital structure: some UK evidence. *The British Accounting Review*, 25 (1), 43-59.

Benninga, S. and Talmor, E., 1988. The interaction of corporate and government financing in general equilibrium. *Journal of Business*, 233-258.

Bergen, M., Dutta, S. and Walker Jr, O. C., 1992. Agency relationships in marketing: A review of the implications and applications of agency and related theories. *The Journal of Marketing*, 1-24.

Berger, A. N. and Bonaccorsi di Patti, E., 2006. Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking & Finance*, 30 (4), 1065-1102.

Berger, P. G., Ofek, E. and Yermack, D. L., 1997. Managerial entrenchment and capital structure decisions. *The journal of finance*, 52 (4), 1411-1438.

Berkovitch, E., Israel, R. and Spiegel, Y., 2000. Managerial compensation and capital structure. *Journal of Economics & Management Strategy*, 9 (4), 549-584.

Bertus, M., Jahera Jr, J. S. and Yost, K., 2008. A note on foreign bank ownership and monitoring: An international comparison. *Journal of Banking & Finance*, 32 (2), 338-345.

Bessler, W., Drobetz, W. and Kazemieh, R., 2011. Factors affecting capital structure decisions. *Capital structure and corporate financing decisions: theory, evidence, and practice. New Jersey: John Wiley*.

Bevan, A. A. and Danbolt, J., 2002. Capital structure and its determinants in the UK-a decompositional analysis. *Applied Financial Economics*, 12 (3), 159-170.

Bhaduri, S. N., 2002. Determinants of capital structure choice: a study of the Indian corporate sector. *Applied Financial Economics*, 12 (9), 655-665.

Bhamra, H. S., Kuehn, L.-A. and Strebulaev, I. A., 2010. The aggregate dynamics of capital structure and macroeconomic risk. *The Review of Financial Studies*, 23 (12), 4187-4241.

Bharath, S. T., Sunder, J. and Sunder, S. V., 2008. Accounting quality and debt contracting. *The Accounting Review*, 83 (1), 1-28.

Billett, M. T., KING, T. H. D. and Mauer, D. C., 2007. Growth opportunities and the choice of leverage, debt maturity, and covenants. *The Journal of Finance*, 62 (2), 697-730.

Biorn, E., 2016. Econometrics of Panel Data: Methods and Applications. *OUP Catalogue*.

Blazenko, G. W., 1987. Managerial preference, asymmetric information, and financial structure. *The Journal of Finance*, 42 (4), 839-862.

Bloom, N., Bond, S. and Van Reenen, J. J. T. r. o. e. s., 2007. Uncertainty and investment dynamics. 74 (2), 391-415.

Bokpin, G. A., 2009. Macroeconomic development and capital structure decisions of firms: Evidence from emerging market economies. *Studies in economics and finance*, 26 (2), 129-142.

Bollen, K. A. and Brand, J. E., 2010. A general panel model with random and fixed effects: A structural equations approach. *Social Forces*, 89 (1), 1-34.

Bolton, P. and Freixas, X., 2000. Equity, bonds, and bank debt: Capital structure and financial market equilibrium under asymmetric information. *Journal of Political Economy*, 108 (2), 324-351.

Bolton, P. and Scharfstein, D. S., 1990. A theory of predation based on agency problems in financial contracting. *The American economic review*, 93-106.

Bonaimé, A. A., Öztekin, Ö. and Warr, R. S., 2014. Capital structure, equity mispricing, and stock repurchases. *Journal of Corporate Finance*, 26, 182-200.

Booth, L., Aivazian, V., Demirguc‐Kunt, A. and Maksimovic, V., 2001. Capital structures in developing countries. *The journal of finance*, 56 (1), 87-130.

Börsch‐Supan, A. and Köke, J., 2002. An applied econometricians' view of empirical corporate governance studies. *German Economic Review*, 3 (3), 295-326.

Botta, M., 2014. *Firm Financing in the Euro Area: How asset risk affects capital structure decisions within the monetary union*. diplom. de.

Bowman, E. H., 1980. A risk/return paradox for strategic management.

Boyd, B. K., 1995. CEO duality and firm performance: A contingency model. *Strategic Management Journal*, 16 (4), 301-312.

Bradley, M., Jarrell, G. A. and Kim, E. H., 1984. On the existence of an optimal capital structure: Theory and evidence. *The journal of Finance*, 39 (3), 857-878.

Bradley, M. and Roberts, M. R., 2004. The structure and pricing of corporate debt covenants.

Brander, J. A. and Lewis, T. R., 1986. Oligopoly and financial structure: The limited liability effect. *The American Economic Review*, 956-970.

Brealey, R., Leland, H. E. and Pyle, D. H., 1977. Informational asymmetries, financial structure, and financial intermediation. *The journal of Finance*, 32 (2), 371-387.

Brendea, G., 2012. Testing the impact of market timing on the Romanian firms' capital structure. *Procedia Economics and Finance*, 3, 138-143.

Brennan, M. J. and Schwartz, E. S., 1978. Corporate income taxes, valuation, and the problem of optimal capital structure. *Journal of Business*, 103-114.

Brennan, M. J. and Schwartz, E. S., 1984. Optimal financial policy and firm valuation. *The journal of finance*, 39 (3), 593-607.

Breusch, T. S. and Pagan, A. R., 1979. A simple test for heteroscedasticity and random coefficient variation. *Econometrica: Journal of the Econometric Society*, 1287-1294.

Brick, I. E., Frierman, M. and Kim, Y. K., 1998. Asymmetric information concerning the variance of cash flows: The capital structure choice. *International Economic Review*, 745-761.

Brigham, E. F. and Houston, J. F., 2012. *Fundamentals of financial management*. Cengage Learning.

Brogaard, J. and Detzel, A. J. M. S., 2015. The asset-pricing implications of government economic policy uncertainty. 61 (1), 3-18.

Brooks, C., 2014. *Introductory econometrics for finance*. Cambridge university press.

Bruinshoofd, W. A. and De Haan, L., 2012. Market timing and corporate capital structure: A transatlantic comparison. *Applied Economics*, 44 (28), 3691-3703.

Brush, T. H., Bromiley, P. and Hendrickx, M., 2000. The Free Cash Flow Hypothesis for Sales Growth and Firm Performance. *Strategic Management Journal*, 21 (4), 455-472.

Brusov, P., Filatova, T., Orekhova, N. and Eskindarov, M., 2015. Bankruptcy of the Famous Trade-Off Theory. *Modern Corporate Finance, Investments and Taxation.* Springer, 47-72.

Bryman, A., 2007. Barriers to integrating quantitative and qualitative research. *Journal of mixed methods research*, 1 (1), 8-22.

Bryman, A., 2012. *Social Research Methods*. OUP Oxford.

Bryman, A., 2016. *Social research methods*. Oxford university press.

Bryman, A., Becker, S. and Sempik, J., 2008. Quality criteria for quantitative, qualitative and mixed methods research: A view from social policy. *International Journal of Social Research Methodology*, 11 (4), 261-276.

Bunn, P. and Young, G., 2004. Corporate capital structure in the United Kingdom: determinants and adjustment.

Burrel, G. and Morgan, G., 2006. Sociological paradigms and organizational analysis. *Aldershot, Gower*.

Burrell, G. and Morgan, G., 2017. *Sociological paradigms and organisational analysis: Elements of the sociology of corporate life*. Routledge.

Butler, A. W., Grullon, G. and Weston, J. P., 2005. Stock market liquidity and the cost of issuing equity. *Journal of Financial and Quantitative Analysis*, 40 (2), 331-348.

Byoun, S., 2008. How and when do firms adjust their capital structures toward targets? *The Journal of Finance*, 63 (6), 3069-3096.

Cameron, A. C. and Trivedi, P. K., 2005. *Microeconometrics: methods and applications*. Cambridge university press.

Campello, M., 2003. Capital structure and product markets interactions: evidence from business cycles. *Journal of Financial Economics*, 68 (3), 353-378.

Campello, M. and Giambona, E., 2013. Real assets and capital structure. *Journal of Financial and Quantitative Analysis*, 48 (5), 1333-1370.

Carson, D., Gilmore, A., Perry, C. and Gronhaug, K., 2001. *Qualitative Marketing Research*. SAGE Publications.

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

Chang, R. P. and Rhee, S. G., 1990. The impact of personal taxes on corporate dividend policy and capital structure decisions. *Financial management*, 21-31.

Chang, S.-C., Chen, S.-S. and Liu, Y., 2004. Why firms use convertibles: A further test of the sequential-financing hypothesis. *Journal of Banking & Finance*, 28 (5), 1163-1183.

Chang, X., Dasgupta, S. and Hilary, G., 2006. Analyst coverage and financing decisions. *The Journal of Finance*, 61 (6), 3009-3048.

Chang, Y.-K., Chou, R. K. and Huang, T.-H., 2014. Corporate governance and the dynamics of capital structure: New evidence. *Journal of Banking & Finance*, 48, 374-385.

Chapman, C. S., Hopwood, A. G. and Shields, M. D., 2006. *Handbook of management accounting research*. Vol. 1. Elsevier.

Chattopadhyay, A., Lyle, M. R. and Wang, C. C., 2016. Accounting data, market values, and the cross section of expected returns worldwide.

Chava, S. and Roberts, M. R., 2008. How does financing impact investment? The role of debt covenants. *The Journal of Finance*, 63 (5), 2085-2121.

Chazi, A. and Tripathy, N., 2007. Which version of equity market timing affects capital structure? *Journal of Applied Finance*, 17 (1), 70.

Chen, J. J., 2004. Determinants of capital structure of Chinese-listed companies. *Journal of Business research*, 57 (12), 1341-1351.

Chen, K. C. W., Chen, Z. and Wei, K. C. J., 2011. Agency Costs of Free Cash Flow and the Effect of Shareholder Rights on the Implied Cost of Equity Capital. *The Journal of Financial and Quantitative Analysis*, 46 (1), 171-207.

Cheremushkin, S. V., 2011. Capital structure irrelevance: the Modigliani-Miller theorem.

Chevalier, J. A., 1995. Capital structure and product-market competition: Empirical evidence from the supermarket industry. *The American Economic Review*, 415-435.

Childs, P. D., Mauer, D. C. and Ott, S. H., 2005. Interactions of corporate financing and investment decisions: The effects of agency conflicts. *Journal of financial economics*, 76 (3), 667-690.

Chirinko, R. S. and Singha, A. R., 2000. Testing static tradeoff against pecking order models of capital structure: a critical comment. *Journal of financial economics*, 58 (3), 417-425.

Chkir, I. E. and Cosset, J.-C., 2001. Diversification strategy and capital structure of multinational corporations. *Journal of Multinational Financial Management*, 11 (1), 17-37.

Cho, S.-S., El Ghoul, S., Guedhami, O. and Suh, J., 2014. Creditor rights and capital structure: Evidence from international data. *Journal of Corporate Finance,* 25, 40-60.

Christensen, H. B. and Nikolaev, V. V., 2012. Capital versus performance covenants in debt contracts. *Journal of Accounting Research*, 50 (1), 75-116.

Chui, A. C., Lloyd, A. E. and Kwok, C. C., 2002. The determination of capital structure: is national culture a missing piece to the puzzle? *Journal of international business studies*, 33 (1), 99-127.

Chung, K. H., 1993. Asset characteristics and corporate debt policy: an empirical test. *Journal of Business Finance & Accounting*, 20 (1), 83-98.

Clayton, M. J., 2009. Debt, investment, and product market competition: A note on the limited liability effect. *Journal of Banking & Finance*, 33 (4), 694-700.

Collins, P. H., 2017. Intersectionality and Epistemic Injustice.

Collis, J. and Hussey, R., 2013. *Business research: A practical guide for undergraduate and postgraduate students*. Palgrave macmillan.

Comuzzie, A. G., Mahaney, M. C., Almasy, L., Dyer, T. D. and Blangero, J., 1997. Exploiting pleiotropy to map genes for oligogenic phenotypes using extended pedigree data. *Genetic epidemiology*, 14 (6), 975-980.

Cook, D. O. and Tang, T., 2010. Macroeconomic conditions and capital structure adjustment speed. *Journal of corporate finance*, 16 (1), 73-87.

Cotei, C. and Farhat, J. B., 2009. The trade-off theory and the pecking order theory: are they mutually exclusive?

Cuadras, C. M. and Rao, C. R., 2014. *Multivariate analysis: future directions 2*. Vol. 5. Elsevier.

Cuong, N. T. and Canh, N. T., 2012. The factors affecting capital structure for each group of enterprises in each debt ratio threshold: evidence from Vietnam's Seafood Processing Enterprises. *International Research Journal of Finance and Economics*, 94, 23-37.

Custódio, C., Ferreira, M. A. and Laureano, L., 2013. Why are US firms using more short-term debt? *Journal of Financial Economics*, 108 (1), 182-212.

Daher, M., 2017. Creditor control rights, capital structure, and legal enforcement. *Journal of Corporate Finance*, 44, 308-330.

Dang, C., Li, Z. F. and Yang, C., 2018. Measuring firm size in empirical corporate finance. *Journal of Banking & Finance*, 86, 159-176.

Dang, V. A., 2011. Leverage, debt maturity and firm investment: An empirical analysis. *Journal of Business Finance & Accounting*, 38 (1‐2), 225-258.

Dang, V. A., Kim, M. and Shin, Y., 2012. Asymmetric capital structure adjustments: New evidence from dynamic panel threshold models. *Journal of Empirical Finance*, 19 (4), 465-482.

Darrat, A. F. and Mukherjee, T. K., 1995. Inter-industry differences and the impact of operating and financial leverages on equity risk. *Review of Financial Economics*, 4 (2), 141-155.

Dasilas, A. and Papasyriopoulos, N., 2015. Corporate governance, credit ratings and the capital structure of Greek SME and large listed firms. *Small Business Economics*, 45 (1), 215-244.

Daskalakis, N., Balios, D. and Dalla, V., 2017. The behaviour of SMEs' capital structure determinants in different macroeconomic states. *Journal of Corporate Finance*, 46, 248-260.

Daskalakis, N. and Psillaki, M., 2008. Do country or firm factors explain capital structure? Evidence from SMEs in France and Greece. *Applied financial economics*, 18 (2), 87-97.

David, M. and Sutton, C. D., 2011. *Social research: An introduction*. Sage.

De Bie, T. and De Haan, L., 2007. Market timing and capital structure: Evidence for Dutch firms. *De Economist*, 155 (2), 183-206.

De Jong, A., Kabir, R. and Nguyen, T. T., 2008. Capital structure around the world: The roles of firm-and country-specific determinants. *Journal of Banking & Finance*, 32 (9), 1954-1969.

de Jong, A. and Veld, C., 2001. An empirical analysis of incremental capital structure decisions under managerial entrenchment. *Journal of Banking & Finance*, 25 (10), 1857-1895.

de Jong, A., Verbeek, M. and Verwijmeren, P., 2011. Firms' debt–equity decisions when the static tradeoff theory and the pecking order theory disagree. *Journal of Banking & Finance*, 35 (5), 1303-1314.

de Miguel, A. and Pindado, J., 2001. Determinants of capital structure: new evidence from Spanish panel data. *Journal of Corporate Finance*, 7 (1), 77-99.

DeAngelo, H., DeAngelo, L. and Stulz, R. M., 2006. Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial economics*, 81 (2), 227-254.

DeAngelo, H., DeAngelo, L. and Whited, T. M., 2011. Capital structure dynamics and transitory debt. *Journal of Financial Economics*, 99 (2), 235-261.

DeAngelo, H. and Masulis, R. W., 1980. Optimal capital structure under corporate and personal taxation. *Journal of financial economics,* 8 (1), 3-29.

DeAngelo, H. and Roll, R., 2016. Capital Structure Instability. *Journal of Applied Corporate Finance*, 28 (4), 38-52.

Deesomsak, R., Paudyal, K. and Pescetto, G., 2004. The determinants of capital structure: evidence from the Asia Pacific region. *Journal of multinational financial management*, 14 (4-5), 387-405.

Degryse, H., de Goeij, P. and Kappert, P., 2012. The impact of firm and industry characteristics on small firms' capital structure. *Small Business Economics*, 38 (4), 431-447.

Delcoure, N., 2007. The determinants of capital structure in transitional economies. *International Review of Economics & Finance*, 16 (3), 400-415.

Demirgüç-Kunt, A. and Levine, R., 1999. Bank-based and market-based financial systems: Cross-country comparisons.

Dennis, S., Nandy, D. and Sharpe, L. G., 2000. The determinants of contract terms in bank revolving credit agreements. *Journal of financial and quantitative analysis*, 35 (1), 87-110.

Dereeper, S. and Trinh, Q. D., 2015. Trade-Off Theory or Pecking Order Theory with a State-Ownership Structure: The Vietnam Case. *International Review of Business Research Papers*, 11 (1), 114-132.

Desai, M. A., Foley, C. F. and Hines, J. R., 2004. A multinational perspective on capital structure choice and internal capital markets. *The Journal of Finance*, 59 (6), 2451-2487.

Dess, G. G. and Beard, D. W., 1984. Dimensions of organizational task environments. *Administrative science quarterly*, 52-73.

Devereux, M. P., Maffini, G. and Xing, J., 2018. Corporate tax incentives and capital structure: New evidence from UK firm-level tax returns. *Journal of Banking & Finance,* 88, 250-266.

Dewaelheyns, N. and Van Hulle, C., 2010. Internal capital markets and capital structure: bank versus internal debt. *European Financial Management*, 16 (3), 345-373.

Diamond, D. W., 1991. Debt maturity structure and liquidity risk. *The Quarterly Journal of Economics*, 106 (3), 709-737.

Diamond, D. W. and He, Z., 2014. A theory of debt maturity: the long and short of debt overhang. *The Journal of Finance*, 69 (2), 719-762.

Diamond, D. W. and Rajan, R. G., 2001. Banks, short-term debt and financial crises: theory, policy implications and applications, *Carnegie-Rochester conference series on public policy* (Vol. 54, pp. 37-71): Elsevier.

Dichev, I. D. and Skinner, D. J., 2002. Large–sample evidence on the debt covenant hypothesis. *Journal of accounting research*, 40 (4), 1091-1123.

Dimov, I., Faragó, I. and Vulkov, L., 2017. *Numerical Analysis and Its Applications*. Springer.

Dittmar, A. and Mahrt-Smith, J., 2007. Corporate governance and the value of cash holdings. *Journal of financial economics*, 83 (3), 599-634.

Dorion, C., François, P., Grass, G. and Jeanneret, A., 2014. Convertible debt and shareholder incentives. *Journal of Corporate Finance*, 24, 38-56.

Dougherty, C., 2011. *Introduction to econometrics*. Oxford University Press.

Downes, D. H. and Heinkel, R., 1982. Signaling and the valuation of unseasoned new issues. *The Journal of Finance*, 37 (1), 1-10.

Drobetz, W. and Wanzenried, G., 2006. What determines the speed of adjustment to the target capital structure? *Applied Financial Economics*, 16 (13), 941-958.

Drukker, D. M., 2003. Testing for serial correlation in linear panel-data models.

Duchin, R., 2010. Cash holdings and corporate diversification. *The Journal of Finance*, 65 (3), 955-992.

Easterbrook, F. H., 1984. Two Agency-Cost Explanations of Dividends. *The American Economic Review*, 74 (4), 650-659.

Easterby-Smith, M., Thorpe, R., Jackson, P. and Lowe, A., 2008. Management research (ed.). *London: SAGE. Ellison, N., Steinfeld, C., & Lampe, C.(2007). The* *benefits of Facebook" friends:" social capital and college students' use of online social network sites. Journal of Computer-Mediated Communication*, 12, 1143-1168.

Eckbo, B. E., 2011. *Handbook of Empirical Corporate Finance: Empirical Corporate Finance*. Elsevier Science.

Egger, P., 2002. An econometric view on the estimation of gravity models and the calculation of trade potentials. *The World Economy*, 25 (2), 297-312.

Eisdorfer, A., 2008. Empirical evidence of risk shifting in financially distressed firms. *The Journal of Finance*, 63 (2), 609-637.

Eisenhardt, K. M., 1989. Agency theory: An assessment and review. *Academy of management review*, 14 (1), 57-74.

Elhorst, J. P., 2014. Spatial panel data models. *Spatial econometrics.* Springer, 37-93.

Elliott, W. B., Koëter-Kant, J. and Warr, R. S., 2007. A valuation-based test of market timing. *Journal of Corporate Finance*, 13 (1), 112-128.

Erçetin, Ş. Ş., 2015. *Chaos, Complexity and Leadership 2014*. Springer International Publishing.

Eriksson, P. and Kovalainen, A., 2008. *Qualitative Methods in Business Research*. SAGE Publications.

Estreicher, A. G., 1992. Beyond Agency Costs: Managing the Corporation for the Long Term. *Rutgers L. Rev.*, 45, 513.

Faccio, M. and Xu, J., 2015. Taxes and capital structure. *Journal of Financial and Quantitative Analysis*, 50 (3), 277-300.

Fama, E. F. and French, K. R., 2002. Testing trade-off and pecking order predictions about dividends and debt. *The review of financial studies*, 15 (1), 1-33.

Fama, E. F. and Jensen, M. C., 1983. Agency problems and residual claims. *The Journal of Law and Economics*, 26 (2), 327-349.

Fan, J. P., Titman, S. and Twite, G., 2012. An international comparison of capital structure and debt maturity choices. *Journal of Financial and quantitative Analysis*, 47 (1), 23-56.

Fattouh, B., Harris, L. and Scaramozzino, P., 2005. Non-linearity in the determinants of capital structure: Evidence from UK firms.

Faulkender, M., Flannery, M. J., Hankins, K. W. and Smith, J. M., 2012. Cash flows and leverage adjustments. *Journal of Financial Economics*, 103 (3), 632-646.

Faulkender, M. and Petersen, M. A., 2005. Does the source of capital affect capital structure? *The Review of Financial Studies*, 19 (1), 45-79.

Fauver, L. and McDonald, M. B., 2015. Culture, agency costs, and governance: International evidence on capital structure. *Pacific-Basin Finance Journal*, 34, 1-23.

Ferri, M. G. and Jones, W. H., 1979. Determinants of financial structure: A new methodological approach. *The Journal of Finance*, 34 (3), 631-644.

Filler, M. G. and DiGabriele, J. A., 2012. *A Quantitative Approach to Commercial Damages, + Website: Applying Statistics to the Measurement of Lost Profits*. Wiley.

Fischer, E. O., Heinkel, R. and Zechner, J., 1989. Dynamic capital structure choice: Theory and tests. *The Journal of Finance*, 44 (1), 19-40.

Flannery, M. J. and Rangan, K. P., 2006. Partial adjustment toward target capital structures. *Journal of financial economics*, 79 (3), 469-506.

Flavin, T. and O'Connor, T., 2010. The sequencing of stock market liberalization events and corporate financing decisions. *Emerging markets review*, 11 (3), 183-204.

Flick, U., 2011. *Introducing Research Methodology: A Beginner's Guide to Doing a Research Project*. SAGE Publications.

Forte, D., Barros, L. A. and Nakamura, W. T., 2013. Determinants of the capital structure of small and medium sized Brazilian enterprises. *BAR-Brazilian Administration Review*, 10 (3), 347-369.

Foss, N. J. and Mahnke, V., 2002. *Competence, Governance, and Entrepreneurship: Advances in Economic Strategy Research*. Oxford University Press.

Fosu, S., 2013. Capital structure, product market competition and firm performance: Evidence from South Africa. *The quarterly review of economics and finance*, 53 (2), 140-151.

Francis, B. B., Hasan, I. and Zhu, Y. J. J. o. E. F., 2014. Political uncertainty and bank loan contracting. 29, 281-286.

Frank, M. Z. and Goyal, V. K., 2003. Testing the pecking order theory of capital structure. *Journal of Financial Economics*, 67 (2), 217-248.

Frank, M. Z. and Goyal, V. K., 2008. Trade-off and pecking order theories of debt. *Handbook of empirical corporate finance.* Elsevier, 135-202.

Frank, M. Z. and Goyal, V. K., 2009. Capital structure decisions: which factors are reliably important? *Financial management*, 38 (1), 1-37.

Friend, I. and Lang, L. H., 1988. An empirical test of the impact of managerial self‐interest on corporate capital structure. *the Journal of Finance*, 43 (2), 271-281.

Gacitúa-Marió, E. and Wodon, Q., 2001. *Measurement and meaning: combining quantitative and qualitative methods for the analysis of poverty and social extension in Latin America*. Vol. 518. World Bank Publications.

Galai, D. and Masulis, R. W., 1976. The option pricing model and the risk factor of stock. *Journal of Financial economics*, 3 (1-2), 53-81.

Gao, P. and Qi, Y., 2012. *Political uncertainty and public financing costs: Evidence from US municipal bond markets*. working paper.

Gaud, P., Jani, E., Hoesli, M. and Bender, A., 2005. The capital structure of Swiss companies: an empirical analysis using dynamic panel data. *European Financial Management*, 11 (1), 51-69.

Gavish, B. and Kalay, A., 1983. On the asset substitution problem. *Journal of Financial and Quantitative Analysis*, 18 (1), 21-30.

Gentry, R. J. and Shen, W., 2010. The relationship between accounting and market measures of firm financial performance: How strong is it? *Journal of managerial issues*, 514-530.

Gertler, M., 1991. *Finance, growth, and public policy*. World Bank Publications.

Getzmann, A., Lang, S. and Spremann, K., 2014. Target capital structure and adjustment speed in Asia. *Asia‐Pacific Journal of Financial Studies*, 43 (1), 1-30.

Gharaibeh, A., 2015. The effect of capital structure on the financial performance of listed companies in Bahrain bourse. *Journal of Finance and Accounting*, 3 (3), 50-60.

Gill, A., Biger, N. and Mathur, N., 2011. The effect of capital structure on profitability: Evidence from the United States. *International Journal of Management*, 28 (4), 3.

Gill, J. and Johnson, P., 2002. *Research Methods for Managers*. SAGE Publications.

Gilson, R. J. and Gordon, J. N., 2013. The agency costs of agency capitalism: Activist investors and the revaluation of governance rights. *Columbia Law Review*, 863-927.

Goldstein, R., Ju, N. and Leland, H., 2001. An EBIT‐based model of dynamic capital structure. *The Journal of Business*, 74 (4), 483-512.

Gompers, P. A., 1995. Optimal investment, monitoring, and the staging of venture capital. *The journal of finance*, 50 (5), 1461-1489.

González, V. M. and González, F., 2008. Influence of bank concentration and institutions on capital structure: New international evidence. *Journal of Corporate Finance*, 14 (4), 363-375.

González, V. M. and González, F., 2012. Firm size and capital structure: evidence using dynamic panel data. *Applied Economics*, 44 (36), 4745-4754.

Goodfriend, M. and Prasad, E., 2006. *A Framework for Independent Monetary Policy in China*. INTERNATIONAL MONETARY FUND.

Gossy, G., 2008a. *A stakeholder rationale for risk management: Implications for corporate finance decisions*. Springer Science & Business Media.

Gossy, G., 2008b. Statistical methodology. *A Stakeholder Rationale for Risk Management: Implications for Corporate Finance Decisions*, 119-131.

Goyal, V. K., Lehn, K. and Racic, S., 2002. Growth opportunities and corporate debt policy: the case of the US defense industry. *Journal of Financial Economics*, 64 (1), 35-59.

Graham, J. R., 1996. Proxies for the corporate marginal tax rate. *Journal of Financial Economics*, 42 (2), 187-221.

Graham, J. R., 2000. How big are the tax benefits of debt? *The Journal of Finance*, 55 (5), 1901-1941.

Graham, J. R., 2006. A review of taxes and corporate finance. *Foundations and trends® in finance*, 1 (7), 573-691.

Graham, J. R. and Harvey, C. R., 2001. The theory and practice of corporate finance: Evidence from the field. *Journal of financial economics*, 60 (2-3), 187-243.

Graham, J. R., Leary, M. T. and Roberts, M. R., 2015. A century of capital structure: The leveraging of corporate America. *Journal of Financial Economics*, 118 (3), 658-683.

Graham, J. R., Leary, M. T. and Roberts, M. R., 2016. The Leveraging of Corporate America: A Long-Run Perspective on Changes in Capital Structure. *Journal of Applied Corporate Finance*, 28 (4), 29-37.

Graham, J. R., Lemmon, M. L. and Schallheim, J. S., 1998. Debt, leases, taxes, and the endogeneity of corporate tax status. *The journal of finance*, 53 (1), 131-162.

Grant, C. and Osanloo, A., 2014. Understanding, selecting, and integrating a theoretical framework in dissertation research: Creating the blueprint for your "house". *Administrative Issues Journal*, 4 (2), 4.

Green, R. C., 1984. Investment incentives, debt, and warrants. *Journal of financial Economics*, 13 (1), 115-136.

Green, R. C. and Talmor, E., 1986. Asset substitution and the agencycosts of debt financing. *Journal of Banking & Finance*, 10 (3), 391-399.

Gregory, A., 2005. The long run abnormal performance of UK acquirers and the free cash flow hypothesis. *Journal of Business Finance & Accounting*, 32 (5 - 6), 777-814.

Griffin, J. M., 1988. A Test of the Free Cash Flow Hypothesis: Results from the Petroleum Industry. *The Review of Economics and Statistics*, 70 (1), 76-82.

Grossman, S. J. and Hart, O. D., 1982. Corporate financial structure and managerial incentives. *The economics of information and uncertainty*. University of Chicago Press, 107-140.

Gruber, M. J. and Warner, J. B., 1977. Bankruptcy costs: Some evidence. *The journal of Finance*, 32 (2), 337-347.

Guba, E. G. and Lincoln, Y. S., 1994. Competing paradigms in qualitative research. *Handbook of qualitative research*, 2 (163-194), 105.

Guedes, J. and Opler, T., 1996. The determinants of the maturity of corporate debt issues. *the Journal of Finance*, 51 (5), 1809-1833.

Gulen, H. and Ion, M. J. T. R. o. F. S., 2015. Policy uncertainty and corporate investment. 29 (3), 523-564.

Gunasekara, F. I., Richardson, K., Carter, K. and Blakely, T., 2013. Fixed effects analysis of repeated measures data. *International journal of epidemiology*, 43 (1), 264-269.

Guney, Y., Li, L. and Fairchild, R., 2011. The relationship between product market competition and capital structure in Chinese listed firms. *International Review of Financial Analysis*, 20 (1), 41-51.

Gungoraydinoglu, A. and Öztekin, Ö., 2011. Firm- and country-level determinants of corporate leverage: Some new international evidence. *Journal of Corporate Finance*, 17 (5), 1457-1474.

Guo, E. and Suliman, O., 2010. Corporate operating characteristics and capital structure: causality testing in heterogeneous panel data. *Applied Financial Economics*, 20 (24), 1901-1922.

Haas, R. and Peeters, M., 2006. The dynamic adjustment towards target capital structures of firms in transition economies. *Economics of Transition*, 14 (1), 133-169.

Hackbarth, D., 2008. Managerial traits and capital structure decisions. *Journal of Financial and Quantitative Analysis*, 43 (4), 843-881.

Hackbarth, D., Miao, J. and Morellec, E., 2006. Capital structure, credit risk, and macroeconomic conditions. *Journal of Financial Economics,* 82 (3), 519-550.

Hall, B. H., Thoma, G. and Torrisi, S., 2007. THE MARKET VALUE OF PATENTS AND R&D: EVIDENCE FROM EUROPEAN FIRMS, *Academy of Management Proceedings* (Vol. 2007, pp. 1-6): Academy of Management Briarcliff Manor, NY 10510.

Hall, G., Hutchinson, P. and Michaelas, N., 2000. Industry Effects on the Determinants of Unquoted SMEs' Capital Structure. *International Journal of the Economics of Business*, 7 (3), 297-312.

Hamada, R. S., 1969. Portfolio analysis, market equilibrium and corporation finance. *The Journal of Finance*, 24 (1), 13-31.

Hamby, D., 1994. A review of techniques for parameter sensitivity analysis of environmental models. *Environmental monitoring and assessment*, 32 (2), 135-154.

Hammersley, M., 2010. *Methodology: Who needs it?* : Sage.

Harford, J., Mansi, S. A. and Maxwell, W. F., 2008. Corporate governance and firm cash holdings in the US. *Journal of Financial Economics*, 87 (3), 535-555.

Harris, M. and Raviv, A., 1991. The theory of capital structure. *the Journal of Finance*, 46 (1), 297-355.

Harris, M. N. and Sevestre, P., 2008. Dynamic models for short panels. *The econometrics of panel data.* Springer, 249-278.

Harrison, D. M., Panasian, C. A. and Seiler, M. J., 2011. Further evidence on the capital structure of REITs. *Real Estate Economics*, 39 (1), 133-166.

Harrison, P. D. and Harrell, A., 1993. Impact of "adverse selection" on managers' project evaluation decisions. *Academy of Management Journal*, 36 (3), 635-643.

Hart, O. and Moore, J., 1990. Property Rights and the Nature of the Firm. *Journal of political economy*, 98 (6), 1119-1158.

Hart, O. and Moore, J., 1994. *Debt and seniority: An analysis of the role of hard claims in constraining management*. National Bureau of Economic Research.

Hart, O. and Moore, J., 1998. Default and Renegotiation: A Dynamic Model of Debt*. *The Quarterly Journal of Economics*, 113 (1), 1-41.

Harvey, C. R., Lins, K. V. and Roper, A. H., 2004. The effect of capital structure when expected agency costs are extreme. *Journal of Financial Economics*, 74 (1), 3-30.

Haugen, R. A. and Senbet, L. W., 1986. Corporate finance and taxes: a review. *Financial Management*, 5-21.

Hausman, J. A., 1978. Specification tests in econometrics. *Econometrica: Journal of the econometric society*, 1251-1271.

Heinkel, R., 1982. A theory of capital structure relevance under imperfect information. *The journal of finance*, 37 (5), 1141-1150.

Heinkel, R. and Zechner, J., 1990. The Role of Debt and Perferred Stock as a Solution to Adverse Investment Incentives. *Journal of Financial and Quantitative Analysis*, 25 (1), 1-24.

Helwege, J. and Liang, N., 1996. Is there a pecking order? Evidence from a panel of IPO firms. *Journal of financial economics*, 40 (3), 429-458.

Hennessy, C. and Tserlukevich, Y., 2004. Dynamic hedging incentives, debt, and warrants.

Hennessy, C. A., Livdan, D. and Miranda, B., 2010. Repeated signaling and firm dynamics. *The Review of Financial Studies*, 23 (5), 1981-2023.

Hennessy, C. A. and Tserlukevich, Y., 2008. Taxation, agency conflicts, and the choice between callable and convertible debt. *Journal of Economic Theory*, 143 (1), 374-404.

Hennessy, C. A. and Whited, T. M., 2005. Debt dynamics. *The Journal of Finance*, 60 (3), 1129-1165.

Hewa Wellalage, N. and Locke, S., 2015. Impact of ownership structure on capital structure of New Zealand unlisted firms. *Journal of Small Business and Enterprise Development*, 22 (1), 127-142.

Hill, C. W. and Jones, T. M., 1992. Stakeholder ‐ agency theory. *Journal of management studies*, 29 (2), 131-154.

Hill, T., Lewicki, P. and Lewicki, P., 2006. *Statistics: methods and applications: a comprehensive reference for science, industry, and data mining*. StatSoft, Inc.

Hillegeist, S. A., Keating, E. K., Cram, D. P. and Lundstedt, K. G., 2004. Assessing the probability of bankruptcy. *Review of accounting studies*, 9 (1), 5-34.

Hinton, M., 2006. *Introducing information management*. Routledge.

Hocking, R. R., 2013. *Methods and applications of linear models: regression and the analysis of variance*. John Wiley & Sons.

Hoechle, D., 2007. Robust standard errors for panel regressions with cross-sectional dependence. *Stata Journal*, 7 (3), 281-312.

Holden, M. T. and Lynch, P., 2004. Choosing the appropriate methodology: Understanding research philosophy. *The marketing review*, 4 (4), 397-409.

Hölmstrom, B., 1979. Moral hazard and observability. *The Bell journal of economics*, 74-91.

Hommel, M., 2011. Dividend policy and ownership structure in the Netherlands.

Hooy, C., Ali, R., Ghon, R., HooyChee-Wooi, H. and Rhee, S. G., 2013. *Emerging Markets and Financial Resilience: Decoupling Growth from Turbulence*. Springer.

Hovakimian, A., 2006. Are observed capital structures determined by equity market timing? *Journal of Financial and Quantitative analysis*, 41 (1), 221-243.

Hovakimian, A., Hovakimian, G. and Tehranian, H., 2004. Determinants of target capital structure: The case of dual debt and equity issues. *Journal of Financial Economics*, 71 (3), 517-540.

Hovakimian, A., Kayhan, A. and Titman, S., 2011. Are corporate default probabilities consistent with the static trade-off theory? *The Review of Financial Studies*, 25 (2), 315-340.

Hovakimian, A., Kayhan, A. and Titman, S., 2012. Are Corporate Default Probabilities Consistent with the Static Trade-off Theory? *The Review of Financial Studies*, 25 (2), 315-340.

Hovakimian, A., Opler, T. and Titman, S., 2001. The debt-equity choice. *Journal of Financial and Quantitative analysis*, 36 (1), 1-24.

Hovakimian, A., Opler, T. and Titman, S., 2002. The capital structure choice: New evidence for a dynamic tradeoff model. *Journal of applied corporate finance*, 15 (1), 24-30.

Howe, K. M., He, J. and Kao, G. W., 1992. One ‐ time cash flow announcements and free cash ‐ flow theory: Share repurchases and special dividends. *The Journal of Finance*, 47 (5), 1963-1975.

Hsiao, C., 2007. Panel data analysis—advantages and challenges. *Test*, 16 (1), 1-22.

Huang, R. and Ritter, J. R., 2009. Testing theories of capital structure and estimating the speed of adjustment. *Journal of Financial and Quantitative analysis*, 44 (2), 237-271.

Huang, W., Boateng, A. and Newman, A., 2016. Capital structure of Chinese listed SMEs: an agency theory perspective. *Small Business Economics*, 47 (2), 535-550.

Hussain, J., Millman, C. and Matlay, H., 2006. SME financing in the UK and in China: a comparative perspective. *Journal of Small Business and Enterprise Development*, 13 (4), 584-599.

Hussain, M. Q. and Nivorozhkin, E., 1997. *The capital structure of listed companies in Poland*. International Monetary Fund.

Hussen, A., 2012. *Principles of environmental economics and sustainability: an integrated economic and ecological approach*. Routledge.

Hyytinen, A. and Toivanen, O. J. R. P., 2005. Do financial constraints hold back innovation and growth?: Evidence on the role of public policy. 34 (9), 1385-1403.

Iqbal, A. and Kume, O., 2015. Impact of financial crisis on firms’ capital structure in UK, France, and Germany.

Jaggi, B. and Gul, F. A., 1999. An analysis of joint effects of investment opportunity set, free cash flows and size on corporate debt policy. *Review of Quantitative Finance and Accounting*, 12 (4), 371-381.

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

Jensen, M. C. and Meckling, W. H., 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3 (4), 305-360.

Jensen, M. C. and Smith, C. W., 1985. Stockholder, manager, and creditor interests: Applications of agency theory.

Jiang, W., Li, K. and Shao, P., 2010. When shareholders are creditors: Effects of the simultaneous holding of equity and debt by non-commercial banking institutions. *The Review of Financial Studies*, 23 (10), 3595-3637.

Jiraporn, P., Kim, J.-C., Kim, Y. S. and Kitsabunnarat, P., 2012. Capital structure and corporate governance quality: Evidence from the Institutional Shareholder Services (ISS). *International Review of Economics & Finance*, 22 (1), 208-221.

Jõeveer, K., 2013. Firm, country and macroeconomic determinants of capital structure: Evidence from transition economies. *Journal of Comparative Economics*, 41 (1), 294-308.

John, K. and Williams, J., 1985. Dividends, dilution, and taxes: A signalling equilibrium. *the Journal of Finance*, 40 (4), 1053-1070.

Johnson, S. A., 2003. Debt maturity and the effects of growth opportunities and liquidity risk on leverage. *The Review of Financial Studies*, 16 (1), 209-236.

Joliet, R. and Muller, A., 2013. Capital structure effects of international expansion. *Journal of Multinational Financial Management*, 23 (5), 375-393.

Ju, N. and Ou‐Yang, H., 2006. Capital structure, debt maturity, and stochastic interest rates. *The Journal of Business*, 79 (5), 2469-2502.

Kalcheva, I. and Lins, K. V., 2007. International evidence on cash holdings and expected managerial agency problems. *The Review of Financial Studies*, 20 (4), 1087-1112.

Kale, J. R. and Shahrur, H., 2007. Corporate capital structure and the characteristics of suppliers and customers. *Journal of Financial Economics*, 83 (2), 321-365.

Kang, W., Lee, K. and Ratti, R. A. J. J. o. M., 2014. Economic policy uncertainty and firm-level investment. 39, 42-53.

Kapetanios, G., Mumtaz, H., Stevens, I. and Theodoridis, K., 2012. Assessing the economy‐wide effects of quantitative easing. *The Economic Journal*, 122 (564), F316-F347.

Kaufman, R. L., 2013. *Heteroskedasticity in regression: Detection and correction*. Vol. 172. Sage Publications.

Kayhan, A. and Titman, S., 2007. Firms' histories and their capital structures. *Journal of financial Economics,* 83 (1), 1-32.

Kayo, E. K. and Kimura, H., 2011. Hierarchical determinants of capital structure. *Journal of Banking & Finance*, 35 (2), 358-371.

Kennedy, P., 2003. *A guide to econometrics*. MIT press.

Kim, E. H., 1978. A mean‐variance theory of optimal capital structure and corporate debt capacity. *The Journal of Finance*, 33 (1), 45-63.

Kim, W. S. and Sorensen, E. H., 1986. Evidence on the impact of the agency costs of debt on corporate debt policy. *Journal of Financial and quantitative analysis*, 21 (2), 131-144.

King, M. R. and Santor, E., 2008. Family values: Ownership structure, performance and capital structure of Canadian firms. *Journal of Banking & Finance,* 32 (11), 2423-2432.

Klein, D. P. and Belt, B., 1994. Sustainable growth and choice of financing: A test of the pecking order hypothesis. *Review of Financial Economics*, 3 (2), 141-154.

Kochhar, R., 1996. Explaining Firm Capital Structure: The Role of Agency Theory vs. Transaction Cost Economics. *Strategic Management Journal*, 17 (9), 713-728.

Korajczyk, R. A. and Levy, A., 2003. Capital structure choice: macroeconomic conditions and financial constraints. *Journal of financial economics,* 68 (1), 75-109.

Korajczyk, R. A., Lucas, D. J. and McDonald, R. L., 1991. The effect of information releases on the pricing and timing of equity issues. *The Review of Financial Studies,* 4 (4), 685-708.

Korajczyk, R. A., Lucas, D. J. and McDonald, R. L., 1992. Equity issues with time-varying asymmetric information. *Journal of financial and quantitative analysis*, 27 (3), 397-417.

Kovenock, D. and Phillips, G. M., 1997. Capital structure and product market behavior: An examination of plant exit and investment decisions. *The Review of Financial Studies,* 10 (3), 767-803.

Krasker, W. S., 1986. Stock price movements in response to stock issues under asymmetric information. *The journal of Finance*, 41 (1), 93-105.

Kraus, A. and Litzenberger, R. H., 1973. A state‐preference model of optimal financial leverage. *The journal of finance*, 28 (4), 911-922.

Krzanowski, W., 2000. *Principles of multivariate analysis*. Vol. 23. OUP Oxford.

Kumar, S., Colombage, S. and Rao, P., 2017. Research on capital structure determinants: a review and future directions. *International Journal of Managerial Finance,* 13 (2), 106-132.

Kurshev, A. and Strebulaev, I. A., 2015. Firm size and capital structure. *Quarterly Journal of Finance*, 5 (03), 1550008.

La Porta, R., Lopez‐de‐Silanes, F., Shleifer, A. and Vishny, R. W., 2000. Agency problems and dividend policies around the world. *The journal of finance*, 55 (1), 1-33.

Lang, L., Ofek, E. and Stulz, R., 1996. Leverage, investment, and firm growth. *Journal of financial Economics,* 40 (1), 3-29.

Lang, L. H. and Litzenberger, R. H., 1989. Dividend announcements: Cash flow signalling vs. free cash flow hypothesis? *journal of Financial Economics*, 24 (1), 181-191.

Lang, L. H., Stulz, R. and Walkling, R. A., 1991. A test of the free cash flow hypothesis: The case of bidder returns. *Journal of Financial Economics*, 29 (2), 315-335.

Leary, M. T. and Roberts, M. R., 2005. Do firms rebalance their capital structures? *The journal of finance*, 60 (6), 2575-2619.

Leary, M. T. and Roberts, M. R., 2010. The pecking order, debt capacity, and information asymmetry. *Journal of Financial Economics*, 95 (3), 332-355.

Leary, M. T. and Roberts, M. R., 2014. Do peer firms affect corporate financial policy? *The Journal of Finance,* 69 (1), 139-178.

Lehn, K. and Poulsen, A., 1989. Free Cash Flow and Stockholder Gains in Going Private Transactions. *The Journal of Finance*, 44 (3), 771-787.

Leland, H. E., 1994. Corporate debt value, bond covenants, and optimal capital structure. *The journal of finance*, 49 (4), 1213-1252.

Leland, H. E., 1998. Agency costs, risk management, and capital structure. *The Journal of Finance*, 53 (4), 1213-1243.

Leland, H. E. and Toft, K. B., 1996. Optimal capital structure, endogenous bankruptcy, and the term structure of credit spreads. *The Journal of Finance*, 51 (3), 987-1019.

Lemmon, M. L., Roberts, M. R. and Zender, J. F., 2008. Back to the beginning: persistence and the cross‐section of corporate capital structure. *The Journal of Finance,* 63 (4), 1575-1608.

Lemmon, M. L. and Zender, J. F., 2010. Debt capacity and tests of capital structure theories. *Journal of Financial and Quantitative Analysis*, 45 (5), 1161-1187.

Levin, A., Lin, C.-F. and Chu, C.-S. J., 2002. Unit root tests in panel data: asymptotic and finite-sample properties. *Journal of econometrics*, 108 (1), 1-24.

Levine, R., 2002. Bank-Based or Market-Based Financial Systems: Which Is Better? *Journal of Financial Intermediation*, 11 (4), 398-428.

Lewis, C. M., Rogalski, R. J. and Seward, J. K., 1998. Agency problems, information asymmetries, and convertible debt security design. *Journal of Financial Intermediation*, 7 (1), 32-59.

Lewis, C. M., Rogalski, R. J. and Seward, J. K., 1999. Is convertible debt a substitute for straight debt or for common equity? *Financial management*, 5-27.

Lewis, C. M., Rogalski, R. J. and Seward, J. K., 2003. Industry conditions, growth opportunities and market reactions to convertible debt financing decisions. *Journal of Banking & Finance,* 27 (1), 153-181.

Lewis, C. M. and Tan, Y., 2016. Debt-equity choices, R&D investment and market timing. *Journal of Financial Economics,* 119 (3), 599-610.

Lewis, J. and Ritchie, J., 2003. Generalising from qualitative research. *Qualitative research practice: A guide for social science students and researchers*, 2, 347-362.

Lim, K. G., 2011. *Financial valuation and econometrics*. World Scientific.

Lim, S. C., Macias, A. J. and Moeller, T., 2018. Intangible assets and capital structure.

Lind, J. T. and Mehlum, H., 2010. With or without U? the Appropriate Test for a U‐Shaped Relationship. *Oxford bulletin of economics and statistics*, 72 (1), 109-118.

Lipson, M. L. and Mortal, S., 2009. Liquidity and capital structure. *Journal of Financial Markets*, 12 (4), 611-644.

Long, M. S. and Malitz, I. B., 1985. Investment patterns and financial leverage. *Corporate capital structures in the United States.* University of Chicago Press, 325-352.

López-Gracia, J. and Sogorb-Mira, F., 2008. Testing trade-off and pecking order theories financing SMEs. *Small Business Economics*, 31 (2), 117-136.

Loucks, D. P. and Van Beek, E., 2017. *Water resource systems planning and management: An introduction to methods, models, and applications*. Springer.

Loughran, T. and Ritter, J. R., 1997. The operating performance of firms conducting seasoned equity offerings. *The journal of finance*, 52 (5), 1823-1850.

Lucas, D. J. and McDonald, R. L., 1990. Equity issues and stock price dynamics. *The journal of finance*, 45 (4), 1019-1043.

Lyandres, E., 2006. Capital structure and interaction among firms in output markets: Theory and evidence. *The Journal of Business*, 79 (5), 2381-2421.

Lyandres, E. and Zhdanov, A., 2014. Convertible debt and investment timing. *Journal of Corporate Finance*, 24, 21-37.

MacKay, P. and Phillips, G. M., 2005. How does industry affect firm financial structure? *The Review of Financial Studies*, 18 (4), 1433-1466.

MacKie‐Mason, J. K., 1990. Do taxes affect corporate financing decisions? *The journal of finance*, 45 (5), 1471-1493.

MaCurdy, T. E., 1981. Multiple Time-Serie3 Models Applied to Panel Data: National Bureau of Economic Research Cambridge, Mass., USA.

Mahajan, A. and Tartaroglu, S., 2008. Equity market timing and capital structure: International evidence. *Journal of Banking & Finance*, 32 (5), 754-766.

Maksimovic, V. and Zechner, J., 1991. Debt, agency costs, and industry equilibrium. *The Journal of Finance*, 46 (5), 1619-1643.

Managi, S., 2011. *Technology, natural resources and economic growth: improving the environment for a greener future*. Edward Elgar Publishing.

Mao, C. X., 2003. Interaction of debt agency problems and optimal capital structure: Theory and evidence. *Journal of Financial and quantitative Analysis*, 38 (2), 399-423.

Margaritis, D. and Psillaki, M., 2007. Capital structure and firm efficiency. *Journal of Business Finance & Accounting*, 34 (9 - 10), 1447-1469.

Margaritis, D. and Psillaki, M., 2010. Capital structure, equity ownership and firm performance. *Journal of Banking & Finance*, 34 (3), 621-632.

Marsh, D. and Furlong, P., 2002. A skin not a sweater: Ontology and epistemology in political science. *Theory and methods in political science*, 2, 17-41.

Marsh, P., 1982. The choice between equity and debt: An empirical study. *The Journal of finance*, 37 (1), 121-144.

Mason, S. P. and Merton, R. C., 1985. The role of contingent claims analysis in corporate finance.

Masulis, R. W. and Trueman, B., 1988. Corporate investment and dividend decisions under differential personal taxation. *Journal of Financial and Quantitative Analysis*, 23 (4), 369-385.

Matemilola, B. T., Noordin, B. A. A., Ngah, W. A. S. W. and Nassir, A. M., 2015. UNOBSERVABLE EFFECTS AND SPEED OF ADJUSTMENT TO TARGET CAPITAL STRUCTURE. *International Journal of Business & Society*, 16 (3).

Matyas, L. and Sevestre, P., 1996. The econometrics of panel data. *A Handbook of the Theory with Applications*.

Mauer, D. and Ott, S. H., 2000. *Agency costs, underinvestment, and optimal capital structure: the effect of growth options to expand*.

Mauer, D. C. and Triantis, A. J., 1994. Interactions of corporate financing and investment decisions: A dynamic framework. *The Journal of Finance*, 49 (4), 1253-1277.

Mayer, C., Micossi, S., Onado, M., Pagano, M. and Polo, A., 2017. *Finance and Investment: the European Case*. Oxford University Press.

Mazen, G., 2012. French firm's financing choices: towards a reconciliation of the static trade-off theory and the pecking order theory? *International Journal of Financial Research*, 3 (1), 57.

McEachern, W. A., 2011. *Economics: A contemporary introduction*. Cengage Learning.

McKinnon, R. I., 1993. *The order of economic liberalization: Financial control in the transition to a market economy*. JHU Press.

Melguizo, T., Smart, J. and Paulsen, M., 2011. Higher education: Handbook of theory and research.

Mella‐Barral, P. and Perraudin, W., 1997. Strategic debt service. *The Journal of Finance*, 52 (2), 531-556.

Mertens, W., Pugliese, A. and Recker, J., 2016. *Quantitative Data Analysis*. Springer.

Merton, R. C., 1974. On the pricing of corporate debt: The risk structure of interest rates. *The Journal of finance*, 29 (2), 449-470.

Michaelas, N., Chittenden, F. and Poutziouris, P., 1999. Financial policy and capital structure choice in UK SMEs: Empirical evidence from company panel data. *Small business economics*, 12 (2), 113-130.

Miglo, A., 2007. Debt-equity choice as a signal of earnings profile over time. *The Quarterly Review of Economics and Finance*, 47 (1), 69-93.

Miglo, A., 2016. *Capital structure in the modern world*. Springer.

Mikkelson, W. H. and Partch, M. M., 2003. Do persistent large cash reserves hinder performance? *Journal of Financial and Quantitative Analysis*, 38 (2), 275-294.

Miller, M. H., 1977. Debt and taxes. *the Journal of Finance*, 32 (2), 261-275.

Miller, M. H., 1988. The Modigliani-Miller propositions after thirty years. *Journal of Economic perspectives*, 2 (4), 99-120.

Miller, M. H. and Rock, K., 1985. Dividend policy under asymmetric information. *The Journal of finance*, 40 (4), 1031-1051.

Mitani, H., 2014. Capital structure and competitive position in product market. *International Review of Economics & Finance*, 29, 358-371.

Mitnick, B. M., 2015. Agency theory. *Wiley Encyclopedia of Management*.

Mittoo, U. R. and Zhang, Z., 2010. Bond market access, credit quality, and capital structure: Canadian evidence. *Financial Review*, 45 (3), 579-602.

Modigliani, F. and Miller, M. H., 1958. The cost of capital, corporation finance and the theory of investment. *The American economic review*, 48 (3), 261-297.

Modigliani, F. and Miller, M. H., 1963. Corporate income taxes and the cost of capital: a correction. *The American economic review*, 53 (3), 433-443.

Modugu, K. P., 2013. Capital structure decision: An overview. *Journal of finance and bank management*, 1 (1), 14-27.

Moeller, S. B., Schlingemann, F. P. and Stulz, R. M., 2004. Firm size and the gains from acquisitions. *Journal of financial economics*, 73 (2), 201-228.

Mokhova, N. and Zinecker, M., 2014. Macroeconomic factors and corporate capital structure. *Procedia-Social and Behavioral Sciences*, 110, 530-540.

Monette, D. R., Sullivan, T. J. and DeJong, C. R., 2013. *Applied social research: A tool for the human services*. Cengage Learning.

Moradi, Z. S., Mirzaeenejad, M. and Geraeenejad, G., 2016. Effect of Bank-Based or Market-Based Financial Systems on Income Distribution in Selected Countries. *Procedia Economics and Finance*, 36, 510-521.

Morellec, E., 2001. Asset liquidity, capital structure, and secured debt. *Journal of financial economics*, 61 (2), 173-206.

Morellec, E., 2004. Can managerial discretion explain observed leverage ratios? *The Review of Financial Studies*, 17 (1), 257-294.

Morellec, E., Nikolov, B. and Schürhoff, N., 2012. Corporate governance and capital structure dynamics. *The Journal of Finance*, 67 (3), 803-848.

Morellec, E. and Smith Jr, C. W., 2007. Agency conflicts and risk management. *Review of Finance*, 11 (1), 1-23.

Morrison-Saunders, A. and Hobson, J., 2013. Being subject-centred: A philosophy of teaching and implications for higher education. *Issues in Educational Research*, 23 (2), 212.

Myers, S. C., 1977. Determinants of corporate borrowing. *Journal of financial economics*, 5 (2), 147-175.

Myers, S. C., 1984. The capital structure puzzle. *The journal of finance*, 39 (3), 574-592.

Myers, S. C., 2001. Capital structure. *Journal of Economic perspectives*, 15 (2), 81-102.

Myers, S. C. and Majluf, N. S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics*, 13 (2), 187-221.

Myers, S. C. and Rajan, R. G., 1998. The paradox of liquidity. *The Quarterly Journal of Economics*, 113 (3), 733-771.

Nakano, M. and Purevdorj, B., 2014. Reliance on Foreign Markets: Multinationality and Performance. *Reliance on Foreign Markets: Multinationality and Performance.* Springer, 1-30.

Narayanan, M., 1988. Debt versus equity under asymmetric information. *Journal of Financial and Quantitative Analysis*, 23 (1), 39-51.

Neelankavil, J. P., 2015. *International business research*. Routledge.

Niglas, K., 2001. Paradigms and methodology in educational research, *European Conference on Educational Research on* (Vol. 5).

Nini, G., Smith, D. C. and Sufi, A., 2009. Creditor control rights and firm investment policy. *Journal of Financial Economics,* 92 (3), 400-420.

Noe, T. H. and Rebello, M. J., 1996. Asymmetric information, managerial opportunism, financing, and payout policies. *The Journal of Finance*, 51 (2), 637-660.

O'brien, J. P., 2003. The capital structure implications of pursuing a strategy of innovation. *Strategic Management Journal*, 24 (5), 415-431.

O'Brien, R. M., 2007. A caution regarding rules of thumb for variance inflation factors. *Quality & quantity*, 41 (5), 673-690.

Opler, T., Pinkowitz, L., Stulz, R. and Williamson, R., 1999. The determinants and implications of corporate cash holdings. *Journal of Financial Economics*, 52 (1), 3-46.

Opler, T. C. and Titman, S., 1994. Financial distress and corporate performance. *The Journal of Finance*, 49 (3), 1015-1040.

Ortiz-Molina, H., 2007. Executive compensation and capital structure: The effects of convertible debt and straight debt on CEO pay. *Journal of Accounting and Economics*, 43 (1), 69-93.

Oviatt, B. M., 1988. Agency and transaction cost perspectives on the manager-shareholder relationship: Incentives for congruent interests. *Academy of Management Review*, 13 (2), 214-225.

Ovtchinnikov, A. V., 2010. Capital structure decisions: Evidence from deregulated industries. *Journal of financial economics*, 95 (2), 249-274.

Ozkan, A., 2000. An empirical analysis of corporate debt maturity structure. *European Financial Management*, 6 (2), 197-212.

Ozkan, A., 2001. Determinants of capital structure and adjustment to long run target: evidence from UK company panel data. *Journal of Business Finance & Accounting*, 28 (1 ‐ 2), 175-198.

Öztekin, Ö., 2015. Capital Structure Decisions around the World: Which Factors Are Reliably Important? *Journal of Financial & Quantitative Analysis*, 50 (3), 301-323.

Pannell, D. J., 1997. Sensitivity analysis: strategies, methods, concepts, examples.

Parrino, R. and Weisbach, M. S., 1999. Measuring investment distortions arising from stockholder–bondholder conflicts. *Journal of Financial Economics*, 53 (1), 3-42.

Parsons, C. and Titman, S., 2009. Empirical capital structure: A review. *Foundations and Trends® in Finance*, 3 (1), 1-93.

Pástor, Ľ. and Veronesi, P. J. J. o. F. E., 2013. Political uncertainty and risk premia. 110 (3), 520-545.

Pawlina, G., 2010. Underinvestment, capital structure and strategic debt restructuring. *Journal of Corporate Finance*, 16 (5), 679-702.

Pedace, R., 2013. *Econometrics for dummies*. John Wiley & Sons.

Peters, R. H. and Taylor, L. A., 2017. Intangible capital and the investment-q relation. *Journal of Financial Economics*, 123 (2), 251-272.

Petty, J. W., Titman, S., Keown, A. J., Martin, P., Martin, J. D. and Burrow, M., 2015. *Financial management: Principles and applications*. Pearson Higher Education AU.

Poitevin, M., 1989. Financial signalling and the" deep-pocket" argument. *The RAND Journal of Economics*, 26-40.

Porter, M. E., 1993. *The competitive advantage of nations*. Harvard Business School Management Programs Cambridge.

Psillaki, M. and Daskalakis, N., 2009. Are the determinants of capital structure country or firm specific? *Small Business Economics*, 33 (3), 319-333.

Psillaki, M., Tsolas, I. E. and Margaritis, D., 2010. Evaluation of credit risk based on firm performance. *European Journal of Operational Research*, 201 (3), 873-881.

Pyo, U., Shin, Y. J. and Thompson, H. E., 2015. Reducing agency conflicts with target debt ratios. *Journal of Economics and Finance*, 39 (3), 431-453.

Qiu, J. and Smith, B. F., 2007. A nonlinear quantile regression test of the pecking order model.

Qiu, M. and La, B., 2010. Firm characteristics as determinants of capital structures in Australia. *International journal of the Economics of Business*, 17 (3), 277-287.

Qureshi, M. A., 2009. Does pecking order theory explain leverage behaviour in Pakistan? *Applied Financial Economics*, 19 (17), 1365-1370.

Rahman, M. A. and Arifuzzaman, S., 2014. Testing the Trade Off and Pecking Order Models of Capital Structure. *IOSR Journal of Economics and Finance*, 5 (6), 8-14.

Rajan, R. G. and Zingales, L., 1995. What do we know about capital structure? Some evidence from international data. *The journal of Finance*, 50 (5), 1421-1460.

Ramakrishnan, R. T. and Thakor, A. V., 1982. Moral hazard, agency costs, and asset prices in a competitive equilibrium. *Journal of Financial and Quantitative Analysis*, 17 (4), 503-532.

Randolph, K. A. and Myers, L. L., 2013. *Basic statistics in multivariate analysis*. Oxford University Press.

Ravid, S. A. and Sarig, O. H., 1991. Financial signalling by committing to cash outflows. *Journal of financial and quantitative analysis*, 26 (2), 165-180.

Remenyi, D., Williams, B., Money, A. and Swartz, E., 1998. *Doing Research in Business and Management: An Introduction to Process and Method*. SAGE Publications.

Rencher, A. C. and Christensen, W. F., 2012. Multivariate regression. *Methods of Multivariate Analysis, Third Edition*, 339-383.

Reuer, J. J. and Miller, K. D., 1997. Agency costs and the performance implications of international joint venture internalization. *Strategic Management Journal*, 425-438.

Richardson, S., 2006. Over-investment of free cash flow. *Review of accounting studies*, 11 (2-3), 159-189.

Rizov, M., 2008. Corporate capital structure and how soft budget constraints may affect it. *Journal of Economic Surveys*, 22 (4), 648-684.

Roberts, M. R. and Sufi, A., 2009. Control rights and capital structure: An empirical investigation. *The Journal of Finance*, 64 (4), 1657-1695.

Robichek, A. A. and Myers, S. C., 1966. Conceptual problems in the use of risk - adjusted discount rates. *The Journal of Finance*, 21 (4), 727-730.

Rosenberg, A., 2018. *Philosophy of social science*. Routledge.

Ross, S. A., 1973. The Economic Theory of Agency: The Principal's Problem. *The American Economic Review*, 63 (2), 134-139.

Ross, S. A., 1977. The determination of financial structure: the incentive-signalling approach. *The bell journal of economics*, 23-40.

Ross, S. A., 1985. Debt and taxes and uncertainty. *The Journal of Finance*, 40 (3), 637-657.

Rossi, M. M., 1999. *Financial fragility and economic performance in developing economies: Do capital controls, prudential regulation and supervision matter?* : International Monetary Fund.

Rozeff, M. S., 1982. Growth, beta and agency costs as determinants of dividend payout ratios. *Journal of financial Research*, 5 (3), 249-259.

Rumelt, R. P., 1982. Diversification strategy and profitability. *Strategic management journal*, 3 (4), 359-369.

Russel, P. and Hung, K., 2013. Does Market Timing Affect Capital Structure?: Evidence for Chinese Firms. *Chinese Business Review*, 12 (6).

Salkind, N. J., 2010. *Encyclopedia of research design*. Vol. 1. Sage.

Saltelli, A., Tarantola, S., Campolongo, F. and Ratto, M., 2004. *Sensitivity Analysis in Practice: A Guide to Assessing Scientific Models*. Wiley.

Sánchez-Vidal, J. and Martín-Ugedo, J. F., 2005. Financing preferences of Spanish firms: Evidence on the pecking order theory. *Review of Quantitative Finance and Accounting*, 25 (4), 341-355.

Sanyal, P., 2011. Economic, Regulatory, and Industry Effects on Capital Structure. *Capital Structure and Corporate Financing Decisions: Theory, Evidence, and Practice*, 15, 211.

Saunders, M., Lewis, P. and Thornhill, A., 2012. *Research Methods for Business Students*. Pearson.

Saunders, M., Lewis, P., Thornhill, A. and Wilson, J., 2009. Business research methods. *Financial Times, Prentice Hall: London*.

Scheiner, S. M. and Gurevitch, J., 2001. *Design and analysis of ecological experiments*. Oxford University Press.

Scherr, F. C. and Hulburt, H. M., 2001. The debt maturity structure of small firms. *Financial management*, 85-111.

Schlegel, D., 2015. *Cost-of-Capital in Managerial Finance*. Springer.

Schmukler, S. and Vesperoni, E., 2001. Firms' financing choices in bank-based and market-based economies. *Financial structure and economic growth: A cross-country comparison of banks, markets, and development*, 347.

Schuerman, J. R., 2012. *Multivariate analysis in the human services*. Vol. 2. Springer Science & Business Media.

Scott, J. H., 1977. Bankruptcy, secured debt, and optimal capital structure. *The journal of finance*, 32 (1), 1-19.

Scott Jr, J. H., 1976. A theory of optimal capital structure. *The Bell Journal of Economics*, 33-54.

Seddighi, H., Lawler, K. A., Lawler, K. and Katos, A., 2000. *Econometrics: a practical approach*. Psychology Press.

Seifert, B. and Gonenc, H., 2008. The international evidence on the pecking order hypothesis. *Journal of Multinational Financial Management*, 18 (3), 244-260.

Setyawan, I. R., 2015. An empirical study on market timing theory of capital structure. *International Research Journal of Business Studies*, 4 (2).

Shane, S. A., 1996. Hybrid organizational arrangements and their implications for firm growth and survival: A study of new franchisors. *Academy of management journal*, 39 (1), 216-234.

Sharma, P. and Paul, S., 2015. Does liquidity determine capital structure? Evidence from India. *Global Business Review*, 16 (1), 84-95.

Sharma, V., 2011. Stock returns and product market competition: beyond industry concentration. *Review of Quantitative Finance and Accounting*, 37 (3), 283-299.

Shaw, N., Burgess, T., De Mattos, C. and Stec, L., 2005. Supply chain agility: the influence of industry culture on asset capabilities within capital intensive industries. *International Journal of Production Research*, 43 (16), 3497-3516.

Shleifer, A. and Vishny, R. W., 1992. Liquidation values and debt capacity: A market equilibrium approach. *The Journal of Finance*, 47 (4), 1343-1366.

Shyam-Sunder, L. and Myers, S. C., 1999. Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics*, 51 (2), 219-244.

Simerly, R. L. and Li, M., 2000. Environmental dynamism, capital structure and performance: a theoretical integration and an empirical test. *Strategic management journal*, 31-49.

Singh, P. and Kumar, B., 2012. Trade-off theory vs pecking order theory revisited: evidence from India. *Journal of Emerging Market Finance*, 11 (2), 145-159.

Smart, M., 1998. Taxation and deadweight loss in a system of intergovernmental transfers. *Canadian Journal of Economics*, 189-206.

Smith, D. J., Chen, J. and Anderson, H. D., 2015. The influence of firm financial position and industry characteristics on capital structure adjustment. *Accounting & Finance*, 55 (4), 1135-1169.

Smith, E. and Smith, J., 2008. *Using Secondary Data in Educational and Social Research*. McGraw Hill/Open University Press.

Smith Jr, C. W. and Warner, J. B., 1979. On financial contracting: An analysis of bond covenants. *Journal of financial economics*, 7 (2), 117-161.

Snorrason, S. T., 2012. *Asymmetric economic integration: Size characteristics of economies, trade costs and welfare*. Springer Science & Business Media.

Sogorb-Mira, F., 2005. How SME uniqueness affects capital structure: Evidence from a 1994–1998 Spanish data panel. *Small business economics*, 25 (5), 447-457.

Sprinkle, G. B. and Williamson, M. G., 2006. Experimental research in managerial accounting. *Handbooks of Management Accounting Research*, 1, 415-444.

Stein, J. C., 1996. *Rational capital budgeting in an irrational world*. National bureau of economic research.

Stiglitz, J. E., 1969. A re-examination of the Modigliani-Miller theorem. *The American Economic Review*, 59 (5), 784-793.

Stiglitz, J. E., 1974. On the irrelevance of corporate financial policy. *The American Economic Review*, 64 (6), 851-866.

Stiglitz, J. E. and Uy, M. J. T. W. B. R. O., 1996. Financial markets, public policy, and the East Asian miracle. 11 (2), 249-276.

Stiglitz, J. E. J. T. W. B. E. R., 1993. The role of the state in financial markets. 7 (suppl_1), 19-52.

Stohs, M. H. and Mauer, D. C., 1996. The determinants of corporate debt maturity structure. *Journal of Business*, 279-312.

Strebulaev, I. A., 2007. Do tests of capital structure theory mean what they say? *The Journal of Finance*, 62 (4), 1747-1787.

Stulz, R., 1990. Managerial discretion and optimal financing policies. *Journal of financial Economics*, 26 (1), 3-27.

Stulz, R., 2000. Does financial structure matter for economic growth? A corporate finance perspective. *Financial structure and economic growth: A Cross-country comparison of banks, markets, and development*, 143-188.

Swanson, Z., Srinidhi, B. N. and Seetharaman, A., 2003. *The capital structure paradigm: evolution of debt/equity choices*. Greenwood Publishing Group.

Taggart Jr, R. A., 1977. A model of corporate financing decisions. *The Journal of Finance*, 32 (5), 1467-1484.

Talberg, M., Winge, C., Frydenberg, S. and Westgaard, S., 2008. Capital structure across industries. *International Journal of the Economics of Business*, 15 (2), 181-200.

Tarrade, H., 2012. *Cross-Border Venture Capital Investments: Why Do Venture Capital Firms Invest at a Distance?* : Springer Science & Business Media.

Tavakoli, H., 2012. *A Dictionary of Research Methodology and Statistics in Applied Linguistics*. Rahnama.

Teixeira, A. A. and Queirós, A. S., 2016. Economic growth, human capital and structural change: A dynamic panel data analysis. *Research Policy*, 45 (8), 1636-1648.

Titman, S. and Tsyplakov, S., 2007. A dynamic model of optimal capital structure. *Review of Finance*, 11 (3), 401-451.

Titman, S. and Wessels, R., 1988. The determinants of capital structure choice. *The Journal of finance*, 43 (1), 1-19.

Tong, G. and Green, C. J., 2005. Pecking order or trade-off hypothesis? Evidence on the capital structure of Chinese companies. *Applied economics*, 37 (19), 2179-2189.

Tong, Z., 2011. Firm diversification and the value of corporate cash holdings. *Journal of Corporate Finance*, 17 (3), 741-758.

Trauth, M. H., Gebbers, R., Marwan, N. and Sillmann, E., 2006. *MATLAB recipes for earth sciences*. Springer.

Udomsirikul, P., Jumreornvong, S. and Jiraporn, P., 2011. Liquidity and capital structure: The case of Thailand. *Journal of Multinational Financial Management*, 21 (2), 106-117.

Ulgen, F., 2016. *Financial development, economic crises and emerging market economies*. Vol. 9. Taylor & Francis.

Ullah, A., 1998. *Handbook of Applied Economic Statistics*. Taylor & Francis.

Uysal, V. B., 2011. Deviation from the target capital structure and acquisition choices. *Journal of Financial Economics*, 102 (3), 602-620.

Van Osnabrugge, M., 2000. A comparison of business angel and venture capitalist investment procedures: an agency theory-based analysis. *Venture Capital: An international journal of entrepreneurial finance*, 2 (2), 91-109.

Vanden, J. M., 2009. Asset substitution and structured financing. *Journal of Financial and Quantitative Analysis*, 44 (4), 911-951.

Verbeek, M., 2008. *A guide to modern econometrics*. John Wiley & Sons.

Verbeke, A. and Merchant, H., 2012. *Handbook of research on international strategic management*. Edward Elgar Publishing.

Vicente-Lorente, J. D., 2001. Specificity and opacity as resource-based determinants of capital structure: evidence for Spanish manufacturing firms. *Strategic Management Journal*, 157-177.

Vilasuso, J. and Minkler, A., 2001. Agency costs, asset specificity, and the capital structure of the firm. *Journal of Economic Behavior & Organization*, 44 (1), 55-69.

Villalonga, B. and Amit, R., 2006. How do family ownership, control and management affect firm value? *Journal of financial Economics*, 80 (2), 385-417.

Wald, J. K., 1999. How firm characteristics affect capital structure: an international comparison. *Journal of Financial research*, 22 (2), 161-187.

Walker, J. S. and Vasconcellos, G. M., 1997. *A Financial-agency Analysis of Privatization: Managerial Incentives and Financial Contracting*. Lehigh University Press.

Walsh, A., 2014. *Criminological Theory: Assessing Philosophical Assumptions*. Taylor & Francis.

Wang, G. Y., 2010. The impacts of free cash flows and agency costs on firm performance. *Journal of service science and management*, 3 (4), 408-418.

Wang, H., 2011a. Managerial entrenchment, equity payout and capital structure. *Journal of Banking & Finance*, 35 (1), 36-50.

Wang, S., 2015. *Chinese strategic decision-making on CSR*. Springer.

Wang, X., 2011b. *Performance analysis for public and nonprofit organizations*. Jones & Bartlett Publishers.

Wang, Y., Chen, C. R. and Huang, Y. S. J. P.-B. F. J., 2014. Economic policy uncertainty and corporate investment: Evidence from China. 26, 227-243.

Wanzenried, G., 2006. Capital structure dynamics in the UK and continental Europe. *The European Journal of Finance*, 12 (8), 693-716.

Warner, R. M., 2008. *Applied statistics: From bivariate through multivariate techniques*. Sage.

Washington, S., Karlaftis, M. G. and Mannering, F. L., 2003. *Statistical and econometric methods for transportation data analysis*. Chapman & Hall/CRC Boca Raton, FL.

Welch, I., 2004. Capital structure and stock returns. *Journal of political economy*, 112 (1), 106-131.

White, H., 1980. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica: Journal of the Econometric Society*, 817-838.

Wilcox, R. R., 2011. *Introduction to robust estimation and hypothesis testing*. Academic press.

Williams, J. T., 1995. Financial and industrial structure with agency. *The Review of Financial Studies*, 8 (2), 431-474.

Williamson, O. E., 1988. Corporate finance and corporate governance. *The journal of finance*, 43 (3), 567-591.

Wooldridge, J. M., 2010. *Econometric analysis of cross section and panel data*. MIT press.

Wu, L. and Yue, H., 2009. Corporate tax, capital structure, and the accessibility of bank loans: Evidence from China. *Journal of Banking & Finance*, 33 (1), 30-38.

Xingyuan, F., Christer, L. and Guangwen, H., 2015. *The Ecology Of Chinese Private Enterprises*. World Scientific Publishing Company.

Xu, J., 2012. Profitability and capital structure: Evidence from import penetration. *Journal of Financial Economics*, 106 (2), 427-446.

Zhang, G., Han, J., Pan, Z. and Huang, H. J. E. S., 2015. Economic policy uncertainty and capital structure choice: Evidence from China. 39 (3), 439-457.

Zhang, R. and Kanazaki, Y., 2007. Testing static tradeoff against pecking order models of capital structure in Japanese firms. *International Journal of Accounting & Information Management*, 15 (2), 24-36.

Zhao, C. and Zhu, H., 2017. *Financial Reform in China: The Way from Extraction to Inclusion*. Taylor & Francis.

Zheng, Y. and Chen, M., 2009. How effective will China's four trillion yuan stimulus plan be?

Zikmund, W. G., Babin, B. J., Carr, J. C. and Griffin, M., 2013. *Business research methods*. Cengage Learning.

Appendixes

Part 1: Descriptive Analysis Table

Table 5. 4: AIM Consolidated Descriptive Statistics

ICB Sectors	SIZE	GROWTH	NDTS	ROE	TANG	TRATE	LIQUIDITY	InTANG	DBKRT	DIV	GDP	CFMT	BOND	STK	HH	STDMV	STDBV	LTDMV	LTDBV
Oil & Gas																			
Obs.	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00	2320.00
Mean	4.42	1.19	8.37	-52.75	27.79	2.02	10.53	31.37	-3.87	1.29	0.31	16.15	70.78	110.66	0.10	40.10	4.23	32.87	4.39
Std. Dev.	0.74	24.20	14.04	296.02	30.65	7.79	50.05	30.68	39.72	8.04	0.66	0.75	16.33	10.72	0.30	46.77	11.07	45.65	10.95
Min	1.00	-819.28	0.00	-5429.29	0.00	0.00	0.00	0.00	-699.61	0.00	-2.20	14.80	34.50	81.93	0.00	0.00	0.00	0.00	0.00
Max	7.63	174.04	100.00	1810.96	99.72	74.82	843.64	99.74	13.27	88.64	1.20	18.10	87.00	125.77	1.11	100.00	98.64	100.00	95.07
Basic Material																			
Obs.	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00	2870.00
Mean	4.19	2.44	8.91	-141.84	19.84	3.47	8.21	30.97	-1.58	1.96	0.33	16.17	71.22	110.74	0.22	35.97	3.32	29.30	3.18
Std. Dev.	0.82	19.45	16.70	1504.69	28.56	17.75	20.93	33.33	5.96	11.01	0.64	0.74	16.28	10.54	0.29	46.02	8.08	44.02	8.10
Min	1.26	-635.34	0.00	-26234.80	0.00	-0.87	0.00	0.00	-82.83	0.00	-2.20	14.80	34.50	81.93	0.00	0.00	0.00	0.00	0.00
Max	7.88	271.77	100.00	104.60	97.91	322.26	446.24	99.83	9.25	97.64	1.20	18.10	87.00	125.77	1.02	100.00	80.81	100.00	83.13
Industrial																			
Obs.	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00
Mean	4.42	1.79	11.85	-8.97	15.24	9.54	2.45	27.02	0.24	15.53	0.32	16.17	70.82	110.68	0.33	70.18	5.24	66.52	7.31
Std. Dev.	0.60	17.43	13.71	107.14	17.42	10.77	7.28	22.67	33.30	23.13	0.65	0.75	16.49	10.72	0.21	42.13	7.15	44.87	9.47
Min	1.15	-497.38	0.00	-2533.77	0.00	0.00	0.04	0.00	-1062.13	0.00	-2.20	14.80	34.50	81.93	0.00	0.00	0.00	0.00	0.00
Max	5.93	398.48	100.00	385.00	81.77	70.19	214.78	95.42	9.81	98.84	1.20	18.10	87.00	125.77	0.51	100.00	53.36	100.00	48.73
Consumer Goods																			
Obs.	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00	1528.00
Mean	4.42	0.54	12.69	-8.68	22.15	9.05	2.51	16.45	0.77	15.95	0.34	16.18	71.60	110.77	0.46	70.82	7.73	57.91	7.58
Std. Dev.	0.67	26.12	12.92	106.90	20.04	9.61	2.95	19.23	4.48	22.89	0.63	0.73	16.18	10.38	0.03	43.04	10.13	47.73	12.48
Min	1.76	-885.85	0.00	-1270.37	0.00	0.00	0.02	0.00	-70.22	0.00	-2.20	14.80	34.50	81.93	0.42	0.00	0.00	0.00	0.00
Max	5.90	63.36	100.00	938.36	98.16	54.42	43.62	92.17	3.95	97.90	1.20	18.10	87.00	125.77	0.51	100.00	64.50	100.00	81.76

Heath																			
Obs.	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00	2091.00
Mean	4.07	1.50	13.54	-40.65	7.94	2.97	5.37	31.86	-0.53	6.05	0.32	16.17	70.68	110.70	0.01	41.46	3.69	37.65	4.53
Std. Dev.	0.67	60.72	15.79	161.66	13.60	6.58	6.97	27.59	2.55	16.34	0.65	0.76	16.51	10.75	0.00	45.42	9.58	45.94	10.12
Min	2.06	-1599.51	0.00	-2727.61	0.00	0.00	0.00	0.00	-19.73	0.00	-2.20	14.80	34.50	81.93	0.01	0.00	0.00	0.00	0.00
Max	5.71	596.90	100.00	945.45	93.39	41.59	47.90	99.01	5.56	97.72	1.20	18.10	87.00	125.77	0.02	100.00	65.53	100.00	67.54
Telecommunication																			
Obs.	153.00	153.00	153.00	153.00	153.00	153.00	153.00	153.00	153.00	153.00	153.00	153.00	153.00	153.00	153.00	153.00	153.00	153.00	153.00
Mean	4.67	1.79	13.41	-3.16	27.97	9.36	1.66	37.48	2.28	10.80	0.32	16.15	70.72	110.73	0.01	62.26	1.77	76.31	20.56
Std. Dev.	0.81	1.69	16.23	38.38	31.60	16.72	1.27	33.14	5.73	23.12	0.64	0.76	16.42	10.66	0.02	44.23	2.87	42.47	13.41
Min	3.21	0.00	0.45	-101.62	0.19	0.00	0.48	0.00	-3.18	0.00	-2.20	14.80	34.50	81.93	0.00	0.00	0.00	0.00	0.00
Max	5.84	12.42	74.68	116.28	86.46	65.60	5.64	98.56	30.10	74.02	1.20	18.10	87.00	125.77	0.11	100.00	14.41	100.00	43.27
Consumer service																			
Obs	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00	2465.00
Mean	4.43	4.00	10.44	-11.89	21.59	8.25	2.00	30.56	0.40	11.10	0.34	16.17	72.00	110.63	0.04	63.24	4.07	59.04	7.99
Std. Dev.	0.74	44.33	14.34	98.48	28.39	10.66	3.85	27.96	9.84	21.02	0.62	0.73	15.92	10.26	0.01	44.52	7.47	47.30	11.69
Min	1.69	-81.16	0.00	-1666.67	0.00	0.00	0.00	0.00	-223.07	0.00	-2.20	14.80	34.50	81.93	0.02	0.00	0.00	0.00	0.00
Max	6.49	1310.66	100.00	455.67	98.68	72.55	48.67	95.16	8.11	98.58	1.20	18.10	87.00	125.77	0.07	100.00	65.94	100.00	77.21
Technology																			
Obs.	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00	3262.00
Mean	4.21	4.91	14.92	-17.62	7.01	4.53	2.41	39.31	0.43	11.48	0.32	16.16	70.88	110.64	0.01	52.44	3.70	52.14	6.04
Std. Dev.	0.60	33.86	14.12	82.21	9.53	8.22	4.12	24.40	2.50	21.40	0.65	0.75	16.40	10.69	0.01	45.93	7.27	47.12	10.56
Min	1.56	-200.95	0.00	-1591.42	0.00	0.00	0.15	0.00	-19.86	0.00	-2.20	14.80	34.50	81.93	0.01	0.00	0.00	0.00	0.00
Max	5.95	774.20	100.00	277.73	76.46	63.81	81.58	91.85	7.88	100.00	1.20	18.10	87.00	125.77	0.03	100.00	65.63	100.00	74.27

Table 5. 5: SMEs Consolidated Descriptive Statistic

CNI SECTORS	*SIZE*	*GROWTH*	*NDTS*	*ROE*	*TANG*	*TRATE*	*LIQUIDITY*	*InTANG*	*DBKRT*	*DIV*	*GDP*	*CFMT*	*BOND*	*STK*	*HH*	*STDMV*	*STDBV*	*LTDMV*	*LTDBV*
Energy																			
Obs.	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00
Mean	6.55	3.29	6.91	4.04	29.04	9.25	2.25	4.30	1.13	22.43	3.50	11.00	52.63	14.72	0.25	93.01	13.95	58.72	5.77
Std. Dev.	0.51	2.66	4.92	37.82	19.13	9.54	2.02	3.47	0.80	22.00	10.79	0.41	7.91	3.90	0.06	20.97	9.17	46.36	7.26
Min	5.68	-12.99	0.00	-368.76	4.56	0.00	0.24	0.15	-1.23	0.00	-16.67	9.72	43.12	9.67	0.20	0.00	0.00	0.00	0.00
Max	7.85	14.96	33.69	41.89	87.58	76.54	15.49	16.50	5.22	91.68	13.89	11.38	68.75	31.52	0.37	100.00	39.76	100.00	26.10
Material																			
Obs.	4655.00	4655.00	4655.00	4655.00	4655.00	4631.00	4655.00	4655.00	4655.00	4655.00	4655.00	4655.00	4655.00	4655.00	4655.00	4655.00	4655.00	4655.00	4655.00
Mean	6.39	3.27	6.61	6.88	36.80	8.74	2.31	6.85	1.29	21.21	3.51	10.97	52.56	15.08	0.02	95.03	17.26	57.80	4.52
Std. Dev.	0.39	3.11	2.66	14.11	16.18	6.59	3.56	7.08	0.90	22.60	10.78	0.44	7.92	4.43	0.01	16.67	9.57	46.73	5.94
Min	5.41	-79.24	0.00	-271.42	0.29	0.00	0.18	0.00	-1.94	0.00	-16.67	9.72	43.12	9.67	0.02	0.00	0.00	0.00	0.00
Max	7.79	61.10	44.88	55.66	89.64	89.64	53.13	53.34	8.56	99.46	13.89	11.38	68.75	31.52	0.06	100.00	46.96	100.00	30.15
Industrial																			
Obs.	9704.00	9704.00	9704.00	9704.00	9704.00	9543.00	9704.00	9704.00	9704.00	9704.00	9704.00	9704.00	9704.00	9704.00	9704.00	9704.00	9704.00	9704.00	9704.00
Mean	6.33	3.79	6.93	7.52	24.90	10.53	2.78	6.96	1.20	23.33	3.48	10.97	52.72	15.00	0.01	88.58	12.28	47.09	3.30
Std. Dev.	0.40	15.34	3.83	10.31	14.37	9.85	3.10	8.43	0.63	22.55	10.79	0.43	7.97	4.28	0.00	26.15	9.37	47.00	5.24
Min	5.32	-0.95	0.00	-193.53	0.01	0.00	0.23	0.00	-12.04	0.00	-16.67	9.72	43.12	9.67	0.01	0.00	0.00	0.00	0.00
Max	7.76	834.46	79.03	48.69	76.38	92.20	50.14	87.99	4.04	100.00	13.89	11.38	68.75	31.52	0.02	100.00	50.00	100.00	31.47
Consumer staple																			
Obs.	5976.00	5976.00	5976.00	5976.00	5976.00	5867.00	5976.00	5976.00	5976.00	5976.00	5976.00	5976.00	5976.00	5976.00	5976.00	5976.00	5976.00	5976.00	5976.00
Mean	6.33	3.62	7.45	7.45	29.79	10.49	2.94	7.65	1.33	24.48	3.47	10.97	52.85	15.01	0.03	85.50	12.89	47.16	3.40
Std. Dev.	0.38	5.93	4.46	21.51	14.84	9.70	5.01	9.41	0.78	24.30	10.78	0.43	8.02	4.25	0.02	30.92	10.02	47.35	5.36
Min	5.04	-36.91	0.00	-591.18	0.10	0.00	0.00	0.00	-9.52	0.00	-16.67	9.72	43.12	9.67	0.02	0.00	0.00	0.00	0.00
Max	7.63	200.64	65.95	161.50	77.35	99.66	104.67	89.85	4.53	99.70	13.89	11.38	68.75	31.52	0.10	100.00	55.49	100.00	26.80

Heath																			
Obs.	1534.00	1534.00	1534.00	1534.00	1534.00	1511.00	1534.00	1534.00	1534.00	1534.00	1534.00	1534.00	1534.00	1534.00	1534.00	1534.00	1534.00	1534.00	1534.00
Mean	6.32	4.51	5.58	11.73	24.64	11.42	6.20	10.55	1.47	27.41	3.50	10.98	52.90	14.98	0.05	74.00	9.52	38.37	2.37
Std. Dev.	0.40	3.20	2.34	9.84	11.24	6.46	12.20	10.41	0.66	25.47	10.76	0.42	8.01	4.13	0.03	38.68	9.14	45.01	4.58
Min	5.37	0.00	0.89	-52.46	1.29	0.00	0.52	0.19	-1.50	0.00	-16.67	9.72	43.12	9.67	0.04	0.00	0.00	0.00	0.00
Max	7.46	25.81	14.48	51.16	69.22	83.63	190.87	59.81	5.67	99.44	13.89	11.38	68.75	31.52	0.24	100.00	36.12	100.00	21.29
Consumer discretionary																			
Obs.	1033.00	1033.00	1033.00	1033.00	1033.00	994.00	1033.00	1033.00	1033.00	1033.00	1033.00	1033.00	1033.00	1033.00	1033.00	1033.00	1033.00	1033.00	1033.00
Mean	6.50	4.63	10.01	7.51	26.85	13.91	1.90	8.58	1.52	26.80	3.49	10.97	52.96	14.97	0.23	80.90	9.85	45.02	3.69
Std. Dev.	0.48	30.40	8.30	19.98	17.86	8.12	1.76	8.21	0.96	24.42	10.76	0.43	8.07	4.20	0.09	33.60	9.74	48.16	6.48
Min	5.00	-229.82	0.44	-265.38	0.15	0.00	0.23	0.00	-2.43	0.00	-16.67	9.72	43.12	9.67	0.18	0.00	0.00	0.00	0.00
Max	8.19	422.89	73.70	55.62	85.97	57.96	19.11	47.96	6.17	98.20	13.89	11.38	68.75	31.52	0.63	100.00	39.27	100.00	35.41
Telecommunication																			
Obs.	78.00	78.00	78.00	78.00	78.00	74.00	78.00	78.00	78.00	78.00	78.00	78.00	78.00	78.00	78.00	78.00	78.00	78.00	78.00
Mean	5.99	4.99	7.29	7.89	16.58	8.78	13.69	11.62	1.38	23.11	3.56	11.00	52.15	14.70	0.57	22.82	0.57	8.59	0.08
Std. Dev.	0.33	1.92	5.25	4.90	15.23	4.79	13.95	18.81	0.50	12.79	10.92	0.42	7.62	3.75	0.05	36.04	1.15	21.27	0.21
Min	5.55	1.90	1.63	-1.87	4.84	0.00	2.25	0.05	0.49	0.00	-16.67	9.72	44.43	9.67	0.52	0.00	0.00	0.00	0.00
Max	6.64	14.02	18.72	22.43	53.09	23.24	48.47	56.97	2.04	43.83	13.89	11.38	68.75	31.52	0.68	93.05	3.91	85.19	0.90
Information Technology																			
Obs.	2076.00	2076.00	2076.00	2076.00	2076.00	2052.00	2076.00	2076.00	2076.00	2076.00	2076.00	2076.00	2076.00	2076.00	2076.00	2076.00	2076.00	2076.00	2076.00
Mean	6.31	4.49	8.83	8.47	17.95	9.27	3.35	9.51	1.31	23.57	3.50	10.98	52.61	14.96	0.04	77.52	8.12	35.66	2.33
Std. Dev.	0.40	3.23	6.99	10.04	13.74	9.60	2.64	10.52	0.52	22.46	10.77	0.43	7.94	4.29	0.01	35.31	7.81	45.30	4.51
Min	5.19	0.00	0.18	-56.22	0.07	0.00	0.61	0.00	-1.02	0.00	-16.67	9.72	43.12	9.67	0.03	0.00	0.00	0.00	0.00
Max	7.49	35.75	59.44	70.71	63.13	91.96	29.92	62.53	3.70	100.00	13.89	11.38	68.75	31.52	0.09	100.00	33.60	100.00	23.15

Table 5. 6: AIM Pearson Correlation Metrix

VARIABLES	SIZE	GROWTH	NDTS	ROE	TANG	TRATE	LIQUIDITY	InTANG	DBKRT	DIV	GDP	CFMT
SIZE	1											
GROWTH	-0.0172*	1										
NDTS	-0.103***	0.0104	1									
ROE	0.0762***	-0.0430***	-0.00117	1								
TANG	-0.00997	-0.00476	0.329***	0.00767	1							
TRATE	0.00714	-0.00297	0.00324	0.00271	0.00133	1						
LIQUIDITY	0.00506	-0.00438	-0.0230**	0.0069	-0.0174*	-0.00685	1					
InTANG	-0.0930***	0.0225**	0.250***	-0.0181*	-0.0226**	0.00379	-0.0352***	1				
DBKRT	0.202***	0.000542	-0.467***	0.0477***	0.168***	0.0117	0.00134	0.0167*	1			
DIV	-0.00851	-0.0222**	0.00283	0.0211**	0.00145	0.00237	-0.0267***	0.00573	0.0135	1		
GDP	0.0505***	-0.00044	0.0159*	-0.00489	0.0095	-0.00036	-0.00997	0.0232**	0.0153*	-0.00412	1	
CFMT	0.0242**	-0.00487	0.0131	-0.0141	-0.00243	0.0145	-0.0255***	0.0127	0.00571	-0.00887	-0.0243**	1
BOND	0.127***	0.00125	0.0368***	-0.0157*	0.0264***	-0.00162	-0.0433***	0.0740***	0.0180*	-0.00999	0.356***	-0.296***
STK	-0.0148	0.00172	-0.00939	0.0106	0.000156	-0.00559	0.0246**	-0.0159*	0.00308	0.00559	0.569***	-0.225***
HH	0.0300***	-0.00906	-0.0216**	0.0204**	0.00964	0.0127	-0.00808	-0.0616***	0.0484***	0.0471***	-0.106***	0.0276***
STDMV	0.246***	-0.0380***	0.0585***	0.0356***	0.0720***	0.0263***	-0.136***	0.0292***	0.0402***	0.0182*	-0.00551	0.00936
STDBV	-0.127***	-0.0525***	0.256***	0.00433	0.249***	0.0044	-0.0556***	0.0781***	-0.135***	0.0109	-0.0221**	0.0102
LTDMV	0.299***	-0.0141	0.0397***	0.0408***	0.0857***	0.0152*	-0.111***	0.0282***	0.0906***	0.0261***	0.00398	0.0171*
LTDBV	0.0631***	0.000994	0.142***	0.0102	0.280***	0.00731	-0.0515***	0.113***	0.0898***	0.00982	0.00671	0.00329
t	statistics	in parentheses										
*****	p<0.05, **	p<0.01, *** p<0.001										

VARIABLES	BOND	STK	HH	STDMV	STDBV	LTDMV	LTDBV
STK	0.0896***	1					
HH	-0.134***	-0.134***	1				
STDMV	-0.00157	-0.0105	0.0692***	1			
STDBV	-0.0116	-0.0197*	0.0574***	0.477***	1		
LTDMV	0.00806	-0.00138	0.0462***	0.663***	0.190***	1	
LTDBV	0.0200**	-0.0033	0.0192*	0.358***	0.291***	0.574***	1
t	statistics	in parentheses					
*****	p<0.05, **	p<0.01, *** p<0.001					

Table 5. 7: SMEs Pearson Correlation Matrix

VRRIABLES	SIZE	GROWTH	NDTS	ROE	TANG	TRATE	LIQUIDITY	InTANG	DBKRT	DIV	GDP	CFMT
SIZE	1											
GROWTH	-0.0484***	1										
NDTS	-0.0874***	0.0996***	1									
ROE	0.0965***	-0.107***	-0.0373***	1								
TANG	-0.0698***	-0.0488***	-0.151***	-0.114***	1							
TRATE	0.00939	-0.0251***	-0.0339***	0.185***	-0.208***	1						
LIQUIDITY	-0.132***	0.000694	-0.0145*	0.0414***	-0.186***	0.0896***	1					
InTANG	0.0986***	0.0336***	-0.282***	-0.0230***	-0.184***	-0.0143*	-0.0672***	1				
DBKRT	-0.0899***	-0.183***	0.141***	0.469***	-0.271***	0.235***	0.137***	-0.184***	1			
DIV	0.0346***	-0.0195**	-0.0154*	0.146***	-0.0582***	0.152***	0.155***	-0.0754***	0.165***	1		
GDP	-0.0342***	0.00929	0.00253	0.0117	-0.00565	0.00576	0.0135*	-0.0201**	0.0216***	0.00652	1	
CFMT	-0.0495***	-0.0438***	0.00361	-0.0127*	0.0126*	0.0263***	0.0897***	-0.102***	0.0409***	0.0487***	-0.0143*	1
BOND	0.391***	0.0724***	-0.0187**	-0.0424***	-0.106***	-0.0183**	-0.0789***	0.249***	-0.154***	-0.0318***	0.0661***	-0.461***
STK	0.0512***	0.0440***	0.0180**	0.0326***	-0.0145*	-0.00332	-0.0845***	0.0865***	-0.0406***	-0.0758***	0.0232***	-0.560***
HH	0.0204**	0.00943	0.0827***	0.00577	-0.0023	0.0500***	0.0313***	0.00316	0.0658***	0.00714	0.00974	-0.0836***
STDMV	0.172***	-0.0891***	-0.0446***	-0.0702***	0.180***	-0.119***	-0.458***	-0.0113	-0.146***	-0.167***	-0.0132*	-0.0736***
STDBV	0.157***	-0.0387***	-0.0207**	-0.162***	0.241***	-0.244***	-0.374***	-0.102***	-0.251***	-0.230***	-0.00423	-0.0572***
LTDMV	0.269***	-0.0750***	-0.0865***	-0.0208***	0.233***	-0.165***	-0.208***	-0.00647	-0.167***	-0.178***	-0.0149*	-0.0736***
LTDBV	0.261***	-0.0475***	-0.0969***	-0.0685***	0.274***	-0.151***	-0.140***	-0.0111	-0.200***	-0.154***	-0.0103	-0.0258***
N	25122											
t	statistics	in parentheses										
*****	p<0.05, **	p<0.01, *** p<0.001										

VARIABLES	BOND	STK	HH	STDMV	STDBV	LTDMV	LTDBV
BOND	1						
STK	0.367***	1					
HH	-0.0392***	0.0330***	1				
STDMV	0.0367***	0.0760***	-0.0761***	1			
STDBV	-0.0387***	0.0442***	-0.0601***	0.541***	1		
LTDMV	0.0540***	0.0955***	-0.0152*	0.344***	0.365***	1	
LTDBV	0.0509***	0.0569***	0.00377	0.216***	0.189***	0.678***	1
N	25122						
t	statistics	in parentheses					
*	p<0.05, **	p<0.01, *** p<0.001					

Part 2: Robustness Test Tables

Table 7. 3: AIM Non-linear Relationship in Capital and Non-Capital intensive

	Short Term Leverage Market Value		*Short Term Leverage Book Value*		*Long Term Leverage Market Value*		*Long Term Leverage Book Value*	
VARIABLES	Capital Intensive	Non-Capital Intensive	Capital Intensive	Non-Capital Intensive	Capital Intensive	Non-Capital Intensive	Capital Intensive	Non-Capital Intensive
SIZE	17.58***	7.794***	-0.358	-2.994***	14.17***	9.133***	1.429**	-2.965***
	(2.570)	(2.698)	(0.706)	(0.660)	(1.756)	(3.313)	(0.564)	(1.042)
LogSIZE^2	-8.982**	78.20***	(5.553)	-2.275	(90.65)	80.35***	(13.30)	3.513
	(63.11)	(29.42)	0.230	(2.795)	-2.367	(16.77)	1.383**	(3.361)
GROWTH	-0.00946	-0.0211	-0.00628***	0.00614	0.00418	-0.0512**	0.00502	-0.00730
	(0.0100)	(0.0211)	(0.00223)	(0.00483)	(0.00837)	(0.0227)	(0.00405)	(0.00449)
LogGROWTH^2	-8.982**	-1.318	0.230	-0.199	-2.367	3.401*	1.383**	-0.0219
	(3.734)	(1.836)	(0.227)	(0.231)	(3.464)	(1.984)	(0.633)	(0.194)
NDTS	0.101**	0.0756	-0.00143	0.00123	0.170***	0.0652	0.0470**	0.0419**
	(0.0480)	(0.0520)	(0.0128)	(0.0147)	(0.0468)	(0.0459)	(0.0229)	(0.0210)
LogNDTS^2	-0.477	4.933**	0.0346	-0.140	2.196	0.748	0.473	-0.907**
	(5.425)	(2.175)	(0.440)	(0.227)	(2.905)	(2.269)	(0.549)	(0.426)
ROE	0.000825	0.00604**	0.000274***	-0.000142	0.000326	-0.00921***	-4.97e-05	-0.000494
	(0.000604)	(0.00295)	(0.000101)	(0.000736)	(0.000469)	(0.00293)	(9.45e-05)	(0.00149)
LogROE^2	3.161	-14.79***	0.379	-0.389**	-5.521	-12.27***	-0.702	0.621
	(5.322)	(3.422)	(0.361)	(0.168)	(5.180)	(3.277)	(0.644)	(0.519)
TANG	0.494***	0.449***	0.0380***	0.0890***	0.427***	0.558***	0.0649***	0.166***
	(0.0305)	(0.131)	(0.00608)	(0.0170)	(0.0325)	(0.105)	(0.00826)	(0.0229)
LogTANG^2	-12.30***	9.588***	-1.060***	-0.313	-2.788	8.348***	0.546*	2.473***
	(2.659)	(2.397)	(0.244)	(0.244)	(2.483)	(2.806)	(0.312)	(0.283)
TRATE	0.0529	-0.0762	0.0118	-0.0492***	0.120**	0.0432	0.00748	-0.0276*
	(0.0550)	(0.0824)	(0.00955)	(0.00917)	(0.0592)	(0.0679)	(0.0129)	(0.0162)
LogTRATE^2	2.023	-1.775	-0.163	-0.441***	0.443	1.318*	-0.0608	-0.462*
	(2.838)	(1.141)	(0.181)	(0.135)	(3.855)	(0.739)	(0.418)	(0.256)

LIQUIDITY	-0.0413*	-0.671***	-0.00709*	-0.0615***	-0.0261*	-0.467***	-0.00226	-0.0499**
	(0.0231)	(0.111)	(0.00376)	(0.0195)	(0.0152)	(0.0959)	(0.00238)	(0.0205)
LogLIQUIDITY^2	-33.91***	-36.36***	-2.085***	-7.012***	-18.15***	-8.439**	-0.153	0.0422
	(6.880)	(2.421)	(0.486)	(0.494)	(5.814)	(4.104)	(0.671)	(0.544)
InTANG	0.270***	0.125*	0.00725	0.00887	0.165***	0.144	0.0185*	0.0557**
	(0.0297)	(0.0723)	(0.00877)	(0.00687)	(0.0380)	(0.0940)	(0.00956)	(0.0238)
LogInTANG^2	5.273***	-1.491	-0.250	-0.745***	5.725***	5.753**	0.170	1.283***
	(1.082)	(1.185)	(0.162)	(0.232)	(1.349)	(2.341)	(0.210)	(0.426)
DBKRT	-0.0971***	0.0455**	-0.109***	0.00775***	-0.0846***	-0.0233***	-0.0901***	0.00387
	(0.0297)	(0.0192)	(0.0221)	(0.00284)	(0.0309)	(0.00630)	(0.0329)	(0.00239)
LogDBKRT^2	4.666	-7.714**	-4.383***	2.122***	0.510	-13.78***	-4.364***	-1.483*
	(9.328)	(3.548)	(0.729)	(0.465)	(11.89)	(5.135)	(1.141)	(0.864)
DIV	-0.150**	-0.0978**	-0.0319***	-0.0112**	-0.121***	0.121***	-0.0568***	-0.0315***
	(0.0682)	(0.0399)	(0.00697)	(0.00485)	(0.0431)	(0.0229)-	(0.00492)	(0.00499)
LogDIV^2	6.188	-17.97***	0.0327	-0.241	0.103	-22.15***	-1.133***	-0.542
	(3.781)	(2.728)	(0.236)	(0.154)	(2.794)	(2.911)	(0.372)	(0.362)
GDP	-0.658	-1.202***	-0.220*	-0.321***	-0.816***	-0.954***	-0.0310	-0.257***
	(0.541)	(0.197)	(0.113)	(0.0614)	(0.304)	(0.308)	(0.0481)	(0.0810)
CFMT	-0.992	-2.605***	0.292	-0.321***	-0.913**	-0.762**	0.0666	-0.0647
	(0.640)	(0.316)	(0.238)	(0.0800)	(0.405)	(0.363)	(0.0629)	(0.125)
BOND	-0.00659	-0.374***	0.0158	-0.0280***	-0.130***	-0.261***	-0.00725	-0.0489***
	(0.0388)	(0.0277)	(0.0113)	(0.00660)	(0.0208)	(0.0294)	(0.00538)	(0.00771)
STK	-0.0243	0.0116	-0.00477	0.00391	0.0540**	0.00138	0.00235	-0.00752*
	(0.0368)	(0.0282)	(0.00964)	(0.00426)	(0.0256)	(0.0228)	(0.00475)	(0.00412)
HH	-1.052	-75.68*	0.0376	4.175	-4.042***	-69.48**	-0.792**	-25.94***
	(3.827)	(44.72)	(0.823)	(5.885)	(1.405)	(29.91)	(0.333)	(8.022)
Constant	-25.92	98.18***	-0.234	22.73***	-15.13	49.30***	-3.408	25.00***
	(16.02)	(13.03)	(4.711)	(3.825)	(9.944)	(17.86)	(2.483)	(5.608)
Observations	9,335	9,368	9,335	9,368	9,335	9,368	9,335	9,368

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7. 4: SMEs Non-linear Relationship in Capital and Non-Capital Intensive Sectors

	Short Term Leverage Market Value		***Short Term Leverage Book Value***		***Long Term Leverage Market Value***		***Long Term Leverage Book Value***	
VARIABLES	**Capital Intensive**	**Non-Capital Intensive**	**Capital Intensive**	**Non-Capital Intensive**	**Capital Intensive**	**Non-Capital Intensive**	**Capital Intensive**	**Non-Capital Intensive**
SIZE	7.387***	7.322**	0.643	0.850	35.61***	29.74***	4.650***	3.594***
	(2.412)	(3.006)	(1.189)	(0.839)	(8.054)	(9.040)	(0.736)	(0.931)
LogSIZE^2	44.41***	57.99***	1.911	7.134*	391.4***	271.2***	48.81***	27.66***
	(8.029)	(15.91)	(4.419)	(4.198)	(33.71)	(43.10)	(4.516)	(3.348)
GROWTH	-0.0783	-0.173***	0.00217	-0.0605***	-0.209**	-0.0973*	-0.0201*	-0.00910
	(0.0495)	(0.0292)	(0.0180)	(0.00619)	(0.0873)	(0.0527)	(0.0116)	(0.00559)
LogGROWTH^2	-3.327***	-6.588***	0.0663	0.512*	0.881	-1.753	0.790***	0.189*
	(0.811)	(1.003)	(0.199)	(0.269)	(1.456)	(1.474)	(0.178)	(0.107)
NDTS	-0.196***	-0.0329	-0.0373**	-0.0887***	-0.393**	0.141	-0.0188	0.0326
	(0.0674)	(0.163)	(0.0181)	(0.0301)	(0.165)	(0.223)	(0.0219)	(0.0308)
LogNDTS^2	2.397***	1.067	1.397***	1.474***	-8.754***	0.864	-1.525***	-0.0151
	(0.678)	(1.863)	(0.215)	(0.296)	(1.621)	(1.083)	(0.177)	(0.0887)
ROE	-0.0166	-0.0683	-0.00519	0.0186	-0.0655*	-0.323**	-0.0291***	-0.0156
	(0.0174)	(0.0444)	(0.00794)	(0.0169)	(0.0346)	(0.137)	(0.00580)	(0.0179)
LogROE^2	-3.620***	-3.566***	-0.228	0.446*	-1.969*	5.982***	0.0573	0.559***
	(0.334)	(0.849)	(0.308)	(0.265)	(1.084)	(1.832)	(0.214)	(0.165)
TANG	0.163***	0.118**	-0.00242	-0.0202	0.382***	0.314***	0.0886***	0.0907***
	(0.0340)	(0.0549)	(0.0225)	(0.0164)	(0.0736)	(0.0734)	(0.00959)	(0.0155)
LogTANG^2	-0.660	-0.546	-1.461***	0.0484	4.741***	7.861***	1.146***	1.078***
	(0.931)	(0.902)	(0.177)	(0.184)	(1.548)	(0.663)	(0.131)	(0.0887)
TRATE	0.0107	-0.0508	-0.0564***	-0.0429***	-0.456***	-0.111**	-0.0248***	-0.0123***
	(0.0378)	(0.0513)	(0.0109)	(0.00712)	(0.0947)	(0.0457)	(0.00812)	(0.00305)
LogTRATE^2	0.671*	0.608	0.0299	-0.389***	-6.390***	-1.140**	-0.923***	-0.193***
	(0.353)	(0.610)	(0.138)	(0.0994)	(1.238)	(0.560)	(0.124)	(0.0429)

LIQUIDITY	-1.811***	-1.584***	-0.469***	-0.299***	-0.596***	-0.729***	-0.000203	-0.0336***
	(0.196)	(0.380)	(0.0818)	(0.0868)	(0.161)	(0.176)	(0.0201)	(0.0129)
LogLIQUIDITY^2	-25.18***	-27.05***	-8.230***	-7.002***	-2.025	0.182	1.316***	0.813***
	(1.445)	(0.974)	(0.498)	(0.509)	(1.549)	(1.878)	(0.227)	(0.200)
InTANG	0.00840	0.0810	-0.148***	-0.115***	0.437***	0.119	0.0561***	0.0125
	(0.0438)	(0.0730)	(0.0181)	(0.0223)	(0.105)	(0.124)	(0.0118)	(0.0171)
LogInTANG^2	1.476**	1.172**	-0.711***	-0.552***	1.675	-0.104	-0.101	-0.113
	(0.607)	(0.493)	(0.138)	(0.164)	(1.080)	(0.673)	(0.158)	(0.0849)
DBKRT	-1.971**	-3.441***	-3.513***	-3.546***	5.734***	4.729*	0.863***	-0.0380
	(0.867)	(1.235)	(0.398)	(0.323)	(1.909)	(2.819)	(0.270)	(0.459)
LogDBKRT^2	12.88***	9.081***	-2.255***	-2.203**	-2.418	-23.88***	-1.052**	-2.045***
	(1.046)	(1.592)	(0.747)	(0.991)	(2.832)	(3.141)	(0.524)	(0.409)
DIV	-0.0676***	-0.0597**	-0.0415***	-0.0338***	-0.240***	-0.191***	-0.0231***	-0.0149***
	(0.0131)	(0.0232)	(0.00531)	(0.00735)	(0.0339)	(0.0474)	(0.00340)	(0.00432)
LogDIV^2	-0.544	-0.415	0.0857	0.395***	-5.293***	-4.225***	-0.645***	-0.417***
	(0.595)	(0.528)	(0.0987)	(0.103)	(0.956)	(0.864)	(0.137)	(0.151)
GDP	0.00264	-0.00387	0.0104	0.00579	0.0231	0.0174	0.00393	0.00502
	(0.0141)	(0.0183)	(0.00676)	(0.00416)	(0.0399)	(0.0406)	(0.00372)	(0.00439)
CFMT	-1.474	-3.011**	-1.381**	-0.952**	-5.516	-3.861	0.0830	-0.350
	(0.923)	(1.531)	(0.616)	(0.407)	(3.446)	(3.540)	(0.224)	(0.288)
BOND	-0.206***	-0.179**	-0.147***	-0.0831***	-0.656***	-0.568**	-0.0537***	-0.0545**
	(0.0686)	(0.0846)	(0.0375)	(0.0186)	(0.178)	(0.224)	(0.0140)	(0.0227)
STK	0.241***	0.206	0.0292	0.0100	0.939***	0.586*	0.0677***	0.0804***
	(0.0868)	(0.148)	(0.0458)	(0.0316)	(0.346)	(0.331)	(0.0249)	(0.0301)
HH	31.33***	-39.80	1.159	-5.337	6.026	78.46	-4.427***	-17.79***
	(11.20)	(58.97)	(2.070)	(17.04)	(19.02)	(60.10)	(1.675)	(4.557)
Constant	69.00***	88.53***	41.61***	29.57***	-101.7***	-86.17**	-27.74***	-15.48***
	(10.23)	(17.52)	(6.388)	(4.707)	(37.95)	(37.69)	(3.467)	(4.284)
Observations	11,942	13,180	11,942	13,180	11,942	13,180	11,942	13,180

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7.5: AIM Fixed Effect Regression Results based on Balanced Data

VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
SIZE	**19.02*** **	**1.350*** **	**15.58*** **	**1.702*** **
	(0.918)	**(0.232)**	**(1.632)**	**(0.597)**
SIZE (UB)	11.39***	-2.049***	10.49***	-1.108*
	(1.668)	(0.416)	(1.910)	(0.587)
GROWTH	**-0.0172**	**0.000786**	**-0.0311*** **	**-0.00215**
	(0.0145)	**(0.00493)**	**(0.0150)**	**(0.00366)**
GROWTH (U)	-0.0169	0.00115	-0.0270**	-0.00219
	(0.0134)	(0.00434)	(0.0128)	(0.00326)
NDTS	**0.173*** **	**0.0225*** **	**0.209*** **	**0.0721*** **
	(0.0458)	**(0.00901)**	**(0.0344)**	**(0.0146)**
NDTS (U)	0.0630*	0.00273	0.109**	0.0491***
	(0.0377)	(0.0102)	(0.0429)	(0.0142)
ROE	**-0.00180*** **	**-4.23e-05**	**-0.00169* **	**-0.000150**
	(0.000610)	**(0.000103)**	**(0.000925)**	**(0.000218)**
ROE (U)	0.000967	0.000285***	4.95e-05	-4.18e-05
	(0.000620)	(0.000102)	(0.000625)	(0.000147)
TANG	**0.535*** **	**0.0458*** **	**0.469*** **	**0.0893*** **
	(0.0297)	**(0.00724)**	**(0.0486)**	**(0.0110)**
TANG(U)	0.522***	0.0584***	0.470***	0.101***
	(0.0479)	(0.00713)	(0.0470)	(0.0112)
TRATE	**0.00927**	**-0.0105**	**0.119*** **	**0.00189**
	(0.0555)	**(0.00883)**	**(0.0530)**	**(0.00820)**
TRATE (U)	0.0187	-0.0121	0.0858*	-0.00598
	(0.0468)	(0.00801)	(0.0463)	(0.0113)
LIQUIDITY	**-0.0579* **	**-0.00974*** **	**-0.0275**	**-0.000373**
	(0.0307)	**(0.00381)**	**(0.0196)**	**(0.00230)**
LIQUIDITY (U)	-0.0864**	-0.0110**	-0.0505*	-0.00338
	(0.0396)	(0.00523)	(0.0264)	(0.00381)
InTANG	**0.287*** **	**0.00395**	**0.254*** **	**0.0489*** **
	(0.0329)	**(0.00714)**	**(0.0420)**	**(0.00726)**
InTANG	0.197***	0.00963**	0.161**	0.0408***
	(0.0581)	(0.00440)	(0.0663)	(0.0119)
DBKRT	**-0.208*** **	**-0.177*** **	**-0.211*** **	**-0.252*** **
	(0.0501)	**(0.0365)**	**(0.0593)**	**(0.0376)**
DBKRT (U)	-0.0103	-0.0384*	-0.0462**	-0.0322
	(0.0201)	(0.0213)	(0.0204)	(0.0234)
DIV	**-0.124*** **	**-0.0206*** **	**-0.130*** **	**-0.0364*** **
	(0.0408)	**(0.00348)**	**(0.0281)**	**(0.00457)**
DIV (U)	-0.128***	-0.0205***	-0.126***	-0.0423***
	(0.0341)	(0.00448)	(0.0253)	(0.00336)
GDP	**-1.357*** **	**-0.325*** **	**-1.042*** **	**-0.159*** **
	(0.267)	**(0.0589)**	**(0.282)**	**(0.0542)**
GDP (U)	-0.919***	-0.279***	-0.874***	-0.134***
	(0.264)	(0.0703)	(0.204)	(0.0422)
CFMT	**-0.924*** **	**-0.117**	**0.215**	**0.285*** **
	(0.340)	**(0.114)**	**(0.448)**	**(0.112)**
CFMT (U)	-1.653***	-0.0613	-0.566**	0.0471
	(0.246)	(0.129)	(0.232)	(0.0432)
BOND	**-0.199*** **	**-0.0290*** **	**-0.176*** **	**-0.0342*** **
	(0.0216)	**(0.00534)**	**(0.0197)**	**(0.00514)**
BOND (U)	-0.177***	-0.00817	-0.184***	-0.0246***

	(0.0233)	(0.00605)	(0.0141)	(0.00432)
STK	**0.00259**	**-4.02e-06**	**0.0200**	**-0.00655***
	(0.0254)	**(0.00536)**	**(0.0175)**	**(0.00377)**
STK (U)	-0.00964	0.000553	0.0298**	-0.00123
	(0.0240)	(0.00544)	(0.0138)	(0.00301)
HH	**-0.389**	**0.0186**	**-4.870*** **	**-1.182*** **
	(2.184)	**(0.713)**	**(1.140)**	**(0.244)**
HH (U)	-3.589	-0.137	-5.405***	-1.139***
	(3.085)	(0.762)	(0.743)	(0.194)
Constant	-17.60**	1.477	-27.25**	-6.544**
	(7.697)	(2.553)	(11.02)	(3.166)
Observations	14,395	14,395	14,395	14,395
Number of groups	338	338	338	338

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7.6: SMEs Fixed Effect Regression Results based on Balanced Data

VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
SIZE	**1.853**	**0.607**	**35.00*** **	**4.454*** **
	(1.470)	**(0.889)**	**(4.952)**	**(0.428)**
SIZE (U)	7.747***	1.024	31.33***	3.968***
	(2.495)	(0.996)	(8.058)	(0.754)
GROWTH	**-0.580*** **	**0.0228**	**-1.402*** **	**-0.0585**
	(0.0832)	**(0.0296)**	**(0.439)**	**(0.0406)**
GROWTH (U)	-0.122***	-0.0394***	-0.107	-0.00898
	(0.0276)	(0.0146)	(0.0705)	(0.00801)
NDTS	**-0.111**	**-0.195*** **	**-0.0925**	**0.0435**
	(0.0726)	**(0.0243)**	**(0.284)**	**(0.0462)**
NDTS (U)	-0.0872	-0.0435*	-0.162	0.00285
	(0.0987)	(0.0237)	(0.186)	(0.0262)
ROE	**0.0523*** **	**-0.0129** **	**0.0863** **	**-0.0125*** **
	(0.0129)	**(0.00631)**	**(0.0349)**	**(0.00395)**
ROE (U)	-0.0182	-0.00182	-0.0949**	-0.0241***
	(0.0174)	(0.00732)	(0.0455)	(0.00697)
TANG	**-0.103*** **	**-0.0896*** **	**0.153***	**0.108*** **
	(0.0396)	**(0.0127)**	**(0.0908)**	**(0.0102)**
TANG (U)	0.156***	0.000577	0.340***	0.0864***
	(0.0269)	(0.0185)	(0.0665)	(0.00995)
TRATE	**-0.00863**	**-0.0434*** **	**-0.264*** **	**-0.0242*** **
	(0.0442)	**(0.0104)**	**(0.0878)**	**(0.00666)**
TRATE (U)	-0.0291	-0.0475***	-0.248***	-0.0158***
	(0.0414)	(0.00671)	(0.0647)	(0.00493)
LIQUIDITY	**-3.025*** **	**-1.002*** **	**-1.179*** **	**0.0450**
	(0.647)	**(0.139)**	**(0.376)**	**(0.0366)**
LIQUIDITY (U)	-1.654***	-0.356***	-0.678***	-0.0216**
	(0.275)	(0.0794)	(0.144)	(0.00866)
InTANG	**-0.0164**	**-0.201*** **	**0.194***	**0.0694*** **
	(0.0464)	**(0.0138)**	**(0.110)**	**(0.0157)**
InTANG (U)	0.0639	-0.117***	0.209**	0.0283**
	(0.0573)	(0.0186)	(0.0993)	(0.0124)
DBKRT	**-3.346*** **	**-4.087*** **	**0.991**	**0.648*** **
	(0.697)	**(0.233)**	**(1.183)**	**(0.182)**
DBKRT (U)	-2.448***	-3.267***	3.988*	0.418
	(0.686)	(0.242)	(2.089)	(0.312)
DIV	**-0.0450*** **	**-0.0281*** **	**-0.162*** **	**-0.0151*** **
	(0.0144)	**(0.00415)**	**(0.0223)**	**(0.00267)**
DIV (U)	-0.0647***	-0.0375***	-0.216***	-0.0184***
	(0.0153)	(0.00570)	(0.0375)	(0.00311)
GDP	**0.00752**	**0.0127*** **	**0.0589***	**0.00650**
	(0.00938)	**(0.00444)**	**(0.0306)**	**(0.00404)**
GDP (U)	-0.000960	0.00841	0.0173	0.00426
	(0.0157)	(0.00519)	(0.0396)	(0.00388)
CFMT	**-0.411**	**-0.888** **	**-5.276** **	**-0.0778**
	(0.810)	**(0.389)**	**(2.258)**	**(0.148)**
CFMT (U)	-1.980*	-1.135**	-4.974	-0.0968
	(1.202)	(0.497)	(3.362)	(0.245)
BOND	**-0.133*** **	**-0.159*** **	**-0.752*** **	**-0.0769*** **
	(0.0496)	**(0.0236)**	**(0.130)**	**(0.0125)**
BOND (U)	-0.192***	-0.117***	-0.591***	-0.0517***

	(0.0721)	(0.0263)	(0.187)	(0.0169)
STK	**0.0778**	**-0.00923**	**0.630*** **	**0.0692*** **
	(0.0781)	**(0.0279)**	**(0.178)**	**(0.0157)**
STK (U)	0.215*	0.0213	0.749**	0.0710***
	(0.116)	(0.0374)	(0.323)	(0.0265)
HH	**35.67*** **	**-0.304**	**-16.80**	**-6.465*** **
	(10.99)	**(2.669)**	**(10.44)**	**(1.543)**
HH (U)	31.40***	2.660**	2.934	-5.955***
	(8.712)	(1.236)	(17.74)	(1.355)
Constant	105.5***	42.98***	-75.02***	-24.44***
	(8.157)	(3.675)	(22.40)	(2.082)
Observations	11,640	11,640	11,640	11,640
Number of groups	303	303	303	303

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7. 7: AIM Leverage Measures Lagged Back 4 Quarters (1 Year)

VARIABLES	(5) STDMV	(6) STDBV	(7) LTDMV	(8) LTDBV
SIZE (LAG)	**5.312****	**-0.103**	**3.384****	**0.0539**
	(2.617)	**(0.275)**	**(1.506)**	**(0.233)**
SIZE	11.39***	-2.049***	10.49***	-1.108*
	(1.668)	(0.416)	(1.910)	(0.587)
GROWTH (LAG)	**0.00889**	**0.00407**	**0.000127**	**0.00146**
	(0.00968)	**(0.00389)**	**(0.00599)**	**(0.00304)**
GROWTH	-0.0169	0.00115	-0.0270**	-0.00219
	(0.0134)	(0.00434)	(0.0128)	(0.00326)
NDTS (LAG)	**-0.00560**	**0.0213****	**0.135*****	**0.0591*****
	(0.0511)	**(0.0107)**	**(0.0256)**	**(0.0117)**
NDTS	0.0630*	0.00273	0.109**	0.0491***
	(0.0377)	(0.0102)	(0.0429)	(0.0142)
ROE (LAG)	**0.00310*****	**0.000492****	**0.000464**	**-0.000103**
	(0.000388)	**(0.000210)**	**(0.000996)**	**(0.000226)**
ROE	0.000967	0.000285***	4.95e-05	-4.18e-05
	(0.000620)	(0.000102)	(0.000625)	(0.000147)
TANG (LAG)	**0.301*****	**0.0340*****	**0.331*****	**0.0703*****
	(0.0439)	**(0.00927)**	**(0.0481)**	**(0.0130)**
TANG	0.522***	0.0584***	0.470***	0.101***
	(0.0479)	(0.00713)	(0.0470)	(0.0112)
TRATE (LAG)	**-0.0866*****	**-0.0269*****	**0.0113**	**-0.00414**
	(0.0271)	**(0.00856)**	**(0.0494)**	**(0.00851)**
TRATE	0.0187	-0.0121	0.0858*	-0.00598
	(0.0468)	(0.00801)	(0.0463)	(0.0113)
LIQUIDITY (LAG)	**-0.0513***	**-0.00684**	**-0.0211**	**-0.00278**
	(0.0295)	**(0.00451)**	**(0.0179)**	**(0.00320)**
LIQUIDITY	-0.0864**	-0.0110**	-0.0505*	-0.00338
	(0.0396)	(0.00523)	(0.0264)	(0.00381)
InTANG (LAG)	**0.0993****	**0.0174****	**0.167*****	**0.0377*****
	(0.0404)	**(0.00675)**	**(0.0343)**	**(0.00711)**
InTANG	0.197***	0.00963**	0.161**	0.0408***
	(0.0581)	(0.00440)	(0.0663)	(0.0119)
DBKRT (LAG)	**0.0550**	**0.0627*****	**0.0631****	**0.0415***
	(0.0579)	**(0.00938)**	**(0.0264)**	**(0.0224)**
DBKRT	-0.0103	-0.0384*	-0.0462**	-0.0322
	(0.0201)	(0.0213)	(0.0204)	(0.0234)
DIV (LAG)	**-0.120*****	**-0.00697*****	**-0.0721*****	**-0.0174*****
	(0.0277)	**(0.00210)**	**(0.0233)**	**(0.00477)**
DIV	-0.128***	-0.0205***	-0.126***	-0.0423***
	(0.0341)	(0.00448)	(0.0253)	(0.00336)
GDP (LAG)	**0.629*****	**0.0394**	**0.900*****	**0.207*****
	(0.217)	**(0.0374)**	**(0.202)**	**(0.0546)**
GDP	-0.919***	-0.279***	-0.874***	-0.134***
	(0.264)	(0.0703)	(0.204)	(0.0422)
CFMT (LAG)	**0.282**	**0.187*****	**0.890*****	**0.256****
	(0.295)	**(0.0654)**	**(0.282)**	**(0.101)**
CFMT	-1.653***	-0.0613	-0.566**	0.0471

	(0.246)	(0.129)	(0.232)	(0.0432)
BOND (LAG)	**-0.112*** **	**-0.0216*** **	**-0.0860*** **	**-0.0191*** **
	(0.0242)	**(0.00547)**	**(0.0188)**	**(0.00551)**
BOND	-0.177***	-0.00817	-0.184***	-0.0246***
	(0.0233)	(0.00605)	(0.0141)	(0.00432)
STK (LAG)	**-0.00487**	**-0.00724***	**-0.0558*** **	**-0.00900***
	(0.0143)	**(0.00416)**	**(0.0150)**	**(0.00459)**
STK	-0.00964	0.000553	0.0298**	-0.00123
	(0.0240)	(0.00544)	(0.0138)	(0.00301)
HH (LAG)	**0.430**	**0.163**	**0.602**	**-0.644**
	(2.570)	**(0.418)**	**(0.950)**	**(0.486)**
HH	-3.589	-0.137	-5.405***	-1.139***
	(3.085)	(0.762)	(0.743)	(0.194)
Constant	24.01**	9.614***	17.94	9.772***
	(9.552)	(2.635)	(12.37)	(3.711)
Observations	17,556	17,556	17,556	17,556
Number of groups	510	510	510	510

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7.8: SMEs Explanatory Variables Measures Lagged Back 4 Quarters (1 Year)

VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
SIZE (LAG)	**8.253*** **	**2.801*** **	**24.92*** **	**3.509*** **
	(1.743)	**(0.497)**	**(5.266)**	**(0.466)**
SIZE	7.747***	1.024	31.33***	3.968***
	(2.495)	(0.996)	(8.058)	(0.754)
GROWTH (LAG)	**0.0330**	**0.0291*** **	**-0.0518**	**0.00909**
	(0.0574)	**(0.00879)**	**(0.0682)**	**(0.0118)**
GROWTH	-0.122***	-0.0394***	-0.107	-0.00898
	(0.0276)	(0.0146)	(0.0705)	(0.00801)
NDTS (LAG)	**-0.311*** **	**-0.138*** **	**-0.361* **	**-0.0547** **
	(0.0796)	**(0.0158)**	**(0.210)**	**(0.0213)**
NDTS	-0.0872	-0.0435*	-0.162	0.00285
	(0.0987)	(0.0237)	(0.186)	(0.0262)
ROE (LAG)	**-0.0379**	**-0.0145**	**0.0598**	**0.00457**
	(0.0319)	**(0.0116)**	**(0.0422)**	**(0.00424)**
ROE	-0.0182	-0.00182	-0.0949**	-0.0241***
	(0.0174)	(0.00732)	(0.0455)	(0.00697)
TANG (LAG)	**0.152*** **	**-0.0122**	**0.158**	**0.0302** **
	(0.0566)	**(0.0169)**	**(0.163)**	**(0.0142)**
TANG	0.156***	0.000577	0.340***	0.0864***
	(0.0269)	(0.0185)	(0.0665)	(0.00995)
TRATE (LAG)	**0.0189**	**-0.0149**	**0.0451**	**-0.000261**
	(0.0406)	**(0.00917)**	**(0.0379)**	**(0.00321)**
TRATE	-0.0291	-0.0475***	-0.248***	-0.0158***
	(0.0414)	(0.00671)	(0.0647)	(0.00493)
LIQUIDITY (LAG)	**-0.807*** **	**-0.186*** **	**-0.584*** **	**-0.0468*** **
	(0.197)	**(0.0432)**	**(0.103)**	**(0.00881)**
LIQUIDITY	-1.654***	-0.356***	-0.678***	-0.0216**
	(0.275)	(0.0794)	(0.144)	(0.00866)
InTANG (LAG)	**-0.0128**	**-0.0825*** **	**0.246** **	**0.0152* **
	(0.0631)	**(0.00978)**	**(0.121)**	**(0.00905)**
InTANG	0.0639	-0.117***	0.209**	0.0283**
	(0.0573)	(0.0186)	(0.0993)	(0.0124)
DBKRT (LAG)	**-0.0413**	**-1.239** **	**1.231**	**-0.0153**
	(0.801)	**(0.543)**	**(1.583)**	**(0.0826)**
DBKRT	-2.448***	-3.267***	3.988*	0.418
	(0.686)	(0.242)	(2.089)	(0.312)
DIV (LAG)	**-0.0244** **	**-0.00751** **	**-0.122*** **	**-0.00728*** **
	(0.0118)	**(0.00337)**	**(0.0189)**	**(0.00136)**
DIV	-0.0647***	-0.0375***	-0.216***	-0.0184***
	(0.0153)	(0.00570)	(0.0375)	(0.00311)
GDP (LAG)	**-0.0186**	**0.00630**	**-0.0456**	**0.000538**
	(0.0215)	**(0.00593)**	**(0.0312)**	**(0.00257)**
GDP	-0.000960	0.00841	0.0173	0.00426
	(0.0157)	(0.00519)	(0.0396)	(0.00388)
CFMT (LAG)	**-3.165*** **	**-1.278*** **	**-3.327* **	**-0.310** **
	(0.733)	**(0.363)**	**(1.718)**	**(0.143)**
CFMT	-1.980*	-1.135**	-4.974	-0.0968

	(1.202)	(0.497)	(3.362)	(0.245)
BOND (LAG)	**-0.0737**	**-0.0939*** **	**-0.104**	**-0.0377*** **
	(0.0485)	**(0.0227)**	**(0.0997)**	**(0.00554)**
BOND	-0.192***	-0.117***	-0.591***	-0.0517***
	(0.0721)	(0.0263)	(0.187)	(0.0169)
STK (LAG)	**0.000226**	**-0.0165**	**-0.0501**	**-0.0446*** **
	(0.0658)	**(0.0370)**	**(0.136)**	**(0.00787)**
STK	0.215*	0.0213	0.749**	0.0710***
	(0.116)	(0.0374)	(0.323)	(0.0265)
HH (LAG)	**8.983**	**-1.036**	**-27.72** **	**-2.186* **
	(11.40)	**(1.855)**	**(12.76)**	**(1.204)**
HH	31.40***	2.660**	2.934	-5.955***
	(8.712)	(1.236)	(17.74)	(1.355)
Constant	48.23***	-0.574	-22.60	-13.72***
	(16.37)	(9.202)	(31.30)	(2.840)
Observations	22,541	22,541	22,541	22,541
Number of groups	756	756	756	756

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7.9: AIM Leverage Measures Lead Forward 4 Quarters (1 Year)

VARIABLES	(1) STDMV+1	(2) STDBV+1	(3) LTDMV+1	(4) LTDBV+1
SIZE (LEAD)	**9.330***	**0.328**	**5.727***	**0.0761**
	(2.230)	**(0.254)**	**(1.356)**	**(0.364)**
SIZE	11.39***	-2.049***	10.49***	-1.108*
	(1.668)	(0.416)	(1.910)	(0.587)
GROWTH (LEAD)	**0.00605**	**0.00270**	**0.000735**	**0.00150**
	(0.00893)	**(0.00409)**	**(0.00618)**	**(0.00319)**
GROWTH	-0.0169	0.00115	-0.0270**	-0.00219
	(0.0134)	(0.00434)	(0.0128)	(0.00326)
NDTS (LEAD)	**-0.00670**	**0.0201**	**0.128***	**0.0553***
	(0.0447)	**(0.0123)**	**(0.0245)**	**(0.0134)**
NDTS	0.0630*	0.00273	0.109**	0.0491***
	(0.0377)	(0.0102)	(0.0429)	(0.0142)
ROE (LEAD)	**0.00206**	**0.000277**	**0.00126**	**0.000114**
	(0.000838)	**(0.000198)**	**(0.000817)**	**(0.000227)**
ROE	0.000967	0.000285***	4.95e-05	-4.18e-05
	(0.000620)	(0.000102)	(0.000625)	(0.000147)
TANG (LEAD)	**0.368***	**0.0504***	**0.371***	**0.0836***
	(0.0485)	**(0.00658)**	**(0.0664)**	**(0.0129)**
TANG	0.522***	0.0584***	0.470***	0.101***
	(0.0479)	(0.00713)	(0.0470)	(0.0112)
TRATE (LEAD)	**-0.0992***	**-0.0315***	**0.0190**	**-0.0140***
	(0.0379)	**(0.00743)**	**(0.0548)**	**(0.00842)**
TEATE	0.0187	-0.0121	0.0858*	-0.00598
	(0.0468)	(0.00801)	(0.0463)	(0.0113)
LIQUIDITY (LEAD)	**-0.0566***	**-0.00697**	**-0.0244**	**-0.00283**
	(0.0327)	**(0.00477)**	**(0.0195)**	**(0.00344)**
LIQUIDITY	-0.0864**	-0.0110**	-0.0505*	-0.00338
	(0.0396)	(0.00523)	(0.0264)	(0.00381)
InTANG (LEAD)	**0.103***	**0.0209***	**0.167***	**0.0402***
	(0.0544)	**(0.00972)**	**(0.0431)**	**(0.0106)**
InTANG	0.197***	0.00963**	0.161**	0.0408***
	(0.0581)	(0.00440)	(0.0663)	(0.0119)
DBKRT (LEAD)	**0.0113**	**0.0329**	**0.0474***	**0.0323***
	(0.0568)	**(0.0213)**	**(0.0221)**	**(0.0183)**
DBKRT	-0.0103	-0.0384*	-0.0462**	-0.0322
	(0.0201)	(0.0213)	(0.0204)	(0.0234)
DIV (LEAD)	**-0.129***	**-0.0126***	**-0.107***	**-0.0265***
	(0.0312)	**(0.00406)**	**(0.0156)**	**(0.00533)**
DIV	-0.128***	-0.0205***	-0.126***	-0.0423***
	(0.0341)	(0.00448)	(0.0253)	(0.00336)
GDP (LEAD)	**0.589***	**0.0314**	**0.920***	**0.221***
	(0.229)	**(0.0399)**	**(0.209)**	**(0.0557)**
GDP	-0.919***	-0.279***	-0.874***	-0.134***
	(0.264)	(0.0703)	(0.204)	(0.0422)
CFMT (LEAD)	**-0.0744**	**0.109**	**0.689***	**0.164**
	(0.362)	**(0.0686)**	**(0.186)**	**(0.113)**
CFMT	-1.653***	-0.0613	-0.566**	0.0471

	(0.246)	(0.129)	(0.232)	(0.0432)
BOND (LEAD)	**-0.159******	**-0.0277******	**-0.117******	**-0.0268******
	(0.0239)	**(0.00480)**	**(0.0133)**	**(0.00513)**
BOND	-0.177***	-0.00817	-0.184***	-0.0246***
	(0.0233)	(0.00605)	(0.0141)	(0.00432)
STK (LEAD)	**0.00637**	**-0.00363**	**-0.0413******	**-0.00607**
	(0.0135)	**(0.00384)**	**(0.0117)**	**(0.00379)**
STK	-0.00964	0.000553	0.0298**	-0.00123
	(0.0240)	(0.00544)	(0.0138)	(0.00301)
HH (LEAD)	**-0.892**	**0.175**	**-0.278**	**-1.261******
	(2.847)	**(0.442)**	**(1.421)**	**(0.242)**
HH	-3.589	-0.137	-5.405***	-1.139***
	(3.085)	(0.762)	(0.743)	(0.194)
Constant	18.28*	2.096	14.45**	2.678
	(10.89)	(1.870)	(6.054)	(2.924)
Observations	17,556	17,556	17,556	17,556
Number of groups	510	510	510	510

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7. 10: SMEs Leverage Measures Lead Forward 4 Quarters (1 Year)

VARIABLES	(1) STDMV	(2) STDBV	(3) LTDMV	(4) LTDBV
SIZE (LEAD)	**10.04*** **	**3.435*** **	**27.25*** **	**3.740*** **
	(1.083)	**(0.496)**	**(5.172)**	**(0.392)**
SIZE	7.747***	1.024	31.33***	3.968***
	(2.495)	(0.996)	(8.058)	(0.754)
GROWTH (LEAD)	**0.0369**	**0.0261*** **	**-0.0861**	**0.00453**
	(0.0589)	**(0.00892)**	**(0.0713)**	**(0.0112)**
GROWTH	-0.122***	-0.0394***	-0.107	-0.00898
	(0.0276)	(0.0146)	(0.0705)	(0.00801)
NDTS (LEAD)	**-0.299*** **	**-0.129*** **	**-0.224**	**-0.0314**
	(0.0834)	**(0.0163)**	**(0.216)**	**(0.0218)**
NDTS	-0.0872	-0.0435*	-0.162	0.00285
	(0.0987)	(0.0237)	(0.186)	(0.0262)
ROE (LEAD)	**-0.00632**	**-0.00859**	**0.0304**	**0.00361**
	(0.0244)	**(0.0118)**	**(0.0529)**	**(0.00463)**
ROE	-0.0182	-0.00182	-0.0949**	-0.0241***
	(0.0174)	(0.00732)	(0.0455)	(0.00697)
TANG (LEAD)	**0.193*** **	**-0.00270**	**0.327*** **	**0.0450*** **
	(0.0519)	**(0.0158)**	**(0.107)**	**(0.00858)**
TANG	0.156***	0.000577	0.340***	0.0864***
	(0.0269)	(0.0185)	(0.0665)	(0.00995)
TRATE (LEAD)	**0.0321**	**-0.0143***	**0.0607**	**0.000625**
	(0.0395)	**(0.00823)**	**(0.0374)**	**(0.00275)**
TRATE	-0.0291	-0.0475***	-0.248***	-0.0158***
	(0.0414)	(0.00671)	(0.0647)	(0.00493)
LIQUIDITY (LEAD)	**-0.811*** **	**-0.201*** **	**-0.557*** **	**-0.0451*** **
	(0.197)	**(0.0463)**	**(0.0982)**	**(0.00901)**
LIQUIDITY	-1.654***	-0.356***	-0.678***	-0.0216**
	(0.275)	(0.0794)	(0.144)	(0.00866)
InTANG (LAED)	**0.00343**	**-0.0853*** **	**0.360*** **	**0.0241***
	(0.0657)	**(0.0113)**	**(0.106)**	**(0.0100)**
InTANG	0.0639	-0.117***	0.209**	0.0283**
	(0.0573)	(0.0186)	(0.0993)	(0.0124)
DBKRT (LEAD)	**-0.281**	**-1.313***	**2.660***	**0.0519**
	(0.939)	**(0.641)**	**(1.516)**	**(0.0832)**
DBKRT	-2.448***	-3.267***	3.988*	0.418
	(0.686)	(0.242)	(2.089)	(0.312)
DIV (LAED)	**-0.0254***	**-0.00746***	**-0.113*** **	**-0.00559*** **
	(0.0107)	**(0.00328)**	**(0.0229)**	**(0.00201)**
DIV	-0.0647***	-0.0375***	-0.216***	-0.0184***
	(0.0153)	(0.00570)	(0.0375)	(0.00311)
GDP (LEAD)	**-0.0163**	**0.00703**	**-0.0461**	**0.000706**
	(0.0215)	**(0.00668)**	**(0.0318)**	**(0.00241)**
GDP	-0.000960	0.00841	0.0173	0.00426
	(0.0157)	(0.00519)	(0.0396)	(0.00388)
CFMT (LEAD)	**-3.212*** **	**-1.532*** **	**-3.822***	**-0.383*** **
	(0.790)	**(0.440)**	**(1.743)**	**(0.113)**
CFMT	-1.980*	-1.135**	-4.974	-0.0968

	(1.202)	(0.497)	(3.362)	(0.245)
BOND (LEAD)	**-0.0934***	**-0.0942*****	**-0.0814**	**-0.0384*****
	(0.0549)	**(0.0298)**	**(0.136)**	**(0.00692)**
BOND	-0.192***	-0.117***	-0.591***	-0.0517***
	(0.0721)	(0.0263)	(0.187)	(0.0169)
STK (LEAD)	**-5.85e-05**	**-0.0173**	**-0.0373**	**-0.0430*****
	(0.0716)	**(0.0437)**	**(0.148)**	**(0.00837)**
STK	0.215*	0.0213	0.749**	0.0710***
	(0.116)	(0.0374)	(0.323)	(0.0265)
HH (LEAD)	**30.01*****	**1.753**	**-19.80**	**-2.870****
	(7.492)	**(1.410)**	**(15.24)**	**(1.321)**
HH	31.40***	2.660**	2.934	-5.955***
	(8.712)	(1.236)	(17.74)	(1.355)
Constant	48.23***	-0.574	-22.60	-13.72***
	(16.37)	(9.202)	(31.30)	(2.840)
Observations	22,541	22,541	22,541	22,541
Number of groups	756	756	756	756

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Part 3: Panel Regression Analysis Results

Table 6.22: Time Dummy Effect in AIM

Year	(1) STMV	(2) STBV	(3) LTMV	(4) LTBV
2007Q1	5.790	1.156	3.432	-5.289
	(24.49)	(3.537)	(24.66)	(4.599)
2007Q2	10.48	2.211	-0.266	-6.916
	(28.57)	(4.233)	(28.10)	(5.295)
2007Q3	3.264	-0.395	7.699	-3.097
	(20.67)	(2.850)	(21.05)	(3.857)
2007Q4	11.83	2.211	-1.158	-7.231
	(29.46)	(4.435)	(28.78)	(5.453)
2008Q1	5.815	4.814	-18.25	-6.835
	(28.12)	(4.380)	(28.61)	(6.046)
2008Q2	11.15	4.806	-16.35	-6.796
	(28.89)	(4.422)	(29.13)	(6.099)
2008Q3	7.454	2.150	-5.631	-2.182
	(19.13)	(2.765)	(19.62)	(4.050)
2008Q4	8.198	1.269	-0.353	-0.438
	(16.37)	(2.506)	(16.54)	(3.477)
2009Q1	2.544	-3.563	23.35**	4.370
	(13.41)	(3.066)	(11.86)	(2.879)
2009Q2	-5.017	-4.096	22.98*	5.723*
	(15.06)	(3.292)	(12.55)	(3.029)
2009Q3	-8.601	-4.456	20.50	5.312*
	(15.09)	(3.248)	(12.55)	(2.997)
2009Q4	-10.47	-4.766	22.27	6.568*
	(17.61)	(3.707)	(14.70)	(3.463)
2010Q1	-8.179	-5.553	22.38	5.766
	(16.29)	(3.548)	(14.31)	(3.571)
2010Q2	-7.558	-5.061	21.71	5.339
	(15.42)	(3.256)	(13.60)	(3.341)
2010Q3	-3.316	-4.170	19.44*	4.151
	(11.17)	(2.533)	(10.23)	(2.650)
2010Q4	-3.153	-4.884*	21.49*	5.014*
	(12.65)	(2.925)	(11.56)	(3.036)
2011Q1	-10.20	-4.748*	15.17	4.759*
	(13.81)	(2.823)	(11.80)	(2.707)
2011Q2	-8.181	-5.303*	16.70	5.377*
	(14.38)	(3.092)	(12.37)	(2.964)
2011Q3	-6.256	-4.189*	12.38	3.806*
	(10.65)	(2.335)	(9.254)	(2.199)
2011Q4	-3.953	-3.661*	11.33	3.273*
	(8.922)	(2.029)	(7.819)	(1.897)
2012Q1	-2.055	-1.649	4.753	1.610
	(5.211)	(1.141)	(4.577)	(1.015)
2012Q2	-4.562	-3.193	9.416	3.681*
	(9.873)	(2.226)	(8.602)	(2.036)
2012Q3	-9.268	-3.037	7.548	3.670*
	(12.35)	(2.313)	(10.69)	(2.187)
2012Q4	-2.505	-2.634	7.724	2.831
	(8.232)	(1.915)	(7.219)	(1.738)
2013Q1	-8.179	-5.049	19.05	5.387*
	(14.76)	(3.090)	(13.57)	(3.231)
2013Q2	-8.157	-4.805*	17.58	4.852*
	(12.95)	(2.780)	(12.05)	(2.927)

2013Q3	-3.392	-2.571**	10.50**	1.639
	(4.971)	(1.172)	(5.323)	(1.346)
2013Q4	-3.494	-2.867**	10.64*	1.922
	(5.217)	(1.284)	(5.534)	(1.436)
2014Q1	0.450	-0.386	0.340	-0.667
	(2.770)	(0.479)	(2.854)	(0.618)
2014Q2	-1.052	-0.912*	2.328	0.208
	(2.221)	(0.526)	(2.413)	(0.559)
2014Q3	-0.525	-0.803	2.884	0.339
	(2.271)	(0.564)	(2.360)	(0.594)
20147Q4	-0.379	-0.551	2.377	-0.0550
	(1.923)	(0.451)	(2.082)	(0.511)
2015Q1	3.836	0.932	-2.672	-1.936*
	(5.789)	(0.933)	(5.320)	(1.137)
2015Q2	2.105	0.664	-1.461	-1.306
	(3.907)	(0.659)	(3.568)	(0.827)
2015Q3	-1.058	-0.715	1.488	0.311
	(2.237)	(0.518)	(1.937)	(0.454)
2015Q4	-0.261	-0.0349	-0.822	-0.441
	(1.646)	(0.320)	(1.555)	(0.402)
2016Q1	0.00817	-0.745	2.706	0.916*
	(2.490)	(0.608)	(2.160)	(0.527)
2016Q2	2.422	-0.305	1.718	0.419
	(1.504)	(0.359)	(1.390)	(0.296)
2016Q3	1.946	0.451	-0.433	-0.547
	(2.258)	(0.346)	(2.131)	(0.406)
2016Q4	-	-	-	-
2017Q1	-	-	-	-
2017Q2	-	-	-	-
2017Q3	-	-	-	-
2017Q4	-	-	-	-
Constant	135.4	44.97	-73.75	-42.76
	(159.0)	(29.61)	(133.7)	(27.23)
Observations	18,703	18,703	18,703	18,703
R-squared	0.062	0.049	0.048	0.047
Number of Firm	510	510	510	510

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6. 23: Time Dummy Effect on SMEs Board

Year	(1) STMV	(2) STBV	(3) LTMV	(4) LTBV
2007Q1	-2.433	-1.110	20.56*	3.969***
	(6.193)	(1.691)	(11.04)	(1.368)
2007Q2	-1.982	-1.225	17.54	3.808***
	(6.194)	(1.687)	(11.02)	(1.366)
2007Q3	-2.986	-1.151	15.17	3.736***
	(6.218)	(1.685)	(11.01)	(1.359)
2007Q4	-4.428	-1.195	11.19	3.584***
	(6.232)	(1.679)	(11.00)	(1.349)
2008Q1	20.07***	8.610***	41.32***	1.987***
	(4.312)	(1.191)	(7.146)	(0.762)
2008Q2	20.73***	8.436***	41.32***	1.912**
	(4.317)	(1.202)	(7.164)	(0.762)
2008Q3	20.08***	8.229***	39.92***	1.982***
	(4.388)	(1.195)	(7.104)	(0.757)
2008Q4	20.60***	8.128***	39.70***	2.004***
	(4.400)	(1.197)	(7.066)	(0.757)
2009Q1	10.92***	4.506***	34.64***	2.839***
	(2.017)	(0.565)	(3.610)	(0.435)
2009Q2	11.25***	4.503***	34.88***	2.831***
	(2.023)	(0.560)	(3.597)	(0.435)
2009Q3	10.78***	4.542***	34.59***	2.845***
	(2.021)	(0.556)	(3.572)	(0.434)
2009Q4	10.53***	4.352***	32.76***	2.775***
	(2.007)	(0.548)	(3.525)	(0.428)
2010Q1	8.182***	3.442***	28.92***	1.732***
	(1.923)	(0.520)	(3.502)	(0.402)
2010Q2	7.289***	3.238***	27.00***	1.689***
	(1.950)	(0.510)	(3.431)	(0.394)
2010Q3	6.248***	2.948***	24.42***	1.597***
	(1.965)	(0.509)	(3.410)	(0.389)
2010Q4	4.958**	2.718***	22.14***	1.542***
	(1.964)	(0.508)	(3.395)	(0.385)
2011Q1	10.94***	4.932***	21.98***	0.582
	(2.992)	(0.745)	(5.427)	(0.583)
2011Q2	11.48***	4.734***	21.35***	0.551
	(2.985)	(0.750)	(5.451)	(0.584)
2011Q3	11.73***	4.754***	20.67***	0.540
	(2.976)	(0.754)	(5.488)	(0.585)
2011Q4	11.80***	4.640***	20.23***	0.509
	(2.983)	(0.756)	(5.490)	(0.585)
2012Q1	9.114***	4.542***	18.12***	0.514
	(3.129)	(0.783)	(5.874)	(0.631)
2012Q2	9.803***	4.457***	17.98***	0.445
	(3.133)	(0.787)	(5.909)	(0.633)
2012Q3	9.364***	4.481***	17.53***	0.450
	(3.138)	(0.780)	(5.865)	(0.631)
2012Q4	9.482***	4.452***	17.46***	0.438
	(3.126)	(0.780)	(5.844)	(0.631)
2013Q1	8.378**	4.426***	20.61***	0.715
	(3.286)	(0.815)	(6.150)	(0.670)
2013Q2	8.939***	4.394***	21.05***	0.700
	(3.287)	(0.817)	(6.163)	(0.671)
2013Q3	8.815***	4.398***	20.96***	0.702

	(3.287)	(0.817)	(6.165)	(0.671)
2013Q4	8.574***	4.408***	20.74***	0.702
	(3.283)	(0.814)	(6.164)	(0.671)
2014Q1	5.406***	2.174***	10.74***	0.377
	(1.919)	(0.478)	(3.656)	(0.389)
2014Q2	5.983***	2.117***	10.98***	0.350
	(1.912)	(0.477)	(3.647)	(0.389)
2014Q3	5.557***	2.148***	10.76***	0.362
	(1.905)	(0.470)	(3.615)	(0.388)
20147Q4	4.971***	2.167***	10.35***	0.372
	(1.900)	(0.464)	(3.605)	(0.389)
2015Q1	0.745***	-0.0834	1.112*	0.0117
	(0.280)	(0.0856)	(0.634)	(0.0306)
2015Q2	0.103	-0.0469	0.152	-0.00725
	(0.169)	(0.0475)	(0.462)	(0.0299)
2015Q3	-1.034***	0.0273	-1.102***	-0.00239
	(0.117)	(0.0303)	(0.217)	(0.0119)
2015Q4	-	-	-	-
2016Q1	-0.920***	-0.00199	-0.840*	0.00677
	(0.236)	(0.0275)	(0.466)	(0.0149)
2016Q2	0.329***	-0.0330	0.351*	-0.00389
	(0.0690)	(0.0224)	(0.182)	(0.0133)
2016Q3	-0.117**	0.00117	0.0255	0.000772
	(0.0498)	(0.00438)	(0.118)	(0.00109)
2016Q4	-	-	-	-
2017Q1	-0.626***	0.0426***	-0.345	0.0157
	(0.138)	(0.0159)	(0.342)	(0.0123)
2017Q2	-	-	-	-
2017Q3	-	-	-	-
2017Q4	-	-	-	-
Constant	-35.74	-10.59	-306.7***	-37.16***
	(35.96)	(10.52)	(57.22)	(7.910)
Observations	25,122	25,122	25,122	25,122
R-squared	0.162	0.214	0.107	0.107
Number of Firm	759	759	759	759

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Part 4: Non-Linear Relationship in AIM and SMEs Board

Figure 1: Firm Size and Short Term Leverage Market Value

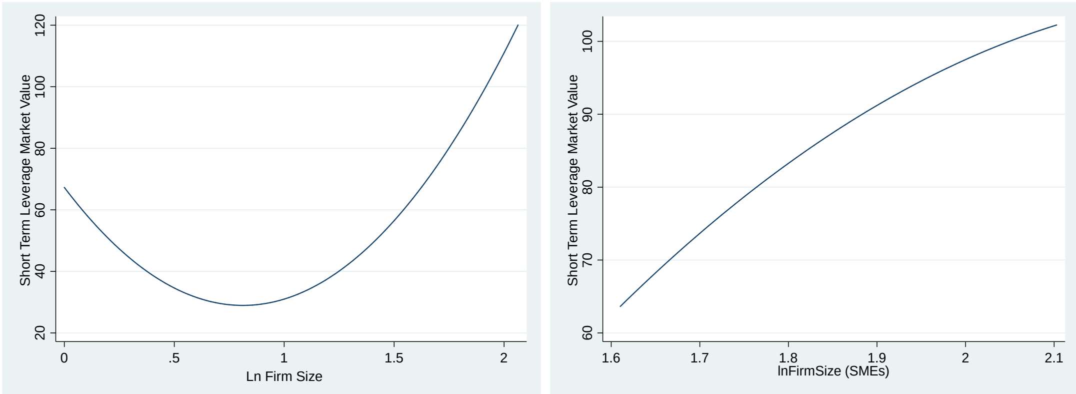


Figure 2: Growth Opportunities and Short Term Leverage Market Value

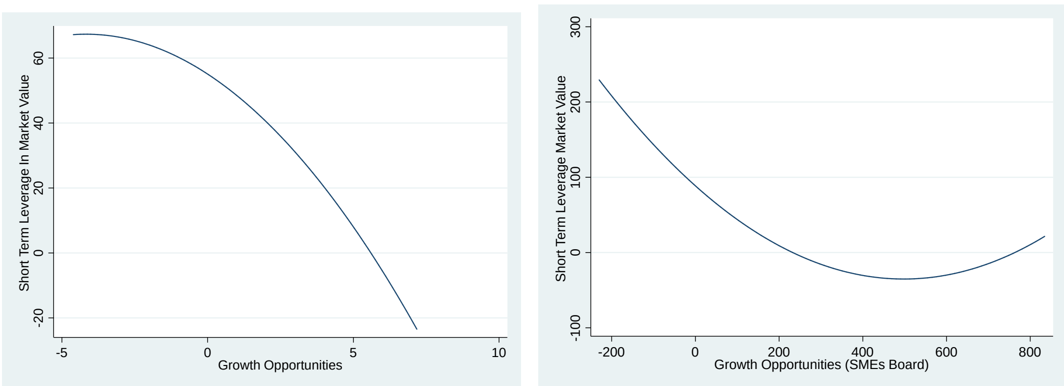


Figure 3: Non debt tax shield and Short Term Leverage Market Value

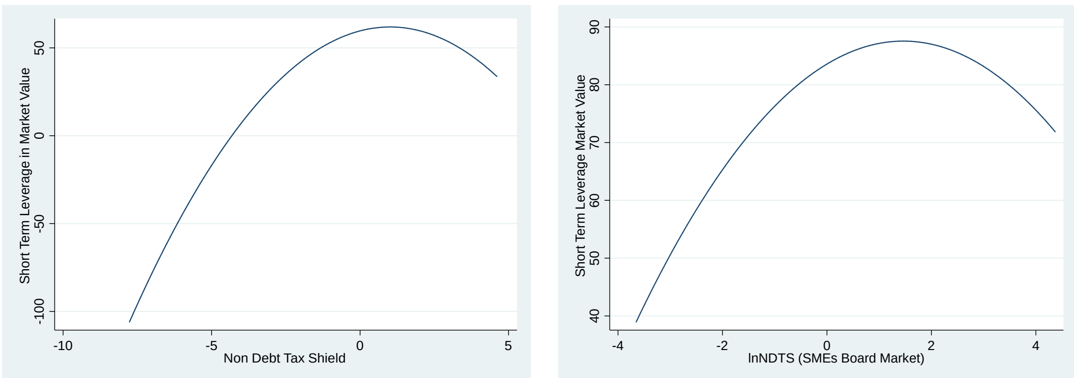


Figure 4: Profitability and Short Term Leverage Market Value

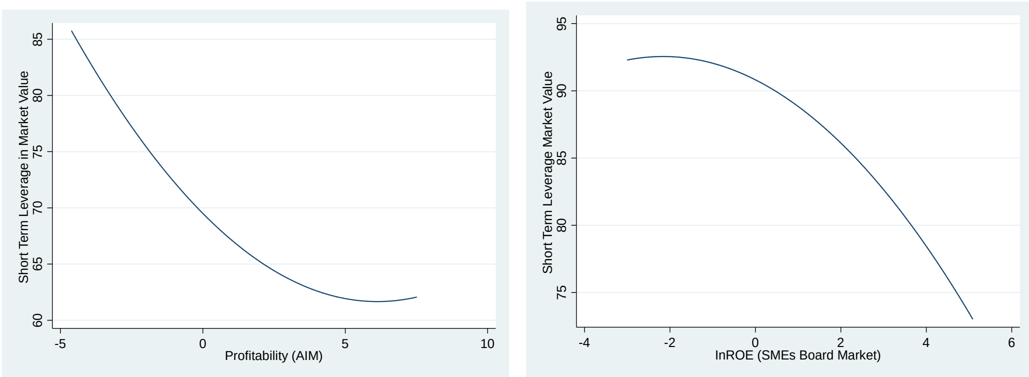


Figure 5: Intangibility and Short Term Leverage Market Value

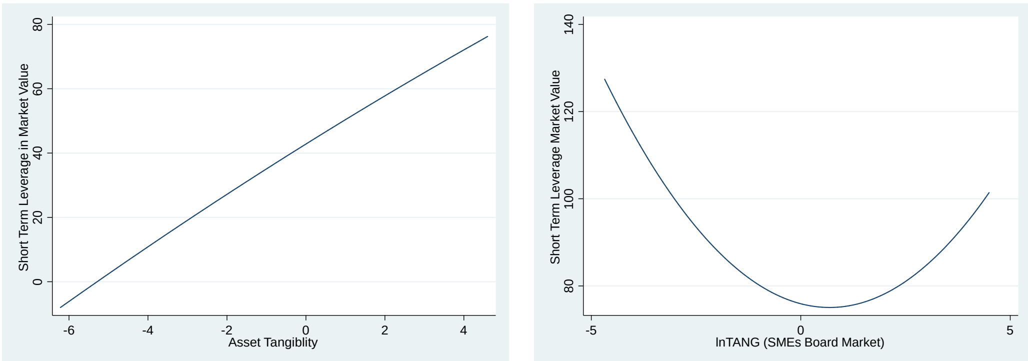


Figure 6: Effective tax rate and Short Term Leverage Market Value

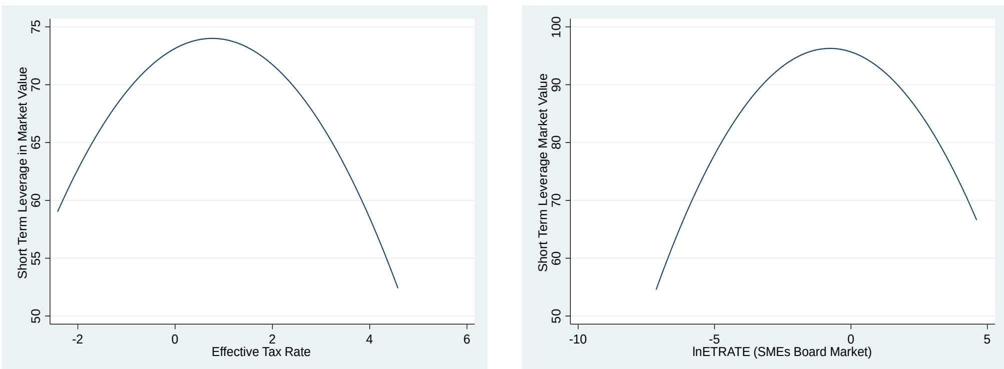


Figure 7: Liquidity and Short Term Leverage Market Value

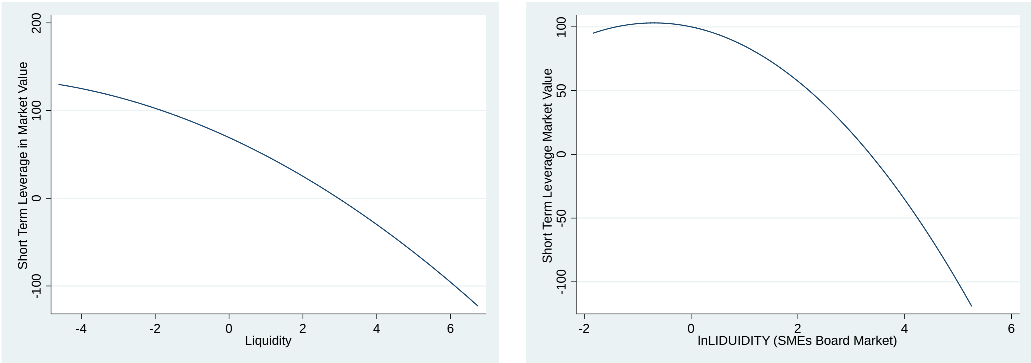


Figure 8: Intangibility and Short Term Leverage Market Value

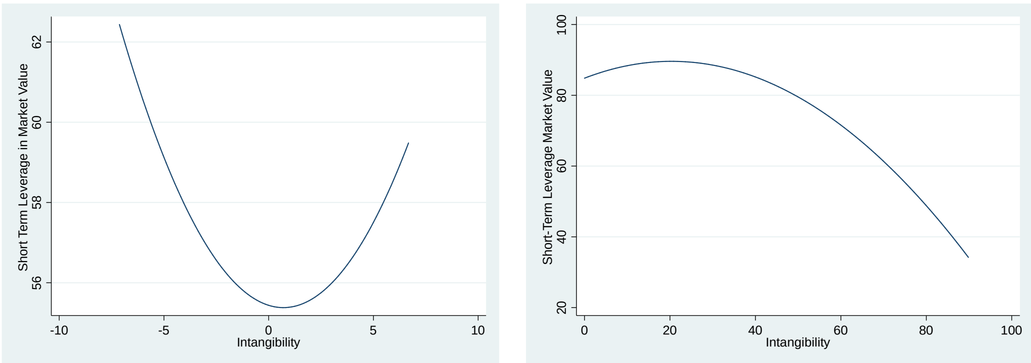


Figure 9: Distance from bankruptcy and Short Term Leverage Market Value

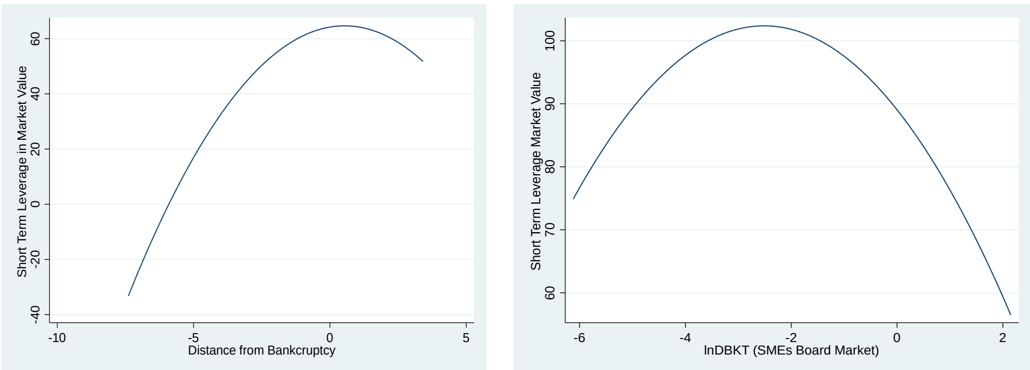


Figure 10: Dividend and Short Term Leverage Market Value

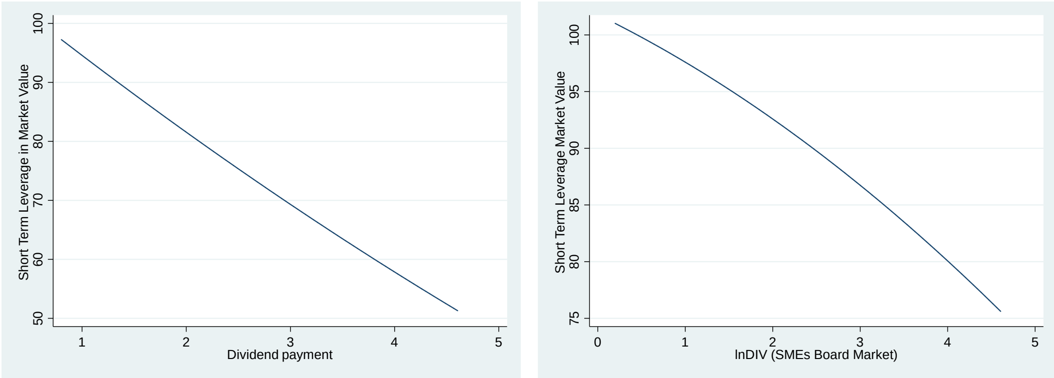


Figure 11: SIZE and Short Term Leverage Book Value

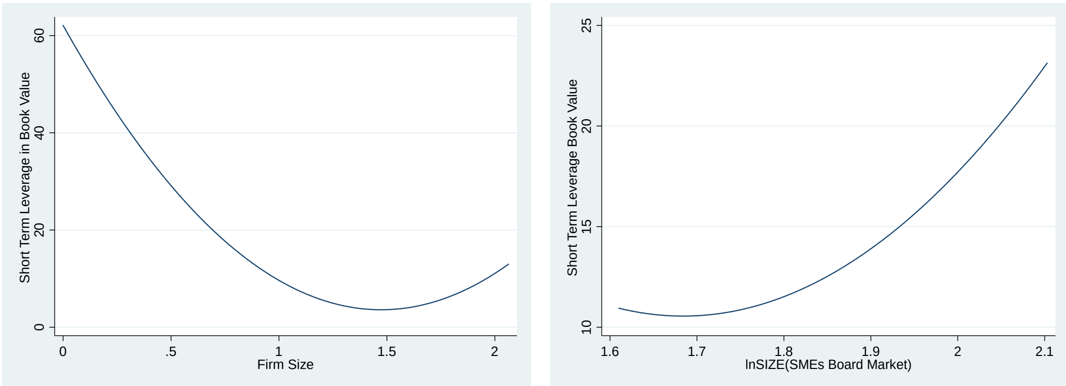


Figure 12: Growth opportunities and Short Term Leverage Book Value

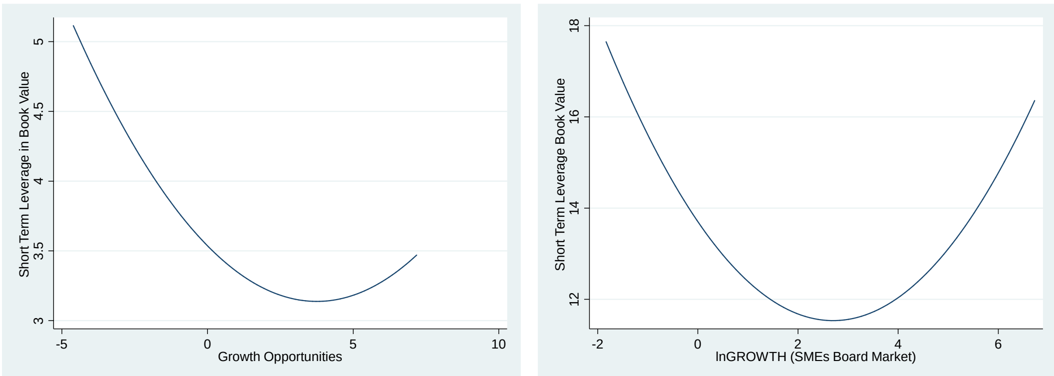


Figure 13: Non-debt tax shield and Short Term Leverage Book Value

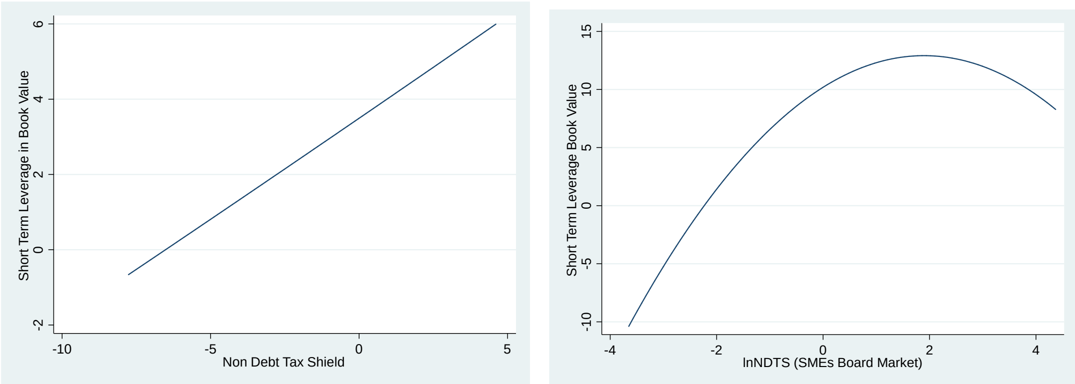


Figure 14: Profitability and Short Term Leverage Book Value

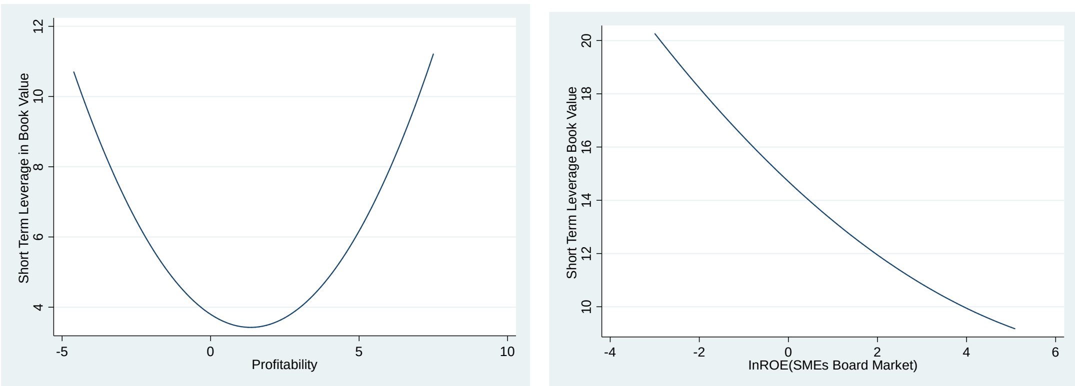


Figure 15: Tangibility and Short Term Leverage Book Value

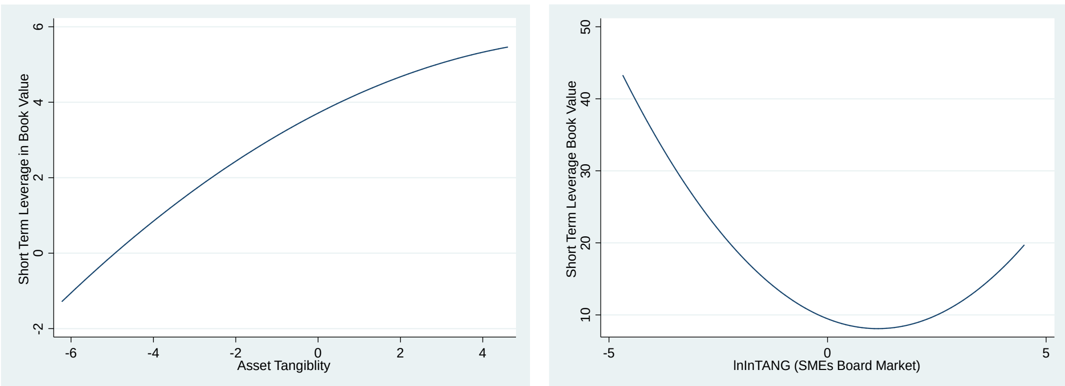


Figure 16: Effective tax rate and Short Term Leverage Book Value

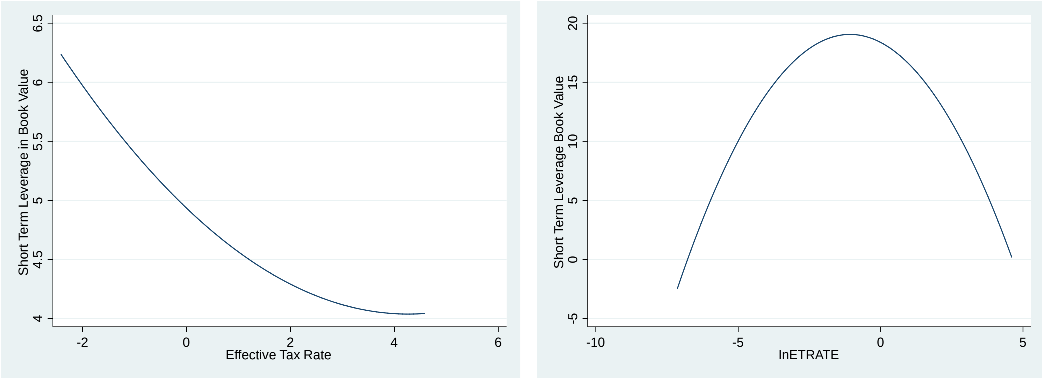


Figure 17: Liquidity and Short Term Leverage Book Value

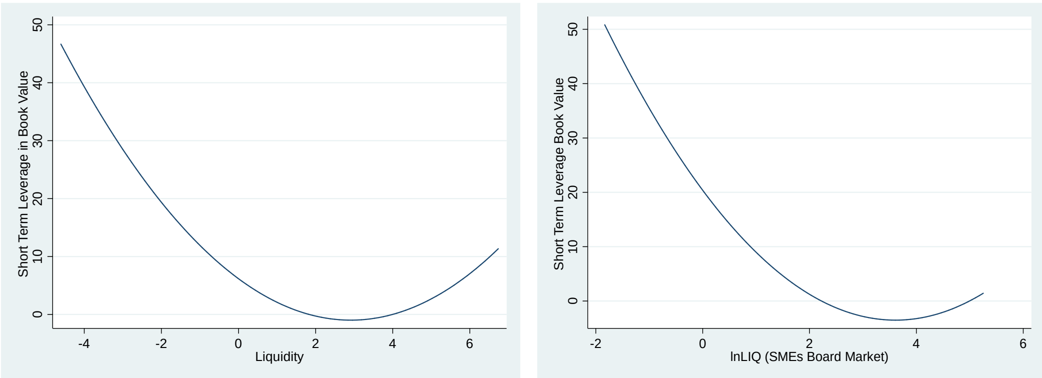


Figure 18: Intangibility and Short Term Leverage Book Value

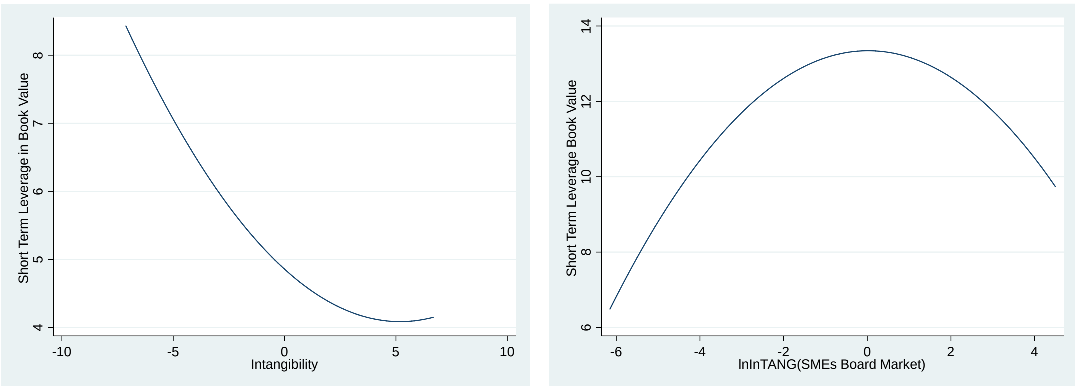


Figure 19: Distance from bankruptcy and Short Term Leverage Book Value

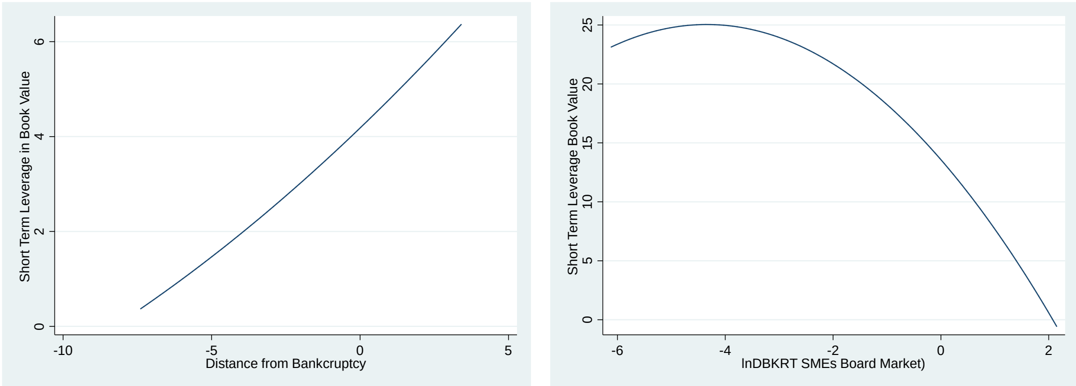


Figure 20: Dividend pay-out ratio and Short Term Leverage Book Value

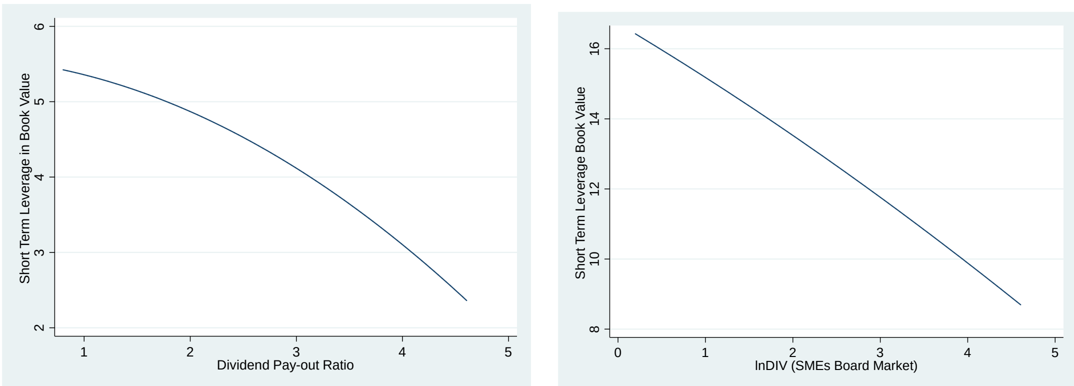


Figure 21: SIZE and Long Term Leverage Market Value

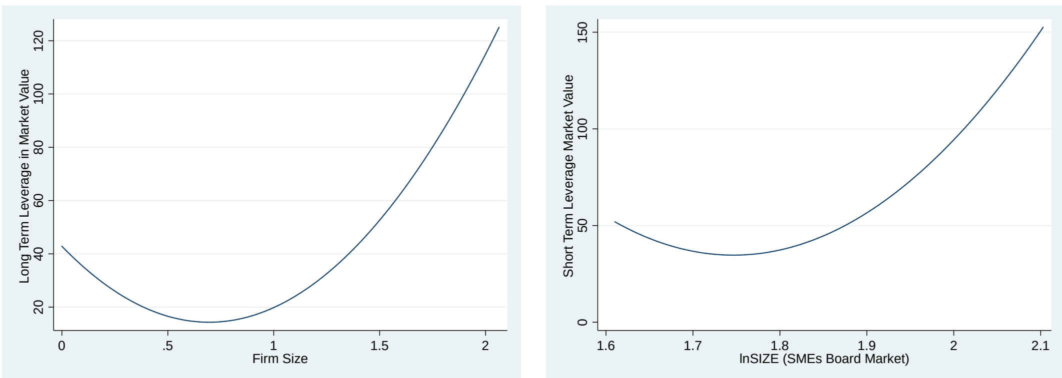


Figure 22: Growth opportunities and Long Term Leverage Market Value

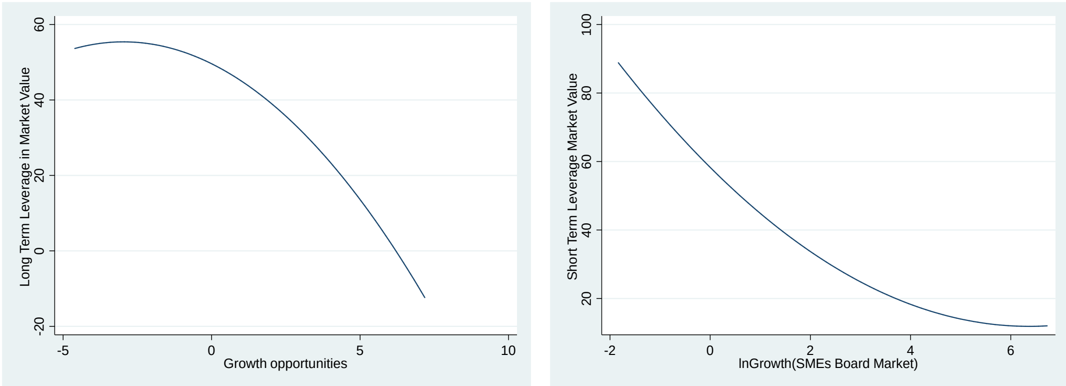


Figure 23: Non-debt tax shield and Long Term Leverage Market Value

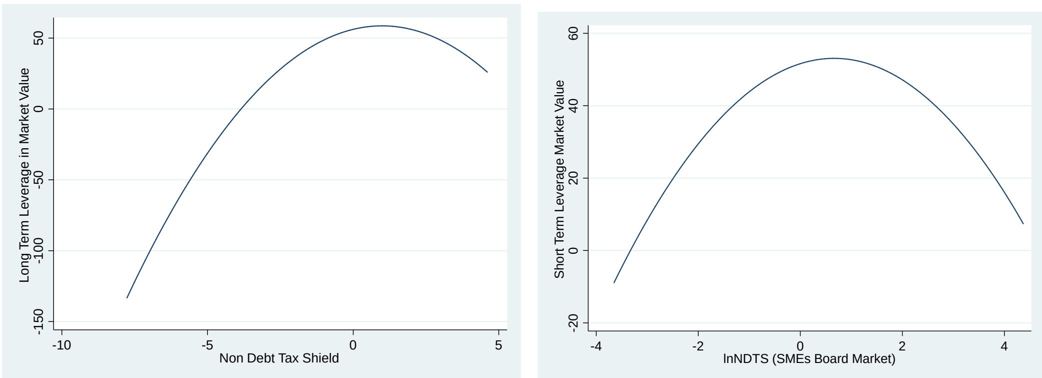


Figure 24: Profitability and Long Term Leverage Market Value

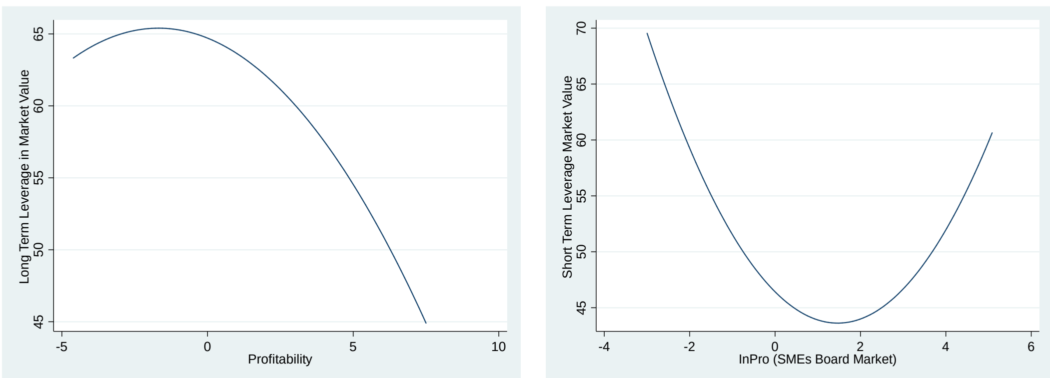


Figure 25: Tangibility and Long Term Leverage Market Value

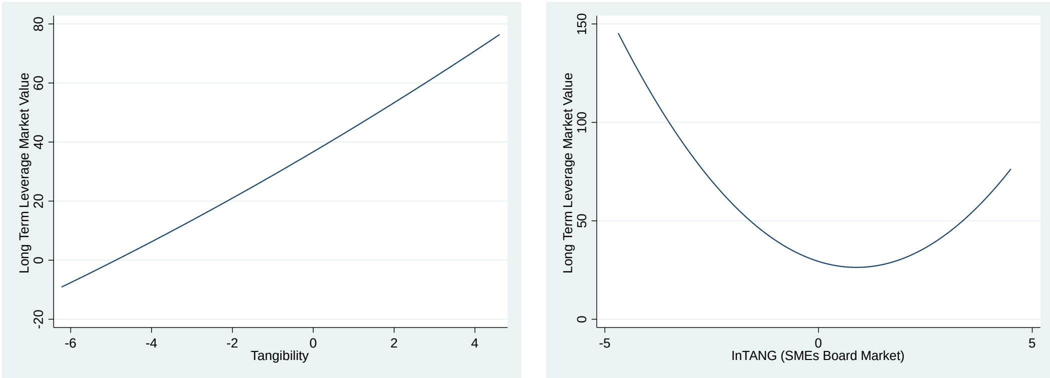


Figure 26: Effective tax rate and Long Term Leverage Market Value

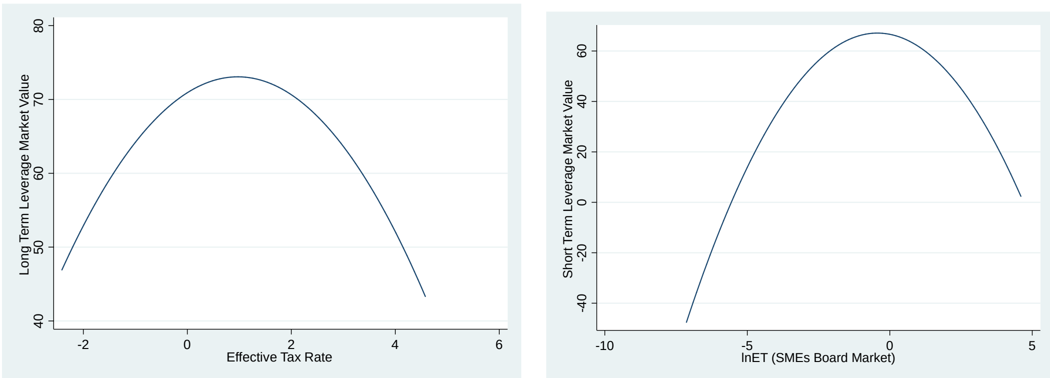


Figure 27: Liquidity and Long Term Leverage Market Value

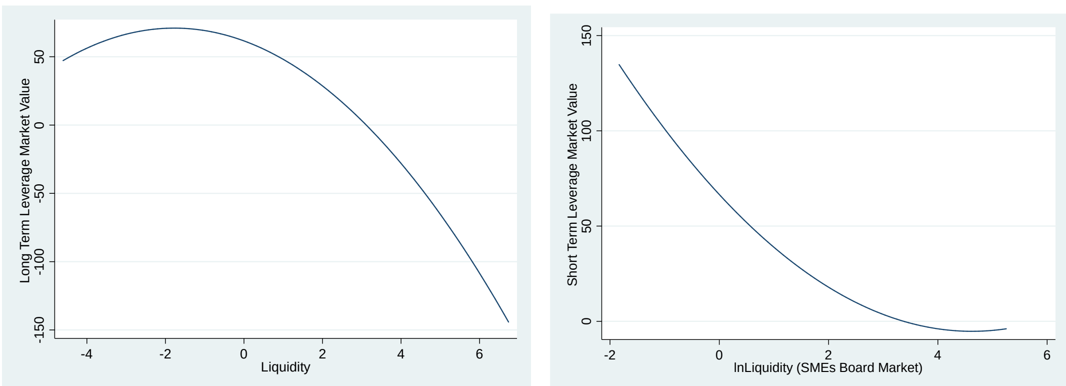


Figure 28: Intangibility and Long Term Leverage Market Value

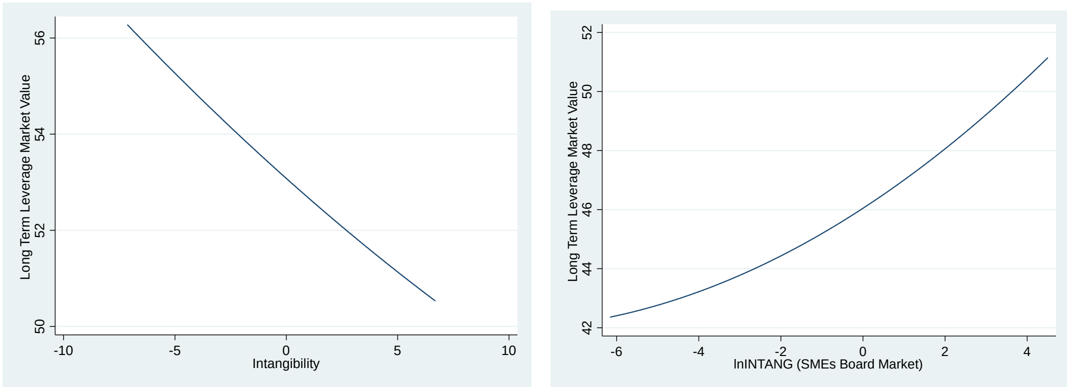


Figure 29: Distance from Bankruptcy and Long Term Leverage Market Value

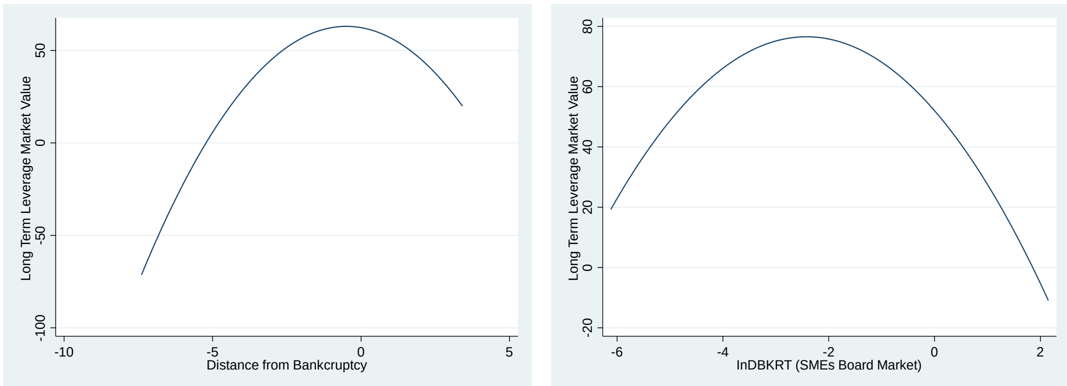


Figure 30: Dividend pay-out ratio and Long Term Leverage Market Value

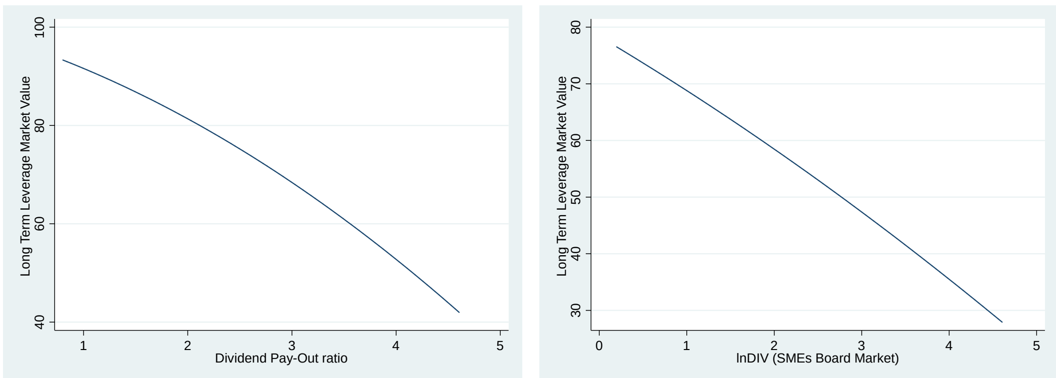


Figure 31: SIZE Long Term Leverage Book Value

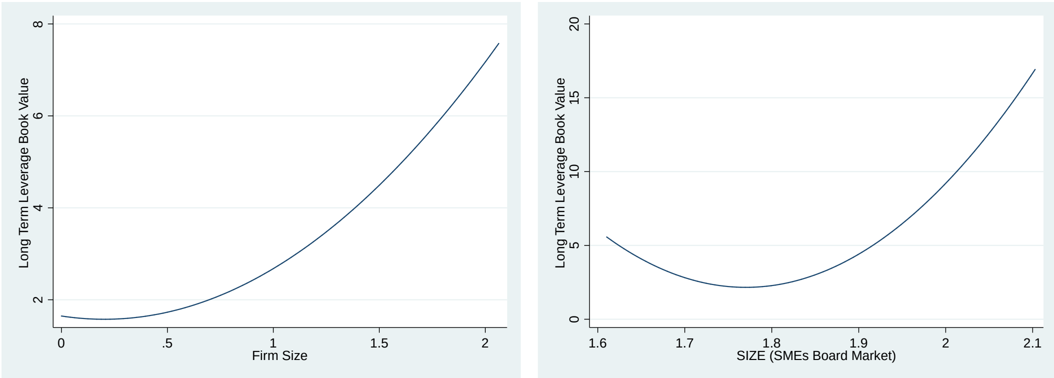


Figure 32: Growth opportunities Long Term Leverage Book Value

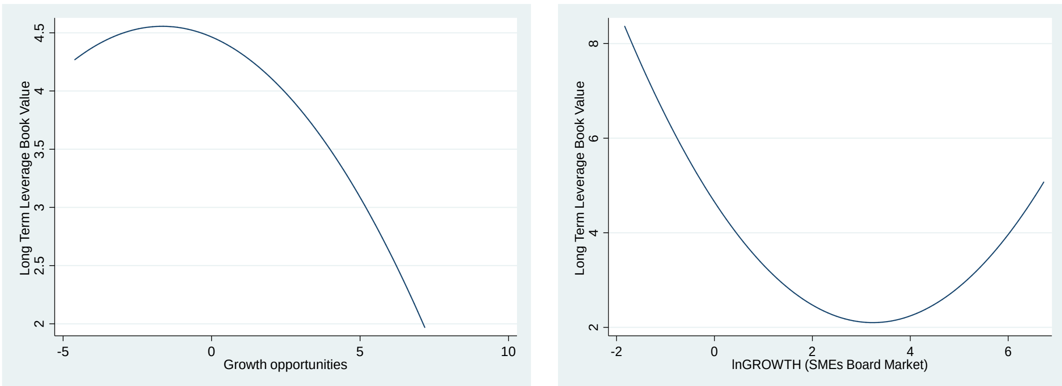


Figure 33: Non-debt tax shield Long Term Leverage Book Value

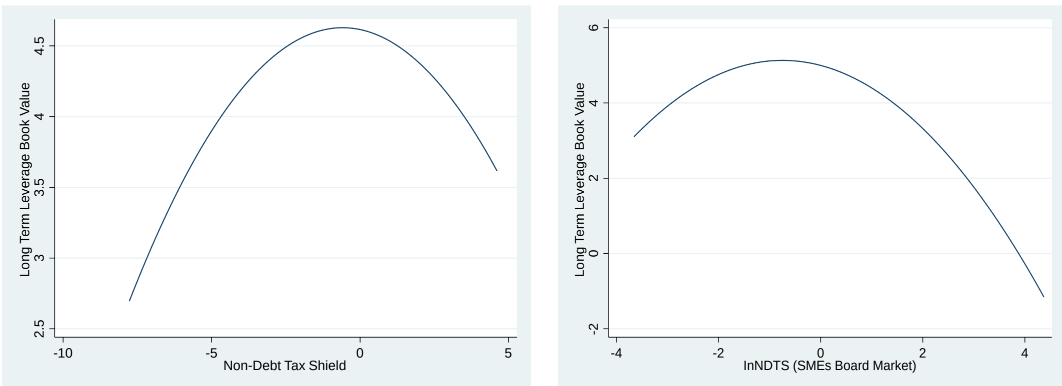


Figure 34: Profitability and Long Term Leverage Book Value

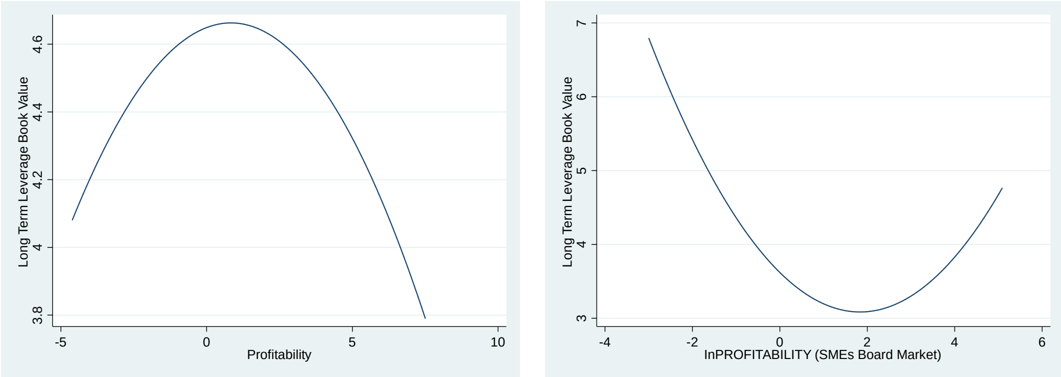


Figure 35: Asset Tangibility and Long Term Leverage Book Value

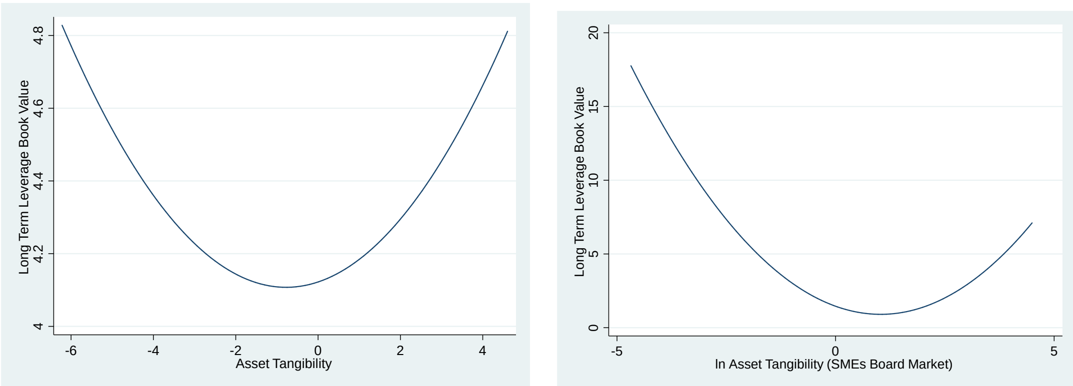


Figure 36: Effective Tax Rate and Long Term Leverage Book Value

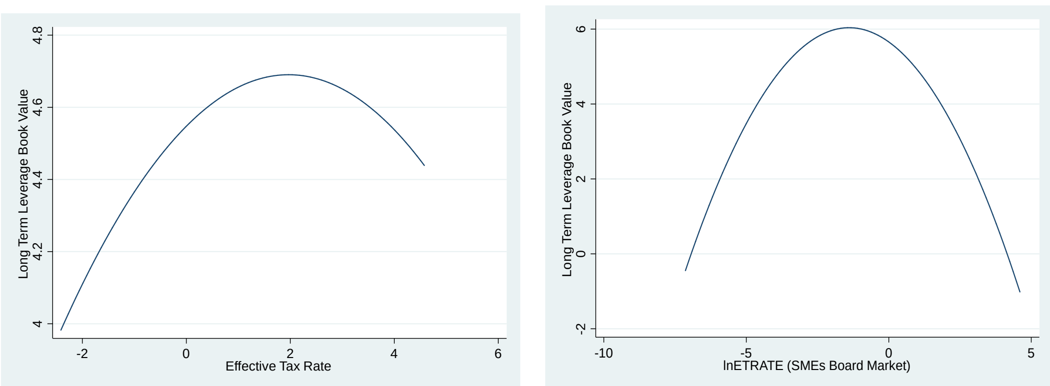


Figure 37: Liquidity and Long Term Leverage Book Value

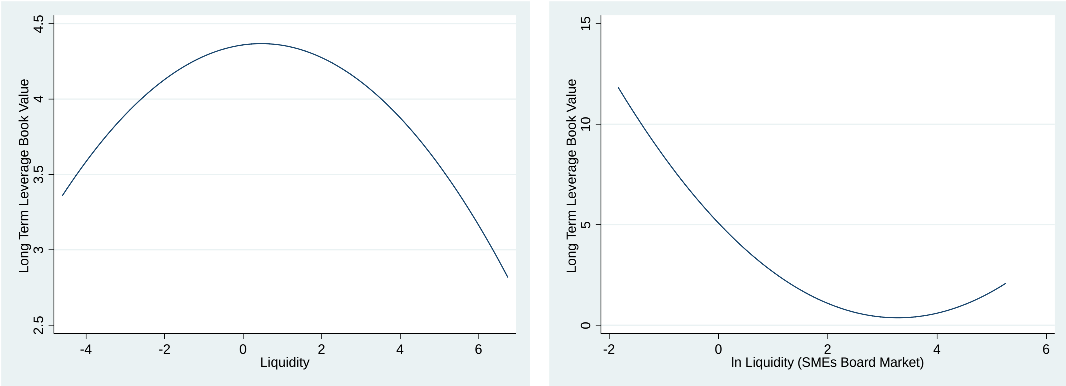


Figure 38: Intangibility and Long Term Leverage Book Value

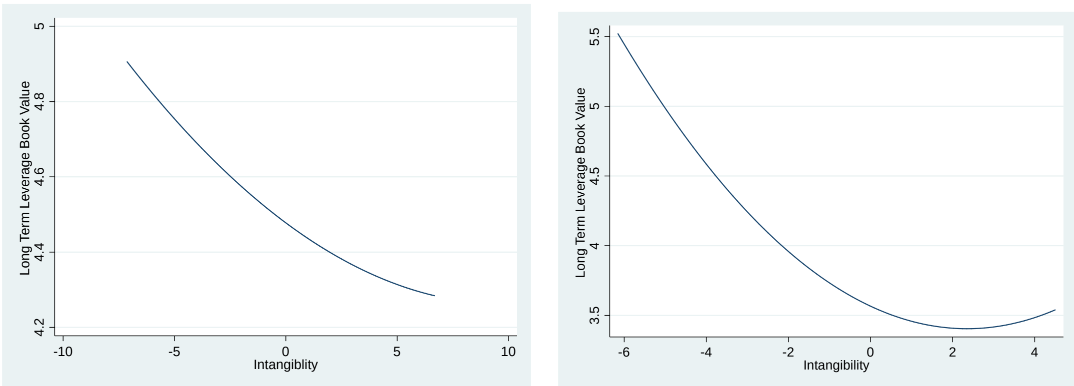


Figure 39: Distance from bankruptcy and Long Term Leverage Book Value

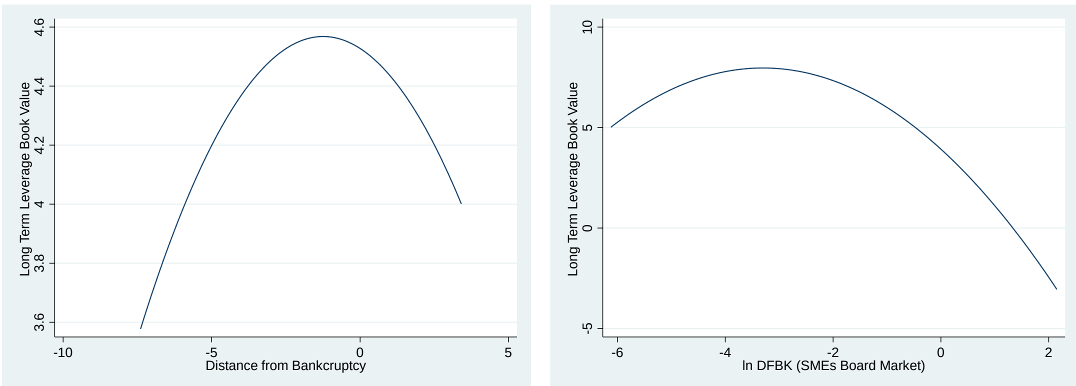
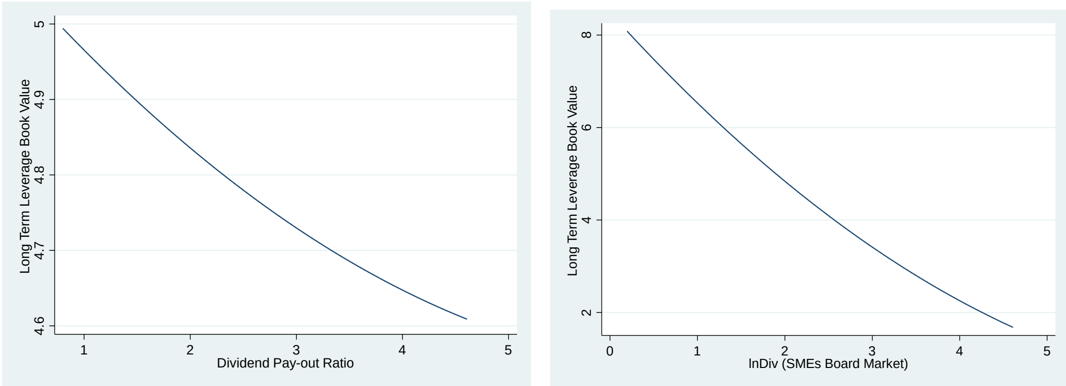


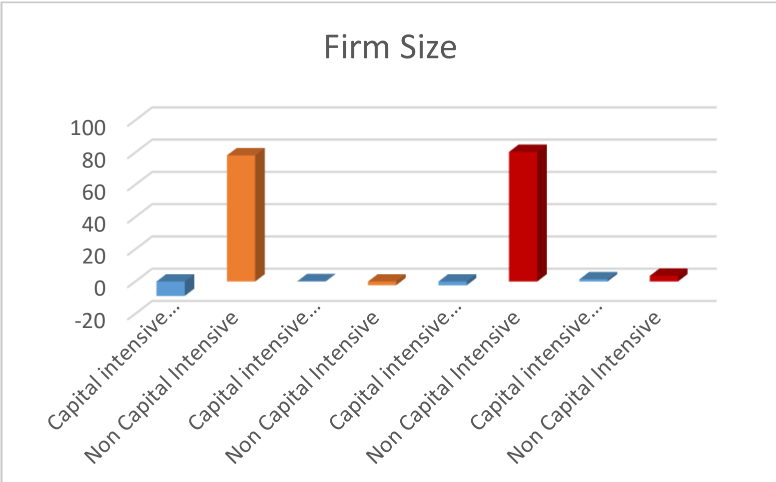
Figure 40: Dividend pay-out ratio and Long Term Leverage Book Value



Part 5: Coefficient of Non-linear relationship in Capital Intensive and Non-Capital Intensive

Figure 41: Firm Size

AIM



SMEs board market

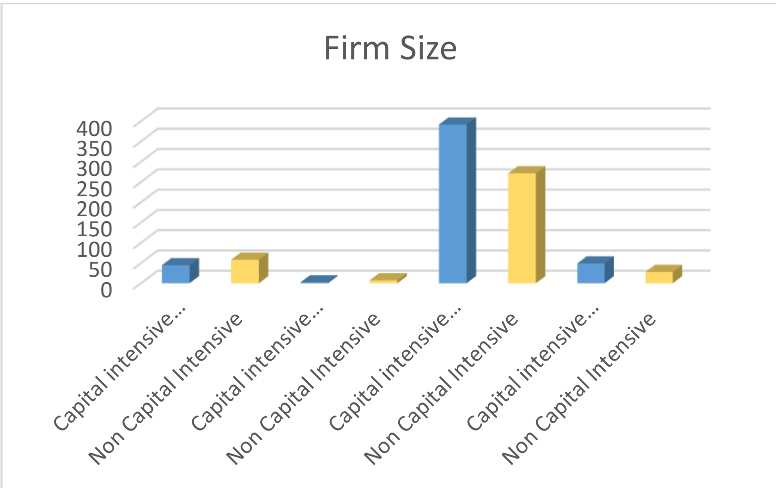
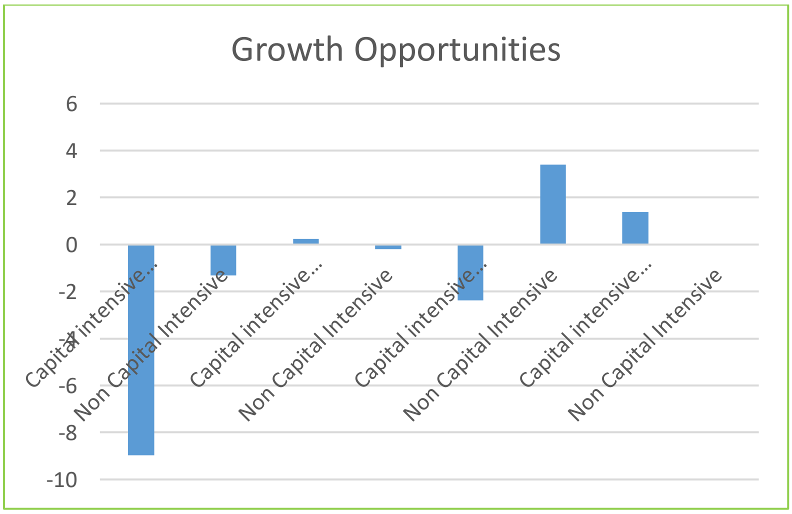


Figure 42: Growth opportunities

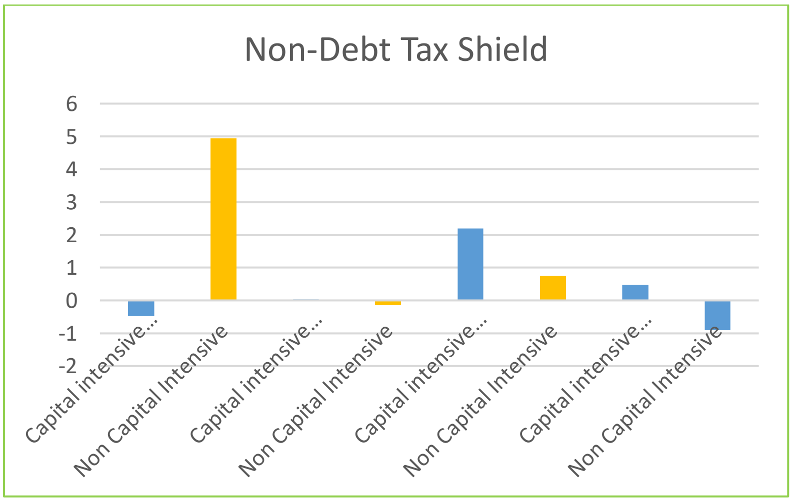
AIM



SMEs

Figure 43: Non-debt tax shield

AIM



SMEs board market

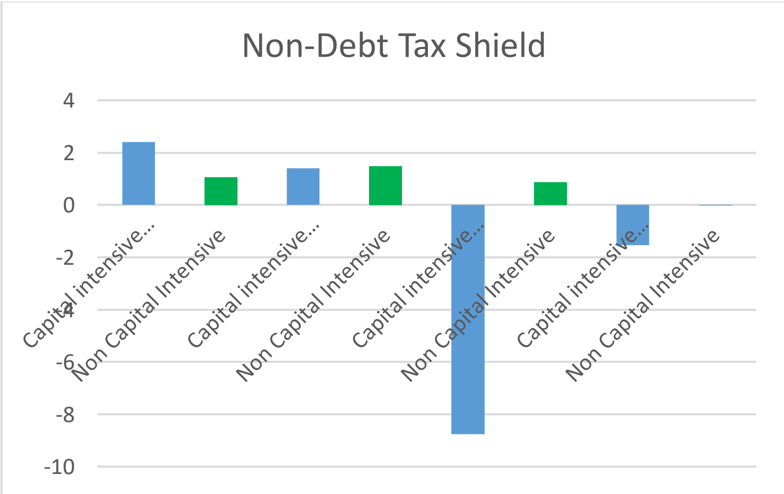
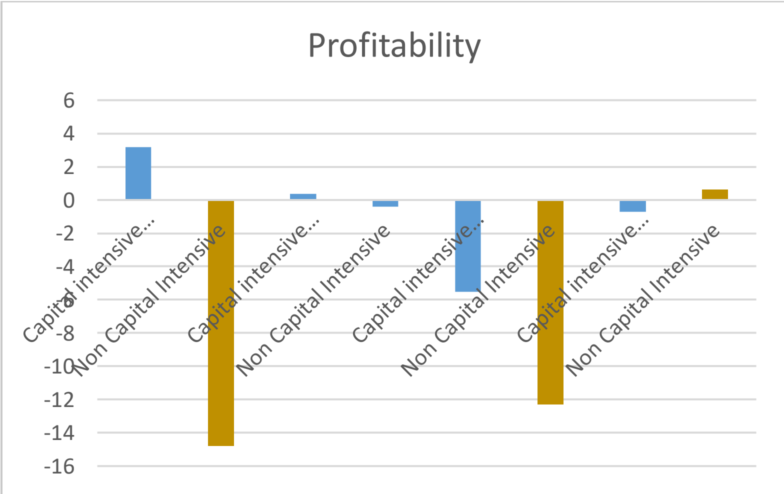


Figure 44: Profitability

AIM



SMEs board market

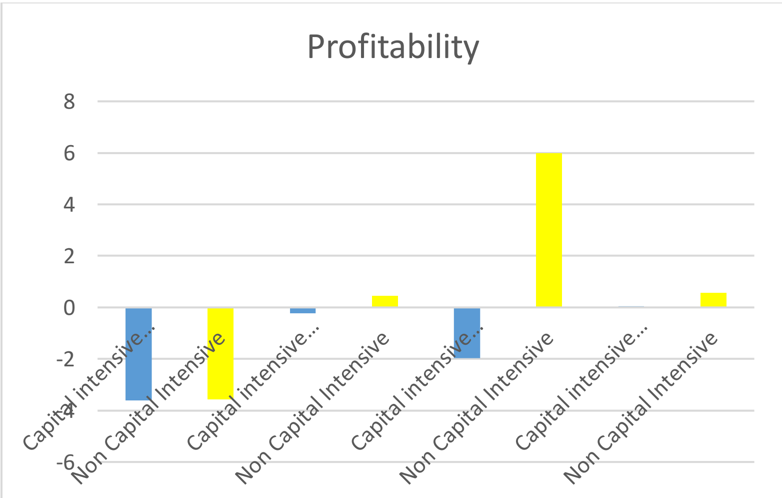
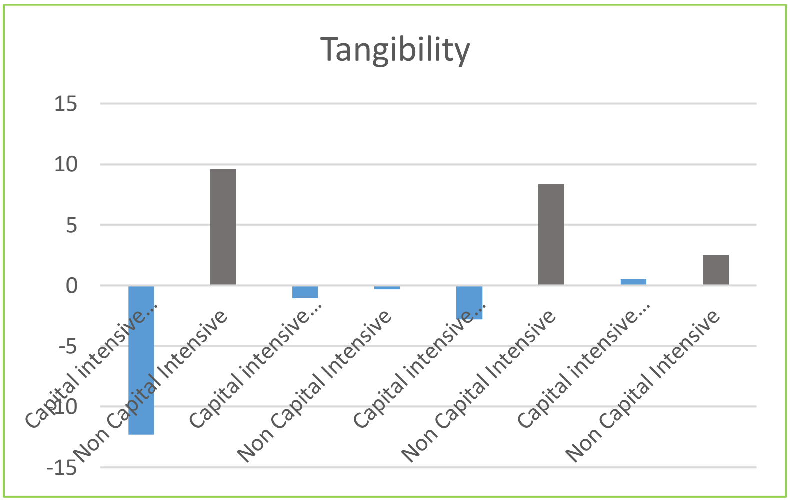


Figure 45: Tangibility

AIM



SMEs

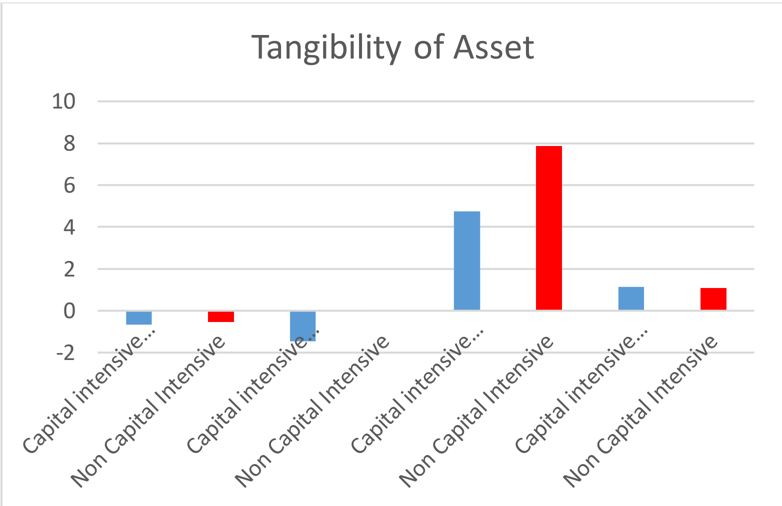
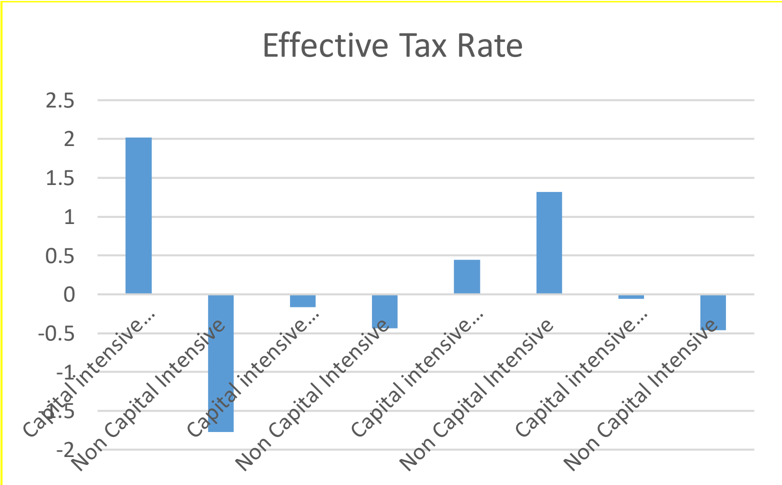


Figure 46: Effective tax rate

AIM



SMEs

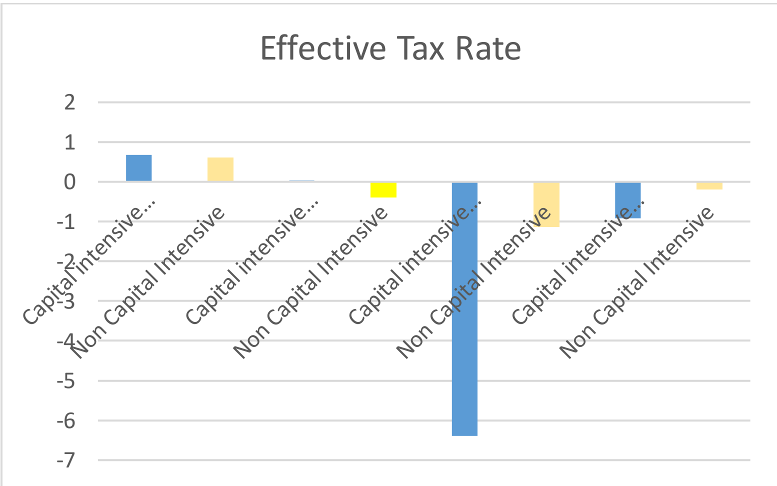
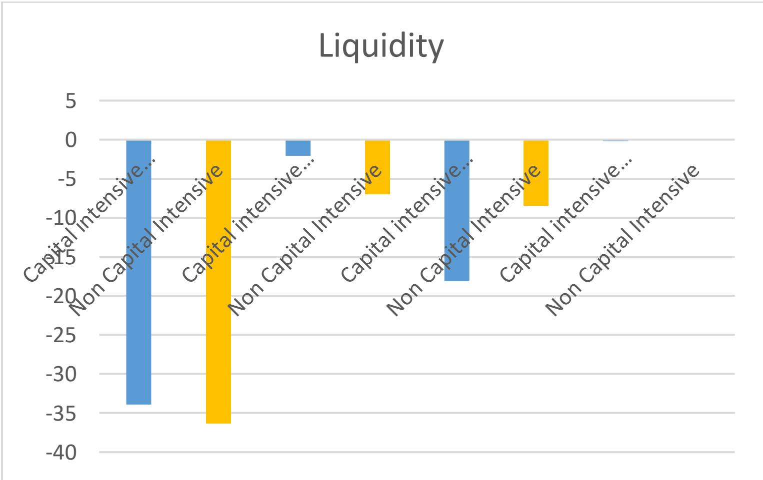


Figure 47: Liquidity

AIM



SMEs

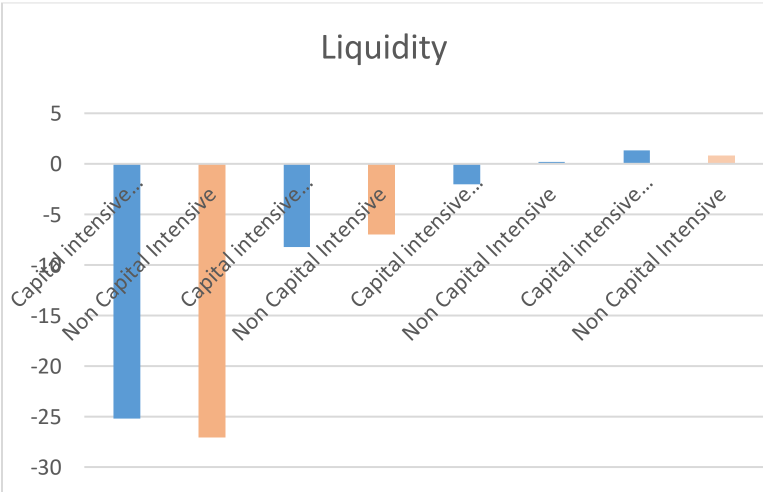
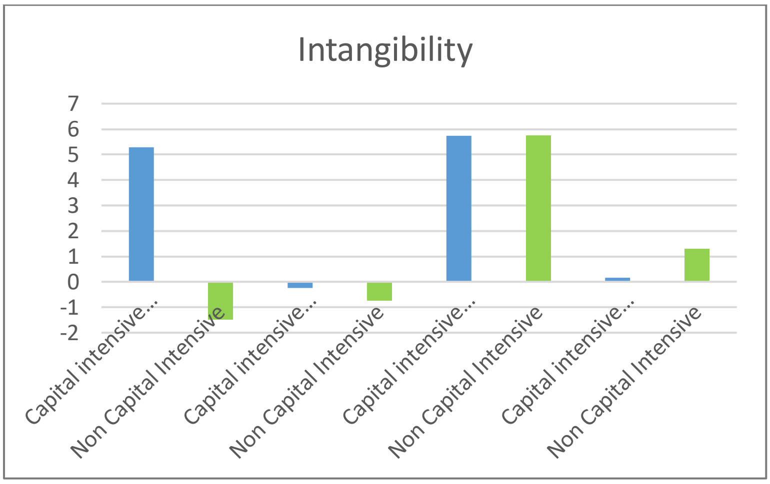


Figure 48: Intangibility

AIM



SMEs Board Market

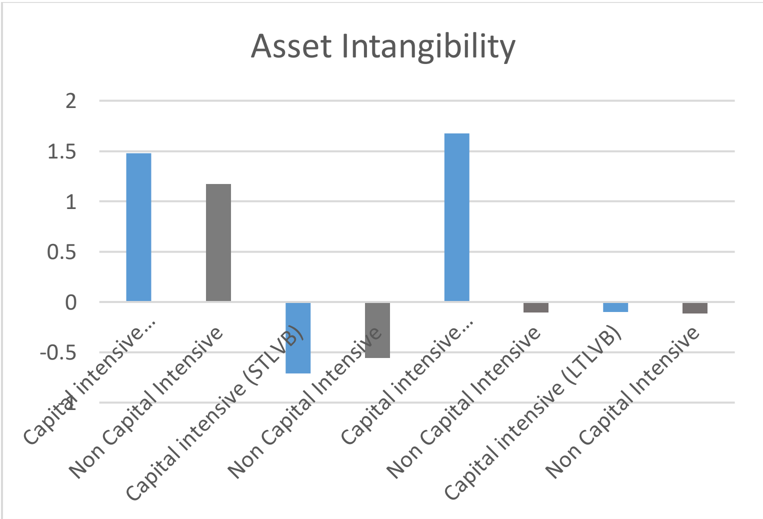
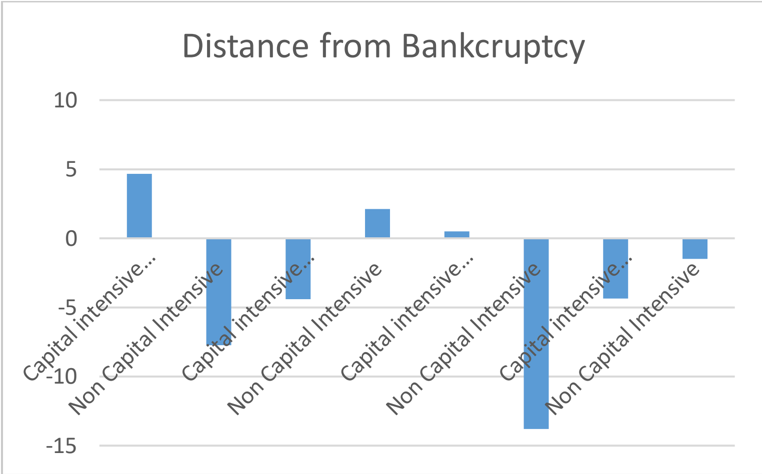


Figure 49: Distance from bankruptcy

AIM



SMEs

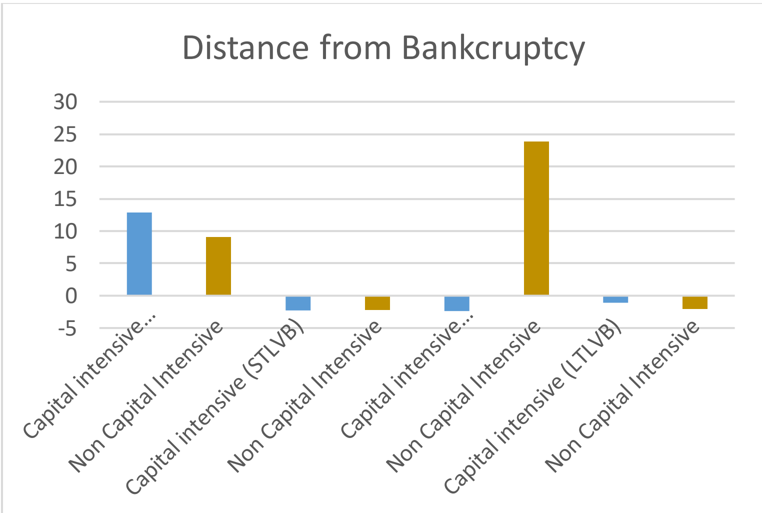
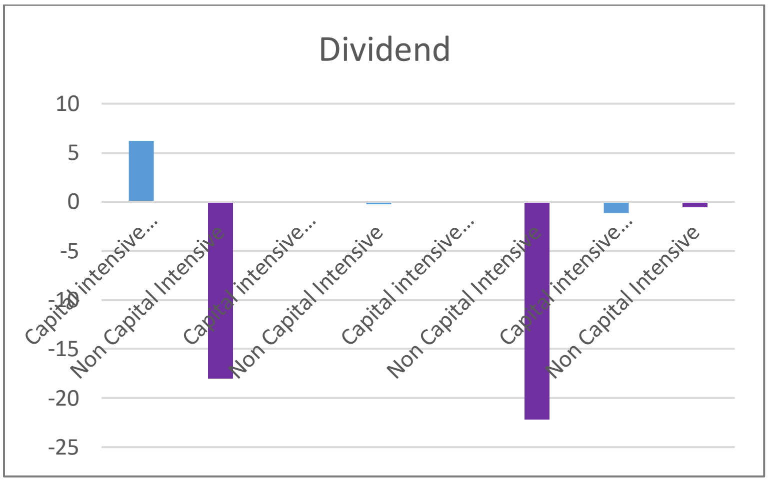


Figure 50: Dividend

AIM



SMEs