



How Firm and Industry Characteristics Affect Capital Structure of Unlisted SMEs: UK Empirical Evidence

Indah Permata Suryani^{1*}

¹ Department of Accounting, Faculty Economic and Business, Universitas Andalas, Padang, Indonesia
indahpermatasuryani@eb.unand.ac.id

Abstract. This study aimed to provide further empirical studies on whether there is any significant relationship between firm industry characteristics and the short-term and long-term debt of the companies. The focus was to answer the question: Do the firm and industry characteristics such as profitability, size, growth, and asset structure affect both short-term and long-term debt of the unlisted SMEs in the UK? This was the ideal topic to be discussed because SMEs played a vital role in the sustainability of economic growth in the country, especially in the UK. Additionally, unlisted companies needed access to the international capital market like most larger and listed firms, so conducting research in this area was very useful. This study collected secondary data from the Financial Analysis Made Easy (FAME) database comprising financial information of public and private companies in the UK and Ireland. The study utilized 291,047 unlisted SMEs in the UK from 2008 to 2015 and used the OLS (ordinary least square) model as an analysis method. The resulting firm characteristics did affect the capital structure of unlisted SMEs. Only one must be consistent with the predictions of the four main hypotheses. Related to the industry characteristics, most industries found a significant relationship between the firm characteristics and the leverage ratio of the companies. Overall, the results indicated that most findings followed the Pecking Order Theory.

Keywords: Capital Structure, Pecking Order Theory, SMEs

1 Introduction

Capital Structure is the term in corporate finance that discusses capital financing composition in the form of equity and debt. It leads us to understand the impact of investments and expenses on a particular business of the company, which is why this is the predominant financing decision for management. Moreover, capital structure choice is one of the primary responsibilities of financial managers. If they make a false decision, it may lead to financial distress for the company.

Other reasons explain why capital structure became the most exciting area to be discussed in finance finance. First and foremost, many surveys conducted found there needs to be a significant gap between the theory and practices of capital structure. Secondly, some researchers have a different opinion about the leading idea, closely related to capital structure decisions. Thirdly, asymmetric information, closely associated with the moral hazard problem, has become contentious since the financial crisis of 2008 [29].

© The Author(s) 2023

D. Games and Maruf (eds.), *Proceedings of the International Conference on Entrepreneurship, Leadership and Business Innovation (ICELBI 2022)*, Advances in Economics, Business and Management Research 269, https://doi.org/10.2991/978-94-6463-350-4_33

The importance of the mixture of debt and equity in maximizing firm value has been an ongoing debate since the outstanding study of Modigliani and Miller (MM) in 1958. In their seminal work, they said that in perfect market conditions with no taxes, bankruptcy cost, and asymmetric information, the company's valuation is independent and has no relation with its capital structure. However, the capital market was far from perfect, so after five years, in 1963, MM found that firm value maximization could be achieved if the level of debt increased by considering corporate taxes and interest payment deductibility [1]. These studies are pioneers in opening subsequent research and encouraging researchers to solve the capital structure puzzle.

The theory of capital structure that has been developed since Modigliani and Miller's work is the Trade-off Theory (TOT), which assumes that firm value maximization is achieved by trading off the cost of debt, such as bankruptcy costs and tax deductibility of interest expenses as part of debt's benefit [2]. Another theory is the Pecking Order Theory (POT) [3], [4]. This theory was developed based on informational asymmetries between investors and managers while getting the capital sources for the companies. Due to informational asymmetries, firms will prefer the internal source's finances over the external ones. Market Timing Theory is the last approach that has emerged since the MM proposition. The scholars Barker and Wurgler (2002) prove that management will issue equity when the cost of equity is low and choose debt when the cost of equity is high [6]. Nevertheless, these three theories are not the only theories that exist; each of them has some limitations [38], and based on some studies, the Pecking Order Theory and Trade-off Theory are the most relevant theories related to the financial behavior of SMEs [25]

Since then, an overwhelming amount of research about capital structure studies has been derived, followed by empirical evidence in real situations. Mostly, the results are about optimizing the capital structure through a combination of various gearing-related costs and benefits of the debt. However, most studies have only been carried out on the data from the large and publicly traded firms. Therefore, an excellent starting point by demonstrating the financial problems in small and privately held companies and differentiating them from the larger firms [28]. He found that small firms tend to be more complex than larger ones regarding expected life, the importance of informal relationships among stakeholders, and the proportion of estate tax that can reduce a firm's value.

Furthermore, Ang's point of view is supported by another scholar [9]. He said that the study focused on large firms led us to ignore the small businesses not listed on the stock market [10]. Moreover, [11] remark that Small and Medium Enterprises, in the future SMEs have, will be widely known as the significant population among firms in every developed country. Based on the information on the Seventh Report of the European Commission, around 99,8% of European companies were SMEs. Of 5.5 million total businesses in the UK, 99 % are businesses employing 0-249 people, known as Small and Medium Sized Enterprises [12]. Hence, it is essential to initiate further research on capital structure for the SMEs.

There have been a considerable amount of earlier empirical studies about SME capital structure, such as research conducted by [13], which analyzed the financial system of both listed and unlisted small firms, followed by [15] about the relationship between financial policy and capital structure of SMEs in the UK. In 1999. Used company panel data to present the evidence that industry and time effects influence the debt structure of the SMEs, and [16] focused on the unquoted UK SMEs

to find the variation of short-term and long-term debt between industries. The concerns in SME capital structure have attracted the consideration of whether the industry has a role in its determination [23]. [40] stated that variations of industry's effect on SMEs could affect their capital structure since most are "unitary firms."

This study aims to provide further empirical studies on whether there is any significant relationship between firm industry characteristics and the short-term and long-term debt of the companies. The focus is to answer the question: Do the firm and industry characteristics such as profitability, size, growth, and asset structure affect the short-term and long-term debt of the unlisted SMEs in the UK?. This is the ideal topic to be discussed because SMEs play a vital role in the sustainability of economic growth in the country, especially in the UK. Additionally, unlisted companies needed access to the international capital market like most larger and listed firms, so conducting research in this area is very useful.

This study collected secondary data from the Financial Analysis Made Easy (FAME) database comprising financial information of public and private companies in the UK and Ireland. I exploit the panel database from 2008 to 2015 of Unlisted SMEs in the UK and use the OLS (ordinary least square) model as an analysis method. Previous researchers have applied this method to analyze the relationship between a company's leverage and firm characteristics such as profitability, size, growth, and asset structure.

The main contribution of this study is to extend the knowledge in determining the capital structure of unlisted SMEs by using recent data, and it will be helpful for researchers and policymakers. Since the focus here is on unlisted SMEs in the UK, it might produce fruitful results. It can help several parties, substantial owners or managers, to better understand how to use financial resources appropriately based on industries and firms they manage to avoid financial distress.

2 Literature Review

2.1 Theoretical Framework

The research of [2] pioneered the development of theoretical work on firm capital structure issues. They stated that payout policy and financing decisions would not impact (irrelevant) the firm's value in the perfect market condition. However, their theory is based on unrealistic assumptions, such as the absence of taxes and transaction costs, and ignores different expectations. Therefore, in 1963, MM revised their first paper by considering corporate taxes and interest payment deductibility so firm value maximization could be achieved using debt as much as possible rather than equity to get optimal capital structure [19].

Although the theories were revised by MM in 1963 regarding corporate taxation, Miller emphasized the limitation of MM's recent study. According to him, it is also essential to consider personal taxation, which can determine the firm's value. He stated that three tax rates are necessary: corporate tax, tax on the dividend's income, and tax rates on interest inflows [20]. However, another researcher argued for the companies with depreciation as the other tax shield. Miller's study may have become less critical.

The development of several theories about capital structure continued by adding numerous approaches depending on the type of economic aspects like information asymmetries, agency problems, and signaling effects on the financial decision. The first theory is based on the conventional capital structure, including financial embarrassment, conflict issue of interest, and fiscal policy, known as the Trade-off Theory (TOT). The theory, introduced by [21], argues that firms will choose capital structure by balancing the cost of bankruptcy and the benefits of the debt. They stated that tax deductibility of interest expense and reduction of agency costs are classified as the advantages of the debt. The deduction of interest payments allows firms to pay taxes lower than they should. This became the "tax shield," generating company benefits [3].

Additionally, the cost of financial distress can be analyzed from different perspectives. Firstly, there is an increasing possibility of bankruptcy because there is a tendency that firms could not afford to pay their debt. Secondly, there are agency costs, as extra costs are needed to control and monitor the company's activities [20].

Considering the information asymmetries between firm insiders and outsiders leads us to the second theory, Pecking Order Theory (POT). According to [23], companies have a priority to finance their activities. It starts by utilizing the internal capital, which has a lower degree of informational asymmetry, then debt and outside equity for the last resort as the external capital sources. This theory suggests that profitable companies increase their retained earnings rather than using debt.

In 2002, [24] developed the Market Timing Theory challenging the Trade-off Theory and Pecking-Order Theory. They stated that firms used external equity as the source of the fund if the cost of equity was low. On the other hand, when the cost of equity is high, debt becomes the primary source of the deficit in the company's balance. The cost of equity is identified by the performance of their firms [20].

Of the three essential theories above, [25] noted that the Trade-off Theory and Pecking-Order Theory are the theories closely related to the financial behavior of SMEs as the topic of this dissertation. Based on Myers's study in 1984 about the Pecking-Order Theory, companies tend to have a hierarchy while acquiring funds for financial resources. This theory applies to SMEs because most SMEs' shareholders are the owners of the companies. Since they do care about their assets, they hardly put their trust in the other shareholders. Therefore, regarding informational asymmetries, SME managers prefer internal financing resources over external ones [10].

Furthermore, another relevant theory for SMEs is the Trade-Off Theory. As explained above, under this theory, firms alternate their target debt ratio when the benefit of debt outweighs the costs of debt itself. In other words, according to [26], the optimal capital structure can be achieved when the amount of interest payment deductibility on taxes trades off the level of the firm's financial distress. However, in practice, SMEs have different trade-offs from larger firms because small companies experience high bankruptcy costs due to their status, which is family-owned mainly [27].

2.2 The importance of SMEs in the UK

Small and Medium-sized Enterprises (SMEs) are now widely accepted as contributing significantly to the country's economy. Also, SMEs have been participating in innovations, contributing to employment, and, lastly, increasing the economic growth of the

country [28]. Even in the UK, small businesses became the focus of the Government agenda while making relevant policies [29].

Based on the information published by the House of Commons Library about UK business statistics, 2016, there are 5,5 million companies in the UK, and around 99% of the businesses were Small and Medium Sized Enterprises [12]. This number has increased by approximately 2% and 59% since 2015 and 2000, respectively. Service industries have been the most significant business, accounting for 79% of employment, while the retail sector is around 19% for the same classification.

Most businesses were operating in London, around 1 million, followed by South East for 900,000 companies. Overall, the number of firms in the UK increased. Still, specifically, some regions suffered and had the impact of the decreasing business population in several areas such as Scotland, North West Midland, and Southwest England [12]. The study about SMEs in the UK is the most contributing study since SMEs dominate the business population in the UK.

3 Methods

Determinants of the capital structure of small firms, such as asset structure, profitability, growth, size, age, and might be industry, had been explained and became the main factors in several previous studies about capital structure [16]. As described in the last chapter, the term capital structure was about the proportion between debt and equity in the firms. The leverage of the companies could be divided into short-term and long-term debt.

Concerning the focus of this research, it would develop some predictions through testable hypotheses about the effect of firm characteristics on the firms' financial leverage. This is followed by data description, the model, and the methodology used in this academic study.

3.1 Hypotheses Development

Size. Regarding the theory, it has been proved that larger firms tend to have higher debt than smaller firms [41] ; [16]. According to those studies, there was a positive relationship between gearing and firm size. However, as this thesis focuses on the unquoted Small-Medium Enterprises (SMEs), the studies had a slightly different result.

Small businesses were likely to suffer from information asymmetries between the managers of the firms and potential lenders since most of the small firms needed to provide trusted and reliable financial statements. Additionally, SMEs would find that long-term debt was quite expensive because it applied additional transaction costs to the small firms. Lastly, to alleviate these problems, short-term debt needed to be considered for this study. Based on that explanation, the following hypothesis was proposed.

H1a size will be positively related to long-term debt

H1b size will be negatively associated with short-term debt

Profitability. The study about profitability and leverage had become a debate because, due to tax-deductibility on Trade-off Theory, a positive relationship existed between a

firm's profitability and the companies' leverage. Nevertheless, the Pecking-Order Theory suggests a negative association between a firm's profitability and the debt ratio.

Based on the empirical studies, general results showed that profitability has a negative effect on the companies' leverage [4], which means the study supported the Pecking order theory that profitable firms would use their funds to run operational activities rather than issuing short-term or long-term debt. According to the explanation above, the subsequent hypotheses derived as follows:

H2a Profitability will be negatively related to long-term debt

H2b Profitability will be negatively associated with short-term debt

Asset Structure. Regarding asset structure, it also was related to the tangibility of the companies as the primary factor in determining capital structure [19]; [41] Asset structure was derived from the fixed asset ratio to total assets and would represent the effect of the collateral value of assets on the firm's leverage. Collateral would lessen the information asymmetries and agency problems between small firms and potential lenders.

According to a [42] study, due to agency problems, debt holders would have the risk of asset substitution problems. However, if companies as the borrowers could provide collateral as the guarantee, financial institutions as creditors would improve repayment warranty. That is why the postulates about the positive association between debt level and asset structure emerged. Furthermore, considering the loan length matched the size of the fixed asset's life as the collateral, there was a negative relationship between asset structure and short-term debt. Regarding those explanations, the following hypotheses were derived:

H3a asset structure will be positively related to long-term debt

H3b asset structure will be negatively associated with short-term debt

Growth. Recently, agency costs have been arising between the stockholders and bondholders; this affects the incentive of shareholders to protect themselves and ignore that their predominant aim is to maximize the firm's value. Following [10], this would lead to the underinvestment of the firms and cause the creditors to reduce their fund supply to the firms. However, Myers also suggested that the agency problem could be mitigated if the firms utilize short-term rather than long-term debt.

Short-term debt ratios were positively related to the growth rate of the companies. [28] proposition was more applicable to the SME context, where the debt was dominated by short-term debt. In line with the last description, the next hypothesis could be derived as follows:

H4a Growth will be negatively related to long-term debt

H4b Growth will be positively associated with short-term debt

Industry Effect on Capital Structure. Myers's study in 1984 explained that the average debt ratio of the companies varied from one industry to the other sector. This was because asset risk, type of asset, and requirement for the external capital also differed based on the industry's type. Furthermore, in 1991, Harris and Raviv suggested that firms in the same sector were much more alike than those in different industries.

However, [16] pointed out that industry characteristics were less critical than firm characteristics to the capital structure. Since there is still debate on this area, the fol-

lowing hypothesis was to test whether the industry characteristics affect capital structure would be stated as follows:

H5 Industry characteristics affect the capital structure of small firms.

3.2 Hypotheses Development

This research was a quantitative study which was acquired data from secondary sources. This section will present the procedure of collecting data and how to manage the specified number of samples to address the research question, "Do the firm and industry characteristics such as profitability, size, growth, and asset structure affect both of short-term and long term debt of the unlisted SMEs in UK?".

Data Sources. The Financial Analysis Made Easy (FAME) database was used to collect the data for this thesis. FAME is the database comprising the financial information of public and private companies in the UK and Ireland, including turnover, profit and loss, ratios, and other valuable financial data. Also, this database was collected by Jordans Bureau VanDijk for use by the public, and it primarily contains unquoted company data and some quoted companies listed on the Alternative Investment Market (AIM) and Off-Exchange Market [32].

The primary data in this thesis was unquoted Small-Medium Enterprises (SMEs), so extracting the data from the FAME database would be helpful. However, FAME had a limitation; it only provided the companies' last ten years' financial information; they could not identify any previous years if we wanted to acquire data longer than ten years.

Sample. An essential data to address the research question was unlisted SMEs in the UK. This thesis extracted the sample based on the definition of SMEs explained in the Handbook Research of Enterprise Systems. [33] categorized firms based on the European Commission 2006. They analyzed the SMEs using three characteristics. Firstly, depending on the number of employees; secondly, annual turnover; and lastly, by total assets.

The European Commission had differentiated into three types of small companies, which were stated as follows:

1. Middle Enterprises: less than 250 employees, less than Euro 50 Million annual turnovers, and less than Euro 43 million total assets.
2. Small Enterprises: less than 50 employees, less than Euro 10 million annual turnovers, and less than Euro 10 million total assets.
3. Micro Enterprises: less than ten employees, less than Euro 2 million annual turnovers, and less than Euro 2 million total assets.

Based on the definition above, this research will focus on the first definition of Middle enterprises. The sample concluded based on the European Commission because the United Kingdom did not have a universal definition of SMEs, and the Companies Act only defined SMEs for accounting requirements [34].

The data covered nineteen industries in the UK, located in twelve regions: Eastern, London Inner, London Outer, North West, Northern, Scotland, South Eastern, South Western, Southern, Wales, West Midlands, and York & Humberside. From 1,048,576 companies, this research used 291,047 observations that could be categorized based on sample selections.

The sample selection was based on the first definition of Small-Medium and Enterprises above and represented several industry categories (see Table 4.1). The data

consisted of the financial sector, which comprised bank and insurance companies and non-financial industries such as Chemicals, rubber, plastics, non-metal, Construction, Health and Education, Food, beverages, Tobacco, Utilities (Gas, Water, Electricity), Hotel & Restaurants as services industries, Machinery, equipment, furniture, recycling, Metal & Metal products, Other services, Transport, and communication [16], Agriculture, Forestry and Mining, Public Administration and defense, Publishing, and Printing, Textiles, wearing apparel, leather, Wholesale & Retail Trade and Wood, cork and Paper.

The unlisted SMEs selected based on sample requirements had several data that needed to be included, especially for the latest year, 2016. Therefore, I chose the panel data from 2008 to 2015 with complete financial information.

Table 1. Composition of table by industries.

Industry Sector	Frequency	% of the Companies
Financial	62,960	3.2
Chemicals, rubber, plastics, non-metal	23,464	1.2
Construction	217,080	11.0
Education, Health	135,816	6.9
Food, beverages, tobacco	12,360	0.6
Gas, Water, Electricity	4,808	0.2
Hotels & restaurants	61,880	3.1
Machinery, equipment, furniture, recycling	83,808	4.2
Metals and metal products	38,480	1.9
Other services	948,904	47.9
Transport and Communication	62,888	3.2
Agriculture Forestry and Mining	44,840	2.3
Public administration and defense	3,456	0.2
Publishing, printing	33,208	1.7
Textiles, wearing apparel, leather	10,920	0.6
Wholesale and retail trade	227,376	11.5
Wood, cork, paper	9,808	0.5
Total	1,982,056	100

3.3 Measurement of the Variables

Since the data were from unlisted SMEs, this thesis would be derived based on the book values of the companies. This was related to the suggestions by [31]. The De-

pendant variables in this research were Long Term Debt (LTD) and Short Term Debt (STD), and the Independent Variables were Growth, Profitability, Asset Structure, and Size of the companies. This section will briefly explain the definition of each variable.

Independent Variable. *Four main independent variables have* been adopted by [16]. Each of them will be explained as follows:

1. *Profitability (Profita).* This variable is derived from the percentage of the company's profit margin that measures the net income generated and compared with the net sales of the enterprise.
2. *Size (Size).* For this variable, the firm size was measured by the log of total assets. According to the literature, total assets were the most common value to identify the size of the companies.
3. *Growth (Growth).* *Development* of the companies identified by calculating the sales turnover over the period 2008 to 2015
4. *Asset Structure (Astruct).* Asset structure was related to tangible assets and measured by the ratio of Fixed Assets to Total Asset.

Dependant Variable. Related to the Dependant Variable, this research utilized two financial leverages they were short-term and long-term debt. By identifying both companies gearing, it would be easy to determine whether the factor that influenced the short-term debt was the same as one that decided long-term debt. The variable definition was based on the study by Remmers et al. (1975) and Ferri and Jones (1975) quoted [16].

Short-Term Debt Ratio (STD) was defined by calculating the short-term debt to total assets. Long-Term Debt Ratio (LTD) was measured by calculating the long-term debt to total assets. The short-term debt included short-term loans and overdrafts of the companies, defined as the company's total debt, which could be repaid within one year. Long-term debt was determined by the Long-term loan that the companies could pay for more than one year.

3.4 The Method of Analysis

The hypothesis formulated above was tested using a linear regression model using short-term and long-term debt as dependent variables and firm characteristics (profitability, growth, asset structure, and size) as independent variables. The model would be shown as follows:

$$Y = \beta_0 + \beta_1 \text{Size} + \beta_2 \text{Profita} + \beta_3 \text{astruct} + \beta_4 \text{growth} + \epsilon$$

Where Y was the dependent variable, β_0 was intercepted, β_1 , β_2 was the slope of the regression line, and ϵ was determined as an error term that explained the differences between the actual results and predicted value [35]. Then, followed by independent variables (size, profitability, asset structure, and growth).

The analysis ran Ordinary-Least Square (OLS) using all respondents' data. This approach can ignore the differences in asset structure and other factors. Furthermore, to get the result of empirical studies, the data analysis was carried out in Stata as one of the statistical software to analyze the research data and statistical software.

To test whether there was a relationship between industry and determinants of capital structure, there were various approaches used by previous studies. For exam-

ple, [28] applied industry dummies, and a similar approach was also used by [16] while using the same database. Based on their results, the independent variables vary between industry sectors.

The cross-sectional analysis of the determinants of debt ratios was applied by [9]; [28] set up the linear regression measure of both dependent variables (short-term debt to total assets) and (long-term debt to total assets). I used the STATA software for several regressions between dependent and independent variables

to test the hypothesis.

Furthermore, dummy variables must be generated to regress the dependent and independent variables with various industries to test whether the industry characteristics affect the firms' capital structure. Additionally, the dependent variables were regressed against Asset Structure, profitability, growth, size, and dummy variables as the industry sectors.

4 Results and Analysis

4.1 Effect of Firm Characteristics on Capital Structure

The result of the regression analysis, which STATA did, is shown in Table 2. It showed the regression results for the Long-Term Debt as the dependent variable and characteristics of the firm (size, profitability, growth, and asset structure) as the independent variables.

Table 2. Regression Result of Long-Term Debt to Independent Variables.

Source	SS	df	MS	Number of obs
Model	11854864	4	2963715.99	406531
Residual	105404393406526	259.280816		
Total	117259257406530	288.439369		

	Prob > F	R-squared	Adj R-squared	Root MSE
	0.0000	0.1011		16.102

	Coef.	Std. Err.	z	P> t	[95% Conf. Interval]
size2	.8723628	.0101705	85.77	0.000	.852429 .8922967
assetstr	.1456155	.0007984	182.38	0.000	.1440507 .1471804
profitab	-.0074929	.0010473	-7.15	0.000	-.0095455 -.0054402
growth	.008382	.0009678	8.66	0.000	.0064852 .0102788
_cons	-4.005851	.0741527	-54.02	0.000	-4.151188 -3.860514

Hypotheses H1a stated that size would be positively related to long-term debt. The results above were consistent with the previous studies and accepted the hypothesis about the positive relationship between the length of the companies and the long-term debt ratio. The coefficient in the LTD model also showed a positive sign, and this variable significantly correlated with Long-term debt.

Regarding the profitability, hypothesis (H2a) suggested a negative relationship between the company's profitability and the long-term debt. The results also supported the predictions. Regression results showed that profitability had no relationship with

long-term debt by negatively impacting the coefficient. Therefore, we accepted the hypotheses (H2a).

Asset structure was The third firm characteristic tested in the study. The variables derived from fixed assets to total assets showed a positive correlation with long-term debt. This supported the hypotheses (H3a) where the asset structure would be positively related to long-term debt. Additionally, it also had a significant and positive sign-in coefficient.

The last hypothesis (H4a) is about the correlation between growth, which was defined by the percentage turnover of the companies. For this variable, the results did not support the predictions, which stated that growth would be negatively related to long-term debt. Regression results showed the significance of the growth percentage to the long-term debt ratio. Nevertheless, the model possessed a sign counter to the expectations.

The variable size derived by the natural logarithm of total assets showed a negative relationship to the short-term debt ratio. The result supported predictions stated on H1b that size would be negatively related to short-term debt. These two variables also showed significant sign and negative sign on the coefficient.

Regarding profitability, the result strongly supported the hypothesis (H2b that Profitability would be negatively related to short-term debt. The data above showed that the coefficient sign is negative, and a significant relationship appears between the profitability of firm characteristics and the firms' leverage ratio.

The following hypothesis (H3b asset structure would be negatively related to the short-term debt). Contrary to the expectations, the result showed a positive relationship between asset structure and short-term debt, but the variable still had the same significance. Furthermore, the growth rate of the firms confirmed the expectation on the H4b that growth would be positively related to short-term debt. The results presented the significant and positive relationship between growth and short-term debt and supported the hypothesis.

In general, both regression results about firm characteristics were highly statistically significant to the leverage ratio of capital structure. It could be proved that the P value was less than five percent. Most of the four independent variables tested for short-term debt supported hypothesis H1b, which predicted that size would be negatively related to short-term debt. H2b Profitability would be negatively associated with short-term debt. H4b Growth would be positively associated with short-term debt. Only one variable differed from an expectation postulated on H3b, where asset structure would be negatively associated with short-term debt.

The result that showed a positive relationship between asset structure and the debt ratio of the companies was proven by [35] by utilizing the data from listed Swedish companies. This result was agreed with the Trade-off Theory because it is related to the capability of using tangible assets as collateral in the event of financial distress. Clearly stated for this result, the Pecking Order Theory had been rejected [35].

Related to Long-term debt relationships, the only result that had been different from the prediction Hypotheses is H4a, where the growth will be negatively related to long-term debt. The positive sign that the regression results have shown was supported by the previous study conducted by [36] about how much the growth determined an SME's capital structure. Another study also found a positive relationship between growth and leverage ratio, reported by [9] and Jordan et al. (1998). However, alt-

though the positive sign had been found, this variable was insignificant for the capital structure determinant.

Other than the Growth variable, the other firm's characteristics were found to be significant in determining the leverage ratio of the companies. The hypotheses supported were H1a, where size would be positively related to long-term debt, and H2a, when profitability showed a negative relationship to long-term debt. H3a asset structure derived from fixed assets to total assets was positively related to long-term debt.

4.2 Industry Effect on Capital Structure

Studies about the relationship between industry characteristics and capital structure have been abundant in the financial literature and have contributed to different findings. In the investigation started by [31], Myers stated that the industry did not directly affect the determinant of capital structure. It had been supported by [37], which explained that since SMEs tend to operate in a niche market, this could lead to a decreasing industry impact on the capital structure. However, a recent study by [18] about industry classification and the capital structure of Ghanaian SMEs found that industry characteristics affect the firms' capital structure.

Since there is still debate about the industry characteristics studies, further studies will be useful to enhance the knowledge about capital structure. The sample consisted of 291,047 unlisted SMEs in seven periods from 2008 to 2015 and was divided into nineteen different industries. Bank and insurance companies, classified into the financial sector, accounted for around 3.2 % of the total companies. Chemicals, rubber, plastics, and non-metal 1.2 %; Construction 11 %; Education and Health 6.9%; Food, beverages, and Tobacco 0.6 %; Gas, water, and Electricity (utilities) 0.2 %. Hotel & Restaurants (service industries) 3.1%, Machinery, equipment, furniture, recycling 4.2%, Metal & Metal products 1.9%, Transport and communication 3.2%, Agricultural, forestry, and Mining 2.3%, followed by Public administration and defense, publishing and printing, Textiles, wearing apparel and leather 0.2%, 1.7% and 0.6 % respectively. Lastly, wholesale retail trade was 11.5%, and the biggest proportion was for other services, around 47.9%.

Based on the regression results of the short-term debt to the firm's characteristics in different levels of industries, the results showed different significance to the various industry levels.

Here was the regression result for the dum_8 insurance companies. It could be shown from the result that only size had a significant effect on the capital structure of the insurance companies. Additionally, the sign supported the hypothesis (H1b) that would be negatively related to short-term debt.

Each variable was significant to the short-term debt ratio for the Machinery, equipment, furniture, and recycling industries. Furthermore, the coefficient sign was consistent with the hypothesis about short-term debt, where there was a negative relationship between the size and profitability of the short-term debt.

Dum_11 was represented as the other services, about 47.6 % of the total sample of unlisted SMEs. The industries' size, profitability, and growth became significant factors in determining capital structure.

Regarding service industries, only size and asset structure were found to be significant to long-term debt. The coefficient also supported the prediction that long-term

debt positively affects size and asset structure. However, the other two variables are insignificant to the leverage ratio of service industries.

In the construction industry, most variables tend to show a significant relationship. It is supported by a previous study conducted by [16] that stated growth rates in the construction industry were shown the counter expectation of the hypotheses, explaining that growth would be negatively related to long-term debt.

Most industries found a significant relationship between firm characteristics and long-term debt. However, few industries showed a different correlation between long-term debt and the main firm characteristics (size, profitability, growth, and asset structure). Based on the several regression results above, it is assumed that the industry characteristics affect the determinant of capital structure of unlisted SMEs.

5 Conclusion

Generally, most results are significant and answer the research question that firm characteristics affect the capital structure of unlisted SMEs in the UK. Eight hypotheses consist of predictions related to the association between dependent and independent variables. Dependant variables are the leverage ratio, which comprises short-term Term Debt and Long-term debt, while Independent variables are Profitability, Growth, Asset Structure, and Size of the companies.

The first hypothesis (H1a) explained that size would be positively related to long-term debt and negatively related to short-term debt in Hypotheses (H1b). The results for both hypotheses were consistent with the predictions. The coefficient was positive and significantly related to Long-Term Debt (LTD). The effect of size is bigger in the long-term debt ratio. Suppose that the size of the firm became larger. Firms tend to issue long-term loans rather than short-term ones [18].

The following hypotheses are related to the profitability derived from the companies' profit margin. H2a suggests that there will be a negative relationship between a company's profitability and Long-term debt, and H2b also states that profitability will negatively affect the company's short-term debt. The results for both short-term and long-term debt effects have supported the hypothesis. There is a negative sign on the coefficient of the long-term debt and a positive sign on the short-term debt. The results were consistent with the pecking order theory but contradicted the Trade-off theory [4].

Asset structure has been the third characteristic identified in the third hypothesis. H3a predicts that asset structure will be positively related to long-term debt, and H3b asset structure will be negatively related to short-term debt. The results for the relationship between asset structure and long-term debt supported the hypotheses by providing the significance and the positive sign of the coefficient. However, the short-term debt hypotheses must be rejected since the results show a positive relationship. The asset structure was closely related to the tangibility of the firms. [19]. They stated that tangibility is a major factor in determining firms' leverage ratio. Thus, firms with a high level of fixed assets will have a high level of debt [38]. However, the negative relationship between leverage and asset structure was possible if there was depreciation of the tax shield.

The last hypothesis (H4a Growth will be negatively related to long-term debt) and positively related to short-term debt in H4b. The results did not support hypothesis H4a because the regression showed a positive relationship between growth and long-

term debt. However, some studies have proved a positive relationship between growth and leverage ratio. The study was conducted by [23], [9] and the recent study by [36].

In general, the result of several hypotheses has consisted of Pecking Order Theory. Most of the results were found to be significant and successful, whether related to short-term or long-term debt. Additionally, most regression results are consistent with capital structure theories. The negative association between profitability and short-term debt, as well as long-term debt, supports the pecking order theory. The positive relationship between asset structure and long-term leverage is consistent with trade-off theory. Most findings were also similar to the results of the previous study. Although there are some differences and inconsistencies among the capital structure theory, the results complement each other to support the correlation between firm characteristics and the leverage ratio of the companies.

Acknowledgment

I wish to acknowledge the support given by Yener Altunbas as my supervisor when I took my Master's at the University of Birmingham. He has been given continuous encouragement and valuable support for completing this study. I also would like to acknowledge Indonesia Endowment Fund for Education for supporting my study for a master's degree.

References

1. Abeywardhana, Y. & Krishanthi, D., 2012. *Financing decision, cost of debt and profitability: evidence from non-financial SMEs in the UK*, Birmingham: University of Birmingham (Unpublished PhD thesis).
2. Abor, J., 2007. Industry classification and the capital structure of Ghanaian SMEs. *Studies in Economics and Finance*, 24(3), pp. 207-219
3. Akdal, S., 2011. *How do firm characteristics affect capital structure? Some UK evidence*, Online: Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1775706.
4. Al-Dohaiman, M., 2008. *Capital structure in Saudi Arabian listed and unlisted companies*, Stirling: Phd Thesis University of Stirling.
5. Al-Najjar, B. & Hussainey, K., 2011. Revisiting the capital-structure puzzle: UK evidence. *The Journal of Risk Finance*, 12(4), pp. 329-338.
6. Ang, J., 1992. On the theory of finance for privately held firms. *The Journal of Entrepreneurial Finance*, 1(3), p. 185.
7. Bevan, A. & Danbolt, J., 2002. Capital structure and its determinants in the UK—a decompositional analysis. *Applied Financial Economics*, 12(3), pp. 159-170.
8. Bradley, M., Jarrell, G. & Kim, E., 1984. On the existence of an optimal capital structure: Theory and evidence. *The Journal of Finance*, 39(3), pp. 857-878.
9. Chittenden, F., Hall, G. & Hutchinson, P., 1996. Small firm growth, access to capital markets and financial structure: Review of issues and an empirical investigation. *Small business economics*, 8(1), pp. 59-67.
10. Cowling, M., Liu, W. & Ledger, A., 2012. Small business financing in the UK before and during the current financial crisis. *International Small Business Journal*, 30(7), pp. 778-800.
11. Cowling, M., Liu, W. & Zhang, N., 2016. Access to bank finance for UK SMEs in the wake of the recent financial crisis. *International Journal of Entrepreneurial Behavior & Research*, 22(6), pp. 903-932.

12. Daskalakis, N. & Psillaki, M., 2005. *The Determinants of Capital Structure of the SMEs: Evidence from the Greek and the French firms*, Strasbourg: XXIIInd Symposium on Banking and Monetary Economics .
13. Degryse, H., de Goeij, P. & Kappert, P., 2012. The impact of firm and industry characteristics on small firms' capital structure. *Small Business Economics*, 38(4), pp. 431-447.
14. Eriotis, N., Vasiliou, D. & Ventoura-Neokosmidi, Z., 2007. How firm characteristics affect capital structure: an empirical study. *Managerial finance*, 33(5), pp. 321-331.
15. Frank, M. & Goyal, V., 2009. Capital structure decisions: which factors are reliably important?. *Financial Management*, 38(1), pp. 137.
16. Gonzalez, V. & Gonzlez, F., 2012. Firm size and capital structure: evidence using dynamic panel data. *Applied Economics*, 44(36), pp. 4745-4754.
17. Graham, J., Leary, M. & Roberts, M., 2015. A century of capital structure: The leveraging of corporate America. *Journal of Financial Economics*, 118(3), pp. 658-683.
18. Hall, G., Hutchinson, P. & Michaelas, N., 2000. Industry effects on the determinants of unquoted SMEs' capital structure. *International journal of business economics*, 7(3), pp. 297-312.
19. Harris, M. & Raviv, A., 1991. The theory of capital structure. *Journal of Finance*, 46(1), pp. 297-355.
20. Huang, R. & Ritter, J., 2005. Testing the market timing theory of capital structure. *Journal of Financial and Quantitative Analysis*, Volume 1, pp. 221-246.
21. Hutchinson, P., 2004. How Much Does Growth Determine SMEs' Capital Structure?, *Small Enterprise Research*, 12:1, 81-92
22. Iqbal, A. & Kume, O., 2015. *Impact of financial crisis on firms' capital structure in UK, France, and Germany*, Online: Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2472669.
23. Jordan, J., Lowe, J. & Taylor, P., 1998. Strategy and financial policy in UK small firms. *Journal of Business Finance & Accounting*, 25(1-2), pp. 1-27.
24. La Rocca, M., La Rocca, T. & Cariola, A., 2011. Capital structure decisions during a firm's life cycle. *Small Business Economics*, 37(1), pp. 107-130.
25. Lpez-Gracia, J. & Sogorb-Mira, F., 2008. Testing trade-off and pecking order theories financing SMEs. *Small Business Economics*, 31(2), pp. 117-136.
26. Mac an Bhaird, C., 2010. The Modigliani-Miller proposition after fifty years and its relation to entrepreneurial finance. *Strategic Change*, 19(1-2), pp. 9-28.
27. Mateev, M. & Ivanov, K., 2011. How SME Uniqueness Affects Capital Structure: Evidence from Central and Eastern Europe Panel Data. *Quarterly Journal of Finance and Accounting*, 50(1), pp. 115-143.
28. Michaelas, N., Chittenden, F. & Poutziouris, P., 1999. Financial policy and capital structure choice in UK SMEs: Empirical evidence from company panel data. *Small business economics*, 12(2), pp. 113-130.
29. Miglo, Anton. (2016). *Capital Structure in The Modern World*. London: Springer Nature.
30. Modigliani, F. & Miller, M., 1963. Corporate income taxes and the cost of capital: a correction. *The American Economic Review*, 53(3), pp. 433-443.
31. Myers, S., 1984. The Capital Structure Puzzle. *Journal of Finance*, 34(3), p. 575± 92.
32. Myers, S., 2001. Capital structure. *The journal of economic perspectives*, 15(2), pp. 81-102.
33. Rhodes, C., 2015. *Briefing Paper : Business statistics*, House of Commons Library Parliament UK: Available online <http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN06152>.
34. Schulz, T., 2017. *The impact of capital structure on firm performance : an investigation of Dutch unlisted SMEs*, Twente: Bachelor Essay in University of Twente.
35. Skoogh, J. & Sward, P.2015, "*The Impact of Tangible Assets on Capital Structure - An analysis of Swedish listed companies*", Sweden:University of Gothenburg

36. Sogorb-Mira, F., 2005. How SME uniqueness affects capital structure: Evidence from a 1994-1998 Spanish data panel. *Small business economics*, 25(5), pp. 447-457.
37. van der Schans, D., 2015. The British Business Bank's role in facilitating economic growth by addressing imperfections in SME finance markets. *Venture Capital*, 17(1-2), pp. 7-25.
38. Wagenvoort, M., 2016. *The firm specific determinants of capital structure and the influence of the financial crisis: Evidence from Dutch firms*, Twente: Bachelor Essay in University of Twente.
39. Yazdanfar, D. & Ohman, P., 2016. Capital Structure Dynamics among SMEs : Swedish Empirical Evidence. *The Journal of Risk Finance*, 17(2), pp. 245-260.
40. Bolton, J.E. (1971). Report of Committee of Enquiry on Small Firms. Bolton Report, 4811. London: HMSO
41. Rajan, R.G., & Zingales, L. (1995). What Do We Know about Capital Structure? Some Evidence from International Data. Diakses da <http://faculty.chicagobooth.edu/luigi.zingales/papers/research/capstructure.pdf> tanggal 21 Oktober 2012.
42. Jensen, M., C., dan W. Meckling, 1976. "Theory of the firm: Managerial behavior, agency cost and ownership structure", *Journal of Finance Economic* 3:305- 360, di-download dari <http://www.nhh.no/for/courses/spring/eco420/jensenmeckling-76.pdf>.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

