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The Crossroads of Capital Structure

Evidence from Swedish Listed and Non-listed SMEs

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Abstract

The financing of firms is subject to internal investment decisions but affected by external forces. This creates agency costs which have different effect on different firms. As small firms do not exhibit the same attributes as larger, public firms, studied more intensely, they are not affected equally by the costs. This thesis examines a sample of Swedish SMEs between the years 1999 and 2015 by dividing the sample into a listed and non-listed sample. Through mean difference tests it is found that non-listed SMEs finance with more debt. Through regressions the effects are attributed to size, tangibility, profitability, and non-debt tax shields. However, the effect of tangibility on long-term debt is the most prominent determinant and concluded to have the largest effect on the difference in capital structure between listed and non-listed SMEs.

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1. Introduction

1.1 Background

The global economy is comprised of innumerable firms, separated by a countless number of different traits and attributes such as industry, size, age, ownership, listing status and so on. In turn, the traits and attributes are all combined differently, creating an even larger number of firm individual combinations. Ang (1992, p.186) describes it well for the more narrow scope of small firms: “There are small businesses and there are small businesses. A complete taxonomy of privately held small businesses would classify a business based on whether it is a new or established business, how it is organized (proprietorship, partnership, corporation, cooperatives), who controls the voting and decision right (family members versus outsiders), is it a high or low growth firm, and so on.”

This effectively creates an opportunity to touch upon an area, which for a long time was ignored, namely small- and medium-sized enterprises (SMEs). The global economy is comprised of innumerable firms but for a long time only a small part was studied, the larger firms. This has often been recognized as a problematic bias (e.g. Ang, 1992; Rajan & Zingales, 1995) and according to Sogorb-Mira (2005) it is commonly known that in developed economies SMEs represent a large proportion of the total number of firms. Sogorb-Mira (2005) describes that the Sixth Report on European companies, carried out by the European Commission (2000), reports that in 1998 European companies amounted to over 19 million with an astonishing bias of 99.8% considered to be small- and medium-sized. Almost 20 years later the Annual Report on European SMEs 2016/2017, carried out by the European Commission (2017), reported that the number of enterprises (in the non-financial business sector) as of June 30, 2017 reached almost 24 million, out of which the same proportion (99.8%) was comprised of firms with less than 43 million euro in total assets, a turnover less than 50 million euro and below 250 employees. This portion of the companies accounted for almost 67% of employment and 57% of the value added in the non-financial business sector. In the words of Sogorb-Mira (2005, p.447): “All these figures show the great importance of this category of firms, but not always receiving the just attention that they really deserve”. In turn, Sogorb-Mira (2005) quoted Zingales (2000, p.1629): “Empirically, the emphasis on large companies has led us to ignore (or study less than necessary) the rest of the universe: the young and small firms, who do not have access to public markets”. In a time when SME employment grow almost 50% faster than the economy-wide employment, as reported by the European Commission (2017) it could be considered vital that this type of firm is studied more intensely. A reason (or potential excuse) for keeping the focus on larger firms is that the access to data is

restricted in many countries. Nevertheless, this creates gaps in our understanding and makes it harder to grasp the entire picture. Ang tells us specifically to “Think small” (Ang, 1992, p.185) and explains that financial researchers are fixated on the security market as it is convenient and powerful. However, this approach will not make us any wiser in terms of smaller businesses.

Much like the situation in the rest of the European Union, the number of Swedish companies has grown during the 21st century and today the number extends to over 1 million existing companies. This can be compared to 2001 when the same number was approximately 700 000 (Swedish Agency for Economic and Regional Growth, 2017). Also, similar to the European numbers is that the absolute majority of these companies are SMEs. Larger companies with 250 or more employees only accounted for 0.1% of the total number of enterprises. Consequently, research on Swedish SMEs is, if not more, equally important.

The research on capital structure has been one of vague results. Myers (1984, p.575) quotes Black’s (1976, p.8) gloomy words “We don’t know” when answering his own question about how a firm chooses its capital structure (a similar question opened for the words by Black). The theories and propositions established by Modigliani and Miller in 1958 and 1963 gave a foundation from which it was possible to grasp the effects of taxes and changes of risk when considering different financing options (Modigliani & Miller, 1958; Modigliani & Miller, 1963). However, the empirical results do not support the policies established which becomes even more obvious when studying small firms, which to some extent do not even use debt for financing purposes (Chittenden et al., 1996). Rajan and Zingales (1995) study of the capital structure in listed firms in the G-7 countries call for more research in the area as their research to some level contradicts the expected results established by previous theories. They specifically call for research forming further understanding of the underpinnings and influence of institutions. They were not the first to empirically examine the area of capital structure and previous work includes that of Titman and Wessels (1988) and Harris and Raviv (1991). Since the 1990s numerous studies on capital structure have been conducted (e.g. Zingales, 2000; Graham & Harvey, 2001; Myers, 2003), and in 2009, Frank and Goyal examined the capital structure decisions made by American listed firms over the years 1950 to 2003 in order to establish a set of determinants that are the most reliable when explaining leverage.

Especially in later years, the interest of capital structure has inspired research on leverage in other settings than that of the large listed firm with standardized attributes. Ampenberger et al. (2013) study German listed family firms and find that the leverage ratios are significantly lower in family firms. However, the findings have later been questioned by Burgstaller and Wagner (2015) who find an opposite relation, but this study focus on non-listed family owned

SMEs. The capital structure of SMEs has not only been researched in combination with such topics as family firms and other firm specific attributes but also on its own where Michaelas et al. (1999), Cassar and Holmes (2003) and Sogorb-Mira (2005) provided guidance on the importance and effect of various firm characteristics of SMEs, in a British, Australian and Spanish setting respectively. In Sweden, Öhman and Yazdanfar (2016, 2017) have contributed to the field of SME capital structure in a Swedish setting as they study capital structure determinants and whether a dynamic capital structure exists over the company's life cycle stages. The vast expansions of the field of capital structure proves that further country-specific and context dependent research is needed, as called for by Rajan and Zingales (1995).

This thesis will follow in the footsteps of above academics and try to expand the universe country- and context specific understanding of capital structure by comparing the capital structure of listed and non-listed SMEs in a Swedish setting. We acknowledge that similar research has been conducted before. Chittenden et al. (1996) investigated the capital structure of small firms in the UK through empirical data in the beginning of the 1990s. Research has also covered a Swedish setting but this was conducted with a data sample from the late 1990s, focusing on the largest companies in the economy (Farooqi-Lind, 2006).

1.2 Purpose and Contribution

As stated previously, up until the 1990s the empirical research of capital structure was to a large extent lagging in relation to theoretical research (Titman & Wessels, 1988). To carry out good empirical research there is a need of solid theories to use as foundation when generating hypotheses, which allow us to investigate, interpret and understand the results. Nonetheless, modern theories have been developed since the 1950s when Modigliani and Miller (1958), who, through their propositions, argued that a company's valuation is independent of its financial structure under a strict set of assumptions. This theory established a foundation for further theoretical research and their work has later been complemented by challenging and extending research, both by themselves (Modigliani & Miller, 1963) and others (e.g. Kraus & Litzenberger, 1973) forming what is known as the Trade-off Theory (TOT). A number of years later, Myers and Majluf (1984) extended the work and understanding of the empirical results of Donaldson (1961) and formed a theory, not based on a trade-off between the positive and negative aspects of fiscal or financial distress and interest conflicts issues, but rather on the problems caused by the information asymmetries surrounding a firm. This theory is today widely known as the Pecking Order Theory (POT).

As the lack of empirical research was exposed, the research and articles about capital structure and the determinants of variation became increasingly empirical (Rajan & Zingales, 1995; Titman & Wessels, 1988). Titman and Wessels (1988) examined a broader set of capital structure theories, not previously empirically analyzed, and scrutinized the effects of the theories on a broader set of debt ratios, namely long-term, short-term and convertible debt rather than a measure aggregating the measures. By identifying a number of theoretical attributes and observable indicators of said attributes they made an attempt to empirically validate what determinants have an effect on capital structure. Rajan and Zingales (1995) noted that previous work was heavily biased by its focus on large firms in the United States. They examined the capital structure over a wider range of countries and found that the extent to which firms are levered was fairly similar across their sample (G-7 countries). However, their research also provided questions as they found that factors identified in the United States behaved similarly in their interaction with leverage also in countries where institutional differences would suggest otherwise. This made them question the understanding of the economic underpinnings of their identified factors. In turn, they asked for further research to be carried out in order to strengthen the relation between theoretical models and empirical specifications as well as expanding the knowledge of the effect of institutional differences on capital structure.

The purpose of this thesis is to shed light on the potential capital structure differences between listed and unlisted SMEs in a Swedish setting. This is important as a majority of modern theories and empirical work have been created and carried out with a bias towards large, listed firms (Rajan & Zingales, 1995; Farooqi-Lind, 2006), often set in countries with a specific set of characteristics defining the economy. In their conclusion, Rajan and Zingales (1995) point to two different lines for future research: strengthening the relationship between theoretical models and empirical specifications of those models, and a deeper understanding of the effects of institutional differences. Hence, the main purpose of this thesis aims at deepening the understanding of institutional differences as it studies the difference between being listed or not for an SME in a Swedish setting. A subordinate purpose of the thesis is to better understand what effect a predefined set of determinants have on the composition of capital structure for Swedish SMEs and how this relation is affected by being listed or not. In turn, the main and subordinate purposes are believed to help strengthening the relationship between theoretical models and empirical specifications and guide future research in creating more exact and better models when trying to understand country and context specific differences. The study will focus on a larger sample (1999-2015) than previous, similar studies on the

capital structure of Swedish SMEs, which have only focused on shorter periods (three to ten years) (Chittenden et al., 1996; Farooqi-Lind, 2006; Yazdanfar & Öhman, 2016; Öhman & Yazdanfar, 2017). Hence, the data better catches the level of capital structure over different macroeconomic cycles and gives a better understanding of capital structure over an extended time period.

Similar studies have been carried out previously, examining the relation between capital structure and listing status. Chittenden et al. (1996) examined the listing status effect on determinants of capital structure of small companies in the UK in the early 1990s. However, the paper did not examine if a difference between the leverage existed between the two groups of companies but rather focused on the effects of growth in combination with the listing status. Even though it focuses on small firms, when compared to our thesis, it can be concluded that it displays major differences in terms of the country and context aspects previously deemed important (Rajan & Zingales, 1995). The most obvious is the geographical difference between a Swedish and UK setting. Less obvious (however still very evident) are the contextual and institutional differences such as the bank versus market oriented banking system (Sjögren & Zackrisson, 2005), currency differences and taxation systems. Another similar and more recent sample used to compare capital structure of listed and non-listed firms based in a Swedish setting was studied by Farooqi-Lind (2006). However, the paper focuses on the largest companies in Sweden and the data is collected from a three year period, almost twenty years ago, leading up to a financial crisis (the burst of the dot-com bubble). Consequently, it could be considered to mirror a different contextual setting, which cannot arbitrarily be considered to represent the situation of SMEs in the modern Swedish economy or over longer periods of time. A gap exists in the empirical literature regarding the capital structure differences of Swedish listed and non-listed SMEs. By closing this gap our thesis contributes by aiding specialists and analysts when evaluating companies of different listing status and size. It can be especially beneficial for valuation specialist concerned with valuation of unlisted companies as they often use peer groups of listed companies when deciding an optimal capital structure of the company. The results will potentially help in this process and could provide guidance on how to adjust the capital structure when estimating the leverage for a non-listed SME. The research can also be valuable for legislators in the case they evaluate legislation that will affect the potential financing of non-listed and listed SMEs.

1.3 Research Question

Based on the above background, the effects of being listed or not on SME capital structure is undiscovered territory, in contrast to that of large companies. The study by Farooqi-Lind (2006) examines the capital structure of the all firms but with a focus on the largest firms in the economy. Hence, the paper leaves room for further questions and complementary research. The scope in this thesis focuses on closing the knowledge gap existing for the capital structure differences of Swedish listed and non-listed SMEs in a modern setting. This gap also includes how the leverage of listed and non-listed SMEs is affected by different determinants. Consequently, the following two research questions are formulated:

Is the capital structure and its components significantly different between listed and non-listed Swedish SMEs?

Independent from the results of the above stated question, do the determinants affecting the capital structure have different effect on the components of capital structure depending on if the Swedish SME is listed or not?

1.4 Delimitations

This study is subject to a number of delimitations. The most obvious is the data restrictions prevalent in regards to listed SMEs. The sample of listed SMEs is small compared to the sample of non-listed SMEs. However, it is important to note that this is not due to legal restrictions or any other external obstruction but rather due to the sheer number of Swedish listed SMEs being small. A potential solution would be to include further geographies but this would make the study less country and context specific.

Related to the above delimitation it is important to remember that the area of capital structure is country and context specific and the results and conclusions should be used with caution when analyzing capital structure of firms exhibiting different attributes or existing in other geographies.

Further, the statistical methodologies employed include assumptions not necessarily correct for the sample studied. In order to solve this problem the results have been subject to alternative methods both in regards of the mean difference test and the regressions.

1.5 Disposition

This section has given a background and purpose to the stated research questions as well as a description of the delimitations. Following, will be a section describing the current theoretical and empirical literature (as of May 14, 2018) in the field of capital structure. Section 3 summarizes the literature and outlines the main hypotheses as well as the sub hypotheses needed in order to answer the above research questions. Section 4 defines the data used in the study as well as a description of the methodology applied in order to accept and reject the hypotheses. In section 5 the empirical results are presented and the hypotheses are accepted or rejected based on the findings. In section 6 the results are analyzed. Section 7 presents a conclusion, discussing the general effect of the results, what may limit the understanding and what future research is suggested.

2. Literature Study

The introduction has given a basis for why the field of capital structure is important to investigate in different contexts. In this second part of the thesis previous literature will be presented. First, the central theories of capital structure are presented. Second, theories complementing the central theories are covered. Third, the central theories and the complements are connected to inconsistencies due to size and listing status.

2.1 Capital Structure in Firms

2.1.1 Trade-off Theory

Since 1958, the foundations outlined by Franco Modigliani and Merton H. Miller in their groundbreaking article, *The Cost of Capital, Corporation Finance and the Theory of Investment*, have guided capital structure decisions and research. The article challenged the traditional theories of capital structure with three propositions: (1) “the market value of any firm is independent of its capital structure and is given by capitalizing its expected return at the rate appropriate to its class”; (2) “the expected yield of a share of stock is equal to the appropriate capitalization rate for a pure equity stream in the class, plus a premium related to financial risk equal to the debt-to-equity ratio ties the spread between k and r ” and; (3) “the cut-off point for investment in the firm will in all cases be k and will be completely unaffected by the type of security used to finance the investment” (Modigliani & Miller, 1958, p.268, p.271, p.288). The idea that, under a set of assumptions, the cost of capital and value of a firm is unaffected by its capital structure was revolutionizing and set a foundation for future research.

This helped scholars to develop and challenge the assumptions and results. In 1963 formulas and valuation expressions were corrected, which reduced the difference between this new model and the traditional one in terms of taxes and the advantage they present when using debt financing (Modigliani & Miller, 1963). Later Kraus and Litzenberger (1973) expanded the theories presented above by relaxing the assumptions made in the original model. In particular, they challenged the assumptions of complete and perfect capital markets by introducing taxes and bankruptcy, which had already been introduced by Miller and Modigliani (1963), Robichek and Myers (1966), and Hirshleifer (1966), to a state preference framework. The notion that a higher (lower) level of debt increases (decreases) the debt tax shield and increases (decreases) the risk of bankruptcy reflects the existence of an optimal level of leverage. As debt increases, the tax shield reaches a maximum level as the shielded funds are limited by other costs (and if not, limited by the total sales figure) while the risk of bankruptcy increases as the debt increases further. Hence, a trade-off between positive and negative effects, stemming from debt, exists (Kraus & Litzenberger, 1973). The theory of an optimal capital structure, within which a company chooses and aims for an optimal ratio of debt and equity financing, is usually referred to as the TOT (Kraus & Litzenberger, 1973; Myers, 1984).

2.1.2 Pecking Order Theory

In 1984, Myers and Majluf developed and popularized the Pecking Order Theory (POT). This addition, recognizing information asymmetries in connection with the capital structure decisions and cost of capital affecting firms, is based on the idea that a company faces three categories of financing: (1) internally generated funds; (2) debt issuance and; (3) equity issuance. The theory also conceptualizes the hierarchy in which financing is chosen. A firm uses internal financing over external financing when financing new investments. When internal financing is depleted the company uses external financing, where it prefers debt over new equity. The hierarchy exists due to costs associated with the financing and especially costs associated to information asymmetry (Myers, 1984; Myers & Majluf, 1984).

2.1.3 Complementing Theories

2.1.3.1 Market Timing Theory

Market Timing Theory proposes that managers use the most favorable financing as it stands in the current conditions. They take both equity and debt into account when choosing. If neither looks favorable, an issuance may not take place and inversely, if the market provides favorable terms in a time when the company does not need financing it may still raise the funds (Frank

& Goyal, 2009). Frank and Goyal (2009) suggest this to be a plausible idea, however they still argue that the theory does not provide any explanation for capital structure regularities independent of the TOT and it could also be the result from rational behavior of managers.

2.1.3.2 Life Cycle Approach

A life cycle approach has also been suggested to provide explanations for capital structure by a number of researchers (e.g. Chittenden et al., 1996; Yazdanfar & Öhman, 2016). This theory proposes that firms tend to access and use financing differently depending on the age of the company or the part of the cycle it is in. Yazdanfar and Öhman (2016) concludes that older firms use less debt than younger ones. They also see differences in the use of short-term and long-term financing. However, it is important to note that scholars usually attribute this to a hierarchy in line with the pecking order (Yazdanfar & Öhman, 2016).

2.1.3.3 Agency Theory

Another approach is that of different costs associated with transactions, contracting and agents. The fixed costs from transactions and the contractual and agency costs of different arrangements in regards to capital structure would deflect some firms from using some sorts of financing (Chittenden et al., 1996). Agency costs often considered are information asymmetries, moral hazard (which takes form through the separation of managers and owners) and the potential risk of shifting from low to high risk investments after receiving funds (Farooqi-Lind, 2006).

2.2 Capital Structure in Listed versus Non-listed Firms

A major part of the theoretical and empirical work in the field of capital structure has been carried out on large listed firms. Rajan and Zingales (1995), among many others (e.g. Ang, 1992; Sogorb-Mira, 2005), acknowledge this and suggest that future research should be carried out with the intention of unveiling what effects institutional differences have on capital structure. They argue that a better understanding of the effects of institutional differences will help improve empirical models and create a stronger relationship between empirical and theoretical research. The struggle to find data on non-listed firms has created a bias towards larger listed firms but it is important to understand capital structure choices for SMEs as they comprise an ample part of the economy (Rajan & Zingales, 1995; Farooqi-Lind, 2006).

Farooqi-Lind (2006) claims that the capital structure differs between listed and non-listed firms due to trade-offs, agency costs and restrictions that non-listed firms face. The most

apparent restriction is that non-listed firms cannot access the capital markets in order to issue equity and debt as easily as the listed firms. Also, non-listed firms are more likely to suffer the effects from higher information asymmetry as they do not have to, and are usually not willing to, display the same amount of information as is demanded by listed firms. However, listed firms should suffer more from separation of ownership and control. As non-owning managers share the owners' incentives they may use internal funds to finance perks. A way to stop this is by using debt financing which have more stringent clauses (e.g. covenants), which restricts the available funds. As non-listed firms are more likely to be owner managed, the separation of ownership and management is less important and they do not have the same incentives to use debt (Farooqi-Lind, 2006).

Chittenden et al. (1996) argue with a basis in the life-cycle approach that small firms initially risk under-capitalization as they only have access to internal resources. Only later the options are expanded to short- and long-term debt and equity. High growth in combination with an overreliance on short-term debt (as long-term debt is more costly) can lead to low liquidity and the non-listed firms will have to choose between slower growth and losing control through equity issuance or venture capital. As a result listed firms are expected to exhibit more rapid growth. If possible, the non-listed firm will use long-term debt. However, this is in combination with collateral, mitigating information asymmetries, moral hazard and adverse selection, which is not readily available to all firms. Farooqi-Lind (2006) concludes that non-listed firms, when lacking the possibility of issuing equity, also increase short-term debt to finance new initiatives.

When it comes to listed firms the POT does not provide answers for many of the determinants of the capital structure and further studies are needed to provide robust evidence. TOT better explains capital structure, but only for listed firms (Frank & Goyal, 2009).

2.3 Capital Structure in SMEs

Ang (1992) argues that large public firms have an objective function and that this function can be stated as maximizing three components: current market price, long term or intrinsic value and non-owner manager's own pecuniary and nonpecuniary incomes from having control right. For smaller firms, more different and context specific formulas of objective functions exist. The profitable firm, using only internal funding and still maximizing long-term value, could be one. In this setting, maximizing long-term value would be the only important aspect. However, short-term monitoring is needed when requiring external financing and current performance becomes more important. Current performance have a heavier weight in times of external refunding (e.g. IPO, debt restructuring, contract renegotiation). The effects this have on the

owners on a personal level also affect the function (e.g. loss of control). In short, the objective function of SME capital structure becomes more complex compared to that of a larger firm (which complexity should not be underestimated) (Ang, 1992).

Chittenden et al. (1996) investigated the financial structure of small firms and argue that small firm dependence on self-, trade creditor and bank financing as well as liquidity and rare stock issuance make them different from their larger counterparts. In turn, a potential financing gap is created when small and growing firms cannot access long-term financing, due to lack in size and maturity, while having utilized all short-term financing. This is similar to what the life cycle approach would suggest (Yazdanfar & Öhman, 2016).

Agency theory focuses on the costs associated with information asymmetries, moral hazard and adverse selection. As small, non-listed firms tend to have shorter life (Ang, 1992) and require more monitoring and bonding (Chittenden et al., 1996) the costs would be higher when issuing external debt and equity. Berger and Udell (1995) suggest that smaller firms can mitigate these costs through the use of collateral or extended relationships with financial intermediaries. Also, as small firms tend to face higher relative costs of listing, due to the expenses connected to the arrangement and underpricing as well as a small firm effect, external equity tends to be avoided (Chittenden et al., 1996). However, a number of agency costs can be mitigated by short-term debt (Farooqi-Lind, 2006) why this would be preferred to long-term debt and equity when internal funding is not available. The POT would support the above situation for small firms as they would steer away from equity if they can finance internally or utilize collateral when issuing debt. However, Chittenden et al. (1996) argue that the general arguments of TOT do not hold for small firms.

2.4 Empirical Research

Titman and Wessels (1988) reasoned the empirical work on capital structure lagged behind the theoretical, due to important firm attributes being abstract concepts. Hence, they empirically examined a broad set of theories in regards to short-term, long-term and convertible debt. The results indicated that unique products and profitability lead to relatively less debt while small firms use more debt compared to large firms. The results presented were questioned by Harris and Raviv (1991) who claim fixed assets, non-debt tax shields, growth opportunities and firm size is positively correlated to leverage but volatility, advertising expenditures, research and development expenditures, bankruptcy probability, profitability and product uniqueness provide the opposite correlation.

In 1995, Rajan and Zingales provided empirical evidence suggesting that the aggregate level of firm leverage is fairly similar across larger economies. However, differences were found in the UK and Germany leading them to question why more similar countries, like the US and the UK, have differing levels of leverage while the US and Japan, being less similar, hold similar leverage levels. Further they also found that factors, identified as important on American samples, also held importance in other economies. This led them to question the theoretical underpinnings of the observed correlations as different economies have different institutional setups, meaning factors should differ to some degree (Rajan & Zingales, 1995).

Frank and Goyal (2009) examined a sample of listed firms between 1950 and 2003. They found that the empirical evidence was consistent with the TOT. They argue that a market measure of leverage is most reliably correlated to median industry leverage, market-to-book assets ratio, tangibility, profits, log of assets and expected inflation. When considering a book measure of leverage they found median industry leverage, profits and tangibility to be more reliable (Frank & Goyal, 2009).

Chittenden et al. (1996) and Farooqi-Lind (2006) have examined the effect of listing status on capital structure. The first study finds that profitability, asset structure, size, age and stock market floatation provide significant correlations with leverage and argues that the results indicate that an overreliance on internal funds and collateral constrains economic growth (Chittenden et al., 1996). Farooqi-Lind find significant differences in the leverage of listed and non-listed firms and argue that growth options are important when forming the capital structure (Farooqi-Lind, 2006).

3. Hypothesis

The field of capital structure is multifaceted and dependent on various country and context specific factors. Hence, the generation of hypotheses can be subject to opposing dynamics and may not provide clear answers. Financing of non-listed SMEs tend to be better described by POT and financing of listed firms tend to be characterized by TOT. Non-listed SMEs would therefore follow what is stated by POT but the careful reader have noticed that listed SMEs are, according to theory, described by both POT and TOT.

As scholars have not used a unifying definition of the features of an SME the company type needs to be further elaborated upon as the choice of definition is not arbitrary and holds importance. The definition used in this study is in line with the definition stated by the European Commission (2017), but converted from euro into SEK (rounded exchange rate 10SEK/EUR as of March 29, 2018). The definition follows the below set of requirements: (i)

Number of employees between 10 and 250; (ii) Turnover between 20 MSEK and 500 MSEK; (iii) Balance sheet total between 20 MSEK and 430 MSEK. In this study, the term SME also encompasses both listed and non-listed limited liability companies.

Similar to the definition of an SME, the leverage measure of previous work is not uniform. Chittenden et al. (1996) use a measure called debt which seems more similar to liabilities as current and other long-term liabilities is included. In comparison, Farooqi-Lind (2006) employs the sum of corporate bonds and debt owed to credit institutions as a measure for debt. This definition is believed to be better as it excludes accounts related to transactions and focuses on financing (Rajan & Zingales, 1995). Hence, in this thesis debt is defined as the liabilities owed to credit institutions, as defined by Bisnode's Serrano database (Serrano). This includes liabilities related to bonds and convertibles.

3.1 Main Hypothesis

For obvious reasons non-listed SMEs do not have access to capital markets and cannot use this source of external equity. POT suggest they will grow slower when internal funding and debt have been utilized as they lack resources to invest further. On the other hand, TOT would suggest that SMEs choosing to go listed see benefits by financing through equity issues rather than debt (Chittenden et al., 1996; Frank & Goyal, 2009). A high ratio of intangible assets, often found in high growth firms would indicate a low ratio of tangible assets (Farooqi-Lind, 2006). Therefore, high growth SMEs cannot collateralize long-term debt and need to seek equity to mitigate information asymmetries. This would indicate that listed SMEs issue equity when non-listed SMEs issue long-term debt as this is cheaper. The reasoning would suggest that two strategies of bridging the financing gap exist depending if an SME exhibits high growth or not (or inversely, if they can provide collateral or not).

Farooqi-Lind (2006) argues that smaller firms have simpler organizational structures making the bonding and monitoring process easier when issuing debt. As this information asymmetry is generally considered to be mitigated by going public it may not be as beneficial for an SME to go public, and in turn collateral will be the more important factor in the search of long-term financing. To summarize, POT suggest that growing non-listed SMEs issue debt but TOT propose that SMEs unable to collateralize will issue equity as a substitute for long-term debt as the relative lack of collateral makes this cheaper. This would lead to listed SMEs having lower long-term debt ratios compared to non-listed SMEs and the following hypothesis is formulated:

H1a: Non-listed SMEs tend to finance with relatively more long-term debt compared to listed SMEs.

Regarding short-term financing none of the theories would suggest listed or non-listed firms to use more or less. POT would suggest that when the SME considers the use of long-term debt or equity (staying non-listed or go listed), the firm has already exhausted the potential short-term debt. However, Farooqi-Lind (2006) provides two tracks, one for listed and one for non-listed firms. If the notion that listed firms have access to less collateral is accepted, financial intermediaries would consider the risks of asset substitution. As short-term debt is a more flexible source of financing, this would be used to bridge this problem. Further, she argues that non-listed firms would use short-term debt when having exhausted long-term debt. An argument against both notions is that the POT would state that the SME have already exhausted its short-term debt when issuing equity and/or long-term debt. The theories do not provide an a priori reason that would suggest if listed and non-listed firms differ in their use of short-term financing and the following hypothesis is stated:

H1b: Non-listed and listed SMEs tend to finance with similar amounts of short-term debt

Overall, theory suggests that non-listed SMEs should exhibit higher debt ratios. This should be evident from the theorized composition of the debt as long-term debt is hypothesized to be higher in non-listed SMEs while theory do not support short-term debt to differ between listed and non-listed SMEs. The following hypothesis is stated:

H1c: Non-listed SMEs tend to finance with relatively more total debt compared to listed SMEs.

The above hypotheses provide that short-term leverage should be proportionally more significant for listed SMEs. This would also indicate that long-term leverage should be more important when explaining differences in debt.

3.2 Sub Hypothesis

When analyzing capital structure further, determinants presented by Frank and Goyal (2009) are used in combination with determinants used in previous articles on the comparison of listed and non-listed firms (cf. Chittenden et al., 1996; Farooqi-Lind, 2006). The determinants used

are: firm size, tangibility, growth opportunities, profitability, industry affiliation, non-debt tax shields and expected inflation. It is to be noted that these determinants, sometimes in combinations with other determinants not included here, are also used by a multitude of scholars (e.g. Öhman & Yazdanfar, 2017; Sogorb-Mira, 2005), on various work prepared on capital structure.

3.2.1 Firm Size

Firm size is often considered to mirror the age, maturity and diversification of a firm (Farooqi-Lind, 2006; Titman & Wessels, 1988; Yazdanfar & Öhman, 2016). Yazdanfar and Öhman (2016) argue that an older firm would have been able to raise internal funds through profits which it uses to fund investments, which decreases the overall debt ratio. However, age and maturity would also help mitigate information asymmetries (Berger & Udell, 1995) and reduce the risk of bankruptcy through diversification (Titman & Wessels, 1988) which would open up for debt. As was stated previously, SMEs should not suffer as greatly from information asymmetries, due to the smaller organization, and would therefore see less benefit from maturity and diversification in terms of availability of financing. Hence, SMEs should only tend to use internal funds to a greater extent, lowering the debt ratio.

Further, a difference should exist between listed and non-listed firms as listed firms should suffer more from the costs of separation of owner and manager (Farooqi-Lind, 2006). Owners of listed SMEs will demand dividends or debt issue to constrain managers while non-listed SMEs will use profits to invest. As would be evident from POT, the internal profits would first be substituted for long-term debt and only later short-term debt. The effect should therefore be smaller but similar on short-term debt compared to that of long-term debt and lead us to the following hypotheses:

H2a: Non-listed SMEs' long-term debt is more negatively correlated with firm size compared to that of listed SMEs.

H2b: Non-listed SMEs' short-term debt is more negatively correlated with firm size compared to that of listed SMEs.

H2c: Non-listed SMEs' total debt is more negatively correlated with firm size compared to that of listed SMEs.

3.2.2 Tangibility

As tangible assets retain a higher value in the liquidation a higher proportion of tangible assets reduce the lender's risk. Tangible assets are therefore easier to collateralize and better collateral than other assets. Hence, tangible assets would lead to a higher level of leverage as lenders should be more willing to supply loans (Rajan & Zingales, 1995). The asymmetric information framework maintain that borrowing costs decrease as debt is secured (Myers & Majluf, 1984). As non-listed SMEs cannot use capital markets, they are likely to be dependent on collateral. As suggested previously, listed SMEs may not rely as much on collateral as they are exposed to relatively less tangible assets. This would make tangible assets less important for listed SMEs. As collateral is mostly used to secure long-term debt the hypotheses are the following two:

H3a: Non-listed SMEs' long-term debt is more positively correlated with tangibility compared to that of listed SMEs.

H3b: Non-listed SMEs' total debt is more positively correlated with tangibility compared to that of listed SMEs.

3.2.3 Growth Opportunities

Growth opportunities would indicate the need of more financing and POT suggest this to follow its hierarchy (Frank & Goyal, 2009). The difference between the types of SMEs is that non-listed SMEs choose to decrease their growth rate when collateral is fully utilized, while listed SMEs choose to issue equity. This indicate that non-listed SMEs increase their debt ratio with growth opportunities and listed SMEs show the opposite. However, this reasoning forgets that growth opportunities are associated with additional financial distress costs and that banks can be unwilling to provide debt due to asset substitution issues (Farooqi-Lind, 2006). This would lead to non-listed firms being unable to finance through unsecured debt, leading to profitability and tangibility becoming important factors. Listed firms would experience similar problems and have to rely on equity. When considering long- and short-term debt, the second is often considered to be more flexible, decreasing the problems associated with asset substitution and should therefore be more easily available (Farooqi-Lind, 2006). However, in accordance with POT, short-term debt should already have been used when considering equity or long-term debt financing. Therefore, the above would indicate the following hypotheses:

H4a: Long-term, short-term and total debt should be negatively related to growth opportunities for non-listed SMEs.

H4b: Long-term, short-term and total debt should be negatively related to growth opportunities for listed SMEs.

3.2.4 Profitability

POT would suggest that more profitable firms use less debt due to the generation of internal funds. The relationship should therefore be negative between debt and profitability with profits first eliminating the use of long-term debt (Myers, 1984; Myers & Majluf, 1984).

As discussed previously, the separation of owner and manager should be large in public firms (Farooqi-Lind, 2006) which should be easy to assume holds for SMEs as well and the natural answer to this would be to restrict the managers by distributing dividend and finance through debt in accordance with TOT. Non-listed SMEs would use retained earnings to a greater extent and this pattern should be evident in both components of debt, but less in the short-term part as POT suggest to rather use short- than long-term debt. The following hypotheses are stated:

H5a: Non-listed SMEs' long-term debt is more negatively correlated with profitability compared to that of listed SMEs.

H5b: Non-listed SMEs' short-term debt is more negatively correlated with profitability compared to that of listed SMEs.

H5c: Non-listed SMEs' total debt is more negatively correlated with profitability compared to that of listed SMEs.

3.2.5 Industry Affiliation

Frank and Goyal (2009) argue that industry affiliation includes determinants otherwise too small or forgotten but important for specific industries. As the determinants can have different effect on non-listed and listed SMEs this is not hypothesized. However, Frank and Goyal (2009) also argue that industry affiliation could be a benchmark for managers when trying to align with a target capital structure in line with TOT. If industry affiliation would indicate a target capital structure it should be positively related to the capital structure of both non-listed and listed SMEs. The management of a listed SME have more tools, in terms of easier access to capital markets, and thus listed SMEs should be better suited to adjust more accurately. From this reasoning the following hypothesis is generated:

H6: Non-listed SMEs' total debt is less positively correlated with industry affiliation compared to that of listed SMEs.

3.2.6 Non-debt Tax Shields

An important trade-off is that between the tax benefits of debt and the bankruptcy costs debt incur (Modigliani & Miller, 1958; Modigliani & Miller, 1963). As long as the firm is profitable, debt shields against taxes, but if earnings are not positive no shield can be considered (Kraus & Litzenberger, 1973). Hence, other costs, such as depreciation, shields against taxes before debt and the higher the non-debt tax shields are, the lower the reason to hold debt to shield profits. This would suggest a negative relationship between debt levels and non-debt tax shields. There is no a priori reason for a difference between non-listed and listed SMEs and therefore the following hypotheses are stated:

H7a: Non-listed SMEs' total debt is negatively correlated with non-debt tax shields.

H7b: Listed SMEs' total debt is negatively correlated with non-debt tax shields.

3.2.7 Expected Inflation

Market Timing Theory would suggest that, when managers experience the expected inflation to be high in comparison to current interest rates they will issue more debt (Frank & Goyal, 2009). As non-listed SMEs are assumed to finance through the POT hierarchy it is unlikely managers of such firms would take on more debt if they have available internal funds. However, TOT would state this to be beneficial and thus, it would be interesting for listed SMEs. Hence, the following hypothesis is stated:

H8: Non-listed SMEs' total debt is less positively correlated with expected inflation compared to that of listed SMEs.

4. Data and Methodology

This section will present the sample data and the procedure used in the analysis. It begins with defining the set of data studied. Later the variables used to approximate the determinant, presented in the previous section, are distinguished and the method is discussed.

4.1 Data

As no single database held the entire set of information needed to generate appropriate proxies, the data used has been collected from different sources. The majority of the data has been collected from Serrano, accessed through Swedish House of Finance. This database keeps a record of financial data between the years 1998 to 2017 collected from the Swedish Companies Registration Office, Statistics Sweden and Bisnode group register. As Serrano only contains information on whether a company is a limited liability company or not, the information regarding the listing status was collected from the Compustat database, accessed through the Wharton Research Data Services (WRDS). Information regarding Swedish inflation was collected from Statistics Sweden.

Several filters have been applied in accordance with the definitions previously stated. The first filter exclude all non-limited liability companies as only the Swedish company type Aktiebolag, referred to as Limited Liability Company, are considered. This filter is applied due to the limitations in the data presented by other types of Swedish firms. Next, all companies not meeting the SME criteria are excluded. In accordance with previous research (e.g. Öhman & Yazdanfar, 2017) only non-financial firms are included in the sample. The SNI07 numbers are used to exclude firms in non-applicable industries. The eliminated firms are identified as firms between SNI07 numbers 64000 and 68300 as well as 68320 and 99000. These firms generally treat capital structure differently. Further, the observations including missing values are excluded. As the determinants of capital structure are estimated with both leading and lagging variables the years 1998 and 2016 has been excluded. As many companies included in the sample have not reported their financials for the year 2017 at the date of the gathering of data, the year 2017 has been excluded. After exclusions the data sample comprise of 22 791 companies with 153 194 firm-year observations during the period of 1999 to 2015. After generating variables the data has been winsorized in order to handle problems caused by extreme values and outliers. The limits are at the 1% and 99% level. Further, the data is also subject to clustering.

Data Sample

Public and Private Limited Liability Companies in Sweden	837 907
- Number of Employees between 10 and 250	-756 754
- Turnover between 20 and 500 MSEK	-35 529
- Total Assets between 20 and 430 MSEK	-20 118
- Irrelevant Industries (Banks, Financial Firms, Insurance Companies etc)*	-796
- Missing Values	-1 919
= Total SMEs Included	22 791
Firm-Year Observations for 1999 to 2015	153 194
= Total Number of Observations	153 194

* SNI 07 Numbers: 64000-86300, 68320, 99000

4.2 Variables

In order to compare the capital structure of listed and non-listed SMEs a number of dependent and independent variables have been considered. The dependent variables have been based on debt ratio measures in line with previous research (e.g. Chittenden et al., 1996; Titman & Wessels, 1988; Frank & Goyal, 2009). An alternative to this is found in interest coverage ratio (Welch, 2004). However, as debt ratio measures are used by a multitude of scholars, this measure is preferred. Furthermore, a number of alternatives of this measure are suggested throughout the previous literature with differences based in book or market measures of debt and its composition.

The independent variables used in this study are size, tangibility, growth opportunities, profitability, industry leverage, net debt tax shield and expected inflation. These independent variables have been commonly used in earlier research on capital structure as was presented in section 3.2. A dummy variable, indicating whether the SME is listed or not, is included in line with the work of Farooqi-Lind (2006) and Chittenden et al. (1996).

4.2.1 Dependent Variables

As presented above, the dependent variables are debt ratio measures. Frank and Goyal (2009) uses both market and book measures of total and long-term debt as they study determinants of capital structure while Chittenden et al. (1996) and Farooqi-Lind (2006) only considers book measures due to restrictions of data. As this study considers both listed and non-listed SMEs market values of debt are not obtainable for all firms leading to the use of book values of debt. However, the results of Bowman (1980) suggest that book and market measures of debt are

statistically indistinguishable and the choice of book values should therefore not be a reason for misspecification. This reasoning is similar to that of Titman and Wessels (1988).

Titman and Wessels (1988) further problematize the use of a single leverage measure as the theories have different impact on different components of the total leverage measure. The total measure is therefore divided into a long-term and short-term part. Total debt is defined as both current and non-current liabilities to credit institutions over total assets. Long-term debt is defined as non-current liabilities to credit institutions over total assets. Short-term debt is defined as current liabilities to credit institutions over total assets.

Variables

<i>Definition</i>	<i>Variable Name</i>	<i>Measure</i>
Total Debt	lev	Total Debt / Total Assets
Short-term Debt	stlev	Short-term Debt / Total Assets
Long-term Debt	ltlev	Long-term Debt / Total Assets
Dummy Variable, Listed Companies	listed	Public Company = 1, Private Company = 0
Firm Size	size	Natural Logarithm of Total Assets
Tangibility	tangibility	Tangible Assets / Total Assets
Growth Opportunities	growth	Change in Natural Logarithm of Total Assets (%)
Profitability	profitability	EBITDA / Total Assets (t-1)
Industry Affiliation	indlev	Average Industry Leverage
Non-debt Tax Shield	ndts	Depreciation / Total Assets
Expected Inflation	expinf	Next Year Inflation (CPIF)

4.2.2 Independent Variables

The operationalization of determinants vary in previous literature and various approximations are suggested. In this thesis the proxies are based in previous literature (e.g. Rajan & Zingales, 1995; Titman & Wessels, 1988; Frank & Goyal, 2009) but can exhibit slight variations due to data restrictions.

Firm size in a given period is approximated as the natural logarithm of total assets in the period, similar to the treatment by Frank and Goyal (2009). In other research (e.g. Rajan & Zingales, 1995; Titman & Wessels, 1988) sales has been used instead of assets. However Frank and Goyal (2009) addresses this potential issue by stating “replacing assets with sales is unlikely to matter” (Frank & Goyal, 2009, p.4). Tangibility is approximated by the ratio of tangible assets to total assets as suggested by several scholars (Rajan & Zingales, 1995; Titman & Wessels, 1988; Öhman & Yazdanfar, 2017). As market-to-book ratio cannot be used due to data limitations, the proxy for growth opportunities is defined as the percentage change in the

natural logarithm of total asset between the current and next year as suggested by Frank and Goyal (2009). To measure profitability in a given period, the ratio of operating income before depreciation (EBITDA) is set in relation to the opening book value of total assets similar to the proxy used by Rajan and Zingales (1995). Other proxies for profitability are similar but based on other income measures such as pre-tax profits (Chittenden et al., 1996). Industry affiliation is estimated by the use of average industry leverage. Frank and Goyal (2009) suggest the median industry leverage to be used but the use of an average measure is due to the fact that the data set is comprised of many zero leverage firms leading to a zero industry median. The industries considered when generating average industry leverage are based in the pre-existing industry definitions in Serrano. Expected inflation was proposed by Frank and Goyal (2009) and later operationalized by Ampenberger et al. (2013). Similar to the study of Ampenberger et al. (2013), this study bases it on next year's actual inflation (average Consumer Price Index with fixed interest rates, CPIF). The use of the CPIF measure is in line with the Riksbank, which switched from Consumer Price Index (CPI) to CPIF in September 2017 (Statistics Sweden, 2017). The measure used to proxy the non-debt tax shields is depreciation over total assets in line with the work of Farooqi-Lind (2006).

4.2.3 Multicollinearity

The information in Table I below indicates that the majority of the independent variables are significantly correlated with each other. However, this correlation is low in general with the only absolute correlation values above 0.1 being the correlations between growth and profitability, growth and size, tangibility and non-debt tax shields, and tangibility and industry leverage. The only correlation reaching above 0.5 is tangibility and non-debt tax shields. A strong positive correlation between these independent variables was expected as high tangible assets should indicate a high level of depreciations. No multicollinearity is evident in the sample as no single correlation is very high, neither are many elevated.

To further refute the existence of multicollinearity, Table II indicates that no variable exhibits a VIF-level above the generally accepted limit of 5 ($1/VIF=0.2$).

Table I: Pairwise Correlation

	listed	size	tangibility	growth	profitabilit	expinf	ndts	indlev
listed	1.0000							
size	0.0845*	1.0000						
tangibility	-0.0481*	0.0481*	1.0000					
growth	0.0257*	-0.0265*	0.0396*	1.0000				
profitability	-0.0537*	-0.1041*	0.0487*	0.1281*	1.0000			
expinf	0.0027	-0.0028	0.0283*	-0.0433*	0.0090*	1.0000		
ndts	-0.0095*	-0.0464*	0.6173*	-0.0028	0.0950*	0.0139*	1.0000	
indlev	-0.0396*	0.0381*	0.1140*	0.0068*	-0.0416*	0.0079*	0.0075*	1.0000

Table II: Variance Inflation Test

<i>Variable</i>	<i>All SMEs</i>		<i>Listed SMEs</i>		<i>Non-listed SMEs</i>	
	<i>VIF</i>	<i>1/VIF</i>	<i>VIF</i>	<i>1/VIF</i>	<i>VIF</i>	<i>1/VIF</i>
tangibility	1.67	0.59	1.20	0.83	1.67	0.59
ndts	1.65	0.60	1.20	0.83	1.66	0.60
profitability	1.04	0.96	1.10	0.91	1.04	0.96
size	1.02	0.97	1.09	0.91	1.02	0.97
growth	1.02	0.97	1.06	0.94	1.02	0.97
indlev	1.02	0.97	1.05	0.95	1.02	0.97
expinf	1.00	0.99	1.03	0.97	1.00	0.99
Mean VIF	1.20		1.10		1.21	

4.3 Methodology

4.3.1 Mean Difference Test

The differences in total, long-term and short-term debt between listed and non-listed SMEs are analyzed by comparing the means of the two groups. By conducting two different univariate mean difference tests the statistical difference between the groups is detected. The univariate mean difference tests conducted are the Student's t-test and the Mann-Whitney U-test. The student's t-test is the standard test for comparing means of two groups (Newbold et al., 2013). To further strengthen the results, and establish if the significant difference is robust, a Mann-Whitney U-test is conducted. As this test is non-parametric it does not assume normal distribution, which is assumed by the Student's t-test (Newbold et al., 2013). Hence, it could be considered as a robustness check. The different tests are run on the three dependent variables included in this study. This summarizes in a total of six different test values to be analyzed. Both the tests need to be significant to accept a hypothesis.

4.3.2 Regression

Theory suggests that potential differences in the levels of total, long-term and short-term debt between listed and non-listed SMEs are due to the alternating effects of determinants. In order to analyze what determinants have significant influence on the capital structure of listed and non-listed SMEs and how they affect the capital structure, two types of regressions are run on the data sample: Ordinary Least Square (OLS) and Fixed Effect (FE). The OLS regression is a standard and straight forward regression. This model has previously been used by scholars such as Chittenden et al. (1996) and Cassar and Holmes (2003).

The OLS model requires assumptions regarding heterogeneity, heteroscedasticity and autocorrelation. A Breusch-Pagan test has been conducted which indicates the occurrence of heteroscedasticity. In order to study if this have an effect on the results, an FE model, which can control for these problems, is used to test the robustness of the results. In later years, the model has been employed by academics such as Sogorb-Mira (2005) and Michaelas et al. (1999). However, in some cases it can be substituted by the Random Effect Model and in order to decide which to use a Hausman-test is required (Öhman & Yazdanfar, 2017). The statistically significant results from the Hausman-test provides evidence that the appropriate model to use in this thesis is the FE model. The method to combine the OLS and FE models have previously been used by Öhman and Yazdanfar (2017) and Farooqi-Lind (2006) as the later model helps control for time-invariant and unobservable features.

The FE model decreases the sample which is critical for the significance of the regression on the listed sample. Hence, the thesis will use the OLS to accept or reject a hypothesis. However, as the FE model control for weaknesses in the OLS it is used as a signal of caution and consequently can lead to rejection of a hypothesis. The general forms of the two different models are shown below:

OLS- model:

i = individual dimension; t = time dimension; β_0 = intercept; β_n = coefficient of determinant; ε = error term

$$\text{Debt Ratio}_{it} = \beta_0 + \beta_1 \text{size}_{it} + \beta_2 \text{growth}_{it} + \beta_3 \text{tangibility}_{it} + \beta_4 \text{profitability}_{it} + \beta_5 \text{expinf}_{it} + \beta_6 \text{ndts}_{it} + \beta_7 \text{indlev}_{it} + \varepsilon_{it}$$

FE- model:

i = individual dimension; t = time dimension; β_0 = intercept; β_n = coefficient of determinant; η = firm fixed effects; ε = error term

$$\text{Debt Ratio}_{it} = \beta_0 + \beta_1 \text{size}_{it} + \beta_2 \text{growth}_{it} + \beta_3 \text{tangibility}_{it} + \beta_4 \text{profitability}_{it} + \beta_5 \text{expinf}_{it} + \beta_6 \text{ndts}_{it} + \beta_7 \text{indlev}_{it} + \eta_i + \varepsilon_{it}$$

The dependent variable (called “Debt Ratio” in the above regression models) can be one of three dependent variables: total debt, long-term debt and short-term debt, totaling six regressions. As it is interesting to compare the full sample with the sample of listed and non-listed SMEs individually each regression model is run on the three samples of data totaling 18 regressions. In order to more easily view and analyze the differences between the samples, the independent variables are interacted with the dummy variable. This process is similar to the method used by Farooqi-Lind (2006) when comparing the difference in explanatory variables between listed and non-listed larger firms. As the interaction creates two more regressions per dependent variable a further six regressions are created leading to a total of 24 regressions.

4.3.3 Robustness Test

The regressions provide acceptable levels of the value of R-squared. In general, the p-value of the F-test is low and indicates that each independent variable provide further explanation to the model. However, for the short-term debt regressions on the listed sample the F-value is elevated and the results should be interpreted with caution.

In order to determine if the results tend to be robust, further tests have also been run on the samples. The tests control for the effect of variables, if the way the data has been comprised has any effect and if the definition of SME creates any bias. The tests provide indications of very minor differences without any implication for the tests.

4.3.3.1 Debt versus Liabilities

As the choice between debt and liabilities is not clear and differences exist in previous literature it is important to understand the impact of the choice. Instead of using debt (previously defined as liabilities to credit institutions) a more broad term, total liabilities (with the equivalent differences on short- and long-term as applied for debt), is tested. As would be expected, the results show that the level of liabilities over total assets is higher than that of the similar debt ratio as liabilities include further accounts. When comparing the mean differences between listed and non-listed SMEs the relation does not change in relation to any of the dependent variables. Also the regressions run using liabilities indicate lower values for R-squared with similar coefficients compared to when debt is used. Thus, the use of debt rather than liabilities cannot be said to have altered the results, only made them better connected to the financing of the firm. This is in line with the suggestion of Rajan and Zingales (1995), stating that liabilities may include transaction related accounts. The results of the mean difference tests can be seen in Table A in the appendix.

4.3.3.2 The Extraction of Data

When extracting the data on “liabilities from credit institutions” (debt) the data can be directly exported as an account from Serrano. However, it is also possible to back-track this information by subtracting “non-current liabilities to group and associated companies” and “other non-current liabilities” from “total non-current liabilities” as well as subtracting the “current liabilities to group and associated companies”, “accounts payables” and “other current liabilities” from “total current liabilities”. Small changes are indicated in the descriptive statistics and results. However, these are considered negligible and therefore this is not investigated further.

4.3.3.3 Large and Small SMEs

The data indicates that the listed SMEs are twice the size of non-listed SMEs. This could be a potential reason for important differences which would indicate that the differences are not due to listing status but rather firm size. To control for this the sample was divided into two groups used when running the tests and regressions. The first group consisted of the smallest SMEs with total assets between 20 MSEK and 40 MSEK and the second consisted of the largest SMEs with total assets between 200 MSEK and 430 MSEK. This created two groups with approximately the same average total assets between listed and non-listed SMEs. As seen in Table B in the appendix, the relationships are consistent with the main findings. However, the results for short-term debt partly lose significance which is due to the small sample size. The regressions show similar results which strengthen the previous results.

4.3.3.4 Exclusion of Size

The size variable can be considered controlled for in two ways, through the regression and through the definition of an SME. The regressions on listed SMEs show somewhat elevated F-values. In order to test if this could be the reason, the size variable was eliminated. This had a limited positive effect on the F-value of the regression but also showed negative results on the R-square values. Hence, excluding size is not considered to improve the model.

5. Empirical Results

This section of the thesis will provide an overview and describe the features of the dataset, provide the results found in the mean tests and the OLS and FE regressions and the hypotheses are also accepted or rejected.

5.1 Number of Observations

The number of observations can be viewed in Table C in the appendix. The total number of observations is 153 194, with a heavy bias towards non-listed SMEs (over 99% of total sample), and the total number of observations per year never falling below 6630 and reaching a maximum in 2014 (10 879 observations). The compound annual growth rate between 1999 and 2015 equals 3.4% and is largely due to the growth in non-listed SMEs (3.4%). Listed SMEs experience a less dramatic increase (1.4%) and also higher volatility between the years with decreases in 2000, 2003, 2009, 2010, 2013 and 2015 compared to only in 2002, 2009 and 2015 for listed SMEs and only in 2009 and 2015 for the full sample. The increases and decreases are also much higher for listed SMEs with over 15% and 10% respectively while the non-listed sample never exhibit changes above 9%. The changes are partly due to the definition of an SME but it is also due to discontinuation of operations, acquisitions or mergers.

5.2 Descriptive Statistics

Below, Table III provides the descriptive statistics of all control variables for the full sample and based on listing status.

Even though the sample has been limited to only include firms between 20 MSEK and 430 MSEK (natural logarithm value of approximately 9.9 and 13.0) the listed SMEs are, on average, dramatically larger than the non-listed SMEs. The mean of the natural logarithm of 11.542 is equivalent to a mean asset value of almost 103 MSEK for the listed SMEs, while the mean of the natural logarithm of 10.820 is equivalent to a mean asset value of roughly 50 MSEK for the non-listed SMEs. Table D in the appendix illuminates this difference further and it is evident that the distribution of listed SMEs is different from that of non-listed SMEs, with a bias towards larger SMEs in the listed sample. The maximum and minimum tangibility do not differ largely between listed and non-listed SMEs. However, non-listed SMEs have the highest maximum and hold nearly three times as much tangible assets on average compared to listed SMEs. On average, the listed SMEs have higher growth opportunities compared to their non-listed counterparts. Profitability is higher for non-listed SMEs compared to the profitability of listed SMEs. The mean profitability of non-listed SMEs reaches almost 15%

Table III: Descriptive Statistics

<i>All SMEs</i>	<i>N</i>	<i>mean</i>	<i>sd</i>	<i>min</i>	<i>max</i>
lev	153 194	0.120	0.176	0.000	0.685
llev	153 194	0.090	0.149	0.000	0.621
stlev	153 194	0.028	0.062	0.000	0.329
size	153 194	10.825	0.705	9.904	12.972
tangibility	153 194	0.219	0.236	0.000	0.880
growth	153 194	0.002	0.023	-0.102	0.067
profitability	153 194	0.149	0.185	-0.480	0.847
indlev	153 194	0.171	0.083	0.082	0.710
ndts	153 194	0.042	0.041	0.000	0.199
expinf	153 194	1.469	0.630	0.467	2.692
listed	153 194	0.007	0.083	0.000	1.000
<i>Listed SMEs</i>	<i>N</i>	<i>mean</i>	<i>sd</i>	<i>min</i>	<i>max</i>
lev	1 051	0.056	0.106	0.000	0.612
llev	1 051	0.033	0.077	0.000	0.612
stlev	1 051	0.023	0.056	0.000	0.329
size	1 051	11.542	0.788	9.905	12.970
tangibility	1 051	0.083	0.142	0.000	0.852
growth	1 051	0.009	0.029	-0.102	0.067
profitability	1 051	0.029	0.247	-0.480	0.847
indlev	1 051	0.132	0.086	0.082	0.710
ndts	1 051	0.037	0.037	0.000	0.199
expinf	1 051	1.490	0.631	0.467	2.692
listed	1 051	1.000	0.000	1.000	1.000
<i>Non-listed SMEs</i>	<i>N</i>	<i>mean</i>	<i>sd</i>	<i>min</i>	<i>max</i>
lev	152 143	0.120	0.176	0.000	0.685
llev	152 143	0.091	0.149	0.000	0.621
stlev	152 143	0.028	0.062	0.000	0.329
size	152 143	10.820	0.702	9.904	12.972
tangibility	152 143	0.220	0.236	0.000	0.880
growth	152 143	0.001	0.023	-0.102	0.067
profitability	152 143	0.149	0.184	-0.480	0.847
indlev	152 143	0.172	0.082	0.082	0.710
ndts	152 143	0.042	0.041	0.000	0.199
expinf	152 143	1.469	0.630	0.467	2.692
listed	152 143	0.000	0.000	0.000	0.000

while the profitability of listed SMEs does not even reach 3%. The industry leverage is in large similar between the two groups. However, non-listed SMEs tend to exist within industries with a slightly higher leverage, resulting in a higher mean industry leverage for this group. The non-

debt tax shields of listed and non-listed SMEs are relatively similar. The maximum level of non-debt tax shields does not reach 20%. However, as the average is approximately 4% for both listed and non-listed SMEs it seems as if the measure is somewhat skewed towards zero with a tail dragging to a 20% depreciation of total assets for some SMEs. Expected inflation is slightly higher for listed SMEs.

5.3 Capital Structure Differences between Listed and Non-listed SMEs

Below, Table IV indicates that non-listed SMEs, on average, have a total debt level of 12% while their listed counterparts, on average, have a total debt of 5.6%. It also indicates that the largest part of the total debt difference comes from an average long-term debt level which is substantially higher in non-listed compared to listed SMEs as they use 9.1% and 3.3% long-term debt respectively. However, the difference in short-term debt is not as distinct as the average non-listed SME in the sample uses 2.8% short-term debt while the listed equivalent uses 2.3%.

The differences in debt levels have been examined through Student's t-test, providing evidence that the total debt of non-listed and listed SMEs differ significantly. As is presented by Newbold et al. (2013), a t-test with an infinite number of degrees of freedom (which should not be a dubious assumption in regards to the large sample) provide significance at the 0.2% level at the critical value 3.090 for a two-tailed test. This would indicate that the results are significant at this level for both total debt (t-value = 11.94) and long-term debt (t-value = 12.61). As the normal distribution (z) is considered to equal the t-distribution at infinite degrees of freedom (Newbold et al., 2013), and the Mann-Whitney U-test also exhibit very high z-values for the total debt (z-value = 10.01) and long-term debt (z-value = 11.00), the differences are considered significant at the highest level. The significance level differs for short-term debt between the Student's t-test and Mann-Whitney U-test. The Mann-Whitney U-test provides significance at the highest level (z-value=3.78), while the Student's t-test is only significant at the 1% level (t-value=2.86).

The results in Table IV, being robust and indicating that non-listed SMEs hold significantly more long-term, short-term and total debt in relation to their total assets, leads to acceptance of hypotheses H1a and H1c but rejection of H1b.

Table IV: Univariate Tests of Mean Differences

<i>Variables</i>	<i>All SMEs</i>	<i>Listed SMEs</i>	<i>Non-listed SMEs</i>	<i>Mean Difference</i>	<i>Student's t- test (t)</i>	<i>Mann-Whitney U-test (z)</i>
Observations	153 194	1051	152143			
Total Debt	0.120	0.056	0.120	0.064	11.84	10.01
Long-Term Debt	0.090	0.033	0.091	0.058	12.61	11.00
Short-Term Debt	0.028	0.023	0.028	0.005	2.86	3.78

5.4 The Effect of Determinants on Listed and Non-listed SMEs

When combined, the regressions and samples provide four OLS regressions and four FE regressions for each of the three dependent variables: total debt, long-term debt and short-term debt, totaling 24 regressions. In tables E, F and G in the appendix, the results are presented for the dependent variables respectively.

5.4.1 Firm Size

Firm size is negatively correlated with all dependent variables in the OLS regression for the full and non-listed sample at the 1% significance level. In the FE regression the results for total debt and short-term debt change sign (short-term debt is even significant). The OLS results for the listed SMEs are all insignificant which hold in the FE regression. The size variable interacted with the listing status provides significant results in relation to total debt and long-term debt in the OLS regression and indicate that listed SMEs are less negatively affected by changes in debt. However, the sign only holds in the FE regression for long-term debt. No difference is detected for short-term debt in the OLS regression. The results lead to acceptance of H2a while H2b is rejected. Even though the OLS regression suggests that hypothesis H2c holds and should be accepted, the FE regression shows an opposite relation. Hence, the result is not considered robust and the hypothesis is rejected out of caution. However, the results of the OLS could be considered to indicate the hypothesized relationship. The results give evidence to non-listed SMEs' long-term debt being more negatively correlated with size compared to that of listed SMEs' and could potentially indicate similar results for total debt, but this needs further investigation.

5.4.2 Tangibility

Tangibility is positively correlated with total and long-term debt for all samples in the OLS and FE model. The interacted variable indicates a more positive correlation between tangibility and total and long-term debt for non-listed SMEs than for listed SMEs in the OLS regression and the results are considered robust as the signs hold in the FE regression. For long-term debt the correlation is significant. However, for short-term debt, only the OLS provide significant results for the full and non-listed sample. These results lead to acceptance of H3a and H3b, providing evidence that tangibility of non-listed SMEs is more positively correlated to long-term and total debt compared to that of listed SMEs.

5.4.3 Growth Opportunities

The full and non-listed sample provide significant evidence of a negative relationship between all dependent variables and growth opportunities in both the OLS and FE regression. When considering listed SMEs the correlations between growth opportunities and long-term and total debt are positive but not significant in both regression. The same goes for the correlation of short-term debt and growth opportunities in the FE regression but the correlation is opposite in the OLS. Only the interacted variable correlated with long-term debt provide significant results at the 10% level, indicating that non-listed and listed SMEs likely have opposite correlations between growth opportunities and long-term debt. The results presented leads to acceptance of H4a but rejection of H4b indicating that long-term, short-term and total debt is negatively related with growth opportunities in non-listed SMEs but this does not hold in listed SMEs.

5.4.4 Profitability

The correlations between profitability and long-term, short-term and total debt are significantly negative in both regressions and throughout all samples. The interacted variables indicate that profitability for listed SMEs is less negatively correlated with long-term, short-term and total debt in the OLS regressions. However, only total debt and long-term debt provide significant relations and the long-term debt correlation cannot be considered as robust as the correlation changes sign in the FE regression. This leads to a rejection of hypotheses H5a and H5b while H5c is accepted. It is important to note that H5a is rejected due to the change of sign between the OLS and FE model. Hence, the rejection is out of caution and the result could be used as an indication but further research is needed in order to provide better answers. This gives evidence to the idea that total debt of non-listed SMEs is more negatively correlated with

profitability compared to that of listed SMEs. The results for long-term debt indicate a similar relation but the results cannot be considered robust.

5.4.5 Industry Affiliation

Industry affiliation provides significant and positive correlations with all dependent variables and for all samples in the OLS regression except for the correlation between short-term debt and industry affiliation for the listed sample which is positive but not significant. However, the FE regressions all change sign except for the correlations between industry affiliation and short-term debt for the full and non-listed samples. As all correlations between the interacted variables and the dependent variables are insignificant and shift sign between the models hypothesis H6 is rejected. The results show no evidence of a less positive correlation between industry affiliation and non-listed SMEs' total debt compared to the correlation between listed SMEs' total debt and industry affiliation.

5.4.6 Non-debt Tax Shields

The correlations between non-debt tax shields and long-term and total debt are all significantly negative throughout both regressions and all samples except for the listed sample which provides similar but insignificant results. The interacted variables provide that the non-debt tax shields are significantly more negatively correlated with long-term and total debt for non-listed SMEs. When considering short-term debt the signs and significances mirror those of long-term and total debt but with opposite signs. This leads to the result that non-debt tax shields are significantly more positively correlated with short-term debt which in turn leads to the acceptance of hypothesis H7a, but as the listed sample provides insignificant results, H7b is rejected.

5.4.7 Expected Inflation

The results for the correlations between expected inflation and long-term and total debt are significant and positive throughout the regressions and samples, except for the listed SMEs providing insignificant results. The results on short-term debt mirror the above structure but with opposite signs for all except the FE regression on the listed sample, which is positive. No significant differences are found between listed and non-listed SMEs. Hence, hypothesis H8 is rejected.

6. Analysis

6.1 Capital Structure Differences between Listed and Non-listed SMEs

Table IV effectively answers the main research question of the thesis: “Is the capital structure and its components significantly different between listed and non-listed Swedish SMEs?”, as it provides clear evidence that non-listed SMEs tend to have higher debt levels than their listed counterparts.

The acceptance of H1a and H1c, stating that non-listed SMEs finance with relatively more long-term and total debt than listed SMEs, is not unexpected if analyzing the descriptive statistics. The average tangibility is almost three times higher for non-listed SMEs compared to listed SMEs and the average industry leverage indicate that non-listed SMEs should use more debt and be more prevalent in industries normally using more leverage. However, the higher debt ratios could also be due to the average firm size being smaller, indicating lack of maturity and in turn less retained earnings used for financing. As this has been controlled for in the robustness test in section 4.4.3.3, indicating robust evidence of the differences holding for subsamples based on size, the effect of size is likely less dominant compared to that of tangibility and industry leverage. The lower growth opportunities could also indicate that financial intermediaries are more willing to finance non-listed SMEs due to the reduction of asset substitution issues. In contrast, higher profitability and non-debt tax shields should indicate that non-listed SMEs have lower debt ratios but this seem to have less effect compared to the effect of tangibility, industry leverage and firm size.

The results on short-term debt are not as extreme as for the other debt ratios but are still robust and significant. A reason why the short-term debt ratio of non-listed SMEs is higher could be due to the listing status itself. Similar to short-term debt, equity is a flexible source of financing and when an SME goes public it could hence substitute short-term debt for equity. The relatively lower short-term debt could also be due to an increase in total assets when an SME goes public.

In large, the results suggest that non-listed SMEs face a choice based on if they hold more tangible asset or they hold less tangible assets. If they hold relatively more tangible assets the SME will stay non-listed as it can utilize the assets to secure long-term financing. If they hold relatively less tangible assets, the SME will go public or stay non-listed and grow slower due to the high costs of financing. The path leading up to the first choice is very similar to the POT. However, when SMEs realize they face financing restrictions they have to choose an optimal financing structure. Depending on the benefits of growth in relation to the costs of debt, the SME will decide to go public or not. Evidently, this choice follows TOT.

6.2 The Effect of Determinants on Listed and Non-listed SMEs

The results from the regressions answer the second research question: “Independent from the results of the above stated question, do the determinants affecting the capital structure have different effect on the components of capital structure depending on if the Swedish SME is listed or not?”. Size, tangibility, profitability and non-debt tax shields all show different effects on debt and its components and tangibility tend to reverse the effect of size, profitability and non-debt tax shields combined. Further, it is also evident that the effects of the determinants is more pronounced for non-listed SMEs, indicating that going public decreases the effects of size, tangibility, profitability and non-debt tax shields. Below, a more detailed analysis per dependent variable is presented. However, as the results are inconclusive and the hypotheses of industry affiliation and expected inflation are rejected, these will not be elaborated upon further.

6.2.1 Firm Size

The results on the relation between firm size and long-term debt provide evidence that capital structure of non-listed SMEs are better explained by POT and listed SMEs’ capital structure is better explained by TOT. This is due to the notion that a more negative correlation between firm size and long-term debt would indicate that more mature SMEs finance through retained earnings. This seems to be true for non-listed SMEs. However, the results give evidence to the idea that listed SMEs are more affected by agency costs in the form of separation of owner and manager. This would lead owners to limit the available funds by distributing earnings as dividend or taking on more debt. Hence, listed SMEs tend to be better explained by the TOT while non-listed SMEs follow POT more closely. This is in line with findings of Chittenden et al. (1996) and Frank and Goyal (2009).

6.2.2 Tangibility

The results for tangibility are clear, giving evidence of long-term and total debt to be more positively correlated to tangibility of non-listed SMEs than of listed SMEs. The descriptive statistics provide strong evidence that non-listed SMEs hold more tangible assets. Therefore non-listed SMEs should hold more long-term and total debt which is evident from the accepted hypotheses H1a and H1c. The importance of collateral becomes evident as it both reverses the more extreme effects of many other determinants combined and even creates higher debt ratios

for non-listed SMEs. It is evident that tangibility is a main determinant when SMEs decide to go listed or not and the cost of securing debt is likely much cheaper than the costs of listing, which includes many fixed fees, being relatively higher for SMEs, but also a small firm effect. The choice would be guided by the TOT framework.

6.2.3 Growth Opportunities

The results give evidence to the notion that growth opportunities for non-listed SMEs affect the possibility to finance with debt and this indicates that financial intermediaries are sensitive to the issues of asset substitution when dealing with SMEs. This would indicate the importance of tangible assets, as this type of asset secures debt and makes it harder to substitute one project for another. Even though all results are insignificant for listed SMEs they indicate that listed SMEs bridge this financing gap by going public, hence submitting more information to the financial intermediary. This could also indicate a substitution from short-term debt to equity. Going public in order to lower agency costs, when other financing is depleted, would be in line with both TOT and POT.

6.2.4 Profitability

This story is very similar to the one of firm size. The capital structure of non-listed SMEs should be better explained by the POT framework. This would indicate that when firms are profitable they decrease their debt ratios, first by decreasing long-term debt as this is more costly and secondly by decreasing short-term debt. However, it should be evident that the profits do not always cover both, hence the effect should be more pronounced in regards to long-term debt. The reason listed SMEs differ is due to the features of the TOT framework, which should better explain the capital structure of listed SMEs. As listed SMEs are more likely to experience costs due to the separation of owner and manager this type of firm will distribute retained earnings or use it to issue further debt. This explain the more negative correlation between profitability and total or long-term debt evident in non-listed SMEs.

The results were expected as listed SMEs display far lower profitability than non-listed SMEs. A potential reason for this could be that non-listed SMEs choose to focus on margins, as high profits are needed to fund investments. It could also be argued that listed SMEs go public in order to finance future growth opportunities, placing a greater value on growth, impacting profits negatively. The story of non-listed SMEs would be in line with POT while the story of listed SMEs would be in line with TOT as the costs of holding debt would be smaller compared to the costs of not growing.

6.2.5 Non-debt tax Shields

As non-debt tax shields were hypothesized to be negatively correlated with debt, in line with TOT, the results are baffling as listed SMEs should follow this theory better than non-listed SMEs. Hence, a new story is needed to understand why these results are generated. This story could be that non-debt tax shields serve to shield earnings later used to pay off debt and decrease the levels of debt. In line with POT, this would first be implemented on long-term debt and, if the funds are not depleted, later on short-term debt. This could be a potential reason for why the non-listed SMEs have a significantly more negative relationship between non-debt tax shields and total and long-term debt, compared to that of listed SMEs. The story is similar to that of profitability and separation between owner and manager could therefore explain the difference between listed and non-listed SMEs. This would lead the effects on capital structure of listed SMEs to be more in line with TOT.

Further, a reason could be that high depreciation decreases tangible assets, making long-term debt more costly. This would lower the possibility to secure debt by the use of tangible assets, hence leading to lower debt.

6.3 Connecting the Dots

SMEs face two crossroads when advancing along the POT hierarchy. The first crossroad is based on internal attributes and the road it will follow depends on if it holds a large amount of tangible assets or not. The SME holding relatively more tangible assets will continue along the hierarchy, bridging the financing gap by securing long-term debt through tangible assets, until it either has no need for further financing or reaches a point where debt financing becomes too expensive. The SME holding less tangible assets will not be able to bridge the financing gap effectively. Instead this SME will be faced with financing restrictions much earlier. Both SMEs, even though they utilize different amounts of debt financing, now have the same choice: to utilize external equity or decrease the rate at which the SME is growing. This choice is based on optimizing, and therefore very similar to the TOT framework. This gives evidence that capital structure of non-listed SMEs is better described by POT as suggested by Chittenden et al. (1996). However, for listed SMEs, previous theories did not give a clear explanation as the listing status would indicate the capital structure to better follow TOT but the size indicates the capital structure to follow POT. From the results it is evident that the capital structure of listed SMEs is better explained by TOT, similar to other listed companies and in line with the research on all listed firms by Frank and Goyal (2009).

The alternative story would be that the costs of going public outweigh the benefits for all SMEs, until all other sources are depleted, upon which an SME chooses this alternative route or decreases its growth.

7. Conclusion

The contribution of this thesis is to conclude whether SMEs in a Swedish context make different capital structure choices based on if they are listed or not and the simple answer is yes. This likely starts in the moment an SME makes the decision between financing through external equity or decrease the growth rate. However, SMEs should face this decision at different points in time due to effects from tangibility, size, profitability and non-debt tax shields, being the most important determinants. In line with POT and the words on objective functions by Ang (1992), a large, profitable SME with high non-debt tax shields can choose to finance internally but if this is not enough it will have to utilize its tangible assets to secure long-term debt or issue equity, depending on what is cheaper in terms of benefits and costs. Hence, SMEs issue equity (lowering the debt ratio) when they cannot secure long-term financing (increasing the debt ratio) and non-listed SMEs will therefore prove to have higher debt ratios and more tangible assets.

As non-listed SMEs tend to finance with dramatically more debt compared to their listed counterparts it is important for financial analysts to take this into account when comparing listed and non-listed SMEs. Further, the impact of tangible assets on the potential to gain access to debt financing should impact what strategies are implemented when a risk of financial constraint is eminent. As SMEs are important for the economy at large, legislators should also focus on enabling financing for firms not able to finance through debt and unwilling to go public. However, this should be done with caution as the reason the firm is not able to access debt or equity could be that the costs outweigh the benefits. It should also be noted that SMEs have access to other sources of external equity, not elaborated upon in this thesis. Future research could therefore focus on how the access to these types of equity relates to capital structure, its components and if the effect of determinants change due to agency costs being introduced or changing in importance. Research could also focus more closely on the determinants indicated to affect the capital structure. For example, the effects from introduced tax legislation on the relation between non-debt tax shields and capital structure or the effect of accounting rules on the relation between the tangibility and capital structure could be studied. Also, much of the focus has been on long-term and total debt but as other maturity horizons are prevalent in most companies these could be interesting to study further. Potentially, a good start would be to focus on short-term debt.

This thesis focuses on the capital structure of Swedish SMEs. As the area of capital structure is highly context dependent, the findings in this study should be used with caution and not applied in settings far different from that of Sweden in the 21st century. Furthermore,

this thesis is subject to a number of delimitations and the sample of listed firms is restricted due to the limited amount of listed SMEs. A larger sample could provide more robust results, leading to further conclusions.

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9. Appendix

Table A: Univariate Tests of Mean Differences

<i>Variables</i>	<i>All SMEs</i>	<i>Listed SMEs</i>	<i>Non-listed SMEs</i>	<i>Student's t- test (t)</i>	<i>Mann-Whitney U-test (z)</i>
Liabilities					
Observations	153 192	1051	152141		
Total Debt	0.595	0.383	0.597	29.87	28.29
Long-term Debt	0.142	0.057	0.142	14.66	12.06
Short-term Debt	0.453	0.326	0.454	18.08	18.22
Debt					
Observations	153 194	1051	152143		
Total Debt	0.120	0.056	0.120	11.84	10.01
Long-term Debt	0.090	0.033	0.091	12.61	11.00
Short-term Debt	0.028	0.023	0.028	2.86	3.78

Table B: Univariate Tests of Mean Differences

<i>Variables</i>	<i>All SMEs</i>	<i>Listed SMEs</i>	<i>Non-listed SMEs</i>	<i>Student's t- test (t)</i>	<i>Mann-Whitney U-test (z)</i>
Large size sample					
Observations	7 944	263	7 681		
Total Debt	0.106	0.053	0.108	4.68	2.47
Long-term Debt	0.081	0.038	0.082	4.39	1.79
Short-term Debt	0.023	0.016	0.024	1.98	-0.66
Small size sample					
Observations	70 942	138	70 804		
Total Debt	0.126	0.043	0.126	5.54	5.15
Long-term Debt	0.096	0.021	0.096	5.97	5.92
Short-term Debt	0.029	0.022	0.029	1.33	1.53

Table C: Number of SMEs in the Econometric Sample per Year

<i>Year</i>	<i>Total</i>	<i>Listed SMEs</i>	<i>Non-listed SMEs</i>
1999	6 630	50	6 580
2000	7 226	46	7 180
2001	7 398	47	7 351
2002	7 400	51	7 349
2003	7 518	45	7 473
2004	7 754	53	7 701
2005	8 244	60	8 184
2006	8 861	67	8 794
2007	9 532	73	9 459
2008	9 697	79	9 618
2009	9 576	75	9 501
2010	9 914	67	9 847
2011	10 296	69	10 227
2012	10 472	69	10 403
2013	10 535	68	10 467
2014	10 879	70	10 809
2015	11 262	62	11 200
Total Number Of observations	153 194	1 051	152 143

Table D: Size distribution of Listed and Non-listed SMEs

	<i>Total Assets (TSEK)</i>		<i>Listed SMEs</i>	<i>Non-listed SMEs</i>
	<i>Average</i>	<i>Median</i>		
Smallest	21 381	21 366	23	15 302
2	24 445	24 428	26	15 291
3	28 182	28 133	34	15 284
4	32 955	32 907	28	15 290
5	39 128	39 050	47	15 272
6	47 504	47 372	70	15 250
7	59 589	59 371	107	15 214
8	78 916	78 391	145	15 173
9	114 467	112 557	186	15 135
Largest	225 343	203 287	385	14 932
Total Number of Observations			1 051	152 143

Table E: Regression Analysis (Dependent variable: Long-term Debt)

<i>Long-term Debt</i>	<i>OLS</i>	<i>OLS Listing Status</i>	<i>OLS Non-Listed SMEs</i>	<i>OLS Listed SMEs</i>	<i>Fixed Effects</i>	<i>Fixed Effects Listing Status</i>	<i>Fixed Effects Non-Listed SMEs</i>	<i>Fixed Effects Listed SMEs</i>
size	-0.019*** (-16.26)	-0.020*** (-16.19)	-0.020*** (-16.19)	0.006 (1.17)	-0.007*** (-4.83)	-0.007*** (-4.83)	-0.007*** (-4.86)	0.000 (0.06)
growth	-0.047*** (-3.51)	-0.048*** (-3.56)	-0.048*** (-3.56)	0.097 (1.23)	-0.064*** (-5.35)	-0.065*** (-5.42)	-0.066*** (-5.49)	0.027 (0.32)
tangibility	0.379*** (57.87)	0.380*** (57.71)	0.380*** (57.72)	0.169*** (3.15)	0.268*** (33.60)	0.269*** (33.57)	0.269*** (33.52)	0.158** (2.34)
profitability	-0.077*** (-29.76)	-0.077*** (-29.51)	-0.077*** (-29.51)	-0.025** (-2.34)	-0.028*** (-13.67)	-0.028*** (-13.55)	-0.028*** (-13.52)	-0.022* (-1.85)
expinf	0.008*** (14.20)	0.008*** (14.18)	0.008*** (14.18)	0.004 (1.04)	0.008*** (18.45)	0.008*** (18.43)	0.008*** (18.44)	0.001 (0.39)
ndts	-0.541*** (-19.80)	-0.544*** (-19.75)	-0.544*** (-19.75)	-0.076 (-0.89)	-0.216*** (-10.35)	-0.217*** (-10.29)	-0.218*** (-10.32)	-0.050 (-0.64)
indlev	0.045*** (3.62)	0.045*** (3.58)	0.045*** (3.58)	0.107** (2.02)	-0.048*** (-3.73)	-0.047*** (-3.66)	-0.046*** (-3.59)	-0.085 (-1.09)
listed_size		0.026*** (4.68)				0.006 (0.82)		
listed_growth		0.145* (1.82)				0.123 (1.46)		
listed_tangibility		-0.210*** (-3.90)				-0.106* (-1.77)		
listed_profitability		0.052*** (4.81)				-0.004 (-0.29)		
listed_expinf		-0.004 (-0.85)				-0.004 (-1.15)		
listed_ndts		0.468*** (5.24)				0.103 (1.13)		
listed_indlev		0.062 (1.15)				-0.039 (-0.56)		
listed		-0.306*** (-4.79)				-0.060 (-0.77)		
Constant	0.232*** (17.73)	0.234*** (17.68)	0.234*** (17.68)	-0.072 (-1.15)	0.120*** (7.16)	0.120*** (7.13)	0.121*** (7.16)	0.027 (0.34)
Observations	153,194	153,194	152,143	1,051	153,194	153,194	152,143	1,051
R-squared	0.284	0.284	0.284	0.122	0.079	0.079	0.079	0.033
Firm FE:	No	No	No	No	Yes	Yes	Yes	Yes
F test model	856.7	410.2	854.9	3.740	249.8	117.2	248.2	2.181
P-value (F-test)	0	0	0	0.0008	0	0	0	0.0374
Number of orgnr					22,791	22,791	22,651	198

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table F: Regression Analysis (Dependent variable: Short-term debt)

<i>Short-term Debt</i>	<i>OLS</i>	<i>OLS Listing Status</i>	<i>OLS Non-Listed SMEs</i>	<i>OLS Listed SMEs</i>	<i>Fixed Effects</i>	<i>Fixed Effects Listing Status</i>	<i>Fixed Effects Non-Listed SMEs</i>	<i>Fixed Effects Listed SMEs</i>
size	-0.003*** (-6.53)	-0.003*** (-6.44)	-0.003*** (-6.44)	-0.003 (-1.19)	0.007*** (10.09)	0.007*** (10.11)	0.007*** (10.12)	-0.000 (-0.12)
growth	-0.036*** (-4.94)	-0.035*** (-4.82)	-0.035*** (-4.82)	-0.055 (-0.77)	-0.044*** (-6.14)	-0.044*** (-6.16)	-0.044*** (-6.17)	0.005 (0.09)
tangibility	0.029*** (16.12)	0.028*** (15.93)	0.028*** (15.93)	0.037 (1.09)	0.003 (0.99)	0.002 (0.89)	0.003 (1.01)	-0.020 (-0.84)
profitability	-0.034*** (-25.57)	-0.034*** (-25.52)	-0.034*** (-25.52)	-0.020** (-2.33)	-0.026*** (-19.90)	-0.026*** (-19.77)	-0.026*** (-19.79)	-0.014** (-2.32)
expinf	-0.005*** (-17.63)	-0.005*** (-17.68)	-0.005*** (-17.68)	-0.001 (-0.26)	-0.002*** (-8.43)	-0.002*** (-8.46)	-0.002*** (-8.48)	0.001 (0.40)
ndts	0.174*** (16.75)	0.175*** (16.78)	0.175*** (16.78)	0.038 (0.70)	0.074*** (7.32)	0.075*** (7.35)	0.075*** (7.34)	-0.013 (-0.20)
indlev	0.020*** (4.53)	0.020*** (4.41)	0.020*** (4.41)	0.081 (1.47)	0.010 (1.57)	0.010 (1.55)	0.010 (1.54)	-0.003 (-0.13)
listed_size		0.000 (0.01)				-0.007** (-2.00)		
listed_growth		-0.019 (-0.27)				0.053 (1.07)		
listed_tangibility		0.009 (0.25)				0.050 (1.19)		
listed_profitability		0.013 (1.52)				0.011* (1.70)		
listed_expinf		0.004 (1.34)				0.003* (1.73)		
listed_ndts		-0.138** (-2.51)				-0.084 (-1.52)		
listed_indlev		0.062 (1.11)				-0.013 (-0.26)		
listed		-0.012 (-0.35)				0.086** (2.04)		
Constant	0.058*** (10.76)	0.058*** (10.67)	0.058*** (10.67)	0.047 (1.42)	-0.050*** (-6.13)	-0.050*** (-6.18)	-0.051*** (-6.18)	0.030 (0.68)
Observations	153,194	153,194	152,143	1,051	153,194	153,194	152,143	1,051
R-squared	0.052	0.052	0.052	0.038	0.014	0.014	0.014	0.006
Firm FE:	No	No	No	No	Yes	Yes	Yes	Yes
F test model	304.2	142.9	304.1	1.591	97.93	46.18	97.94	0.849
P-value (F-test)	0	0	0	0.140	0	0	0	0.548
Number of orgnr					22,791	22,791	22,651	198

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table G: Regression Analysis (Dependent variable: Total Debt)

<i>Total Debt</i>	<i>OLS</i>	<i>OLS Listing Status</i>	<i>OLS Non-Listed SMEs</i>	<i>OLS Listed SMEs</i>	<i>Fixed Effects</i>	<i>Fixed Effects Listing Status</i>	<i>Fixed Effects Non-Listed SMEs</i>	<i>Fixed Effects Listed SMEs</i>
size	-0.022*** (-15.06)	-0.022*** (-14.96)	-0.022*** (-14.96)	0.003 (0.50)	0.001 (0.53)	0.001 (0.53)	0.001 (0.51)	0.000 (0.04)
growth	-0.092*** (-5.49)	-0.092*** (-5.46)	-0.092*** (-5.46)	0.038 (0.33)	-0.113*** (-8.09)	-0.115*** (-8.17)	-0.116*** (-8.23)	0.025 (0.23)
tangibility	0.409*** (55.90)	0.409*** (55.70)	0.409*** (55.70)	0.209*** (2.98)	0.270*** (31.62)	0.270*** (31.56)	0.270*** (31.54)	0.141* (1.79)
profitability	-0.115*** (-34.23)	-0.115*** (-33.99)	-0.115*** (-34.00)	-0.046*** (-3.08)	-0.057*** (-22.38)	-0.057*** (-22.23)	-0.057*** (-22.22)	-0.036** (-2.37)
expinf	0.003*** (5.13)	0.003*** (5.13)	0.003*** (5.13)	0.004 (0.69)	0.006*** (12.51)	0.006*** (12.47)	0.006*** (12.47)	0.002 (0.55)
ndts	-0.373*** (-11.53)	-0.375*** (-11.48)	-0.375*** (-11.48)	-0.035 (-0.32)	-0.130*** (-5.46)	-0.130*** (-5.41)	-0.131*** (-5.43)	-0.054 (-0.45)
indlev	0.068*** (4.63)	0.068*** (4.54)	0.068*** (4.54)	0.191** (2.14)	-0.035** (-2.44)	-0.034** (-2.37)	-0.034** (-2.33)	-0.085 (-1.08)
listed_size		0.025*** (3.87)				-0.002 (-0.26)		
listed_growth		0.131 (1.13)				0.176 (1.60)		
listed_tangibility		-0.201*** (-2.86)				-0.049 (-0.80)		
listed_profitability		0.069*** (4.53)				0.009 (0.58)		
listed_expinf		0.000 (0.07)				-0.001 (-0.19)		
listed_ndts		0.340*** (2.95)				0.015 (0.13)		
listed_indlev		0.123 (1.37)				-0.054 (-0.71)		
listed		-0.313*** (-4.05)				0.030 (0.31)		
Constant	0.284*** (17.78)	0.286*** (17.69)	0.286*** (17.69)	-0.027 (-0.35)	0.062*** (3.38)	0.062*** (3.33)	0.063*** (3.36)	0.051 (0.53)
Observations	153,194	153,194	152,143	1,051	153,194	153,194	152,143	1,051
R-squared	0.265	0.265	0.265	0.114	0.069	0.069	0.069	0.024
Firm FE:	No	No	No	No	Yes	Yes	Yes	Yes
F test model	847.6	401.1	845.5	3.233	249.9	117.4	248	2.411
P-value (F-test)	0	0	0	0.0029	0	0	0	0.0217
Number of orgnr					22,791	22,791	22,651	198

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1