Financing constraints and internationalization of Danish SMEs

An analysis of financing constraints and its implication on internationalization aspiration of Danish SMEs

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Executive summary

Despite the forces of globalization and the alleged benefits of internationalizing the participation has mainly been limited to large firms. The low involvement of small and medium enterprises (SMEs) has fueled governmental studies. In surveys, business managers consistently report lack of financing as a major barrier for internationalization.

In Denmark, the SMEs sector is arguably the backbone of the economy, consequently understanding the extent to which Danish SMEs internationalization participation is constrained by lack of financing is an important research question.

This thesis examines both supply and demand factors to formulate a holistic framework for the conceptualization of financing constraints. Under supply factors, determinants for the availability of different financing sources are examined by taking into account the characteristics of SMEs and the lending technology applied. Demand factors, on the other hand comprise of subjective factors of the owner that can moderate or amplify financing constraints. This conceptualization is then used as a guiding framework for the analysis.

In order to comply with the framework both demand and supply side of financing constraints are analyzed. The results of the analysis point at conflicting answers, however when integrated it gives a more complete picture.

The results of the analysis show that Danish SMEs to large extent are not financially constrained. As a reason the observed deviation in the capital structure of SMEs, which otherwise has served as an important argument for presence of financing constraints, reflects difference in underlying motives for the capital structure of SMEs. It is thus to large extent shaped by subjective factors rather than financing constraints. Furthermore, the analysis indicate that source of financing might have implication on how SMEs internationalization commitment due to possibly contesting motives between the firm managers and the source of financing.

Finally, it is suggested that barriers to internationalization of Danish firms are too a large extent internally imposed, constrained by lack of willingness to internationalize.

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1. Guiding research question and methodological considerations

Problem background

The business environment companies operate in has undergone rapid changes over the last decades. Globalization, driven by technology advancement, dismantling of trade barriers and opening of new markets has brought new opportunities. As a result companies have increasingly started to internationalize (Ruzzier, Hisrich and Anoncic 2006). Up until recently, internationalization was assumed to be reserved for large companies. Small companies were simply regarded not to possess the required skills and resources to be able to engage in activities of that complexity. However, due to increased opening of boarders and progressively lowering of trade barriers, internationalization has started to concern small and medium enterprises (SMEs).

Nowadays companies are exposed to both proactive and reactive forces that “push” and “pull” them into exploring foreign markets (Czinkota and Ronkainen 1988). As an example of major push factor, companies are increasingly being exposed to, is foreign competition. Dismantling of barriers and opening of markets have created a fertile ground for foreign competitors. As a result SMEs no longer can take refuge in their home markets and have to become internationally orientated. Firms that fail to adjust are unknowingly imposing a severe restriction on their potential for long-term survival (Karagozoglou and Lindell 1998). These forces will be further elaborated later in this project.

Despite these forces, SMEs participation at international level has been limited. This is attributed to barriers and constraints that deprive firms from the option to internationalize (European Union 2010). The implication of low participation at international level does not only limit their ability to realize their full growth potential and extent their market horizon but also concerns economic prosperity. In fact, in Denmark as in continental Europe (EU) the sector is regarded as the backbone of the economy. This is evidenced by their contribution in regards to job creation and the share of gross domestic product (GDP). In fact, 99% of companies in EU are SME, collectively they account for over two-thirds of employment, create the majority of new jobs, open new market sectors, develop new products/services and have the potential of becoming multinational (Lee, Lim and Tan 1999; Ruzzier, Hisrich and Anoncic 2006). The increasing realization of the importance of SMEs to national economies has resulted in greater focus on the sector and their growth constraints where especially the low internationalization participation of SMEs has been concerning (Bhaird 2010). This has fueled both research and programs aimed at promoting internationalization of SMEs, nationally as well as regionally.

In surveys, SMEs managers have consistently pointed at lack of financing as one of the main barriers hindering their firm from internationalizing (Europan commission, Directorate-General for Enteprise and Industry 2007; OECD 2008; European Central Bank 2011). This has in the past served as an important justification for design of programs directed at improving the supply of financing to the sector. Thus governmental justification is reasoned by arguments of market failures in terms of providing financing to SMEs.

Despite massive governmental intervention, companies still attribute financial constraints as a major internationalization barrier. Due to the importance managers ascribe to financial constraints in hindering there firms from internationalizing the topic of this thesis will concern it. Financial constraints are particularly interesting as they differentiate from other firm related barriers in the way they cannot simply be neglected as without sufficient funds firms cannot internationalize.

While helping SMEs in overcoming barriers remains a prioritized task among western economies it is arguably more important task for small countries. In fact, internationalization active SME sector has been noted to be of even greater importance for small countries (Braunerhjelm 2000; O'Malley and O'Gorman 2001; Etemad 2004), such as Denmark. The limited size of the domestic market of small countries amplifies the pressure for internationalizing since firms quickly have to look abroad to avoid market saturations and to sustain growth. Consequently, understanding of the constraints which firms are experiencing when internationalizing becomes important in order to improve their participation at international stage.

It is the argument of this project that proper understanding of the constraining factors hindering firms in financing their internationalization is prerequisite for effectiveness of governmental interventions. Initiatives aimed at addressing financing constraints of SMEs require thorough understanding of their financing decision as well as understanding of the determinants of the applicability of different financing options.

The aim is to conceptualize the problem of financial constraints from a holistic ground by embracing both supply and demand factors. With an understanding of the elements that constitute financial constraints in hand, an analysis of financial constraints will be conducted. The aim of the analysis is to embrace the manifoldness of financial constraints.

Problem statement

By taking the above standing into consideration and hereby justifying the relevance of looking into the subject, the following problem statement is presented.

By conceptualizing financial constraints, taking into account both determinants of supply and influences of demand side factor, to what extent are Danish SMEs financially constrained? And what implication does it have on their internationalization commitment?

The objective of the project is twofold, firstly to create a framework that embraces both supply and demand side factors that influence financial constraints. Here various literatures will be examined in order to formulate a holistic framework of the problem. Supply factors concerns the availability of different financing sources given the characteristics of SMEs. While demand factors accounts for the subjective influences of the firm manager in shaping the problem. It is the argument of this project that proper understanding of financial constraints has to take into account the subjective influences in shaping the problem. Thus financial constraints are perceived to not only be a question of sufficient supply but also to include a perceptional component. With a guiding framework in hand the objective is to analyze the extent to which Danish SMEs are financially constrained, and further to explore what implication it has on their internationalization commitment.

Prior to presenting the methodological consideration of this project the key terminology applied within this project will be explained.

Terminology

In this project there are terminologies employed which are central to the project. They will in turn be clarified in this section.

Agency costs, adverse selection and moral hazard

The modern theory of capital structure predicts that the allocation between different financing sources, and consequently the composition of the capital structure, will be affected by three dimensions of informational opacity; these are *agency costs*, *adverse selection* and *moral hazard* (Berger and Udell 1998). Differences in the relative severity of these information problems may explain the financing choice of certain types of SMEs.

The implication of these problems, caused by information asymmetry, for SMEs financing options will be further elaborate on in the project.

Understanding of financial constraints

The definition of financial constraints is essential for the project. The attention capital structure of SMEs and in particular financial constraints has evoked great interest by academics as evidenced by the different fields engaged in studying the matter. There, the focus of attention has been on finding an explanation for the financing structure of SMEs, which in the literature is perceived as evidence for difficulties in obtaining external source of financing.

Today, studies of SME financing extends over range of disciplines including entrepreneurship, finance, industrial organization and psychology (for more extensive review see (Bhaird 2010, 11-12)). While this interest has undoubtedly contributed with greater insight about the financial aspect of SMEs it has also resulted in diverged understanding of the financial aspect of SMEs. This can be attributed to differences in the paradigmatic background of the fields engaged in studying the financial aspects where interdisciplinary bridging has been missing. It seems that these fields work in isolation bounded by the academic paradigm they subscribe to, where focus of attention, seems to be on contesting different perspectives rather than to unite them.

In this regard, scholars point at different underlying causes for financial constraints of SMEs such as; inadequate supply (Stiglitz and Weiss 1981), failure to properly access SMEs (Berger and Udell 1995) and characteristics of SMEs (Maeseneire and Claeys 2007).

It is the argument of this project that interdisciplinary bridging of the divergent perspectives in the literature is prerequisite for improving the understanding of the financing aspect of SMEs and in particular in determining the presence of financial constraints. As we will see later in the project, although SMEs are generally put under one umbrella they differ considerably. Furthermore, we have to recognize that these firms are run by people and their perspective, goals, ambitions etc. influences the business including the financial aspects. Therefore by taking into account the heterogeneity of the firms that constitute SMEs we have to open up for the possibility that financing aspect of SMEs will also be affected by range of factors.

In order to fulfill the objectives of this project the terminology applied within this project has to be able to grasp these different perspectives prevalent in the literature.

Financial constraints considered within this project are imperfections that prevent SMEs from funding all desired investments. These imperfections can be a result of both exogenous and endogenous factors to the firm. It is thus not used to mean financial distress, bankruptcy risk although this might be associated with financial constraints. A financially constrained firm can be thought of as a firm whose investment spending is limited to its ability to generate internal financing. In addition, one has to distinguish between actual and perceived constraints. Actual constraints are those that are present when companies are not able to raise sufficient financing in time at a fair cost that reflects the true risk of the project/company. In this regard, it would be naive to argue that SMEs, willing and having potential to growth, should be provided financing and those that do not are faced with financial constraints. In this crude sense there will naturally always be a deficiency in the funding of the sector equal to the difference between the total demand for funding and that part of demand which qualifies for funding support (Hamiltion and Fox 1998). On the other hand perceived constraints open up for the possibility that financial constraints may also be a result of subjective factors. Thus, financial constraints may be a result of both “true” and perceived financial constraints. Although, different in nature this subjective factor arguably can be as severe for SMEs as actual constraints. These different perspectives reflect two underlying factors affecting the problem namely supply and demand driven factors. In order to fully grasp the problem it is important that the terminology bridges these different perspectives of financial constraints. Both the demand and supply related explanation of financial constraints, which this project seeks to bridge, have their empirical limitation. This will be further elaborated in the methodological section of this project.

Working definition of SMEs

SME is a term capturing firms of small size. Whether firms are to be considered small or medium sized is generally determined by set of specified criteria that are intended to capture the type of firms that generally, due to their size, are faced with similar limitation. In this part the typology that specifies the SMEs considered within this project will be explained.

Although the term SME is frequently used in practice when referring to companies of small size that suffer from limitation due to their size disadvantage, the criterion that defines what characterizes SME differs. Firms considered large in one country are considered small or at least medium sized in another and vice verse as well as the definition within a country may vary depending upon the source reporting the statistics (Ayyagari, Beck and Kunt 2007; International Finance Corporation 2009). In fact, there is not a single definition that captures all companies that are truly SME in nature since it depends upon the economical context. As a reason studies at academic level have been plagued with difficulties of comparability due to different criteria used.

What politicians and academics are interested in are not the size criterions alone, but rather the traits that distinguishes them from other firms. In this regard, definition of SME has importance in terms of applicability for various public schemes such as financial support.

In this project due to Denmark's participation in the European Union I find it appropriate to apply their definition. The definition was introduced in 2005 to improve consistency and effectiveness of public schemes in favor of SMEs (European Union 2003) by ensuring that only enterprises that truly need support are targeted. The advantage of the definition is that it takes into account independency of the enterprise i.e. the ownership structure.

THE NEW THRESHOLDS *(Art. 2)*

Enterprise category	Headcount: Annual Work Unit (AWU)	Annual turnover	or	Annual balance sheet total
Medium-sized	< 250	≤ €50 million (in 1996 € 40 million)	or	≤ €43 million (in 1996 € 27 million)
Small	< 50	≤ €10 million (in 1996 € 7 million)	or	≤ €10 million (in 1996 €5 million)
Micro	< 10	≤ €2 million (previously not defined)	or	≤ €2 million (previously not defined)

Figure 1: The definition of the European union of small and medium sized enterprises (European Union 2003)

The new definition can be seen as an effort to capture firms applicable to public schemes that are truly small. The criterions which companies need to fulfill in order to be applicable to SME subsidy are as follows.

First of all, the company has to be considered as an enterprise, which the EU defines as any entity engaged in an economic activity irrespective of its legal form (European Union 2003). Secondly, there is a threshold which companies have to comply with in terms of number of employees the turnover and value of asset as well as the autonomy of the SME. An enterprise is only autonomous

if it is independent, holding less than 25% of capital or voting rights (whichever is higher) in one or more enterprises and/or outsiders do not have 25% or more of capital or voting rights in the enterprise; so called minority partnerships. Enterprises withholdings of up to 50% are partner enterprises. If the stake is more than 50% the enterprises are linked (European Union 2003).
In order to serve the objectives of this project I find it necessary that the definition capture the true characteristics of SMEs in terms of size and independency and also those that are applicable for any governmental subsidy due to their size. I will however be somewhat more flexible towards the definitions applied in the literature when reviewing relevant findings, since it has to be considered in regards to the context of a study at each time.
The fact that the definition proposed by EU has been under criticism for being either too complex (Deloitte 2010) or not complex enough (Bhaird 2010), clearly highlights the difficulties of devising a unified definition that satisfies different objectives. However, it is what the EU use for determining the applicability of subsidies and what academics increasingly have adopted (Bhaird 2010), and as a reason I find it appropriate to apply within this project.

Methodology

How a problem is perceived and understood consciously or unconsciously is intimately related to the approach the creator of knowledge will use for the research. Creator of knowledge all have certain ultimate presumption about the world, so called paradigm, which are difficult to change. They play a key role explaining how we perceive problems and consequently they have to be accounted for. As a reason, the methodological approach used for studying a given problem must be in accordance with the underlying paradigmatic view of the creator of knowledge and the technical possibilities. Business research paradigms consist of fundamental conception of reality, science, scientific ideal as well as ethical/aesthetical aspects (Arbnor and Bjerke 1997, 5-20). Different paradigmatic perceptions lead to different interpretation of “ideal” way/ways of approaching a problem in terms of what should be studied, how the research should be done and interpreted (Bryman and Bell 2007). This ideal approach constitutes operative paradigms that connect a methodological approach to a specific study area, which are subject to evolution in concurrence with changes in the study area (Arbnor and Bjerke 1997, 16). In this regard, positivist approach employed on a new unexplored business topic might be difficult. A more exploratory stance may be preferable, since it is generally associated with generation of theory. As more knowledge is gained on the topic positivistic measures, such as testing of theory, become appropriate (Bryman and Bell 2007, 33).

The objective of a methodology is to clarify how different methodologies applied form an integrated whole assist in embracing the problem at hand, where it is important that the methodology is consistent with the applied approach as well as the subject.

When determining which methodological approach to apply one has to account for the ontological and epistemological consideration implied in each approach and whether they harmonize with the researcher perception of the problem (Bryman and Bell 2007, 25). As a reason the choice of approach in regards to their underlying ontological and epistemological view and the authors perception of the nature of the problem will be explained.

Ontology deals with the nature of social entities where there are in essence two different angles of perceiving social entities, i.e. from the standpoint of objectivism and constructionism. The former views social entities existing independently from social actors. Constructionism, on the other hand questions the existence of an objective reality entailing that there are as many constructed realities as there are individuals (Guba & Lincoln, 1989, p. 43 as cited in Mills, Bonner and Francis 2006, 2).

Epistemology, on the other hand, concerns the question of what should be regarded as acceptable knowledge. According to Bryman & Bell (2007) there are two main approaches i.e. positivism and interpretivism that vary in regards to ontological and epistemological considerations. The fundamental difference between their underlying ontological perspectives is whether or not social studies, such as business studies, should be studied the same way as natural science (Bryman and Bell 2007, 16).

These approaches are however not advocated to adopt completely. Rather they should be perceived as two extremes on a continuum rather than opposite positions (Tashakkori and Teddlie 1998). Positivism, which originated from natural science, assumes that social science can and should be studied in the same way as natural science. Interpretivism, however, requires another research logic that distinguishes between natural order and studies of social science. This is due to the underlying assumption that people and their institution are fundamentally different. The contrast between the two approaches can be traced to different perspectives on how knowledge should be generated and what the objectives of research should be. That is at one hand to explain and explanatory creation of knowledge and at other to understand or (*verstehen)*.

In essence, adherents to explanatory created knowledge consider instruments and the explanatory logics of natural science as being applicable in business studies as well (Arbnor and Bjerke 1997). Followers of understanding logic argue that causal explanation can't be undertaken without interpretive understanding of social actions. Because positivism originated from natural science the epistemological assumption is that social science can, and should, be studied in the same way as natural science and that knowledge can only be warranted if it can be confirmed by the human sense (Bryman and Bell 2007, 16).

Both Abnor & Bjerke and Brymann & Bell provide possible paradigmatic positions for business studies, which, when applied result in different types of analysis. These paradigms, which are phrased differently by these authors, have different ontological and epistemological perspectives. The terminology of Abnor & Bjerke will be used in order to elaborate on the methodological approach applied within this project. The different paradigmatic positions are depicted by Abnor & Bjerke on a continuum where they go from being positivistic towards being interpretive in nature. These paradigms are then generalized to three methodological approaches namely analytical-, system-, and actors approach.

When deciding upon the appropriateness of different approaches one has to consider the subject under study as well as the assumption of the researcher since it is the paradigmatic view along with the theme of the project which directs how social actors and social entities are perceived to shape and influence this reality.

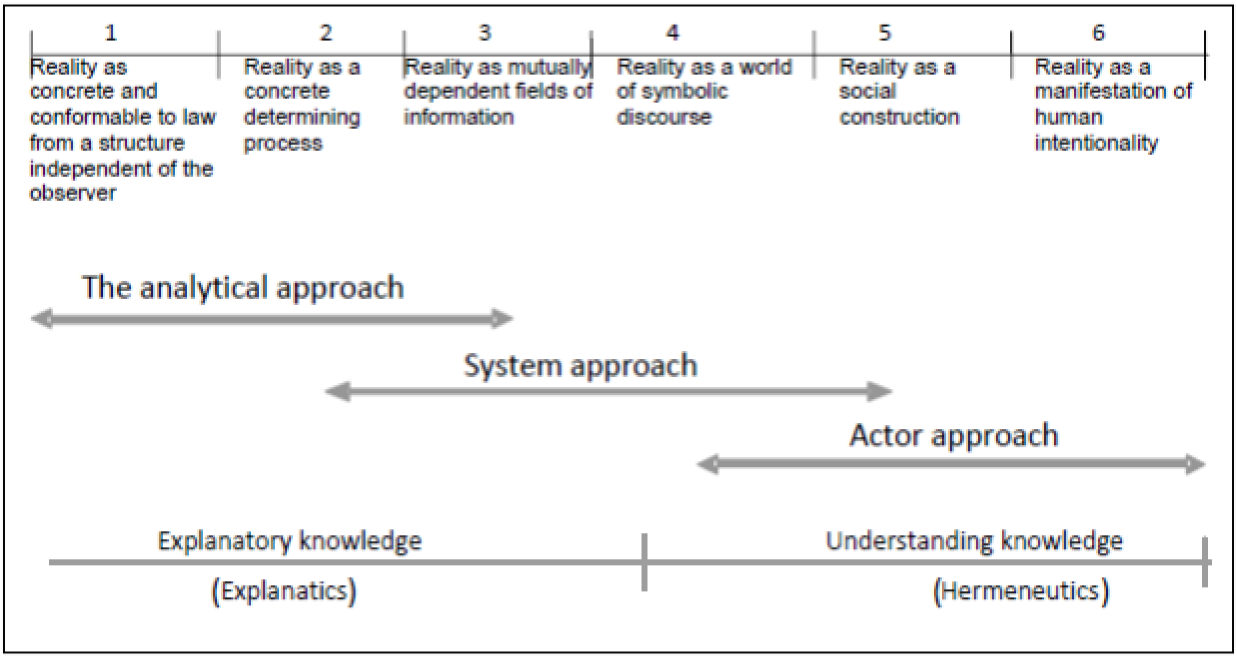

Figure 2: Methodological approaches in business studies and their underlying paradigm (Arbnor and Bjerke 1997).

The theme of this project is financial constraints. Where in the past the literature has somewhat neglected the subjectivity side of the problem. Although the capital structure of SMEs might to a large extent be affected by factors exogenous to the firm that are free from subjective influences, one cannot exclude the influences social actors (business owners and managers) have on the financing aspect of the firm. That is to say, while the capital structure of SMEs might reflect presence of financial constraints we cannot exclude subjective influence of the management in shaping the capital structure i.e. it may as well be that there are other underlying (more subjective) factors explaining the capital structure.

Financial constraints are to some extent shaped by perception (construction of reality) and preferences rather than true facts for example regarding the financing options available. As a reason this possibility has to be considered to fully grasp the nature of the problem and in order to determine the presence of financial constraints.

Due to the role of actors and institutions in shaping the problem, the author believes that the problem at hand can be appropriately accessed through the system approach. This is supported by the fact that system approach was introduced in response to a demand for interdisciplinary approach (Arbnor and Bjerke 1997, 135).

Since, this project field of study will be to some extent interdisciplinary this approach is considered to be in coherence to the objectives of this project. This also directs the epistemological consideration of the author regarding the subject. The objective of this project is to review both supply and demand based factor in order to generate a more complete understanding of financial constraints and its underlying factors. The intention is to bridge studies with different methodological background applying different perspectives in order to device a holistic conceptualization of the problem. In addition to explore whether the availability/unavailability of different financing sources has implication on the internationalization commitment of SMEs. To the knowledge of the author the implication the source of financing may have on the internationalization process of SMEs has not been explored.

Objectivity and validity of the system approach

Central to the choice of research approach is what new knowledge should fulfill in order to be accepted. The positivistic stream requires knowledge to be objective and valid but whether social science can reach objectivity has long been debated (Arbnor and Bjerke 1997, 256). Due to the inherent differences between the three methodological approaches presented by Arbnor and Bjerke and their view on what constitutes an acceptable knowledge, the perspective of the system approach in regards to objectivity and validity is clarified in this section.

The main objective of knowledge creation is to establish connections with previous constructions of the real system. Thus central to formulating a problem for the system approach is to establish a solid fundament for the research based on previous findings. Rather than determining finalities (as the analytical approach) the objective is to establish connections with other findings. Concrete finality relations can only be established when real systems are contacted.

The researcher is free to draw analogies with results of earlier studies. These studies, however, have to be adapted to a specific case. The system approach differentiates from the analytical approach in that it allows the creator of knowledge personal judgment to play a decisive role in creating knowledge (Arbnor and Bjerke 1997, 297). In principle, the system approach does not deviate considerably in regards to the objective stand point of the analytical approach. Both approaches recognize that it is not possible to be totally value-free. Therefore they demand that researcher express implicit values that might influence the result of their studies. The analytical approach regard this as prerequisite for obtaining objectivity in the study, while the system approach is somewhat more pragmatic when it comes to the objectivity, as consistency with results of other studies have greater importance.

In regards to validity, the goal is not, as in the analytical approach, to come as close to the reality or "truth" but rather to generate knowledge that is perceived important and relevant by the researcher and other creators of knowledge. Thus creators of knowledge have themselves opportunity to decide whether the findings are reasonable and correct. A common approach for accessing the validity, to the extent possible, in the system approach is to reflect the generated knowledge on the real system (the system which the construction of reality of the researcher intends to capture) as much as possible e.g. by studying as much secondary material as possible or talk to experts.

This is much in line with the objectives of the project i.e. to bridge the current literature and generate a "system theory", which then will serve as a guiding framework for the empirical research of the project.
In next section the observed underlying paradigmatic and methodological assumption regarding financial constraint in the literature will be clarified.

Underlying paradigmatic and methodological assumption in the literature

The literature on SMEs financing constraints reflects the diversity of academic fields participating in studying the issue. It is apparent that how the problem has been approached reflects different underlying paradigmatic assumption about what financial constraints are constituted of.
It is the argument of this project that it is necessary to bridge these perspectives, as they both rest on valuable knowledge, that integrated can provide us a more holistic understanding of the nature of financial constraints. It is only then, when we have a guiding framework we are capable of examining the extent to which SMEs and their internationalization aspiration are subject to financing constraints.
Most of the current theories and frameworks used today to understand SMEs behavior in regards to how they are constructed, internationalize and grow originate from studying larger companies (Westhead, Wright and Ucbasaran 2001). This is not different when reviewing the literature that seeks to explain the financing aspect of SMEs.
Capital structure theory, originating from finance, which most of the current research literature on SME financing adheres to, predicts how the capital structure should be constructed. Essentially, what determines the capital structure of companies are market imperfections firms are exposed to and how they respond to those. Under capital structure theory it is assumed that division between debt and equity is rationally constructed in order to minimize the adverse consequences of these imperfections and to maximize the efficiency by minimizing the cost of capitalizing the company.

In regards to SMEs scholars have learned that they are subject to imperfection that are of different degree than those affecting their larger counterparts. However capital structure theory fails in regards to enable us to distinguish whether the observed reliance of SMEs on internal funds is a result of financial constraints or deliberate response to market imperfections by the SME manager. Interest for the financing aspect of SMEs in business studies can be attributed to studies of growth and internationalization barriers, where lack of supply of financing is regarded as a major impediment for internationalization realization of SMEs see (Maeseneire and Claeys 2007; Davidsson, Achtenhagen and Naldi 2006; Becchetti and Trovato 2002).
Business studies contest that the financing structure is as rational as predicted by the capital structure theory and that we cannot exclude the fact that the market imperfections causing the relevance for capital structure also might be adversely affecting the supply of financing (Stiglitz and Weiss 1981; Faulkender and Peterson 2006). Thus, although SMEs might demand and qualify for financing it may be unavailable to them due to endogenous factors bound with them such as information asymmetry. Consequently, the capital structure of SMEs might as well be a result of financial constraints. When reviewing business studies on financing constraints, it is apparent that the problem has to large extend been perceived as being an exogenous factor. Thus financing constraints are perceived as a result of deficiency of financial institution to fulfill their task to provide funding to SMEs. In other words, the problem is regarded to be a question of supply and incompetence or unwillingness of different financing sources, especially banks, to access SMEs. The financing structure and consequently financial constraints are perceived to be a result of factors external to the firm, such as the development of financial and legal environment of a given country (Beck, Asli and Maksimovic 2005) and the relationship between the firm and financiers, particularly bank-firm relationship (Berger and Udell 1995). In addition to the adherence of financing constraints, there are scholars that contest the presence of financial constraints as observed from the financing structure and argue that subjective influences of the business owner/manager cannot be excluded (Norton 1991).

Underlying paradigmatic differences are noticeable in the methodological approach applied within these studies. The approach of capital structure theory is arguably more objective, but not necessarily superior. It is concerned with observing the financing structure of SMEs and finding the explanation for the debt to equity ratio. While it may explain the optimal financing structure under pre-specified conditions (such as under tax and information asymmetry), the underlying assumption that supply of capital is infinite for the correct price, of which depends on the riskiness of the firm, is flawed. The supply is not frictionless the market imperfections that affect the optimal choice also imply that financing is rationed. In addition, assuming that financial understanding of SMEs is that advanced that it does not allow for subjectivity is irrational.

Empirical studies for the presence of financing constraints from the perspective of capital structure theory have consisted mainly in adding proxies for the availability of internal funds and/or firms' net worth to the model derived under the assumption of perfect capital markets and in investigating whether they are significant for the firms that are thought more likely to face information and incentive problems (Schiantarelli 1996). This perspective has some empirical shortcomings due to its underlying assumption about perfect capital markets. In presence of information asymmetries and other market imperfections the capital structure is still proclaimed to be a result of efficiency objectives and thus it does not open for subjectivity or irrationality of the firm management in shaping the capital structure of the firm. In other words, it does not allow for the assumption that financing constraints evidenced in the "overreliance" on internal financing and short-term debt is a result of a choice rather than optimization. Furthermore, it does not enable us to distinguish between firms that delimit them from external financing due to choice or limitations.

Business studies in contrast point at that it is unreasonable to refute financial constraint on the argument that financing is available; its costs have to be accounted for given the inherent risk of the project. By this definition firms are constrained if they face a wedge between internal and external costs of funds (Kaplan and Zingales 1997).

This conceptualization, however also suffers from shortcoming, because then all firms are likely to be constrained to some degree and the fact that financing cost to risk cannot be objectively determined. The adherences to this definition, including governmental agencies, usually try to overcome this by surveying CEO's on whether they experience financial constraints see (OECD 2008). However this has its limitations, since the severity of financial constraints might be overstated as managers might be willing to induce governmental support in the area.

The above discussion highlights the different approaches applied within the literature and the methodological challenges encounter when analyzing the presence of financial constraints. It is the argument of this project that these different approaches should be bridged in order to achieve comprehensive, more holistic, picture of SMEs financing and financing constraints in particular.

In the next section the research methods of this project will be explained in regards to the source of information used to serve the objectives of this project.

Research methods

Operative paradigm is chosen considering the necessary connection between ultimate presumption and paradigm. It is indented to form a bridge connecting methodological approach to a specific area. Research methods is thus to a great extend shaped by the methodological approach applied (Arbnor and Bjerke 1997, 14). In general there are two main research methods, quantitative or qualitative research methods. The primary difference between qualitative and quantitative methods is that the latter one emphasizes measurement and statistical evidence, whereas the former focuses on words, points of view, processes, micro level and meaning (Bryman and Bell 2007, 28)

A research process using quantitative methods and strategies entails testing of theory with emphasizes on measurable data and statistical evidence, whereas qualitative research methods entail focus on processes, points of view and meaning (Bryman and Bell 2007, 48).

In this project both research form will be employed. This is intended to comply with the conceptualization of the financial constraints presented later in this project. The conceptualization will therefore be central for the empirical research of this project. This framework will be based on literature review, where relative findings on the determinants for the financial structure will be included. This implies that different study fields will be bridged. The intention is to form a richer understanding of financial constraints, that then is intended to guide the analysis and help in answering the problem statement of this project i.e. the extent to which Danish SMEs are financially constrained.

In order to accomplish this both qualitative data and quantitative data will be used. This is very much in line with the objectives of the system approach. The system approach rests on the assumption that real systems existed long before they are studied. Knowledge about the past is essential to explain and understand the present. Accumulation of knowledge, however, is always to some extent a question of interpretation. Either directly through interpretation of the literature/evidence, or indirectly through interpretations/experiences of others e.g. those being interview.

Generally there are two ways of gaining understanding, through various documents (secondary material) or through interviews with experts (that have experienced the reality). Due to the importance of secondary data for the construction of the conceptualization the process used for acquiring necessary information, namely a literature review, will be explained.

Literature Review

Due to the objectives of the study secondary data is regarded essential for the research. What directs the literature review is a result of combination between the author's ultimate presumption and the topic. The objective is to cover finding that have been highlighted in the literature, which can contribute in explaining the subject under study. Consequently, several fields of business studies will be touched upon. This includes internationalization, entrepreneurship, finance, banking, banking regulations etc. which theories and findings can be applied in the context of SMEs and contribute in explaining the financing aspect of SMEs.

Literature review requires the creator of knowledge to be selective in order to avoid biases. Material should be accessed for its usefulness, it origins should be traced, and finally interpreted. Usefulness depends on the topic at a time as well as the trustworthiness of the material. Tracing the originator can alleviate this problem. In addition tracing origin can be used to access the authenticity of the data (Arbnor and Bjerke 1997, 239-241).

The literature review will be essential for the development of a conceptualization of financial constraints which will be presented in a framework encompassing both the demand and supply related factors. In order to comply with the new conceptualization that allows for subjective influences the empirical analysis will be threefold and both qualitative and quantitative methods will be used.

First, an interview is conducted on a bank in order to reveal whether there can be established an indication of financial constraints from the supply side of the problem. Furthermore to explore the implication internationalization aspiration of firms has on the propensity of being granted credit. Following the interview, a regression analysis is performed on a financial data on Danish SMEs. Here a regression model is constructed using information asymmetry proxies to test the presence of financial constraints. Finally results from a survey conducted by the Danish statistical Bureau on SME access to finance will be analyzed. This will constitute the analysis of the demand side of financial constraints. This procedure phrased triangulation is chosen in order to comply with the objectives of the study that is to encompass both demand and supply factors constituting financial constraints. Triangulation can operate both within and across research strategies. Increasingly, triangulation is being used to cross-check finding derived from both quantitative and qualitative research (Deacon, Bryman, and Fenton 1988 as cited in Bryman and Bell 2007, 412-413). This is advocated within system theory, especially when the objective is to develop understanding of complex social phenomenon (Arbnor and Bjerke 1997, 239-241), but triangulation is proposed to give a fuller picture of the subject under study which is in coherence with the objectives of this project. In the literature, it is distinguished between data triangulation and mixing of methodology approach which is a more profound form of triangulation. Data triangulation, applied within this project, is a term used to assess validity and reliability of data in qualitative research. In this regard, one could argue that researching both the demand (SMEs) and supply side (Banks) provides some control for value-laden answers and consequently improves the validity and reliability. The research methodology of each research will be explained in details prior to the analysis.

After discussing the research methodology applied within this project the structure of the project and the scope of the literature review will be explained.

Project design and structure of the literature review

The theme of this project is financing constraints and its implication on internationalization aspiration of Danish SMEs. This project consists of seven chapters as depicted in the figure. Contents of previous section comprise chapter one where guiding research question along with methodological consideration are presented. In chapter two the characteristics of SMEs and their internationalization challenge is explained.

The objective of the chapter is to illuminate the context of SMEs which is fundamental for subsequent chapters. Chapter three is devoted to explaining factors, both endogenous and exogenous to the firm, affecting the level of supply of funding and consequently presence of financing constraints among SMEs.

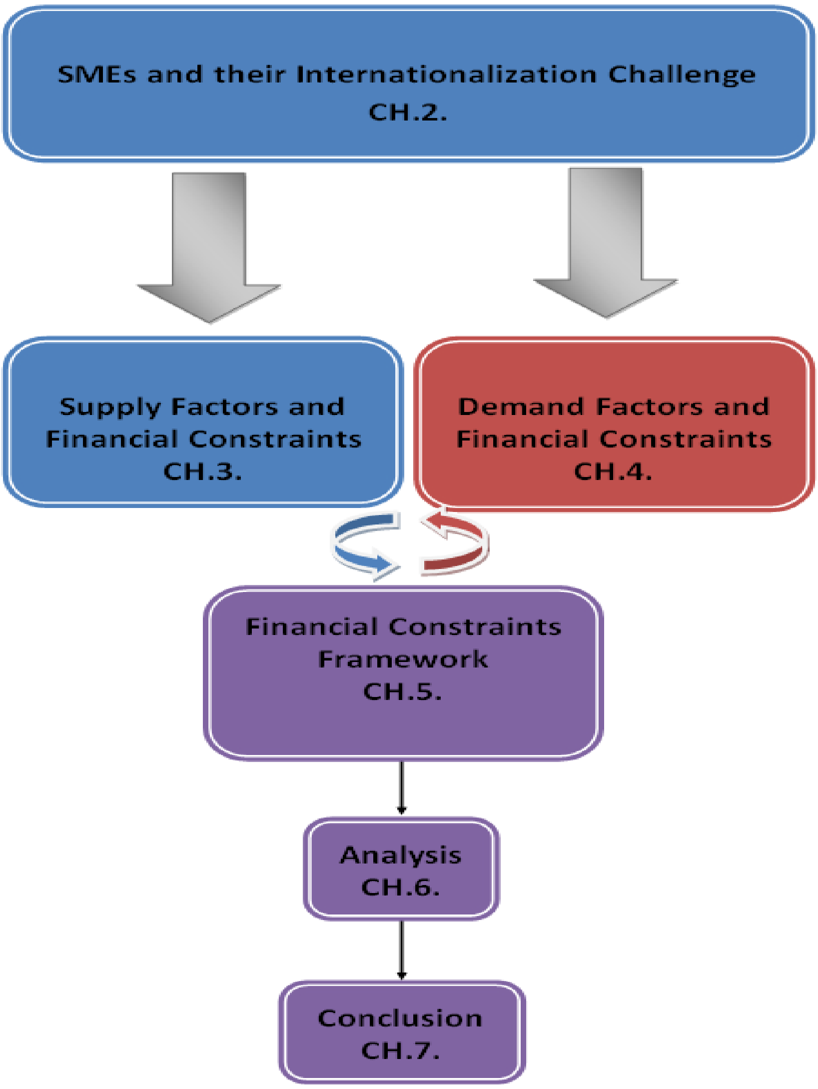

Figure 3: Project design showing the content of this project

In chapter four, demand related factors and the implication they can have on perception of financing constraints are reviewed. In chapter five, a holistic framework encompassing the factors explained in previous chapter will be presented. This framework is then intended to guide the following analysis of the project, which is presented in chapter six. Finally, chapter 7 concludes and discusses implications of the results of the study and provides recommendations for further research.

Scope of the literature review

As the discussion in the methodological section highlights the literature concerning the financing aspect of SMEs is diverted. In chapter three and four finding of these different research streams will be reviewed. The literature review will be separated into three parts.

In the first part *"SMEs and their internationalization challenge"* factors born within the SMEs will be reviewed. The objective of this section is twofold, firstly to support the relevancy of this project

as financial constraints is attributed as a major barrier hindering firms internationalizing and secondly to relate the characteristics and internationalization process of SMEs to financial constraints. The argument of this section is that the interplay between the characteristics of SMEs and the challenges associate with internationalization adversely affects these financing options. The discussion of this section will be background for following chapters. In the "*Supply factors and financial constraints*" chapter the influences of the characteristics of SMEs on the availability of different sources of equity and debt financing will be reviewed. It is here, the factors born within the company will be linked to external factors affecting the financing options. There the characteristics of SMEs and the challenge of internationalization at additional complexity, particularly by amplifying the challenge of information asymmetry, that affects their financing options. Here bank financing will be given special attention since it is the most frequently used form for external financing. In regards to bank financing, externalities affecting the supply of financing to SMEs will further be reviewed. Finally, in the *"Demand factors and financial constraints"* subjective influences affecting the financing decision of SMEs will be introduced by building on the previous discussion explaining the characteristics of SMEs.
The objective of the literature review is to support creation of a holistic framework of financial constraints that embraces both demand and supply born factors.

In the next part the importance of SMEs for the economic prosperity will be discussed along with their characteristics. The intention of this chapter is to describe the conditions both limitation and advantages under which SMEs face in terms of internationalization.

2. SMEs and their internationalization challenges

Characteristics of SMEs

Typically SMEs are in the literature described in comparison to their larger counterparts. Although SMEs are generally placed under one umbrella their true characteristics vary considerably. In fact, SME encompasses wide range of firm operating in different industries. There are however unique traits common among SMEs that differentiate them from larger firms. In this regard, the owner and manager oftentimes represent the same person. As a reason the business typically matches the owner interests and expertise. They typically have few employees and as a reason they have to undertake several functions (Wiklund, Delmar and Sjöberg 2004). The owner is often the primary decision maker regarding the financial aspect of the business such as investments (International Finance Corporation 2009).

SMEs tend to prefer to expand organically where their growth is often founded on innovative ideas. They often bear the qualities of entrepreneurship, where they are flexible and motivated by the need to generate growth and to challenge existing market (Karagozoglou and Lindell 1998; Vos, et al. 2007), as well as they are flexible and can respond quickly to changing economic conditions (Altman and Sabato 2005). Consequently, the sector is often regarded as the driving force behind innovation (OECD 2004). In this regard, they manage to spend less on R&D than larger firms while they accomplish to produce almost twice as many innovations on a per-employee basis (Acs and Preston 1997).

Despite these advantages they are in disadvantages in a number of aspects compared to large firms. Large firms usually have better-trained management, advantages in raising capital, more favorable tax conditions and can better compete for qualified labor (Brüderl and Schussler 1990; Cressy and Olofsson 1997, as cited in Maeseneire and Claeys 2007, 7).

They oftentimes have few employees and lack financial assets, organizational assets and capabilities as well as intellectual property (Etemad1999).

They are in disadvantage in terms of insufficient developed informal structure, unsystematic decision-making processes as well as stubbornness of the CEO, which in many cases is the owner, to delegate responsibility to more experienced managers (OECD 2008). The acquisition of resources is challenging due to information asymmetry between entrepreneurs and external stakeholders (Brinckmann, Salomo and Gemuenden 2009). SMEs have a shorter expected life, may face intergenerational transfer problems and are expected to be less profitable. As a result, failure rates [1] are notably higher for SMEs (Maeseneire and Claeys 2007). Small firms financial management beyond financing is not professional, managers frequently lack oversight, have limited competence managing the financial aspect of their businesses (Chaney, Custer, & Grotke, 1977; Lindeloef & Loefsten, 2005 as cited in Brinckmann, Salomo and Gemuenden 2009, 219). The management of the firm's cash flow oftentimes is note efficient, which decreases firm performance and make them more vulnerable to external shocks (McMahon and Davies 1994).

These traits associated with SMEs possess a challenge in terms of internationalization, which often requires compatible management as organizational and managerial complexity increases (Davidsson, Achtenhagen and Naldi 2006), and entering new markets places increased demands on the financial skills of business managers (OECD 2008). In addition these limitations result in a higher vulnerability to environmental changes and a lower capacity to absorb the risk of exploring international markets. These constraints inflate the liabilities of foreignness and of newness and make internationalization challenging for SMEs (Lu and Beamish 2001; Maeseneire and Claeys 2007).

That SMEs and large public firms are not financial clones of each other is generally accepted. It has been debated whether SMEs are riskier in terms of their propensity to fail in comparison to larger companies. From a risk point of view SMEs are unfavorable due to the information asymmetry (Jordan, Lowe and Taylor 1998) they possess as well as their dependency on a small number of customers and a meager product portfolio (Bhaird 2010). While individually SMEs are riskier than larger firms, studies have shown that SMEs have lower correlation with each other than large businesses (Altman and Sabato 2007), that from a portfolio investment point of view is very advantageous as idiosyncratic risk can be diversified away.

[1] Small business failure is commonly approximated as the number of closures. Although it is commonly accepted that SME are riskier than larger companies the extent is disputed, as noted by (Headd 2003) not all small firms' closures is a result of default, some firms choose to close their business for other reason. In addition, the default probability can vary with the SME population where medium-size SMEs have highest default probability for a more detailed explanation see (Dietsch and Petey 2004).

Internationalization of SMEs

Internationalization of SMEs has emerged as an important research topic during the last decades, as earlier internationalization studies focused mainly on multinational corporations (Mc Dougall and Oviatt 1996; Forsman, Hinttu and Kock 2002; Maeseneire and Claeys 2007).

Nowadays it is generally accepted that internationalization is no longer preserved for large corporation. However, despite internationalization has started to concern SMEs, managers aspiring to internationalize have in the literature been argued to lack guidance. In fact, most of the extent theory applied in order to understand internationalization of firm originated from studying large firm which have been found to be inappropriate in SME context. Number of studies have found that the internationalization process of SMEs to deviate considerably from what otherwise is predicted and advised in the traditional theories (Kontinen and Ojala 2010). Extant theories are argued to fail to take into account the characteristics of SMEs and the impact global competition possesses on them (Etemad 2004).[2] It has even been argued that any attempts to apply theories developed based on large firms can lead to relatively awkward results when applied to smaller businesses as ideas developed for large firms do not necessarily work in a small business setting (Ruzzier, Hisrich and Anoncic 2006). In fact, empirical studies have proved that smaller businesses are not smaller version of big business (Lu and Beamish 2001). This is also evidenced in terms of internationalization of SMEs (Hollenstein 2005).

Small companies are less predictable when it comes to the internationalization path they follow; especially those in sector characterized by high-technology (Boter and Holmquist 1996). Although the internationalization path followed by SMEs is oftentimes unpredictable, both large firms and SMEs are subject to the forces of globalization that push and pull them towards internationalizing. Although there can be many possible motives behind firms internationalization, they are to large extent driven by either proactive or reactive forces. The former consists of the benefits associated with internationalizing e.g. perceived profitability while the reactive forces, refer to firm' response to environmental changes such as saturated domestic markets (Czinkota and Ronkainen 1988). It is

[2] Empirical studies have found some support to stepwise internationalization process, such as presented in Uppsala, in terms of how SME companies enter psychically close markets first (Kontinen and Ojala, Internationalization pathways of family SMEs: psychic distance as a focal point 2010). For explanation of Uppsala see (Johanson og Vahlne, The internationalization process of the firm - Four Swedish case studies. 1977) (Johanson and Vahlne, The mechanism of internationalization 1990) (Johanson og Vahlne, Management of foreign market entry 1992).

especially these environmental changes that we have experienced in recent years that are pressuring SMEs to become internationally orientated. Breakdown of trade barriers has shifted the economic environment resulting in new market opportunities and at same time exposure to foreign competitors. As a reason, the ability of SMEs to engage in international activities is believed to be necessary to ensure growth because it is no longer possible to act in the marketplace without taking into account risk and opportunities presented by foreign competitors (Westhead, Wright and Ucbasaran 2001). The elimination of market boundaries has altered the traditional competition landscape and growth and internationalization have somewhat become intertwined (Davidsson, Achtenhagen and Naldi 2006), and even those without international aspiration are imposed to adopt international perspectives (Maeseneire and Claeys 2007).
In addition, research has shown negative relationship between the size of the domestic country (in terms of population) and internationalization activity of SMEs (European Union 2010). Thus the pressure to internationalize is amplified for SMEs from undersized markets, such as Denmark, as the market is quickly saturated (Braunerhjelm 2000; O'Malley and O'Gorman 2001; Etemad 2004). This is especially the case for knowledge-intensive SMEs such as high tech firms that are forced to enter foreign markets to acquire sufficient market share for their products (Ojala 2008; Kontinen and Ojala 2010)

In regards to the proactive forces, there are numerous benefits associated with engaging in internationalization for SMEs. Studies have demonstrated that there is a direct link between internationalization and increased performance, increased productivity, improved resource utilization (European Commission 2007), as well as access to foreign markets enables business to achieve growth and economies of scale which domestic market alone would hardly be able to satisfy (OECD 2008). Furthermore, it offers geographic diversification, which reduces fluctuation in revenue by spreading investment risks over different markets (Kim, Hwang, and Burgers 1993 as cited in Maeseneire and Claeys 2007). Internationalization is alleged to provide intrinsic value beyond that found in exploitation of the firm’s assets, since internationalization provides aces to new ideas and international best practice which might foster innovation (Lu and Beamish 2001). Despite for these forces the internationalization of SMEs has somewhat haltered. Studies in EU member state countries, including Denmark, have shown a direct link between firm size and likelihood of internationalizing (European Commission: Directorate General for enteprise and industry 2008). In general, the internationalization activity, where only one fifth of European SMEs have exports and only 3% have subsidiaries, branches or joint ventures abroad, point at constraining factors hindering SMEs from internationalizing.

Despite their role as a key source of growth and job creation, SMEs are under-represented in the international economy relative to their contribution in national and local economies (OECD 2008). Studies of internationalization of SMEs have revealed that SMEs to a higher extent than large companies encounter constraints.
As a consequence, the probability of SMEs internationalizing their activities is lower than in case of large firms. The impediments hindering them from internationalizing can be both attributed to internal factors, such as management skills and capabilities, as well as external factors, such as market imperfections, where there implicit severity of these factors in constraining companies when internationalizing differs (Hollenstein 2005; OECD 2008). In this regard constraints encountered when entering foreign markets may be avoided by contractual agreements such as Joint ventures which involves given up stake in the project or the company. In this respect, internationalized SMEs are more prone to choose contractual form of internationalization (Berra et al., 1995 as cited in Hollenstein 2005), or if international activities are equity-based, SMEs prefer minority-stakes to full ownership, whereas in case of large firms the opposite is true (Mutinelli and Piscitello 1998; Fujita, 1995, as cited in Hollenstein 2005).
In addition, the constraints encounter change as the companies become more international active (OECD 2008). This might reflect that some of the constraints hindering companies from internationalizing might be more perceptional in nature. Since, their significance change in magnitude as the company gains firsthand experience.
The benefits of internationalized SMEs are not restricted to companies themselves but shared regionally and nationally (Bhaird 2010). In fact, internationalized SMEs yield better results than domestic orientated companies, in terms of expanding more rapidly and generating more jobs (EurActiv's network 2011). As well as it is also commonly agreed that the ability for SMEs to internationalize is fundamental in sustaining the sectors contribution to national economy (OECD 2008). As a consequence it is important to understand what barriers are constraining SMEs when internationalizing and more importantly how they possible can be resolved.
While, there are several barriers and constraints realization of internationalization aspirations of SMEs, financial constraints remains among the main impediments, consistently reported in surveys as one of the main areas requiring support (European Commission 2007; European Commission:

Directorate General for enteprise and industry 2008; European Union 2010; European Central Bank 2011). It is generally treated as an internal factor, where it is assumed that capital is accumulated incrementally within the firm (McNaughton and Bell 2004). However, this is flawed assumption since internal financing is only one of many financing possibilities companies have for financing their internationalization. In practice, companies' capital structure is often composed of combination of both internal and external financing, while the relative proportion of debt, equity or other securities may differ (Berk and DeMarzo 2011, 541). Therefore it is more of an external factor today as companies are to a higher degree relying on external financing.

The objective of next section is to explore the nature of financial constraints, what is causing it and why it is affecting SMEs to a greater extent.

Financial constraints of SMEs

In perfect markets, Modigliani and Miller proposed that the value of a firm should not be affected by the capital structure and simply equal to the future cash flow a company was able to generate. Consequently, if a firm would alter its capital structure by taking on leverage, which generally is cheaper than equity, the cost of capital would be offset by a higher equity cost of capital. Thus, with perfect capital markets, financial transactions should neither at nor destroy value (Berk and DeMarzo 2011). However, financial markets aren't perfect and consequently the optimal capital structure is affected by market imperfection (Hayne and David 1977). In fact, Modigliani and Miller published a number of follow-up papers discussing some of these market imperfections, such as corporate taxes, and their effect on the optimal capital structure. These imperfections have evoked great interest for studying capital structure of companies. There primary focus has been on the effect of market imperfection on the optimal division between debt and equity financing, but they have an important role in explaining deviations from what otherwise is proposed to be efficient. Prior studies, however, did not distinguish between large and small companies. Observed deviation from the capital structure of small companies has fuelled a need to study small firms separately as they are subject to other forces which affected their capital structure. While capital structure theory is rich on explaining factors affecting the capital structure of SMEs it does not fully capture observed deviations from what is advocated in theory.

Under tradeoff theory of capital structure, the logic for the financing structure of companies is explained. Under this theory firms share of leverage depends on market imperfections such as tax advantages, mispricing and costs of financial distress. These imperfections results in that the capital structure is not irrelevant and predicts that optimal financing structure exists. Although empirical studies have found correlation with these factors and actual capital structure of firms, there are studies that point at sub-optimal capital structure where firms are significantly under-levered. This in fact results in that the firms are not efficiently constructed in regards to the capital structure and their value is consequently affected (Graham 2000). The implicit assumption is that the capital structure is a function of a firms demand for debt, while the factors affecting the supply are disregarded. Thus the supply of capital is seen as infinite for the correct price, of which depends on the riskiness of the firm. However, the supply is not frictionless, the same type of market frictions that make capital structure choices relevant also imply that firms sometimes are rationed by their lenders. Thus when understanding the capital structure of firms it is important to include both the determinants as well as the constraints affecting firms ability to alter their capital structure.

This is especially important in regards to SMEs where as they are to a greater extend affected by information asymmetry which amplifies the likelihood of credit rationing (Mahagaonkar 2010).

In general, it is widely recognized that SMEs are subject to market imperfections that impede their options in terms of financing internationalization projects. As a result primary focus of earlier academic and policy research has been towards provision of adequate supply of financing (Bhaird 2010). A key factor is the typical characteristics of SMEs i.e. that they are risky and informational opaque. In this section, the nature of financial constraints will be discussed. The objective of this section is to explain why SMEs are to a greater extent subject to financial constraints, which empirically has been found to have implication on their growth and internationalization opportunities. The intention is to draw on the extent theory on financing constraints to explain why acquiring financing for internationalization is challenging for SMEs by giving special attention to the previously discussed characteristics of SMEs. But these factors have in the literature been used to explain the capital structure of SMEs.

The observed deviation in the capital structure of SMEs has served as an important argumentation for scholars to point at financing gap especially in regards to equity financing as they generally operate with higher debt levels (Stiglitz and Weiss 1981; Storey 1994; Holmes and Kent 1991; Hamiltion and Fox 1998). This is generally attributed to at one hand, unattractiveness as an investment candidate of SMEs due to their riskiness in comparison to the benefits and at other hand the incapability of providers of financing to appropriately access the risk of SMEs. These explanations for the financing constraints are also shared by interest groups of small business and financial institutions. The groups representing SMEs generally point at unfair assessment and incapability of lending institutions in understanding their business plan, which result in inability to acquire necessary financing. In contrast, financial institutions point at that financing is subject to the risk and the viability of the project at each time.

It is acknowledged that SMEs face financial constraints to a greater extent than their larger counterparts. SMEs are in general more vulnerable to external shocks, such as loan rationing following crisis (Kraemer-Eis, Schaber and Tappi 2010). This is because SMEs are generally regarded riskier than their larger counterparts.

The typical characteristics of SMEs increase the potential for credit constraints (Bhaird 2010, 151). Exclusion from financing is a major impediment for firms. Financial resources are key resources for acquisition and configuration of other resources, as it serves as a catalyst in the resource acquisition process. Consequently, firm that use external financing grow faster (Brinckmann, Salomo and Gemuenden 2009; Carpenter and Peterson 2002).

Due to the economic importance of the sector, governments around the world along with central banks, frequently monitor their financial conditions and a wide range of policy schemes such as direct loans, interest subsidies and loan guarantees, have been established to alleviate financing rationing of SMEs (Maeseneire and Claeys 2007; European Commission: Directorate General for enteprise and industry 2008). Many papers empirically investigate the subject of a financing constraint in SMEs, both supporting (Fazzari et al. 1988, 2000) and refuting (Levenson and Willard 2000) the phenomenon as cited in (Bhaird 2010, 147-148). In business surveys companies repeatedly ascribe lack of external financing as a major obstacle to their investment and innovation activities (Harhoff and Körting 1998). In addition, it adversely affects entrepreneurial activities, constrain firm growth and the economic viability of firms (Evans and Jovanovic 1989; Bates 1990; Holtz-Eakin, Joulfaian, and Rosen 1994 as cited in Maeseneire and Claeys 2007). Although evidence for a persistent equity gap is inconclusive, governments across the globe are believed to intervene in SME capital markets because of political considerations, but SMEs are regarded as an important unemployment and poverty alleviation as cited in (Bhaird 2010).

While attracting external financing for domestic projects already is difficult, financing foreign project possess even greater challenge (Maeseneire and Claeys 2007, 51). The difficulties experienced when seeking financing for internationalization project has been found to be similar in nature to those for R&D projects due to limited collateral value (p. 11). That is, returns are often volatile as well as assessing the viability of the project possess a challenge. As a consequence, firms seeking to enter new markets are generally perceived riskier by funders. This is due to the additional risk they expose investors to, they are subject to: exchange risk, regulatory environment challenges, cultural difficulties and political risk (OECD 2008). Especially, small firms at early stage of internationalization have more difficulties in obtaining the necessary funds for exporting than larger and export experienced firms (Bilkey and Tesar 1977 as cited in Maeseneire and Claeys 2007, 26). Not being able to provide financing posses a great challenge for SMEs, which dissuades them from internationalization (Hutchinson, Fleck and Lloyd-Reason 2009) as access to affordable funding is a prerequisite for internationalization (European Commission 2007) and limits their ability realize their full growth potential (Maeseneire and Claeys 2007).

Moreover, exclusion of financing can be damaging for companies as they don't have any buffer to draw to when they experience unforeseen setbacks (Westhead, Wright and Ucbasaran 2001). Thus, SMEs oftentimes have more at stake in comparison to large companies when considering exploiting foreign investment opportunities.

The relationship between efficient and effective provision of finance is commonly believed to be fundamental in ensuring that SMEs can exploit their growth opportunities (Maeseneire and Claeys 2007). The ability to obtain financial resource not only enables firms to exploit opportunities but also can act as a cushion against unforeseen challenges, which internal savings alone cannot withstand. Exclusion from or inability to access external financing, deprives SMEs from the option to take on risk as they cannot afford making mistakes as it may seriously impact their survival changes (Cooper, Gimeno-Gascon and Woo 1994).

The problems that hinder companies from acquiring external financing are attributed to asymmetric information, adverse selection, moral hazard and agency costs.

Information asymmetry of SMEs

Likely cause of financial constraints of SMEs have often been attributed to the characteristics of SMEs especially the fact that they are informational opaque (Berger and Udell 1998; Mercieca, Schaeck and Wolfe 2009).

Small firms tend to be opaque, because they don't have the same ability to signal quality to investors (Neuberger and Räthke 2009), which often have limited information about managerial capabilities or the inherent risk of the business (Audretsch and Elston 2002). This information asymmetry, can lead to market failure such as credit rationing (Stiglitz and Weiss 1981).

Information asymmetry, which was originally derived to explain break downs in the market for used cars, has transferred to explain dysfunctions in other contexts. It arises where there is imbalance between the information possessed by parties involved in transaction. It can lead to market failure in form of adverse selection or moral hazard, which can cause the transaction to go awry.

In the context of business financing, information asymmetries can arise as managers are likely to have superior information about the firm's prospects and future cash flow than outside investors. In terms of SME financing, this information asymmetry is often greater since SMEs are subject to less rigorous reporting requirements and as consequence the quality of their financial statements may vary (Pettit and Singer 1985). This is challenging for investors, as it makes it difficult to distinguish between good and bad SMEs and can lead to adverse selection. Adverse selection is a problem created by asymmetric information before the transaction occurs where the buyer (or investor) can't effectively distinguish between the qualities of products (firms). The existence of asymmetric information prevents the supplier of capital from engaging in price discrimination between riskier and less risky borrowers (Audretsch and Elston 2002). As a reason the cost of financing is averaged, making it less feasible for sound business to be financed (Scholtens 1999). The consequence is that, as with bad lemons in the car market[3], only the managers of bad businesses find it feasible to acquire capital and well-deserving investment project may not be undertaken as funding may not be obtain at reasonable cost. As the average soundness of SMEs applying for capital worsens the cost of financing increase. This cycle continues until the market eventually breaks down. Situation of moral hazard, which happens after transaction has occurred, can arise when the party with informational advantages has incentives to behave inappropriately in regard to the party with less information, which is unable to adequately monitor the performance of the opponents' actions. Thus owners/managers of SME might be tempted to take on a greater risk if they are not fully exposed to the consequence their actions. As an example of moral hazard, manager might use a loan granted to finance certain project which the loaner assigns appropriate interest given the risk implied to another riskier project.

Information asymmetry has been attributed to explain market reaction of management decisions of listed companies such as issuance of equity or stock repurchase as well as capital structure of companies (Berk and DeMarzo 2011, 523-541). Solutions to information asymmetry include screening and signaling. Screening occurs by the part with information disadvantage e.g. a bank, where the risk is accessed by reviewing the information available, which typically implies greater agency costs. This agency costs is transferred to the borrower in form of higher interest rate.

[3] In his paper, Akerlof used the market for used cars as an example of the problem of quality uncertainty. Lemons denote cars of poor quality that, due to information asymmetry, cannot be distinguish from good cars.

The larger the information asymmetry the greater the agency cost as investors place greater value on monitoring. Signaling, however, is provided by the opponent in order to disclose information about the quality of the business. SMEs have a limited track record and less transparent competencies than larger, more established firms. As a reason SMEs are to a greater extent than larger companies exposed to problems of asymmetric information (Jordan, Lowe and Taylor 1998).

Implication of Internationalization on information asymmetry

Expansion to foreign markets has been argued to have parallels to the process of innovation (Filipescu 2006), and in some cases perceived to be an innovative process in itself (Johanson og Vahlne 1992).

Internationalization projects such as new innovation inherently contain uncertainty about the potential economic value, which cannot be objectively accessed. Uncertainty inherent in innovative processes renders the decision by potential investor to be based on subjective judgment, which may or may not coincide with the assessment of the business manager (Mahagaonkar 2010, 13). However, different from applying financing for new products, intentions to expand to foreign markets cannot be patented and thus protected from imitators. As a reason investors often times only have the business plan to base their investment decision on. Therefore internationalization project is more likely than other forms for innovations to suffer from financing constraints. Consequently, in regards to acquiring financing for internationalization projects, the adverse consequences of information asymmetry are likely to be amplified in terms of financing internationalization projects due to the fact that they are associated with greater risks (Maeseneire and Claeys 2007), and that international firms suffer to a greater extent from market imperfections such as agency costs and information asymmetry (Armstrong and Riddick 1998).

SMEs and their internationalization challenge-Summary

The term SME is used to capture firms that suffer from size disadvantages, which amplifies the challenge of acquiring external resources.

Recent studies have confirmed that the SMEs aren't just a smaller version of large companies. The organization structure of SMEs is typically informal, where the employees are required to perform several functions. They typically are owner-managed where the manager often suffers from stubbornness to delegate responsibilities. The manager is responsible for several key functions, such as the management of the financial aspect of the business, which oftentimes is not very advanced. The business is often family owned, bearing the qualities of entrepreneurship and innovation. While firms today, irrespective of size, are to a greater extent than ever subject to the forces of globalization SMEs have been underrepresented at international level. This fact is attributed to internally and externally bourn factors, where in particular lack of financing restrict SMEs from participating at international level. Applying financing for internationalization aspiration is in the literature proposed to be more challenging as it involves greater uncertainty.

Lack of financing is attributed to unwillingness of investors and banks to provide capital to SMEs and information asymmetry of SMEs which is adversely affected in regards to financing internationalization projects.

In regards to funding investments firm can choose to utilize internal or external sources, where the availability of external financing is a subject to the ability of the company to resolve the problems discussed above. In next section the factors affecting the availability of internal and external financing will be reviewed.

3. Supply factors and financial constraints

Financing decision of all investment projects of a single company constitute its capital structure. In general, firms can choose to utilize retained earnings (internally generated funding) or external financing. In regards to external financing, firms can choose between debt and equity where the capital structure theory predicts that the debt to equity ratio is motivated by minimizing the cost of financing. In this section, factors adversely affecting the supply of financing to the sector will be reviewed. The intention is to illuminate how supply related factors contribute in causing financing constraints in regards to SMEs. Thus this section discusses the financing constraints explanation for their observed capital structure.

Internal Financing

Financing through operations involves retaining earnings generated from business operations to finance investments projects. Usually, this form of financing investment projects is often limited. As they are often inadequate to finance large investments as well as the process is slow and can result in that investment opportunities vanishes. As a reason, internal investment is primarily used to finance small projects with quick payback. This form for financing is often reserved for older companies as it can take new companies time to generate profit for the first time.
Nonetheless, financing through operation has some advantages. Financing through operations is less costly than external financing since problems of information asymmetry are avoided (Brinckmann, Salomo and Gemuenden 2009). Retained earnings can supplement other external financing and thus increase the amount of available financial capital. In addition, it can provide a signal to investors, that the owner is committed as he has greater exposure in the project by devoting the earnings to the project rather than paying them out for dividends. This can reassure investors of the viability of the investment as the owner-managers have “skin in the game”, resulting in lower financing cost since the problems of information asymmetry and adverse selection are lessened (Brinckmann, Salomo and Gemuenden 2009). In fact, empirically studies have found, that in regards to SMEs, that there is a correlation between the degree of internal financing and the risk aversion of the firm (Lockett, et al. 2008).

Observation of the capital structure of SMEs reveals that internal financing remains as the most important source of financing investment projects. While their undoubtedly are benefits associated with internal financing, the observed reliance on internal financing has been argued to be greater than otherwise advocated. Consequently, studies of SMEs financial constraints in the past have pointed at the over-reliance of SMEs on internal financing and low liquidity as an indication of financing constraints.

In next section the factors affecting the availability of external financing will be reviewed.

External financing

Financial resources are key resources for the acquisition and configuration of other resources. Financial resources serve as a catalyst in the resource acquisition process, as they can be used to acquire resources and configure the resource base (Alsos et al., 2006 as cited in Brinckmann, Salomo and Gemuenden 2009), which in effect allows firms to growth faster (Carpenter and Peterson 2002). Well functioning capital markets facilitate access to finance, promote entrepreneurship and enable growth oriented businesses to operate profitably and make a significant contribution towards employment and economic stability.

External financing comes in two types, equity and debt financing, where the availability of financing not only rest on the development of capital markets but also on firm specific characteristics. The repayment structure of the two sources differ as a reason the characteristics they attach importance to differ. Equity holder are promised share of return of a company and thus share in the upside of the firm while debt holders on the other hand are exclusively promised fixed payment. In this regard, debt holders are likely to be more prone to favor risk-aversion over higher growth rates (such as following internationalization), while equity holders are likely to favor growth capabilities.

In this chapter, the ability of different external sources in overcoming information asymmetry and provide financing to SMEs will be reviewed. Here, attention will be given to the previously discussed characteristics of SMEs and the general development within Denmark.

Equity financing

Equity financing can be provided from three sources public markets, angel financing and venture capital. The problems of asymmetric information are exuberated in terms of equity financing.

Issuance of equity, which in effect means reducing the owner/s ownership of the company, can be interpreted by investors that the owners regard their company as overvalued.
Although there can be other motives for reducing the ownership of a company, such as to acquire capital to finance growth aspiration, investors are unlikely to find it worthwhile to incur all the expenditures needed to plug information gaps. This is further amplified in the context of SMEs, where the funding need is generally small, monitoring is expensive and the shares are thinly traded (Jordan, Lowe and Taylor 1998). In compensation for the information asymmetry investor typically demand discount in the stock price. Furthermore, the cost associated with going public is typically fixed making it relatively expensive option for SMEs (Lee, Lockhead, Ritter, and Zhao 1996 as cited in Maeseneire and Claeys 2007).
The above mentioned signaling effects and the associated costs reinforce the limitation of equity financing (Jordan, Lowe and Taylor 1998). Empirically, the challenge of equity financing has been identified as a problem in terms of SME financing (Macmillan 1931; Radcliffe 1959; Bolton 1971; Wilson 1979 as cited in Maeseneire and Claeys 2007). However, for a relatively small number of firms, the equity market may be appropriate venue. This is typically firms with exceptional growth potential, often operating in knowledge-intensive industries (Berger and Udell 2002).

Public equity

The participation of SMEs in public stock markets has been rather limited, informational opacity is a major reason. Public equity is characterized by significant costs associated with initial public offerings (IPOs) due to diligence costs of investors, distribution and security registration which mainly are fixed. Therefore the value of the firm has to be large enough to become economically attractive (Berger and Udell 1998).
In order to make it more attractive for small firms to go public several exchanges with lower requirements and registration costs have been established with mixed results.
In Denmark, the first north stock exchange was launched in 2005 by OMX-Copenhagen. The objective was to create a venue directed for SMEs where companies could easily and cheaply acquire financing through the stock exchange. Companies registered on the index are not subject to the same regulation and information requirements as on the other indexes. This makes registration on the index significantly cheaper alternative for SMEs. This low requirement for information disclosure has however resulted in dubious prospectus and lack of transparency. Consequently the information asymmetry between investors and firms is greater than on other more regulated indexes. The consequences is that investors have, since the introduction, experienced fraudulent

behavior of some companies[4] on the index, which (as with the “lemons” in the car market) has affected the investors valuation of other companies registered on the index, as well as the IPO’s intentions of other companies (Erhvervs Bladet 2008), making it more costly to bridge the financing need. As an alternative to the first north index, the first north premier is targeted at SMEs willing to disclose greater information such as by fulfilling the IFRS standard (Nasdaq OMX n.d.). Nevertheless, the interest for being listed on these two indexes remains limited in Denmark. Currently, 14 companies are listed on the first north while only one company is listed on the premier index. In addition to the indexes directed towards SMEs there are also firms listed on the main index where requirements are stricter. However, to date the number of firms that acquire equity financing from public sources remains limited.

Private equity

Companies not suited for public equity markets may turn to private equity markets for acquiring financing. There are two forms of private equity sources, these are venture capital (VC) and business angels (BA), these sources in turn will be discussed.

Venture capital

Regions and countries have realized that VC play an indispensible function in economic development by providing temporarily funding to companies often not suited for debt financing (J. L. Christensen 2007). The main advantage of VC for SMEs financing is that it is equity based and does not require collateral, as debt financing requires, which they often lack. They thus share in the success of the business they invest in but at the same time are fully exposed in the event that the business fails.

VC firms in comparison to private investors have both economic of scale and scope when providing funding to VC. They act as an intermediary by collecting funds from investors and redeploying them by investing in firms for later selling their stake at a profit. Usually, however, it is the profit of the few most successful firms that generally provide the bulk of the fund’s returns (Berger and Udell 1998).

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[4] Abaris and Nanocover are examples of companies where problems of information asymmetry prevailed. Investors were tempted by proclaims of high returns which fueled the stock price while the business owners sold their shares.

VC firms typically have expertise in monitoring specific types of firms which reduces the information asymmetry. As a reason financing is typically directed upon specific types of firms, or firms that have reached specific stage of development and require funding to further expand the business. Thus VC financing encompass both early stage investments with high expectations of growth as well as later stage investments where firms are reinvigorated through a buy-out (Lockett, et al. 2008).VC firms are often confronted with problems of asymmetric information, especially at origination, associated with providing financing to opaque firms as information about the value of the project is only revealed over time (Berger and Udell 1998).

VC firms, have some tools at their disposal that may help them mitigate the adverse consequences of the information disadvantage that prevail in SMEs. First, due to their expertise in focusing at specific types of industries VC firms usually have competitive advantages in accessing the major risk and challenges of a specific business. This aids both the screening process, where VC selects targets, as well as the monitoring after a firm has been selected. VC control mechanism may include requirements for the provision of detailed and regular budget information as well as the monitoring of performance through board representation and regular meetings between the VC and the entrepreneur (Lockett, et al. 2008). This non financial involvement is also important as the expertise of the VC may help the firm to further excel.

Provision of funding rests on financial consideration; product characteristics (proprietary features, competitive advantage, potential to achieve strong market position), market characteristics (significant growth, limited competition) and returns (potential for high returns, clear exit opportunity), as well as management aspects such as the familiarity with the industry, leadership capability and the ability to evaluate and handle risk (Mason and Stark 2004).

In addition, patents and prototypes can serve as an indicator of the commercial potential of a project, especially for firms in the early start-up stage. Patents may provide investors indication that the firm is well positioned to harvest the returns from their investment in intangible assets while prototypes may signal less risk as it gives the investor indication about the actual feasibility of the proposed project (Mahagaonkar 2010).

A number of studies find that funders' willingness to provide finance to SMEs is related with the financial commitment of the firm owner to the venture, particularly the amount of personal finance invested by a firm owner. This is argued to signal the owner's belief and reduce the adverse selection consequences of information asymmetry (Bhaird 2010).

Despite the competitive advantage of VC of accessing the true risk and inherent value of information opaque firms, their activity has been rather limited in continental Europe including Denmark. This is often attributed to the underdeveloped VC market in comparison to Anglo-Saxon countries and lack of appropriate exit venues (Bottazzi og Da Rin 2002). In addition, funding shortage also has been suggested to limit the activities of VC in continental Europe. In fact, most European countries prohibit pension funds from investing in VC firms, thus restricting the amount of capital they can raise to fund SMEs (Hardouvelis, Malliaropulos and Priestle 2006).
Furthermore, studies have pointed at uneven geographical distribution of VC (Martin et al., 2003; Powell et al., 2002; Mason & Harrison, 2002 as cited in J. L. Christensen 2007, 818), which often is concentrated in the capital area.
Denmark is no exception in this regard, in the period 1998-2005 nearly the 90% of capital under management was centered in the capital region despite that the region accounted for only 40% of all Danish limited firms (J. L. Christensen 2007). This may leave SMEs from other parts of the country at disadvantages in comparison to those in the regional area. SMEs access to VC is in addition often limited to a small subset of SMEs in specific industries. Thus R&D intensive companies with high growth possibilities such as, are often regarded more appropriate candidates. International projects of SMEs are also often regarded positively, due to the greater return potential and wider range of exit options (Maeseneire and Claeys 2007).

In addition, the screening and monitoring is costly and VC demand compensation for both the risk and this agency cost associated with providing financing to opaque firms. This in some instances may hinder companies from seeking VC, because it is often regarded too expensive form for financing (Maeseneire and Claeys 2007).

Business angels (BA)

Financing provided by BA differs from VC financing in that it is not intermediated. It is an informal market for direct financing where high-net worth individuals invest directly in firms for a stake in the company in exchange. BA sometimes team up into investment groups where they coordinate their investment activity (Berger and Udell 1998). They provide financing through different stages of the business; this can e.g. be accomplished by directing funding to companies that require funding to reach growth ambitions.

The business angel market, as the VC, tends to be geographically concentrated, as proximity can be important in overcoming information problems.

Although BA do not possess the economics of scale and scope as VC, they are generally expected to adopt a similar approach to investment decision. They consider both the attributes of the business and the attributes of the owner when deciding to invest in a proposal. This includes the management ability and the growth potential of the opportunity and the owner(s) capability of realizing that potential (Mason and Stark 2004).
BA differ from VC in the way they might be more concern with agency risk, the risk that is caused by the separate and possibly divergent interest of SME (agents) and investors (principals). This is can be attributed to the fact that they don't have the same resources as VC to perform due diligence in regards to both collecting an analyses market related information. In addition The contracts between BA and entrepreneurs tend to be simple and informal, making it harder for them to enforce sanctions while VC commonly use rigorous contractual requirements, that in some instances allows them to replace incompetent management.
The major obstacle to business angel finance is often attributed to lack of knowledge about this source of finance (Maeseneire and Claeys 2007)**,** and it generally assumed that search and information costs associated with this form for financing is a major impediment to the efficiency of the market (Berger and Udell 1998).

Debt financing

Debt financing differentiates from equity financing in the way they do not share in the upside of investment and are entitled pre-specified return, in form of principal plus interest, while equity investors receives share of the company's profit either in form of dividends or capital gains. In terms of debt financing, companies have two sources to draw to these are private debt markets and public debt markets.

Public debt markets

Public debt markets comprise of corporate bonds listed on central regulated exchanges, while private debt encompasses bank loans and over-the-counter (OTC) markets
Public markets for corporate debt/bonds are similar to the stock market. Corporate bonds are issued at the primary market and traded afterwards at the secondary market. Following bond issuance prospectus is produced explaining the terms of the offering as well as indenture, which is a contract

between the bond issuer and a trust company (Berk and DeMarzo 2011, 799), which has to be in accordance of the laws and regulation of the exchange. Producing this information and fulfilling the requirements of the exchange is predominately a fixed cost. As a reason the financing need required from bond markets needs to be considerable to justify this feasibility of issuing corporate bond on an exchange.

The corporate bond market in Denmark and in continental Europe in general is less developed than the US corporate bond market. This has been attributed to differences in financial systems, where the Danish system along with the financial system of the continental Europe is considered to be a predominately bank-based, while the US (and UK) is market based. This primary difference is that in the former financial assets consist mainly of bank deposits and direct loans while in the latter it is publicly traded securities. This underdevelopment of the Danish bond market is highlighted in the fact that corporate bond market share accounts for approximately 2% of the total bond market. The low activity affects the investor's interest for the market and consequently the liquidity (M. Christensen 2005). As a reason large corporation by virtue of their strength, especially multinationals, seek financing from foreign corporate bond exchanges. In terms of SMEs, the Danish corporate bond market does not offer a plausible option for satisfying their financing needs. This can be attributed to high cost given their financing need as well as the underdevelopment of the national bond market. In addition, SMEs unlike their larger counterparts cannot acquire financing from more developed and liquid bond markets because they are subject to greater liability of foreignness.

In addition to the corporate bond market is the OTC market which in international comparison is rather small in Denmark (Egstrup and Fischer 2007). Despite this, the OTC market is by far the single largest venue for corporate bond financing. OTC markets are different from publicly traded markets as they are not exchange based. OTC participants apart from corporations, consist of pension and mutual funds (Nykredit n.d.). Since, the market is not regulated the bond market does not require the same information disclosure and regulation as it is required on bond exchanges. In addition, the terms of the bond does not have to be standardized and can be tailored according to the preferences of the parties involved.

Due the limitation of the Danish corporate bond market, Danish firms have traditionally dependent on bank loans. Theoretically, banks perform an intermediary role between supplier of funds (depositors) and deficit units (corporations). This function occurs as funds are collected from depositors/investors, which are instead promise fixed return. The banks then diversify these funding along various projects by providing funds to deficit units and in return are rewarded interest. This intermediary function is vital for provision of financing to SMEs and even more so in bank-based systems where companies cannot to same extent resort to alternative debt financing options.

The determinants of the availability of bank loans for SMEs are several. Firstly, the characteristics of the firm and the owner play a vital role, but in addition there are external factors that adversely affect its availability. The main impediments for bank financing will be reviewed in the subsequent section.

Bank loans

As mentioned above the banks can be regarded as performing intermediary function between suppliers of funds and deficit units. It is much more efficient to assign one information specialist to screen and monitor a large number of firms than for a large number of individual lenders. In effect, banks perform this activity for depositors and are thus able to obtain economic of scale in assessing borrower's quality. As a reason banks are better suited than public markets in regards to producing the information necessary to assess small business quality.

In addition, banks can through the products they offer to corporation and the owner better accumulate richer information which it then can use to set appropriate contract terms. The contract term is based on the financial characteristics of the firm and the entrepreneur as well as the firm's prospects and the associated information problems (Berger and Udell 1998). It can be argued that this intermediary function banks perform is essential to provide financing to SMEs. Since, it does not only secure firms bank loans but can also reassure public debt markets of the viability of the company and its projects due to the relationship with the bank.

The most fundamental way of overcoming risk of granting debt financing to firms is to assign appropriate repayment terms given the riskiness of the project. Ideally, interest rates give incentives to the borrower to reduce the risk by informing the bank as well as possible about the project. However, due to the information asymmetry banks face the twin problem of moral hazard and adverse selection when assessing lending application of firms can emerge.

Adverse selection occurs where the bank cannot fully distinguish between good and bad projects and consequently faces the risk of rejecting viable projects or lending to businesses that subsequently fail. Borrowers have incentives to overstate the viability of the business or the project being financed as it may contribute in reducing the loan cost. The low margin on small business lending often encourage banks to minimize the risk of latter (Mason and Stark 2004). (Stiglitz and Weiss 1981) in their seminal paper argue that banks may ration credit rather than increase interest rates to clear the market of bad borrowers as the latter may deter good borrowers and result in incentive problems .

Second, there is the risk of moral hazard. This arises when the bank is unable to completely ensure that the company does not take on a greater risk after the loan has been made than the provision of the loan was based on. However in addition to interest rates, banks have other screening devices to resort to in order to overcome problems associated with information asymmetry.

The lending technologies banks deploy have given them advantage in accessing the viability of projects. Banks through intermediary function have developed skills and expertise in dealing with the risk associated with opacity firms. These technologies help banks overcome problems that can lead to either credit rationing or over-lending (Berger and Udell 2002). In the subsequent part the lending technology applied in the banking industry will be reviewed as well as the implication of it for SME lending.

Lending technology

Lending technology applied within the banking sector is commonly distinguished as either being relationship based or transactional based. These two technologies differentiate in the information they use. The former relies on qualitative information about the borrower while the other is based on quantitative information, mainly statistical inferences.

Transaction based lending technology:

Transaction lending technology is primarily based on quantitative data that may be observed and verified about the borrower. The information may include financial ratios calculation from financial statements, credit scores assembled from the payment history of the SME and its owner. Generally this quantitative information is distinguished from the relationship based technology in the way it is more easily observed, verified and transmitted through the bank (Berger and Udell 2004).

There are few prominent transaction lending technologies typically used in banks lending today, these are financial statement lending, small business credit scoring and asset-based lending. Although the adoption of different lending technologies may vary between countries, as well as between banks, these are the core of transaction based lending. The intention of this section is to give a brief overview of current transactions lending technology. As reviewing modern lending technology reveals what requirements banks have for granting bank loans to SMEs.

Financial Statement Lending

As the name suggests, financial statement lending involves basing the credit quality of a borrower on the financial statement of consequent years the company has been in business. The decision to lend and the terms of the loan contract is based on the financial conditions primarily the balance sheet and income statement (Berger and Udell 2002). This however requires that the statements are audited prepared by reputable accounting firms according to accepted accounting standards.

Financial statement lending is beneficial for banks because it is inexpensive form of bridging the information asymmetry between banks and firms. Furthermore, because financial statement lending is based on hard information, the information can easily be communicated throughout the bank. This is especially relevant in terms of large banks as they can participate in this form of lending to SMEs without incurring the organizational diseconomies of screening and monitoring small and informational opaque firms, (Berger and Udell 2002) that only offer small margin.

Small Business Credit Scoring

Small business credit scoring is the most recent of the transaction lending technologies. It origination can be traced to use of personal credit history for determining the risk of a borrower in the United States (U.S.). Credit scoring is based both on owner and firm data. The information on the owner consists primarily of personal consumer data, income information, debt and assets. While firm data consist of information about the firm, collected by the bank or in some cases from commercial credit bureaus. The data are then combined and entered in statistical models that predict the inherent risk of the borrower. This is then used to device a score which then is used in conjunction with other information about the borrower for determining whether the loan should be granted and the loan terms. The main benefits of small business credit scoring as with the financial statement lending technology is that it is inexpensive. Information about the credit history of the company and the owner can be used to access the integrity of the owner and thus reduce the risk of moral hazard. In fact, since the use of credit scoring for small business has been linked to increase lending to SMEs in the U.S. In Denmark, NM markedsdata and Soliditet are the main providers of credit scouring for companies and banks[5]. They provide rating for firms including SMEs that then they can use to ease the process of acquiring financing (Berger and Udell 2004).

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[5] See http://international.nnmarkedsdata.dk/aboutnnmarkedsdata/ and http://www.soliditet.dk/cms/soliditet/AboutSoliditet for further information about credit scoring agencies in Denmark.

Asset based lending

Under asset-based lending, banks base their extension of credit primarily on the value of the assets of the firm, which is used as collateral for securing repayment of the lone. In the event of bankruptcy the lender gets a claim on collateralized assets. For longer term financing, bank use equipments and other long-term assets. For short-term loans such as trade credit, banks use account receivables and inventory. The amount extended is linked to the value of the underlying assets. This form for lending technology can be performed by large and complex financial institutions without incurring organizational diseconomies.

Asset-based lending fulfils a number of roles; it reduces the informational opacity by shifting the underwriting decision from a comprehensive evaluation of a firm's risk profile to a specific evaluation of a subset of the firm's assets (Berger and Udell 1998) it insulate the lender from incurring full loss in case of bankruptcy, which may reduce credit rationing, because it gives greater incentives to the firm to honor their commitments and it can act as a signaling device showing that the firm believes that the project being financed will succeed (Bhaird 2010).

The disadvantage of this technology is that it is very monitoring intensive and relatively expensive as it requires continues monitoring of the collateral value (Berger and Udell 2002). As a reason asset based lending in its pure form is rare, usually it is used together with other lending technologies (Berger and Udell 2004). In addition, the ability to pledge collateral depends on the type of firm and the industry the firm operates within. Firms with high ratio of intangible assets in comparison to tangible assets are less able to improve their borrowing capacity due to the inability of the assets to act as collateral (Berger and Udell 1998). This generally holds true for SMEs. However in response, SMEs owners do to some extent supplement their collateralized value by providing personal commitment. This in effect reduces the risk of moral hazard, as the owner by providing his own personal assets has increased his commitment and consequently his stake in the company (Bhaird 2010).This, however, rests on the ability of the owner to provide personal guarantee.

Relationship lending

In contrast to transaction lending which relies on hard data relationship lending is based on qualitative information. It is the oldest form of the lending technologies and it fundamentally explains the function of banks as an intermediary between deficit and surplus units. It is through the relationship and the experience of dealing with business the bank develops skills and techniques that give them advantage in accessing informational opaque firms. It is asymmetries in information

that provide the most fundamental explanation for the existence of financial intermediaries.
Under relationship lending, the lender acquires proprietary information about the borrower and the business over time under the provision of multiple financial services (Berger and Udell 1998). This is in contrast to transaction based lending which produces the information at the time of loan origination. The information about the borrower accumulated is beyond what can be gathered from transaction based technology and generally more difficult to transfer to other department in the bank (Berger and Udell 2004), as it may be difficult to quantify and communicate (Berger and Udell 2002). It may include information about the character and reliability of the SME owner based on contact over time with the loan officer, the payment and receipt history gather from past provision of loans, deposits and other services provided to the SME by the bank that may signal that the firm is trustworthy (Scholtens 1999). It may also include information gather from relationships with suppliers, customers or neighboring businesses. This information is then used to help make additional decisions over time about the evolution of contract terms and monitoring strategies. The information produced over the relationship may be garnered over time in conjunction with the extension of credit (Petersen and Rajan 1994; Berger and Udell 1995), the provision of deposit, or through provision of other financial services to the firm or to the entrepreneur (Berger and Udell 1998). Under relationship lending, the strength of the relationship [6] affects the pricing and availability of credit (Berger and Udell 2002). In fact, empirical evidence provide support for the importance of a bank relationship to small businesses in terms of both credit availability and credit terms such as loan interest rates and collateral requirements (Petersen and Rajan 1994; Berger and Udell 1995) as well as it can increase the ability to acquire bank loans and offer cushion against temporary shocks (Schwarze 2007; Berger and Udell 1998). Relationship lending is appropriate in situation where information problems are not feasible or cost effectively solved by other technologies. However, it is costly as it requires close relationship with borrower at each time, but the cost can to some extent be passed on the borrower in form of higher interest rates.
For opaque SMEs for whom small business credit scoring, asset-based lending or factoring are not feasible or cost-effective, relation lending may be the best alternative. More importantly, it allows the bank better deal with informational opacity problems more effectively than transaction lending

[6] The strength of bank-borrower relationship is measured in various ways. Empirically it has been associated with lower loan interest, reduced collateral requirements, lower dependence on trade debt, greater protection against the interest rate cycle and increased credit. For further details on the definition of the strength of bank-borrower relationship applied in practice see the references given in (Berger and Udell, Small Business Credit Availability and Relationship Lending: The importance of Bank Organisational Structure 2002).

technologies may allow (Berger and Udell 2002). As the bank invests in relationship with the customer, rather than single transaction borrowers are more likely to reveal proprietary information as they might be more prone to foster mutual confidence. In fact, (Mester 1997) found knowledge about the business owner characteristics to be better predictor of the loan performance than standardized quantitative lending technologies. Consequently, relationship lending has in the literature also to be beneficial for banks as it gives better assessment of the borrower (Scholtens 1999), which can improve the success of the bank (Schwarze 2007).

Despite the benefits of relationship lending for SMEs there are some disadvantage such as the hold-up problem. Hold up problem characterizes situation where the bank has market power over the borrower over the firm hindering the company from switching bank. It may come from substantial switching costs and well as limited competition in the neighboring area that might characterize concentrated rural banking markets (Berger and Udell 1998). This problem is likely to affect SMEs to a greater extent as they cannot resort to public debt markets. However, they might engage in multiple banking relationships to overcome the monopoly access of one bank of their information.

Bank size and the availability of financing

As discussed in the previous section, the suitability of different lending technologies may vary depending on the type and characteristics of the firm at each time. Another factor affecting the availability of bank loans for SMEs can be related to the financial institution structure more specifically share of small banks within a country.

In this regard, empirical evidence have pointed at that small banks extent proportionally greater amount of financing to SMEs, and that greater share of small banks in a given area are found to be associated with more overall bank lending (Berger, Iftekhar and Leora 2004). This fact has been attributed to the different business scope of large and small banks.

Large banks are believed to have comparative advantage over small banks in regards to economics of scale by engaging in cost reduction activity such as by standardizing the loan assessment process as much as possible, an objective which transaction lending approach is in accordance with (Mercieca, Schaeck and Wolfe 2009). But as previously discussed, transaction lending may impede lending to SMEs, especially to firms that do not possess collateralize-able assets, credit history and audited statements. Small banks on the other hand are believed to have comparative advantages in relationship lending to informational opaque SMEs.

Small banks differentiate them by directing their scope at a specific (niche) segments e.g. by focusing at a concentrated area. As a reason small banks and SMEs frequently belong in the same socio-economic setting which reduces the information asymmetry between them and consequently reduces the cost for the bank of acquiring proper information about the borrower. The relationship lending technology is in accordance with this business model of small banks. Firm establishment in a region gives them advantage in gathering and verifying soft information, because they are closer to their customers in local markets (Agarwal and Hauswald 2006), which harmonize with the concept of relationship lending. This local presence gives small banks advantages. In fact, empirical evidence has pointed at negative linkages between relationship lending and physical distance (Hauswald and Marquez, 2000 as cited in Berger and Udell 2002). In this regard (Mahagaonkar 2010) found that the presence of very local institutions increase the usage of debt through quantity or price channels.

Furthermore, large banks are relatively poor at processing information acquired from relationship lending because it is difficult to quantify and transmit through the organization. This may give further advantage to small banks, which typically have less separation between ownership and management (Berger and Udell 2004).

In addition, not all firms have had extensive relationship with their bank. Consequently, banks are more inclined to perform transaction based assessment and thus are more likely to decline the loan applicant. This is especially true in regards to loans to nascent entrepreneurs that often only have business plans, prototypes and/or patents to guarantee the loan.

In fact, Mahagaonkar in his study of entrepreneur financing found that bank loans was less likely financing form than equity financing where there was no collateral or any established track record (Mahagaonkar 2010, 13-34).

This relationship between small banks and SME ability to acquire bank loans indicate the requirement for the financial structure to possess balanced share of large and small banks, as the structure might impede the credit available for both transparent and opaque SMEs.

Debt covenants

Another set of tools that banks use in debt contracts is debt covenants. Although the transaction and relationship technology may contribute in filling the information gap, banks can never be sure of the integrity of the borrower. When banks do not possess sufficient information and/or it is not economically sensible to perform strict due diligence on the loan, creditors may resort to debt contracts and covenants in overcoming the risk and the problems related to informational asymmetry (Maeseneire and Claeys 2007).

The debt contracts often include covenants which demand renegotiation of the loan term if conditions of the firm changes. The covenants are intended to give the bank more oversight and prevent the borrower from taking on greater risk than initially intended. Covenants are based on financial ratios and require audited financial statements. When firms do not have audited statements, shorter maturities are used to control their behavior (Berger and Udell 1998). Thus in effect collateral serves as a signaling device to overcome adverse selection as well as incentive device that overcomes moral hazard (Maeseneire and Claeys 2007).

Covenants can be beneficial to the lender as well as it can reduce the cost of financing as the risk of adverse selection of the lender is reduced.

Lending technology and SME lending

While banks unarguably are beneficial for the economy as provider of financing to information opaque firms, some factors point at that some companies with arguably the greatest need for bank loans as they are excluded from other financing options are left out from bank financing.

As discussed above transaction lending can, where companies have long credit history, creditworthy collateral and audited statements, be beneficial. In fact, transaction based technology oftentimes is the most effective and cheapest way of accessing creditworthiness of borrowers. This form of lending however is not suited for all types of companies. Asset base of some industry oftentimes is mainly intangible. This is especially true for software or other technology firms. These intangible assets are hard to evaluate and use as collateral for loan payments. While, industrial firms heavily invest in machine and other "hard" assets which value of can be more easily accessed.

In addition, the younger and smaller a firm the less likely it is able to pledge collateral. In some cases personal collateral can be beneficial, as it can alleviate the problems of adverse selection and moral hazard (Mason and Stark 2004). This is firstly due to the fact that it offers additional collateral and signals confidence of the owner about the viability of the project since the owner has pledged his own *"skin in the game"*. Second, collateral align the interests of the entrepreneur with that of the bank. While pledging personal collateral might improve the security it offers only a partial solution as it is oftentimes is not sufficient (Giudici and Paleari 2000 as cited in Maeseneire and Claeys 2007).

In their extensive study on bankers' assessment of SMEs, banks cited both firm factors and entrepreneurial characteristics as major impediment for granting financing. According to bankers, the lack of equity, the high credit risk, the paucity of collateral and poor information about the firms constitute the main obstacles to granting finance to SMEs. As well as poor entrepreneurial capacity, business performance and uncertain development prospects are felt to be equally important (Ayadi 2005).Thus, rather than basing extension of credit on the ability of the company to generate future income banks resort to capital gearing methods. This is quite contradictory to their assessment of large firms which to a greater extend is based on income gearing approach that relies on prediction of the future performance rather than provision of collateral (Maeseneire and Claeys 2007). However, as discussed above, for some firms banks do not find it viable to perform relationship lending as their financing need and the margin they offer does not justify the costs incurred from screening and continuously monitoring the relationship. Thus, banks might be inclined to decline their lending request and consequently this segment of SMEs might be experiencing form of credit glut.

Loans for internationalization – complexity of evaluation

While obtaining financing for domestic investments already presents a problem for some SMEs, empirical evidence have pointed at that acquiring financing for internationalization projects is even more difficult. Similar to high tech firms, understanding foreign prospect of a SME can be challenging for a bank. It is difficult to access the feasibility of international projects as banks might not be familiar with other countries markets and cultures. Internationalization is associated with greater risk which increases the volatility of a company's return. Although the costs incurred when internationalizing varies with the internationalization intensity and depth, there always are sunk costs with no or little salvage value which companies have to accept. These sunk costs may include expenses for market analysis, legal consulting and adaptation of products. As a reason bankers place greater emphasize on the viability of the business plan for the foreign project is required, and even when the loan request is positively evaluated, banks tend to provide less funding than asked for. Small businesses are charged higher interest rates for internationalization projects and collateral requirements are more important (Maeseneire and Claeys 2007). As a reason the information asymmetries between the two parties is likely to be greater and the bank might demand greater collateral for compensation. Alleviating the problem by pledging collateral is unlikely to alleviate the problem as foreign investment often has limited collateral value (Williamson 1975 as cited in Maeseneire and Claeys 2007).

Exogenous factors

In addition to the prerequisite for obtaining financing from different financing sources there are some external factors that can affect the level of supply to the industry. These exogenous factors will be reviewed in this section.

The financial system

The extent of availability of bank financing and the reliance of it is commonly attributed to the structure of the financial system. In the literature there is made a distinction between whether financial system can be characterized as being bank-based or market-based. The bank based system is predominant in continental Europe where the main source of corporate financing derives from banks, while in U.S. and in the U.K. public markets also provide considerable financing. The bank based system differentiates from the market based system in that financing options are generally more limited. This leaves firms more exposed to changes in the banking sector. In this regard, consolidation of the banking industry has been found to negatively affect the provision of bank loans to SMEs (Ayadi 2005). The financial structure may affect the credit availability for both transparent and opaque SMEs because different types of financial institutions have comparative advantages in different lending technologies. The lending infrastructure may directly affect SME access to credit through restricting the lending technologies that can be legally and profitably employed by banks, and may indirectly affect SME credit supplies through constraining the potential financial institution structure, limiting the abilities of different types of institutions to use their comparative advantages in employing different lending technologies (Berger and Udell 2004). In addition, even changes is monetary policy appears to have a more potent impact on small firms (Berger and Udell 1998).

Due to SMEs dependency on bank financing, financial distress in the banking sector can have negative effect on SME lending. Banks, when faced with credit tightening typically start reducing exposure to SME loans in response to crisis (Berger and Udell 1998). In fact, in the aftermath of the financial crisis there is evidence pointing at that the levels of risk tolerance went from too generous toward to risk averse adversely affecting the success of acquiring bank loans (Kraemer-Eis, Schaber and Tappi 2010).

Regulation

Further possible factor affecting the lending condition of SMEs is changes in regulations. Different from larger enterprises, SMEs historically did not have a strong voice in shaping the regulation

framework of our financial system. But, following greater understanding of SMEs importance for growth both regulators and banks have increasingly taken their part, where banks (motivated by lower regulation requirements) use the peculiar characteristics of SMEs as an argument for softer regulation. Following the change of the new Basel capital accord [7](Basel II) there was debate about the influences on it on financing to SMEs. It was argued that the new accord, unless modified, would discourage banks from granting loans to SMEs and thereby adversely affect the employment level of countries (Ayadi 2005). Due to the debate and empirical evidence showing that SMEs have lower default correlation the committee allowed banks to treat their portfolio of SMEs at more favorable terms. Despite this preferential treatment, the new capital accord has encouraged transaction based lending. Following the financial crisis the Basel committee started working on improvements of the regulations. There critics have argued that, biased towards government bonds will work against lending to the private sector, particularly SMEs (Blundell and Atkinson 2010).
In Denmark the Danish bankers association have expressed concerns regarding the new proposition of the capital accord, especially in regards to covered bonds. Where it is argued that the lower preference status cover bonds will have in the new accord will unavoidably result in higher cost of financing and severely affect SMEs (firms that finance property through issuance of covered bonds).

[7] The Basel Committee formulates supervisory standards and guidelines and recommends statements of best practice in banking supervision. It is not a regulatory institution but it their suggestions are expected to be implement whether in statutory form or otherwise by individual authorities. The purpose is to encourage convergence toward common approaches and standards (Bank for International Settlements 2011).

Summary of Supply Constraints and Financial Constraints

Internal financing is subject to the ability of firms to generate sufficient revenue streams to finance future investments. For SMEs this form for financing is beneficial as it is not subject to information asymmetry. In addition, supplying financing need with internal financing (rather than paying them to shareholders/owners) is in the literature is proposed to offer signaling effect that can counter the adverse effects of information asymmetry in regards to acquiring external financing. However, generating sufficient revenue stream to finance future investments is often slow and limited to older companies. Studies of the capital structure of SMEs have in the past pointed at observed over-reliance on internal financing and low liquidity levels as an indicator of financial constraints. Due to economical importance of the sector this has fueled governmental interventions and subsidy programs directed towards alleviating difficulties in obtaining necessary funds to finance growth.
Access to external financing is regarded vital for firms to sustain growth and development. In general there can be distinguished between equity and debt financing, where equity financing suffers to a greater extent from information asymmetry. This is due to the different repayment structure of the two forms; equity holders are promised share of the company earning while debt holders on the other hand are promised fixed payment.
The availability of external financing depends upon development of capital markets. In the literature, SMEs access to equity financing is often regarded as limited to private equity sources such as venture capital and BA. Private equity sources are believed to be more efficient in scanning and monitoring information asymmetric firms due to experience in dealing with companies within a particular industry. In addition, since most of the costs associated with scanning and monitoring firms private source have economic of scale advantages over public sources. Financing SMEs through IPO is typically not worthwhile for firms as the costs are generally fixed and the financing need is small. Despite introduction of indexes directed towards SMEs with lower disclosure requirements and financing costs, the interest for being registered among SMEs remains limited.

VC is in the literature regarded advantageous in providing funding to opaque firms such as SMEs. Venture capitalists specialize within particular sectors, mainly high growth sectors, and develop expertise in accessing firms. Furthermore they have economic of scale in comparison to private investors in accessing the companies. VC, bridge information asymmetry by using their expertise

when screening and monitoring firms. Provision of credit rests on the commercial potential of the business given the market conditions as well as management capability.
VC is advantageous for SMEs as extension of equity is often associated with consultant which can benefit the firm. However, as with private equity this form of financing can be costly and it requires the firm owner to give part of his/her stake in the company.
As in the rest of continental Europe, the VC sector in Denmark is rather limited in size. Unlike in the United States, pension's funds are prohibited to invest in VC firms, which adversely affect the supply of VC in Europe. Studies have shown that level of VC financing is unevenly spread within countries. In Denmark, most venture capital is concentrated in the capital region.
BA are high net worth individuals that provide informal financing to SMEs. BA base their decision on attributes of the business as well as the owner. BA financing is geographically concentrated as proximity to the lender is important in overcoming information asymmetries. They are generally difficult to access as SMEs oftentimes are not aware of them.

In regards to corporate financing there are two venues for firms to consider public debt markets and bank loans (private debt) where in Denmark provision of debt to SMEs is limited to the latter. The availability of bank financing is in the literate outlined as the single most important external form for financing to SMEs. Banks have economics of scale in accessing the risk and viability of firms in comparison to private markets. In the literature review of this project factors affecting the supply of bank loans to SMEs have been reviewed. In the literature the lending technology is highlighted as having effect on their likelihood of being granted financing. There it is distinguished between transaction and relationship based technology, where the latter is more quantitative in nature. Relationship lending on the other hand values subjective information about features of the business as well as characteristics of the owner such as trustworthiness. It comprises of soft information which the bank accumulates over time which is argued to be more appropriate for SMEs which often do not have audited statements and lack collateral. The two technologies are usually used in conjunction with covenants which prevents the borrower from taking on greater risk than agreed. Banks have to greater extent resorted to transaction technologies which have beneficial features for banks as it reduces the costs of screening borrowers but on the contrary are unfavorable to SMEs. Inappropriate screening technology of banks has been attributed to challenges SMEs face when acquiring bank loans. Some firms simply to do not have strong asset base to serve as collateral for the loans, especially those firms where the asset base is mainly founded on immaterial assets.

Large banks are in the literature proposed to have competitive advantage in performing transaction based technology while small banks are believed to be better in relationship based technology. Small banks, different from larger banks, have less layers to go through when transmitting information acquired from local branches. As a reason they are better capable of taking advantage of relationship based information.

In the literature, applying for loans to finance internationalization endeavors is proposed to amplify the challenge of acquiring loan. This can be attributed to the repayment structure of debt as well as the increased level of complexity associated with accessing the risk of internationalization projects. In addition, adverse effects on banks such as crisis, changes in monetary policy and banking regulations can affect the level of bank lending to SMEs, which in bank- based system can be more harmful as firms have to a lower extent possibility in supplying their financing need from other sources such as in the market-based system. This is due to the fact that bank typically respond to credit tightening by reducing exposure to SMEs loans, which are regarded risky. Furthermore, regulation changes may indirectly affect SME credit supplies through limiting banks from using their comparative advantages in employing different lending technologies.

4. Demand factors and financial constraints

As the discussion of previous section points at, the availability of different financing sources can be limited in regards to SME financing. This is mainly attributed to the informational opacity of SMEs, which results in difficulties at attaining financing or higher financing costs. Financing constraints or financing gap hypothesis emerged from studies of the different financing structure between small and large companies. Finance theory *(trade off theory)*, predicts that due to capital market imperfection, capital structure does matter and implicitly can affect the value of firms. However, the capital structure of SMEs deviates significantly from what otherwise is advocated. In fact, it is generally accepted that SMEs operate with higher debt levels, particularly short-term debt, than larger firms (Holmes and Kent 1991) and mostly rely on internal financing (retained earnings and owner-manager funds). As discussed previously in the financing constraints section, one of the most acknowledged explanation shared by many scholars and which is further the foundation for governmental intervention, is that there is a gap in regards to SME financing and that the firms are financially constraint. Consequently the financial structure is a result of limitations rather than choice.

In addition to the theoretical considerations regarding the availability of different financing sources that can lead to supply deficiencies of credit for informational opaque firms there are also other factors that can have significance in explaining the capital structure of companies. This has implication on studies of financial constraints, which are predominately based on observing the financial structure of companies. In this section, propositions given by scholars for the variation in the capital structure of SMEs besides financing constraints will be reviewed.

An alternative explanation for the capital structure of SMEs is so called pecking order theory initially derived by (Donaldson 1961) and later modified by (Myers and Majluf 1984). The theory builds on the trade off theory by introducing other market imperfections that may help in explaining the capital structure of firms. It introduces an alternative explanation for the capital structure by linking investment opportunities with the financing decision of the firm, where the main motive is to signal viability of the firm to investors. The pecking order theory rests on two assumptions, firstly that firms managers have superior knowledge over outside investors about the profitability of the company (information asymmetry) and secondly that manager's objective is to maximize shareholder value. However, this information asymmetry between managers and outside investors implies that managers cannot fully convey all information about an investment project. As a reason investor rely on signals that may reflect management’s view of an investment project in order to bridge the information disadvantage. In this regard, equity issuance is regarded negatively as it may be perceived by investors that management regard the company to be overvalued as they would otherwise not be motivated to issue equity. In response investors demand compensation which lowers the value of the company. This can result in underinvestment unless companies can draw to other sources of financing. As a reason, companies will follow a hierarchy in determining which source of capital to utilize. At the top of the hierarchy, internal financing is preferred over external financing. When internal finance is exhausted, financing need is supplied with debt financing, particularly short-term debt. Equity financing is only considered when all other financing options are exhausted (Bhaird 2010, 144-145). Although Myers and Majluf studied the corporate investment behavior, their approach can be applied in the small firm context (Holmes and Kent 1991). SMEs observed reliance on internal financing is attributed to two factors: ownership preservation and costs of external financing. The former is related to equity financing where owner-manager (which in SMEs often represent the same person) often has ties to the company, which makes it difficult to dilute the ownership with external investor, this is especially apparent in family owned firms (Poutziouris 2002). In fact, number of studies report that this desire for independence is so great that SME owners are willing to give up growth opportunities rather than to relinquish control (Cressy and Olofsson 1997b; Michaelas et al. 1998 k; as cited in Bhaird 2010, 147-148). However, the type of sector the firm operates within can temper this reluctance to apply external financing, such as high-technology firms are more prone to apply for external financing than other sectors (Oakey 1984; Hogan and Hutson 2005 as cited in Bhaird 2010, 147-148)).

In regards to costs of external financing, SMEs often are reluctant to draw to debt or equity financing due to the cost it implies. The key is informational asymmetry between the firm owner and external financing sources. The owner is believed to have proprietary information about the company, which external investor responds to by increasing the financing cost. Which in regards to debt financing appear in stricter loan terms (e.g. higher interest costs collateral requirements), while equity investors might respond to the informational disadvantage by deliberately undervalue the company. The owner, however, would not consider diluting his ownership of the company by taking on equity unless he believes the company is overvalued or internal earnings are insufficient. This effect of undervaluation is empirically found to be more severe for smaller firms (Buckland and Davis 1990; Ibbotson et al. 2001 as cited in Bhaird 2010, 147-148). Thus the use of debt is tempered by the ability of the firm to provide internal source of funding and the cost of debt, while equity avoidance is affected be the owner strife to retain control over the company as well as risk of undervaluation, due to information asymmetry.

Although, the theory is somewhat pioneering in explaining the deviation of the capital structure of SMEs from their larger counterparts by linking information asymmetry to the capital structure, it does not predict the optimal capital structure.

In addition, the theory does not enable to distinguish between firms that have low leverage by choice (to prevent value dilution) or force (no other option available); that is it does not answer whether the financing structure is imposed by supply side factors, or demand side choices. This is due to the assumption that choice of financing is a result of the cost of a particular financing source rather than the supply.

Direct evidence for the pecking order theory is mixed, but its main propositions are supported such as stock price decrease following announcement of equity issuance and an increase following debt issuance and negative relationship between debt ratios and past profitability (Rajan and Zingales 1995), as well as the two central ideas of the hypothesis are generally confirmed i.e. that the preference for internally generated financing and the preference for debt over equity if external financing is sought (Scholtens 1999).

The pecking order theory builds further on the propositions of the trade off theory. That is that there is more to the financing structure than cost and efficiency rational alone. In fact, several studies have questioned that SMEs capital structure is devised as optimally as otherwise proposed in the trade off theory. They point at other factors, more subjective, that can illuminate the financing decision of SMEs. These factors have been argued to be more efficient in explaining capital structure decisions of small firms (Norton 1991). They are associated with preferences, perception and knowledge and will in the next section be reviewed.

Preferences

As previously mentioned, the pecking order theory predicts that the capital structure of companies follows a hierarchy, where internal financing will always be preferred over external financing and debt will be favored over external equity. However, there can be other, more subjective, factors that influence this preference for internal financing over external financing. An alternative explanation is that the SMEs operate without any debt: equity ratio, and that the capital structure is more depended on preferences of the owner to minimize intrusion into their businesses (Hamiltion and Fox 1998). Studies on SMEs capital structure have found that the financing structure can also be influenced by preferences and goals of the owner-managers (Barton and Matthews 1989; Chaganti, Decarolis and Deeds 1995). This includes entrepreneurial characteristics such as risk perception, understanding of financial matter, business goals, views regarding to independence and attitude toward debt financing as well as age and size of the firm (Romano, Tanewski and Smyrnios 2001). In regard to equity financing studies have pointed at that equity aversion and the desire to retain control of the firm tend to restrain SME from issuing equity (Mahagaonkar 2010). This desire can be so high that the managers may be willing to “pay” more for debt rather than giving up stake in their company (R. W. Hutchinson 1995; Romano, Tanewski and Smyrnios 2001). This control aversion, as argued by (Mahagaonkar 2010) further increases financing related issues for SMEs. Thus, mangers in some cases do not consider what is from capital structure theory is optimal. They rather choose the financing form that secures their ownership seemingly at any costs. In fact, studies have found relationship between the ownership/manager structure and the source of financing. This indicates that capital structure is tempered by the ties the management has to the business. If SMEs has managers (non owners), then they tend to prefer debt and only external sources of financing (Chaganti, Decarolis and Deeds 1995). As can be observed, there are many factors that influence a small firms financing behavior and these factors are complex. As (Romano, Tanewski and Smyrnios 2001) state, the dynamic interplay between business characteristics and behavioral characteristics is important in financing decisions. Furthermore, (Barton and Gordon 1988) proposes that capital structure decisions are a result of interaction between the values and goals of management and both external and internal contextual factors which affects the basic concern of risk and control.

The influences of perception do not disprove the pecking order theory. On the contrary it is complementary to many of its propositions by allowing for irrationality and subjective influences in terms of the capital structure of companies, which seems logical in the SMEs context where managers frequently are alleged to suffer from lack of oversight and limited competence in managing the financial aspects of their business (Chaney, Custer, & Grotke, 1977; Lindeloef & Loefsten, 2005 as cited in Brinckmann, Salomo and Gemuenden 2009, 219).

Perception and knowledge

While information asymmetry can affect the level of supply it also can work the other way. Perception of high prerequisites for obtaining financing can discourage creditworthy SMEs to apply for credit financing if they anticipate that the likelihood of being granted funding is weak, although they need capital. This discouragement from applying for credit in the first place further exacerbates credit rationing (Levenson and Willard 2000). In general, the scale of discouragement depends on,

among other things, screening error of banks and application costs (Kon and Storey 2003). The quality of the screening is proposed to affect the number of discourage borrowers to apply, while increased application cost on the contrary degreases the likelihood. Application costs consist of financial costs associated with producing the required information about the firm by the bank, in-kind costs, which covers the cost of formalities associated with the applications such as completing an application form and meeting with the bank; and psychic costs that includes discomfort SMEs experience when passing information about their company and themselves to a third party. The application costs is proposed to be affected by the quality of the firms application as well as changes in lending policy that simplify lending procedures.
While, discourage borrower offer interesting aspect in regards to financing constraints it suffers from difficulties in empirically validation. As it is difficult to distinguish between good and bad borrowers since the definition of a creditworthy borrower may vary between lenders (Vos, et al. 2007), studies have shown evidence that firms may in fact be discouraged (Levenson and Willard 2000; Han, Fraser and Storey 2009). The latter, however find that discouragement predominately discourages bad borrowers from lending. While (Levenson and Willard 2000) find that to-third of their sample of credit rationed firms consist of discouraged borrower.

In addition to the preferences, studies of SME finance have pointed at the possibility of knowledge gap influencing the financing structure of SMEs. This knowledge gap characterizes situations where the firm owner has limited awareness of the appropriate sources of finance and the relative advantages and disadvantages of each source (Holmes and Kent 1991). Thus internal financing is preferred over debt since it carries with it less cash flow implications. A contesting argument is that financing structure is not a result of lack knowledge about the availability of different financing sources, but rather a consequence of lack of forward planning. Reliance on debt is thus contented to be a result of immediate cash requirement where debt is preferred (behind internal sources) as it is more easily accessed than other external source (Hamiltion and Fox 1998).
While the direct empirical evidence for this proposition is limited, it is generally accepted, as previously mentioned, because the competence in managing the financial aspect is SMEs is restricted. This might reflect that financial constraints, hindering companies from internationalizing, might not only be result of supply deficiency but also subjective factors.

Growth motives

While the arguments of financing constraints in regards to SMEs have gained wide recognition the literature offers contesting arguments for their financing structure. In this regard, (Vos, et al. 2007) contest that the reliance on internal financing is due to constraints and propose that it is affected by growth objectives of firms. They show that firms where the growth is the objective indeed use more external financing. In addition, they argue that usage of external finance is subject to the growth mode of the company and they refer to (Curran, 1986; Hakim, 1989) to argue that growth is not objective for all firms. As a reason their demand for financing may be limited to day to day expanses and fully exhausted by retained earnings.

Thus the underlying assumption of the adherence to the financial constraint literature is flawed i.e. that the behavior of SMEs is same for publicly listed firms i.e. to maximize shareholder value where the growth is normative expectation. (Vos, et al. 2007) refer to (Curran, 1986 and Jarvis, 2000) to argue that this difference in behavior can be traced to the independence and control desires of the owner. The fact that the growth motives for SMEs deviates from private public firms is a valuable insight. The consequence is that the models derived to explain the theoretical rational of the capital structure of large firms don't necessarily fit to SMEs. The assumption of rational behavior limits the validity of these theories, and cast doubt on their ability to explain capital structure decisions in small enterprises (Barton and Gordon 1987; Myers 1984 as cited in Romano, Tanewski and Smyrnios 2001). Capital structure theories do not include factors such as owners' objectives and business planning decisions, which are relevant to financing decisions (Romano, Tanewski and Smyrnios 2001), preferences and objectives of owner-managers in these firms take on significance in capital structure decisions (Barton and Matthews 1989), and the firm's capital structure is affected by managements' goals (Romano, Tanewski and Smyrnios 2001).

The argument of this chapter indicates that the capital structure of SMEs is also influenced by subjective factors. Thus companies primarily financed internally might do so due to preferences rather than because of constraints or optimization motives as proposed by capital structure theory. Thus presence of financial constraints cannot be determined by observing the financing structure alone.

The fact that firms have consistently attributed lack of financing as a barrier when internationalizing is in contrast to the argumentation that firms that want to growth have higher share of external financing. However, studies have pointed at that the barriers hindering firms differ both in extent and degree depending on the internationalization experience of firms. In this regard, the severity of financial constraints has shown to vary with internationalization experience (European Union 2010). That is to say that the role financial constraints has in hindering firms from internationalizing might to some extent be perceptional rather than due to actual constraints.

Summary of demand and financial constraints

In this chapter of the project, demand related explanation for the capital structure where reviewed. Pecking order theory, which connects information asymmetry together with financing decision of firms, rests on tow assumptions, firstly that the management has superior information about the companies and secondly that the capital structure is motivated by choosing alternatives that maximizes shareholder value. The theory predicts that the capital structure will prefer financing sources that carry with them lowest information asymmetry, as it is costly. Companies, thus follow a hierarchy going from internal financing towards more information demanding sources as less information demanding sources are exhausted. In regards to SMEs, firms will prefer internal equity over debt, short-term debt over long-term debt and the least preferred source is equity. While in the large company context the motive is to minimize financing the theory has been extended in the small firm context to include ownership preservation as motivation for the capital structure. In this extension of the theory it is argued that the desire for independency can be that great that manager are willing to give up growth opportunities to prevent ownership dilution. Thus the capital structure is proposed in the theory to be a result of demand side motivations that is to maximize shareholder value or (on the contrary) minimize intrusion. The limitation of the theory is it rest on assumptions that do not allow for supply constraints and a ration of credit as an explanation for the capital structure, which in SMEs context seem unreasonable assumption.

In recent years, demand side explanation allowing for more subjective influences in regards to the capital structure have gained ground. In this regard, preferences, perception and knowledge where presented as a factor having implication on the capital structure. In regards to preferences it is contested that the capital structure of SMEs is that rational as alleged in finance. It is proposed that the capital structure reflects a goals of management and external and internal contextual factors which affect the basic concern of risk and control.

Thus capital structure is affected by subjective explanation such as desire to retain control or ownership. In regards to perception, firms are proposed to be reluctant to apply for external financing due to discouragement. If companies anticipate that they are unlikely to be granted financing they are likely to give up investments opportunities if their retained earnings and owner funds are insufficient. Thus, reluctance to apply for external financing may be due to expectation of constraints. That is supply constraints may be exacerbated.

Knowledge has two distinctive components, awareness and forward planning. Awareness is related to general consciousness about the availability of a specific financing source. That is mangers might be reluctant to seek external equity as they are unaware of its advantage and disadvantage. Forward planning explanation on the other hand clarifies the observed reliance on short-term debt as a consequence of lack of planning by firm managers. Thus the relatively high share of short-term debt to other external sources of financing reflects a need to bridge immediate cash requirements rather than financing constraints.

Finally, in this section a third perspective on influences on the capital structure of SMEs was presented, namely growth motives. It is contested that presence of constraints can be observed from the capital structure of SMEs.

The underlying argumentation of capital structure theory is that growth is the normative. The adherence to the growth motives contest this argument and point at that the behavior of SMEs deviates from public listed firms and that not all firms are motivated by growth. As a reason their demand for financing may be limited to finance day to day operations and fully exhausted by internal resources.

In the following section, the argumentations given in the previous sections of the factors constituting financial constraints will be integrated. The objective is to draw a framework (conceptualization) showing both supply and demand related factors that contribute in shaping the problem.

5. Guiding framework and structure of analysis

The literature review of previous sections has presented what factors determine the availability of different financing sources as well as the implication of demand side factors on perception of financial constraints. The following framework is intended to capture the components of these two factors in shaping financial constraints. In the model financial constraints are depicted as including both an observed as well as subjective component.

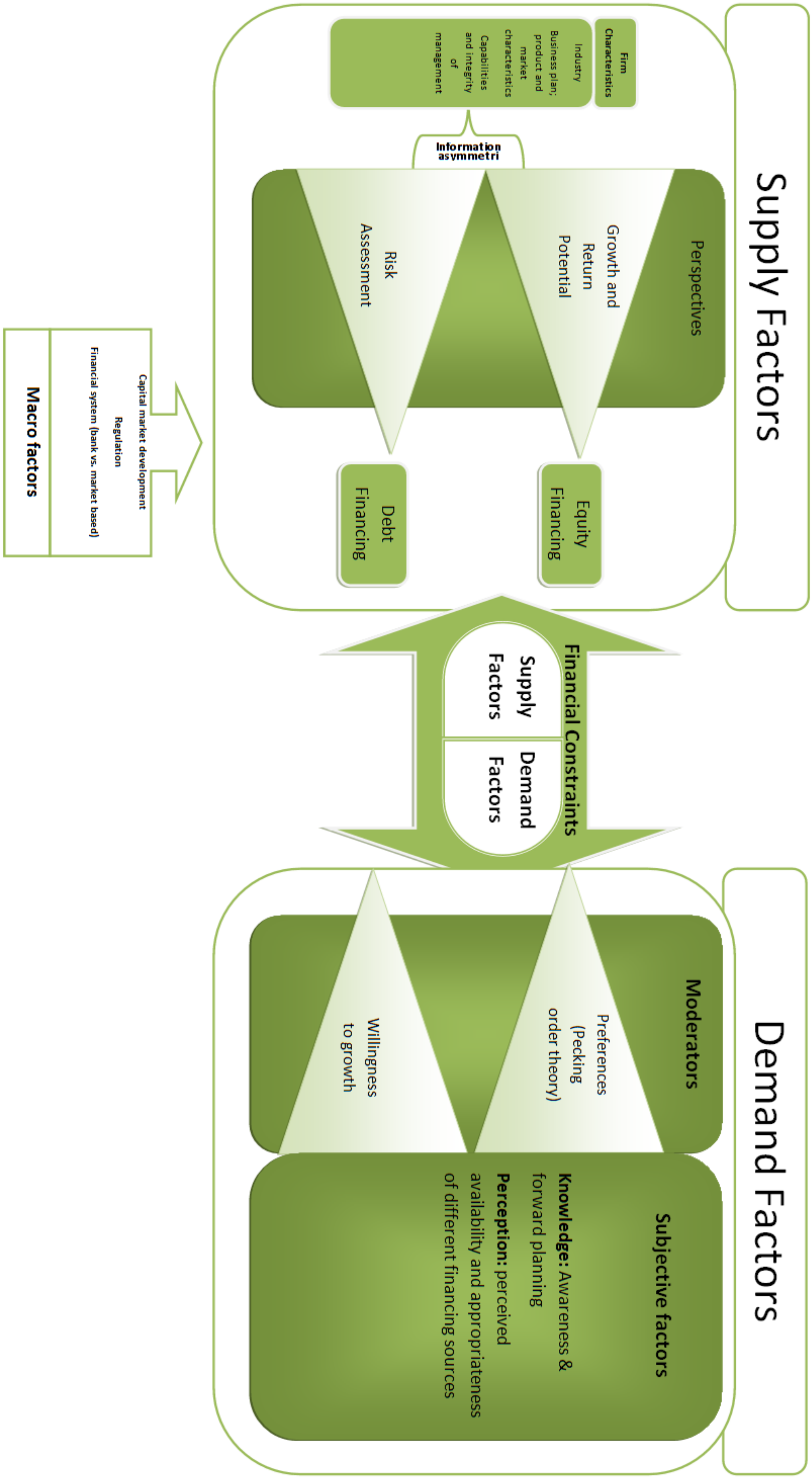

Figure 4: Financial constraints framework.

The model depicts the antecedents of supply constraints where the characteristics of the company and the information asymmetry between the firm and the financing source are shown as determinants for extension of funding. The firm characteristics affect the severity of information asymmetry, which adversely affect firms financing capabilities. The firm characteristic favored by the source of financing varies according to the payout structure. As shown in the figure equity financing favors growth and return potential over other characteristics, while debt financing due to the different payment structure favors risk reduction.

Furthermore, the supply is influenced by exogenous factors such as capital market development, the type of financial system and change in the regularity environment. In this regard changes in banking regulation favoring transaction- over relationship-lending can adversely affect the supply of financing to SME, especially in bank based systems where companies have fewer sources to relay to.

Demand side factors, on the other hand, show subjective factors that can amplify the actual constraints. In the literature review knowledge about the financing source and the perception of the unavailability can restrain firms from applying for funds. In addition, the demand for external financing is moderated by the preferences (as shown in the pecking order theory) and willingness to growth. That is, the observed financial structure might not only be a result of constraints but also preferences and willingness to growth.

This decomposition of financial constraints into an observable and a subjective component highlights the need to address the issue holistically by embracing both supply and demand side of financing constraints. Approaching the problem by analyzing the components of financial constraints in isolation will not give the whole story. The components have to be considered holistically in order to fully grasp the problem of financial constraints. In this regard, determining the presence of financial constraints by observing the financial structure of SMEs is not sufficient. Since, as discussed, the financial structure of SMEs does not necessarily proof the presence of constraints but may as well be a result of other subjective factors as preferences, perception and knowledge as well as growth motives. Unless we account for these factors we will not fully be able to determine the presence of financial constraints.

As previously stated, the objective of the framework is to guide the empirical research of this project. By taking into account these demand and supply sides of the problem we arguably are better capable of determining the degree to which firms are financially constrained. Consequently, the research will be constructed in such a way that the dynamic of financial constrains are considered.

A major limitation in regards to analyzing SMEs is information available. Therefore, the analysis will be limited to the available data. The analysis of the project will be threefold in order to fulfill the holistic objective of the project.

Firstly, the factors affecting the supply of bank loans which in the literatures is considered the most important source of financing to the sector will be analyzed. The intention is to reflect on the factors highlighted in the literature, to adversely affect the supply of financing, to the Danish context and further to explore the implication bank financing has on internationalization commitment of SMEs.

Secondly, a secondary data on the financial structure of Danish SMEs is used to produce a descriptive statistics in order to analyze the financing structure of SMEs. In addition regression analysis will be performed on the data in order to test the extent to which SMEs are financially constrained by using proxies for information asymmetry. Finally results from secondary questionnaire on SMEs manager and their access to finance will be analyzed.

By taking into account both supply and demand factors we arguably improve the validity of the results. By taking both perspective into consideration we are better capable in preventing biases from emerging which otherwise could appear e.g. if we were not able to control for the integrity of the respondents answers. In this regard, SMEs might be incentivized to overstate their problems as well as banks might be motivated to understate the problem if they perceive SMEs investments to be unfeasible. While the observed financial structure of the firms is free from value-laden biases it, as previously discussed, cannot be determined completely whether the financing structure is a result of constraints or preferences such as proposed in the pecking order theory.

In the next chapters the results from the three researches will be presented. The analysis will initiate by presenting the results from interviewing employees at the credit department of Spar Nord. Following the results of the interview, results from data and regression analysis conducted on information extracted from an external database with information on Danish SMEs annual reports will be reported. Subsequently results from questionnaire on SMEs access to finance will be examined.

Finally, the results from the analyses will be summarized and interpreted in the conclusion section of this project.

6. Analysis

Bank lending to SMEs in Denmark

As the figure 5 depicts, the general supply of bank loans to non-financial firms steadily increased during the most part of the last decade, it then peaked during 2008 and has since then been in a declining trend. How general contraction in the level of supply has affected SMEs cannot directly be observed from the available data, since lending to firms is not categorized after firm size. However, one would expect that the disadvantage SMEs possess due to information asymmetry over their larger counterparts, and the fact that in the literature bank loans have been found to be the primary source of external financing, would result in that they are to a greater extent affected by general contraction in lending.

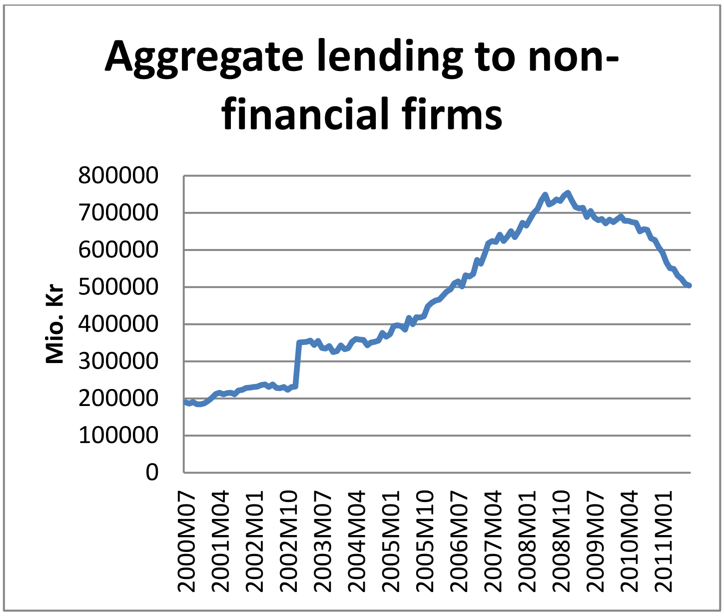

Figure 5: Aggregate bank lending to non-financial firms (DNUDL1), source (Danmarks Nationalbank 2011).

In order to overcome this problem and to get insight into the extent to which SMEs are financially constrained due to unwillingness of banks to grant credit, results from interviewing bankers will be used. This is intended to illuminate the lending decision pre and post financial crisis and whether SMEs are today to a greater extent constrained in acquiring credit. In addition the implication of internationalization aspiration of SMEs and their characteristics on the likelihood of being granted credit will be examined. This possesses some empirical challenges that have to be accounted for as it is difficult to objectively access whether extension of bank loans is based on unfair grounds. Risk assessment, as highlighted in the literature review, depends on the interplay between the characteristics of firms, the extent of information asymmetry and lending technology employed within the banks sector. However knowledge about the technology employed within the banking sector can reflect the extent to which SMEs are being access inappropriately.

Qualitative analysis

As previously argued there are two sides to financing constraints i.e. supply and demand side. In this project an interview will be conducted on the supply side of financing constraints. The objective is by reflecting on the factors highlighted in the literature to affect the supply of bank loans to SMEs to understand the extent to which Danish SMEs are financially constrained. Furthermore, to explore the implication acquiring financing for internationalization has on the propensity of being granted bank financing.

There are different types of interviews with their implicit pros and cons. Prior to presenting the results of the interview, it is informative to explain the form of interview conducted in this project. In general interview can be distinguished as being either qualitative interview (also phrased unstructured interview) or quantitative interview. These two forms differ in the way the interview is carried out. The quantitative interview resembles what is advocated from a positivist point of view i.e. it advocates clear specification of research questions to maximize the reliability and validity of measurement of key concepts (Bryman and Bell 2007, 472-479). The qualitative interview is much more unstructured and resembles a dialogue. It is typically used in order to elicit information to achieve holistic understanding. The questions asked are typically open-ended question, where the questions open up for inclusion of interviewee’s point of view.

In qualitative interviewing, the researcher wants relatively rich and detailed answers. On the contrary, in quantitative research the interview is standardized in order to allow for coding.

The form for interview applied within this project is qualitative, more specifically a semi-structured interview. When employing this approach a basic checklist is prepared to make sure that all relevant topics are covered. This approach is favored in this project as it allows for the possibility to acquire deeper understanding of the determinants for financing and the financing conditions of SMEs. In fact, as the employee of the interview are positioned very close to the problem and as they represent the supply side they perceive the problem from different perspective. Taking alternative perspective in consideration is very much in line with the objectives of this study. As previously argued, taking supply and demand consideration into account is necessary in order to determine the extent to which SMEs are financially constrained.

The results from the interview presented below are based on an interview conducted on employees of the credit department of Spar Nord. The credit department is among other things, responsible for monitoring the risk in the lending portfolio of the bank including lending to SMEs. The participants in the interview where Knud Kristensen credit manager of Spar Nord and Gitte Larsen credit consultant. Prior to the interview an information material was send to the participant including description of the project, the objective of the interview and general questions. This was done to enable the participants to prepare for answering questions relevant for the study. The interview was conducted in Danish. A translated summary transcript of the interview is presented in appendix i.

Current lending situation

In order to understand the financing conditions and the alleged financial constraints among SMEs, the respondents argue that, we have to go few years back. The fact is that banks where, prior to the financial crisis, to aggressive in lending to SMEs. They state that they were losing customers to other banks because they simply would not match their terms and lower their lending requirements. In retrospect, they believe that it turned out to be a wise decision as evidenced by high loan write downs and consequent failure of some competitors (Kristensen and Larsen 2011). But in Denmark, nine banks have defaulted as a result of the financial crisis (Berlingske 2010). Although, it has been necessary for the bank to write down some of their loans, the quantity does not correspond to what the competitors have been required to write down. This over-lending, may have fueled unrealistic expectations among SMEs about the requirements for being granted funding, as noted by (Kristensen and Larsen 2011), while the pendulum swung towards cheap money and lower requirement prior the financial crisis, it may have swung too far back in regards to SME lending. That is to say, that the lending requirements have gone from being too weak toward being too strict. This can be attributed to the fact that focus of bank prior to the crisis was to expand while it now has shifted towards consolidating the current lending portfolio and reducing its overall risk. This basically means that banks have altered behavior from being loan sharks towards more prudent behavior. The system was defected, loan officers where praised for increasing/expanding their loans rather for prudency. The lending environment was unhealthy *”the society does not benefit from simply increasing the supply of financing if this entails reducing requirements for being granted financing”* (Kristensen and Larsen 2011). They however, argue that the situation is more close to normal now than it was prior to the crisis. They, further point at that the alleged financial constrained are over dramatized in the media, motivated by selling newspapers rather than telling the story from objective ground (Kristensen and Larsen 2011).

It is informative to observe the development in general lending of Danish banks in comparison to Spar Nord. According to data from the Danish banker association, total lending increased considerably after the year 2003 as can be observed in figure 6. This also holds true for the growth in overall lending at Spar Nord.

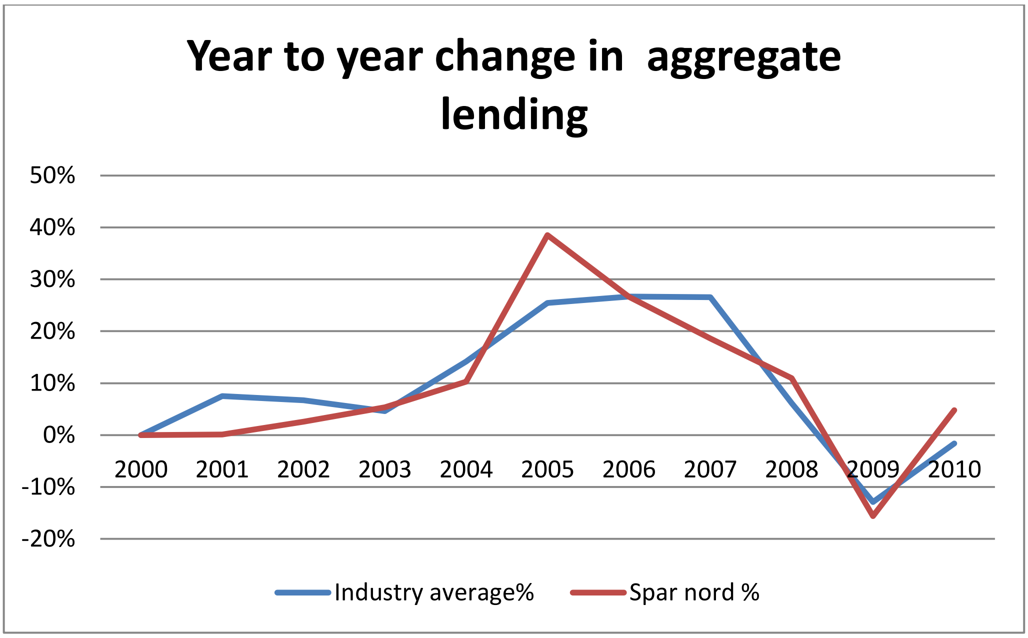

Figure 6: Year to year change in general bank lending relative to Spar Nord, source (The Danish Banker Association 2011).

While the year to year growth in lending was higher than average in 2005 at Spar Nord growth in lending contracted in 2006 while the industry average remained fairly stable until 2007. This coincides with their answers i.e. that lending to SMEs expanded considerably in the growth years and that Spar Nord was not willing to lower lending requirements which may have resulted in lower growth in lending in 2007 than the industry average.

Implication of applied lending technology on SME lending

The respondents obviously only can comment on the lending technology applied within Spar Nord. But since Spar Nord is the fifth largest retail bank in the country (Nyby and Madsen 2011) there arguably are some resemblances to the general lending technology applied within Danish banks.

In regards to the lending technology applied within Spar Nord they state that it is rather flexible in regards to SMEs. That is they do not have standardized criteria per se but allow for subjective assessment of the loan administrator at each time. They argue that being categorized as SMEs as such is irrelevant. They rather look at the assets and their collateralized value. Having strong assets is however not decisive but definitely contributes towards improving the viability of the business and consequently the propensity of acquiring credit. They furthermore stress the importance of traits associated with the applicant and the viability of the business plan which the business manager seeks to get financed on the likelihood of being granted financing. Traits associated with the applicant include factors such as risk aversion, integrity and professionalism as well as the business plan which the business owner seeks to get financed. In regards to the business plan, realism and clear strategy is valued. These, soft factors, form a so called profile capital which is considered together with the assets (credit capital) of the firm when deciding to grant the loan. The relationship is also important and it is possible that it can reduce the reliance on the assets and other transaction based criteria, which is based on probability calculations (Kristensen and Larsen 2011). In short they apply combination of transaction and relationship based technologies, where they consider both soft and hard factors. That is the propensity of being granted financing rests on how the lending administrator perceives the firm to score on both the transaction and relationship based factors where the weight of each factor is subjective and relies on the bank employee performing the due diligence of the lending applicant.

Implication of internationalization aspiration of SMEs on bank lending

When asking them about the implication acquiring bank loans for financing internationalization aspirations has on the lending assessment, they state that it increase the complexity. They compare it to launch of new product which involves greater risk for the bank which the current track record of the company selling other products does not enlighten them about the viability of that new product. Internationalization such as new products implies change in business concept and any change in business concepts increases the complexity as well as the risk perception. In other words, acquiring credit for internationalization may distort the significance of transaction based scores as the foundation for it has altered which at same time makes relationship based factors more important.

They agree on that financing source can have influences on the internationalization of companies. Banks due to their investment form (debt) prefer risk reduction. They may advice companies to reduce their internationalization degree in order to reduce their risk exposure in lending to the firm. Furthermore, internationalization to neighbor markets is favored over more exotic markets (despite higher growth rates). They argue that reducing risk exposure is of interest for the firm as well. They do not advice binding to much investment unless they have the firm has done proper due diligence prior to internationalizing and/or have some experience which they can rely on (Kristensen and Larsen 2011).

The fact that the bank, as such, can have influences on the internationalization is informative, especially given the fact that SMEs in previous studies have found to rely on bank financing as their key external source for finance. That is, maybe we should open up for the possibility that the internationalization path SMEs follow may also be a result of divergence interest between the business owners and the source of financing, and that more complete understanding of their internationalization process requires appreciation of the influences the source of capital have. In other words, maybe the observed over-reliance on debt might be repressing the internationalization activity among SMEs.

The interview highlights that the respondents do not regard financing constraints do be solely due to lack of willingness of banks to provide financing. The boom in supply of lending and lowering in lending requirements may have created too high expectation among SMEs. Now when banks have altered behavior and are more concerned with proper due diligence of loan applicants, firms may experience greater difficulties in obtaining financing. However, as noted by the respondents, this is not due to unfair assessment but rather changes in priorities of banks i.e. to avoid lending to too risky and unviable firms. The form of lending technology applied within Spar Nord, is very much in line with what is advocated in the literature and does not give a rise to allegation that inappropriate lending technology of banks is to blame for the financing conditions of SMEs. In next section the financial structure of SMEs will be analyzed in order to reveal whether it reflects sign of financial constraints. Prior to presenting the results from the analysis the data methodology will be presented.

Observed financial structure of SMEs

In this section, analyses performed on secondary data on the capital structure of SMEs will be reviewed. The objective is to illuminate whether an indication of financial constraints can be drawn from observing there capital structure. As the interview of previous section highlights there does not seem to be foundation for financing constraints according to the supply side. Analyzing the financial structure of SMEs provides objective results which are informative to consider jointly with the results of the interview (supply side) and the questionnaire (demand side). This, data triangulation, is proposed in this project to give a fuller overview of the extent to which SMEs are financially constrained.

Data methodology

The data used for observing the firm financing structure derives from the database of ORBIS. It is a global database spanning information of over 85 million companies. The sample size is 2000 companies derived from population of 18.464 non-financial, industrial companies of small or medium size. The results are based on firms' most recent corporate tax information. The population is categorized after region and weights of each region are calculated according to their share of total population. The weights are then used to randomly generate representative number of firms according to their relative weights. This was done in order to be able to find any discrepancies in regards to the financing structure of firms and the region of the firm. But in literature proximity to providers of finance (VC or banks) has been found to affect propensity of acquiring financing.

Sample regional distribution			
Region	Number	Weight	Weighted sample size
Faroe Islands	192	1,04%	21
Greenland	122	0,66%	13
Capital City	6036	32,69%	654
Central Jutland	3940	21,34%	427
Northern Jutland	1824	9,88%	198
Zealand	2714	14,70%	294
South Denmark	3636	19,69%	394
total	18464	100%	2000

Figure 7: Description of sample construction, using relative population weights.

The population was based on a predefined search design where only active companies, registered as industrial companies, fulfilling the European SME standard in regards to size and independency where considered. Unfortunately, the informational details where considerably lower for SMEs. It was not possible to get information about export/import intensity of the respondents and consequently to test for difference in the capital structure given internationalization commitment of firms. Therefore the descriptive statistics and the regression analysis of this section are limited to the available data.

The information extracted from the database after filtering the search was company name, national industry classification, current ratio, solvency ratio, current liabilities, total assets, fixed assets, shareholder funds, non-current liabilities, intangible fixed assets and location. The information was then used for generating descriptive statistics about the balance structure to illuminate signs of financing constraints. That is to observe whether the level of external financing indicate presence of constraints.

The key financial data used for the analysis along with their explanations are as follows.

Current liabilities: are short-term liabilities that are settled in less than a year such as overdraft and account payables.

Non-current liabilities: are longer term liabilities with maturity longer than a one year such a bank or mortgage loan.

Total assets: include both tangible and intangible assets of a company and represent ownership of value that can be converted into cash.

Fixed assets: are properties, plant and equipment.

Current assets: are assets held for short time and include inventory cash and prepaid expenses.

Shareholder funds: is capital belonging to shareholders, it includes balance of share capital, retained profits and capital classified as reserves. It comes from two main sources, initial and additional funds invested by shareholders and from retained earnings, which can be both positive and negative value. Unfortunately it was not possible to determine whether shareholders equity is externally based. However, due to the limited activity of both private and public debt markets it seems reasonable to assume that shareholder of the company for the most part are represented by owner-managers or funds provided by relatives rather than external investors such as VC and BA.

Age: age is calculated as date of incorporation minus today, since all companies in the database are registered as active.

Descriptive statistics

Is this section financial information acquired from ORBIS database on Danish SMEs is examined. As can be observed in figure 8, the capital structure of SMEs reflects preference for short debt over longer term debt, which is in accordance to the pecking order theory previously discussed. While short-term debt is generally regarded as expensive form of financing the preference for short debt might be due to reluctance to involve external stakeholders or alternately might constrained in terms of acquiring external financing. Thus, the observed high level of short-term, relative to other sources of financing, may prove that SMEs follow a pecking order in regards to their financing decision. However, we are not able to determine, from observing the financing structure, whether this is due to constraints or preferences.

The level of equity financing, at first seems to show divergence from what otherwise is predicted in the theory. But the data does not distinguish between whether the source is external to the firm owner/manager. As previously stated the source of equity is likely to be to large extent comprised of retained earnings and initial investment from internal sources rather than from external investors.

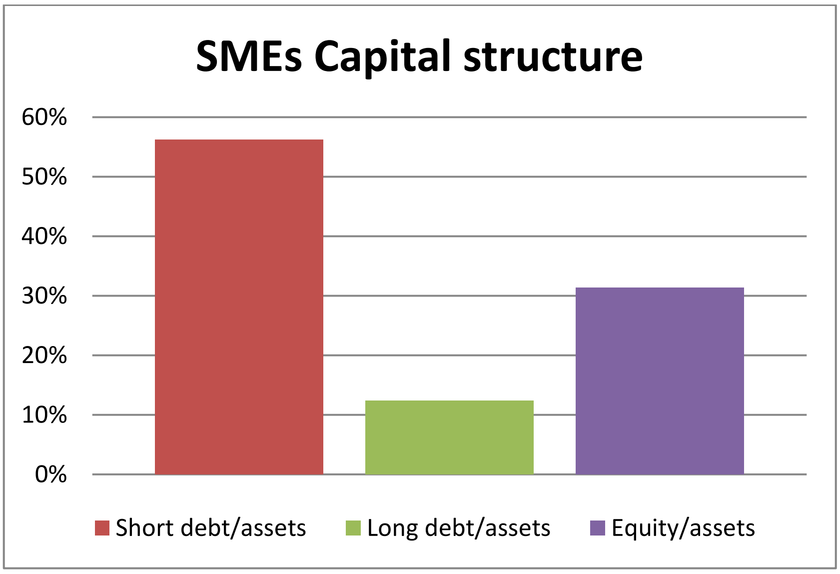

Figure 8: Sample capital structure.

The relatively low share of long-term debt of the total balance sheet of the sample firms could indicate that firms are constrained in terms of acquiring the required financing. The reliance on internal funds (shareholder equity) and short-debt could indicate that firms were unable to sufficiently finance their investments and consequently need to turn down viable investment opportunities. We are not able to determine whether this is due to actual or perceived constraints.

But as mentioned in the literature there can be some (subjective) demand factors that affect the capital structure such as discouragement to apply for external financing. In addition, observing the financing structure does note enable us to account for that the capital structure might be affected by preferences of the business owner and usage of external financing can be tempered by the growth objectives of the firm. Consequently, it is informative to interpret the results from a survey conducted on managers to further understand whether the financing structure, which clearly does not refuse constraints, is due to constraints or these demand sided factors.

In the literature, it is argued that the supply of financing can vary between countries, financial systems and as well as within a country. Studies of bank and venture capital financing have indicated that firms in capital cities are in favorable positions than firms from other region, especially rural areas. The closeness between the firm and the source of financing are proposed to reduce the information asymmetry between the two parties and as a reason improve the likelihood of being granted financing. When analyzing the data, there does not appear to be any indication of discrepancy in terms of the long-term debt levels and the region of origin. In the sample, SMEs from the Islands (Greenland and the Faroe Islands) have considerably higher long-term debt levels than average, but they also have higher fixed assets to total assets ratio. As shown in the figure 10, the mean long-term debt is 12%, while as noted in appendix iii the variance is 1%.

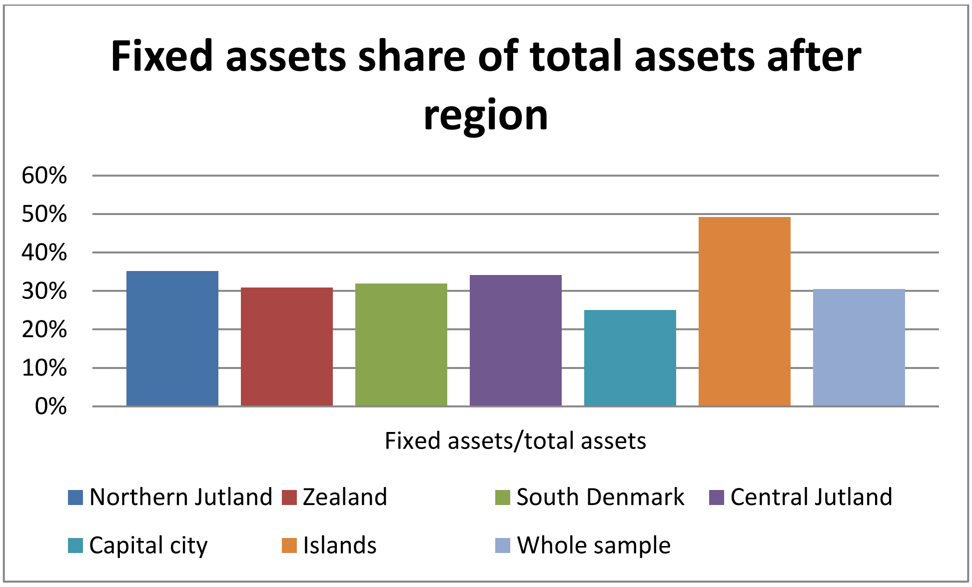

Figure 9: Fixed asset share of total assets categorized after region

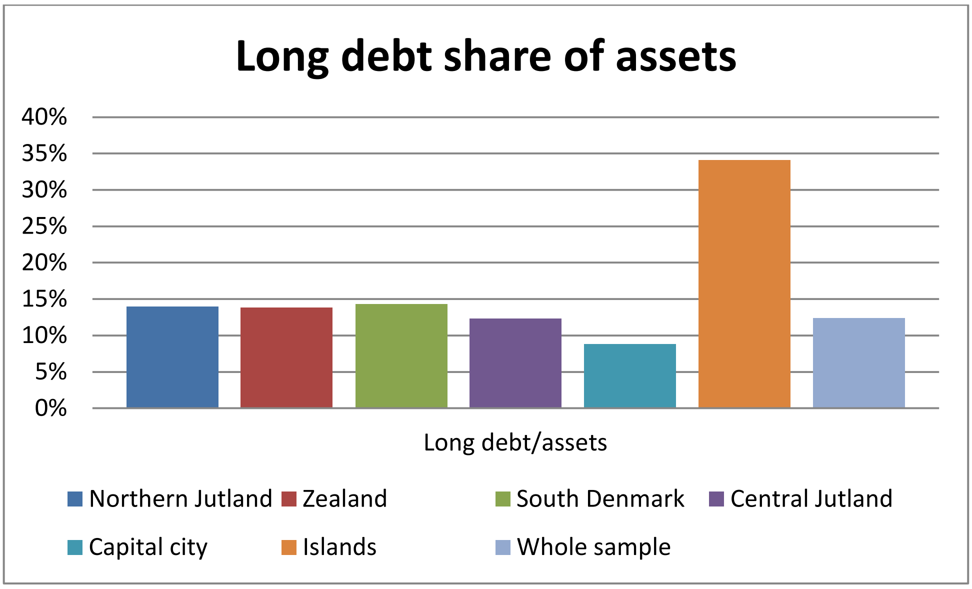

Figure 10: Long-term debt levels after region

In regards to equity the levels are also considerably equally distributed around the region. In South Denmark, where equity to asset ratio is lowest, equity share of assets accounts for 29%, while it is 34 % in the Islands where equity ratio is highest.

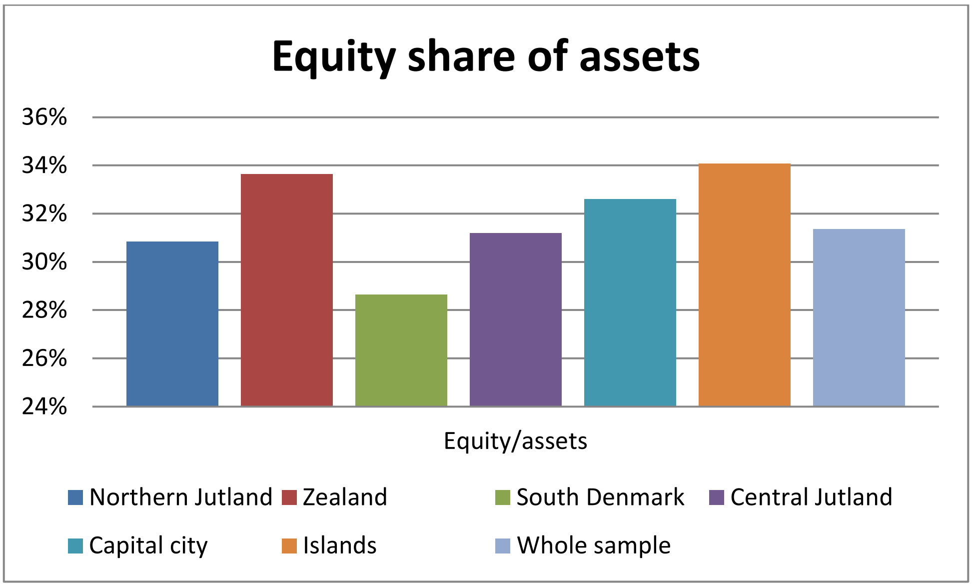

Figure 11: Equity share of assets after region

In regards to the short debt ratio levels, the mean is around 56%. The considerably lower short debt levels of the Islands (Greenland and Faroe Islands) can be attributed to the higher longer debt levels. The fact that the Islands have more long-term debt levels is somewhat conflicting giving what otherwise has been proposed in the literature, where it is generally assumed that firms from capital regions have advantage over rural regions in regards to acquiring financing.

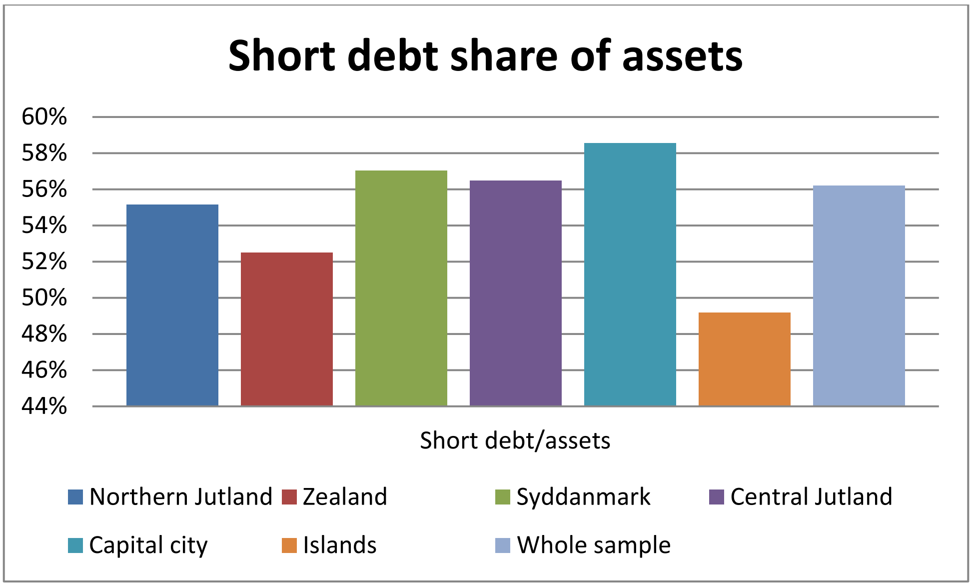

Figure 12: Short debt shares of assets after region

However, as the figure shows, firms do generally operate with relatively low levels of long-term debt. This observation could indicate difficulties in obtaining financing. In the next section regression analysis will be conducted in order to examine whether there are observed relation between the level of long-term debt and proxies for lower information asymmetry.

Regression analysis methodology

As can be observed from the descriptive statistics Danish SMEs, in the sample, operate with relatively low long-term debt levels.

This could be interpreted as an evidence for presence of financial constraints, where firms due to information asymmetry are constrained in acquiring long-term debt funding. In this part, regression analysis will be conducted in order to test whether presence of information asymmetry affects the observed long-term debt ratio of the sample.

Prior to presenting the results, the explanatory variables used as proxies for information asymmetry along with dependent variable and the methodology of the regression analysis will be explained.

Dependent variable (Y)

Long-term debt ratio shows the portion of the firm's total assets financed by long-term debt. It is calculated as $\frac{Long-term\ debt}{Total\ assets}$, long-term debt divided by total assets. It will in the regression serve as a dependent variable.

Explanatory variables (X_i), proxies for information asymmetry

As previously noted the information available about SMEs where limited, as a reason the proxies used for information asymmetry will be based on the date that was attainable. The proxies used will be explained in turn.

Fixed assets to total assets ratio, higher fixed asset to total asset ratio is used as a proxy for lower information asymmetry. As previously discussed, fixed assets can serve as collateral for lenders and ease the monitoring process. Fixed asset are a long-term, tangible assets held for business use and not expected to be converted to cash in the current or upcoming fiscal year, and it can include assets such as manufacturing equipment and real estates. The ratio is calculated as $\frac{Fixed\ assets}{Total\ assets}$, fixed assets divided by total assets.

The asset class is likely to differ considerably between types of firms, as a reason it is proposed that industries that have relatively high fixed ratios will be better suited in acquiring long-term debt financing.

Ratios are used to account for the fact that currency denominated values don't capture the same effect as ratios. For example, firm with higher DKK fixed asset value is also likely to have high long-term debt value. Thus the DKK denomination does not capture the relative effect such as a ratio does.

Size, firm size is in the literature found to be positively correlated with long-term debt. Small firms are regarded riskier and are consequently have greater difficulties at obtaining affordable financing (see Sogorb-Mira 2005). A proxy for firm size used in the regression analysis is logarithm of total assets. The use of logarithm of assets as a proxy for firm size is commonly used methodology used in contemporary empirical analysis such as in studies of bankruptcy risk (See, e.g.., Ohlson 1980).

Firm age, in the literature there are contesting arguments for the effects of firm age on the ability to obtain external financing. First, in regards to information asymmetry, younger companies are generally regarded as more opaque than their older counterparts. The underlying assumption is that companies that have been operating for some time can better signal their viability to external investors e.g. by showing past profit & loss statements. Therefore, under information asymmetry, higher age is expected to be correlated with higher long-term debt levels. In contrast, the pecking order theory regards the effects of age on external financing negatively. Pecking order theory rests on the assumption that financing structure is based on preferences and firms, ceteris paribus, prefer internal financing over external financing. However, these funds are limited to the ability of the company to generate sufficient earning, which according to the pecking order theory older firms are better capable of (Hall, Hutchinson and Michaelas 2004). The two arguments have their legitimacy. Therefore it is interesting to see whether the effect of the age will be positively or negatively related to long-term debt ratio.

Finally, **equity (shareholder funds) to assets ratio** is proposed to be correlated with greater propensity to obtain long-term debt. This is due to the assumption that equity is primarily based on funds provided by the manager-owner, and thus provides a signal of commitment. As previously stated, equity consist mostly of retained earnings. Therefore it assumed that all things equal higher equity to asset ratio is correlated with higher propensity to obtain long-term debt. The premise of the model is that this owner financed equity funds provides a signal of commitment that to some extent counters the effects of information asymmetry. Therefore it is proposed that more equity is associated with higher share of long-term debt, as it will be easier for firms that retain earnings and have higher equity to signal their credibility (Brinckmann, Salomo and Gemuenden 2009).

The model that we will be estimating contains one dependent variable and four explanatory variables as well as a constant α. Most multiple regression models, such as the one estimated here, include a constant term, this is to ensure that the model will be unbiased i.e. that the mean of the residuals $\boldsymbol{\varepsilon_i}$ will be zero (Verbeek 2008).

$$Long\ term\ debt\ ratio = \alpha_i + \beta_1 \times Fixed\ asset\ ratio_i + \beta_2 \times Size_i + \beta_3 \times Age_i + \beta_4 \times Equity\ to\ asset\ ratio + \varepsilon_i.$$

In the next section the research methods of the regression analysis will be clarified.

Research method of regression analysis

The regression model was estimated using SAS (Statistical Analysis System). First, the model was tested unrestricted. The test results of the regression analysis indicated presence of skewness. Skewness is a measure of symmetry and it is unfavorable for the analysis as the data is no longer normally distributed i.e. the data is not symmetric about its mean, which is required in order to produce consistent estimators. Therefore the model was transformed to take logarithmic values of both explanatory and the dependent variable.

However, a common shortfall of log models is that heteroskedasticity can appear. In fact, as can be observed in the appendix, White test for hetersokedasticity showed clear indication of heteroskedasticity. It arises when errors terms do not have the same variance. This results in that the standard errors of the constants are wrong, while the R-ratio, the explanatory power, and the β estimates remain the same. Incorrect standard errors results in that we cannot perform test statistic of the significance of the explanatory variables. Fortunately, the standard errors can be transformed to become consistent and thus can estimate the significance of the explanatory variables in explaining change in long-term debt ratio. The standard errors are calculated by replacing the standard errors of the regression with the formula for White heteroskedasticity consistent (HAC) standard errors. The HAC standard error transforms the residuals so they fulfill the constant variance assumption.

Another shortfall of log models is that it impossible to take logarithms of zero values. Empirical studies generally approach this problem by either arbitrary setting the value to zero or by simply discarding the observation that have zero values. Statistical comparison of these two methodologies has revealed that discarding observation proved that the latter assumption is more appropriate (Young and Young 1975). As a reason zero log values will be treated accordingly and discarded.

The regression model after log transformation is as follows:

$$log(Long\ term\ debt\ ratio = \ \alpha_i + \beta_1 \times log(Fixed\ asset\ ratio_i) + \beta_2 \times log(Size_i) + \beta_3 \times Age_i + \beta_4 \times log(Equity\ to\ asset\ ratio) + \ \varepsilon_i.$$

Empirical findings

Parameters estimates are presented in figure 13, and the explanatory power (R-square) of the model. As can be observed the explanatory power of the model is 38.43%, which indicates the percentage of variance in long-term debt ratio that can be explained by the explanatory variables in the regression model. The linear function for the long-term debt ratio, for the sample, is given by following formula:

$$log(Long\ term\ debt\ ratio(F1)) = -1{,}527 + 0{,}766 \times log\ (Fixed\ asset\ ratio_i(F2)) + 0{,}140 \times log(Size(F3)) + 0{,}002\ \times age(F4) - 0{,}598\ \times log(Equity\ to\ asset\ ratio\ (F5) + (\frac{1}{2} \times 0{,}333^2),$$

where the last term corresponds to one-half of the estimated error variance and is used to prevent systematic under prediction of the regression model (Verbeek 2008, 68).

Root MSE	0.57698	**R-Square**	0.3843
Dependent Mean	-1.08074	**Adj R-Sq**	0.3812
Coeff Var	-53.38796		

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	1	-1.52730	0.14868	-10.27	<.0001	0.15435	-9.89	<.0001
F2	1	0.76566	0.04364	17.54	<.0001	0.06510	11.76	<.0001
F3	1	0.14016	0.04164	3.37	0.0008	0.04315	3.25	0.0012
F4	1	0.00200	0.00199	1.01	0.3139	0.00183	1.09	0.2740
F5	1	-0.59800	0.05497	-10.88	<.0001	0.06406	-9.33	<.0001

Figure 13: Parameter estimates of ordinary least squares regression and HAC standard errors

Regression of the fixed asset ratio (denoted F2 in the figure above) gives an estimate of 0.76566. T-values are significantly over critical values as well as p-values are under 0.05 significant level. A test of the significance of the fixed assets ratio parameter can be performed by a simple t- test. The t-test can be performed to test the validity of arbitrary imposed restriction. We can test the validity of the variable in explaining changes in debt to equity by testing the H_0 hypothesis where β_i is equal to zero against the alternative that the H_1 remains true i.e. that the explanatory variable has explanatory value in regards to the long-term debt ratio. The critical value for the t-distribution is 1,963 with 784 degrees of freedom and the H_0 is rejected against the alternative when the absolute t-

value is higher.
As can be observed from the figure the heteroskedasticity consistent t-values all except age (F4) reject the H_0 hypothesis. This means that age fails to explain variation in long-term debt ratio.
Fixed assets ratios (F2) have highest parameter estimates. The estimates show that the higher fixed to assets ratio is correlated with higher long-term debt ratio. It is common in log linear models to make the direct transformation from the estimated coefficient to percentage changes (Verbeek 2008, 78). Thus the coefficient of 0.76566 can be interpreted as an expected long-term debt difference of 0,77% given a percentage change in fixed asset ratio. Thus firms with higher fixed assets to ratio, such as firm within the manufacturing sector, are more likely to have higher long-term debt ratio. This can be interpreted as firms with higher share of fixed assets are less subject to information asymmetry and consequently less constrained than those that do not possess a high share fixed assets.

The parameters estimates of the size variable (F3) show a positive relationship between the size of the firm and long-term debt to equity ratio. Thus the results indicate that larger firms are less subject to information asymmetry as they are more likely to obtain long-term debt financing. A percentage increase in assets represents a 0,14% change in long-term debt.
Age (F4) which effects upon debt levels has been dispute in the literature. The parameter estimates show positive influences, but the estimator does not have significance, as evidenced by the low t-value, in explaining the variance in the long-term debt ratio.
Finally parameters estimates of equity to assets ratio (F5) show an opposite effect of equity on long-term debt than predicted. Thus higher equity, ceteris paribus, results in lower debt levels. This can approve the pecking order argumentation, as equity to large extent is comprised of internally financing, which according to pecking order theory is the most preferred form for financing. In other words, while in the literature greater commitment from the firm owner is argued to affect the propensity of being granted financing the negative effect on long-term debt levels might indicate that preferences or other subjective factors have implication on the capital structure.

Nevertheless, the estimates of the proxies for information asymmetry do indicate that the financial structure of SMEs might be subject to financial constraints. We are on the other hand not able to exclude the possibility that the financial structure is due to preferences of the owner and thus the prevalence of the assumption of the pecking order theory. In order to determine the validity of these separate explanations for the financial structure secondary data from survey on SMEs managers' access to finance will be reviewed. Comparing the results of the regression analysis with the survey might contribute in further explaining the reason behind the financing structure. However, the results have to be interpreted carefully as SMEs owner might have incentives to overstate their constraints to induce greater governmental support. Comparing the survey results with the regression analysis and the interview arguably makes us better capable in accounting for such biases. And thus consequently enables us to get a more holistic perspective on financial constraints rather than by looking at the results individually.

In the next section the methodology along with the results of the survey are presented.

Demand survey of financial constraints

The data is based on survey conducted by the Danish statistical bureau (DST) on SMEs access to finance. It is part of a broader European study. The survey is based on a sample of 2.265 companies' conducted in the calendar year 2007 and 2010. The two dates from an economic point of view are quite interesting as they represent two distinctive periods on the one hand 2007 pre-financial crisis and recession year and 2010 a period of recession. It is likely that the effects of lower economic activity will also shift the motive for acquiring financing. Prior to the crisis it is likely that the motive for financing would primarily be to finance expansion, while in 2010 it would be to consolidate current operations. This change in motive for lending is supported by the Danish banker association that regularly monitors lending activity to firms (Finansrådet 2011).

Financing need and preferences of Danish SMEs

According to the survey results, the number of companies that applied for external financing in calendar years 2007 and 2010 increased between the periods from 35% to 44%. Indicating that the financing need between the two periods increased by 25,71%. This can be a result of immediate financing need following the financial crisis and lower demand. Despite the increase there are surprisingly high share of respondents that state that they did not apply for any form of external financing or 65% in 2007 and 56% in 2010. Furthermore, 48% of the respondents applied neither for financing in 2007 nor 2010 as shown in figure 14.

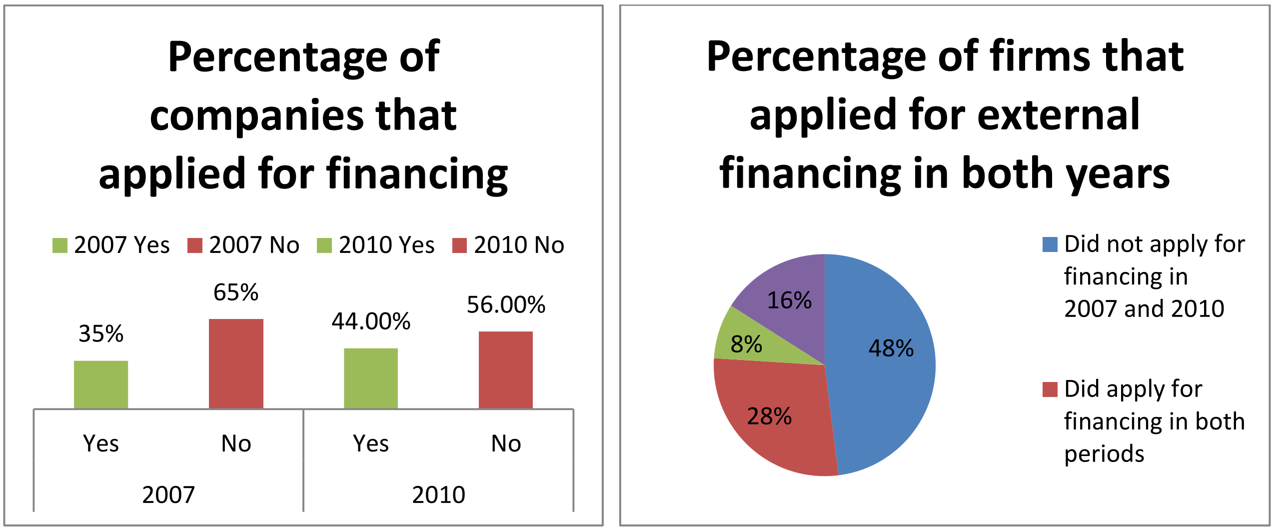

Figure 14, percentage of companies that applied for external financing in 2007, 2010 and for both years source (Danmarks Statistik 2010)

In the light of the fact that the overall sales fell between the two periods, the increased need might be a result of immediate financing need following demand shocks rather than improved growth opportunities as evidenced by lower demand and falling aggregate sales as shown in figure 15.

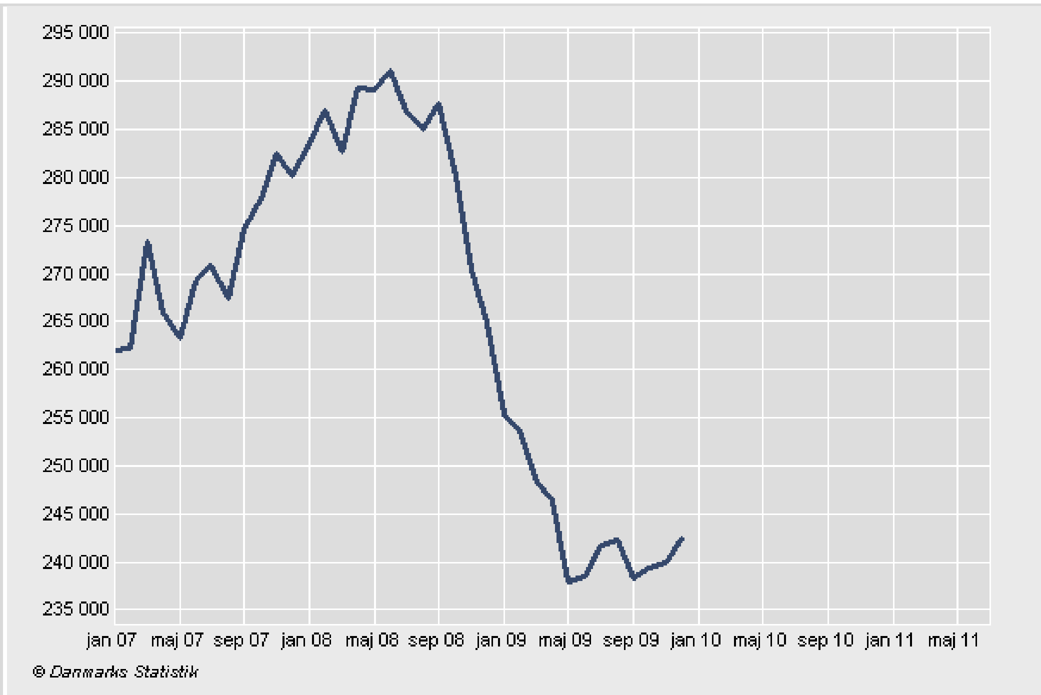

Figure 15, industrial firms aggregates sales (Danmarks Statistik 2011)

This decline in aggregate demand might indicate a shift in motive for applying for financing. But motives for acquiring financing such as reflected in business plans can have importance on propensity of getting financing. Unfortunately, the respondents that applied for financing where not asked what their motive where for acquiring financing in 2007 and 2010. However, in regards to future financing need 28% percentage of the respondents reported that they would possibly apply for financing within the near future (within the end of 2013). This is considerably decline from the share of respondents that applied for financing in 2007 (35%) and 2010 (44%). For the majority of the respondents, 51% of reported that the motive for acquiring financing would be to finance consolidation of the current business, whereas to increase domestic activities and export was stated as the purpose by 37% and 19% of the respondents respectively, as shown in figure 16.

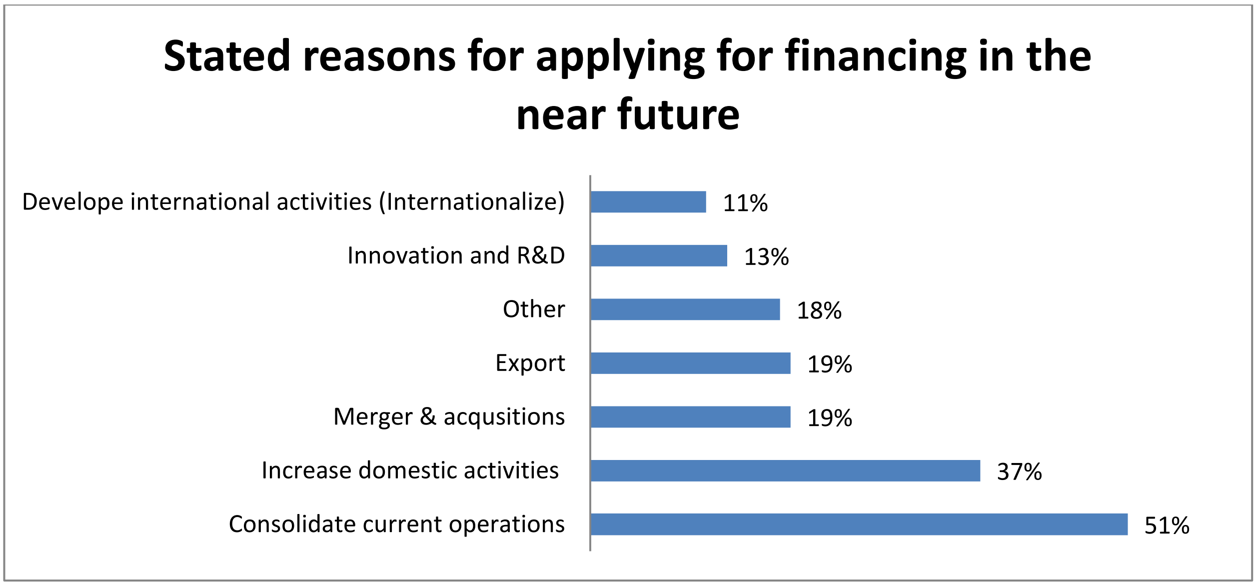

Figure 16, stated reasons for applying financing in the near future (Danmarks Statistik 2010).

The relatively low external financing activity in the past and expected in the near future is puzzling. As stated in the literature review, this can be both due to preferential factors (e.g. such as preferences for internal financing over external financing) or demand side factors (constraints). In this regard, as depicted in figure 17, the single most important source of external financing expressed by SMEs in consequent periods, in line with the pecking order theory, was short-term debt and the least utilized source was equity. In addition, as shown in the figure, increase financing need was reflected over all financing forms.

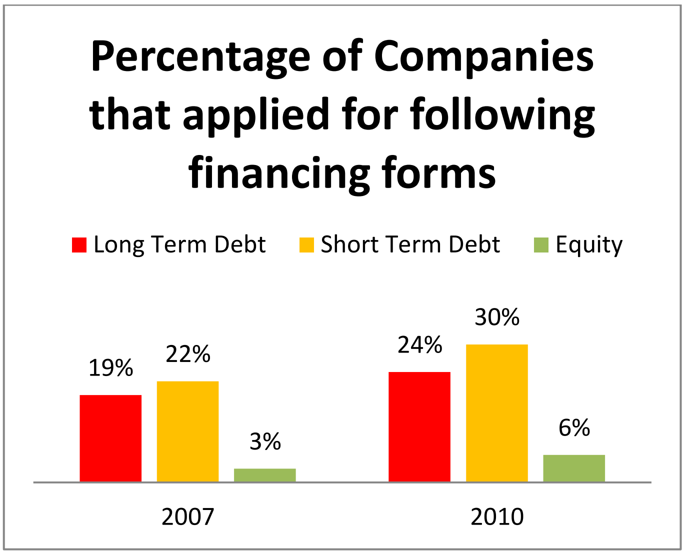

Figure 17, percentage of companies that applied for financing in 2007 and 2010 categorized after financing (Danmarks Statistik 2010).

The success SMEs had in terms of acquiring financing between these two years clearly reveals greater difficulties in obtaining the necessary financing. In regards to those that applied for long-term debt in the two periods 92% succeeded in 2007 while the share was 69% in 2010, representing a fall of 23%. While for short-term debt 95% succeeded in 2007 and 80% in 2010.

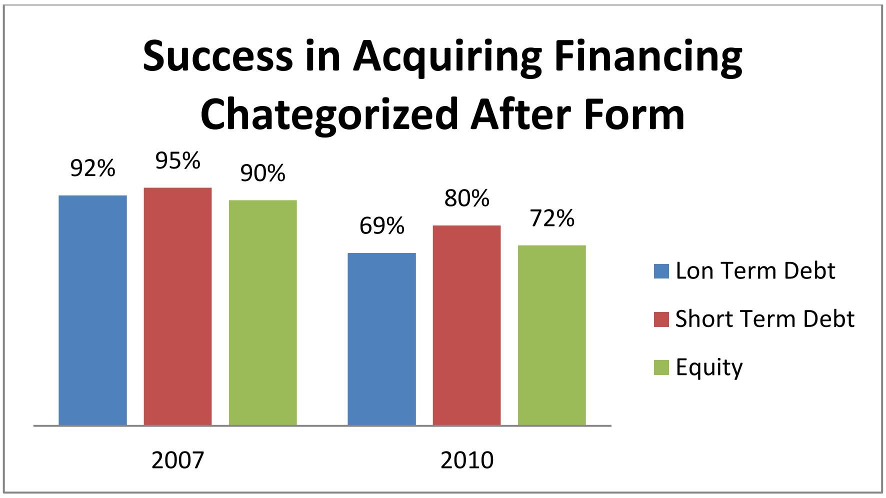

Figure 18, percentage of companies that succeeded in acquiring financing in 2007 and 2010 categorized after financing (Danmarks Statistik 2010).

Despite firms had greater challenges in acquiring external financing relatively high share of respondents reported that they did not apply for long-term debt in 2007 or 2010 i.e. 81% and 76% respectively as shown in figure 19. The fact that higher share of respondents had difficulties in acquiring financing for 2010 could indicate change in motive for acquiring financing as previously discussed. In regards to short-term debt, 78% did not apply in 2007 and 70% in 2010. While in regards to equity only 97% and 94% applied for equity financing.

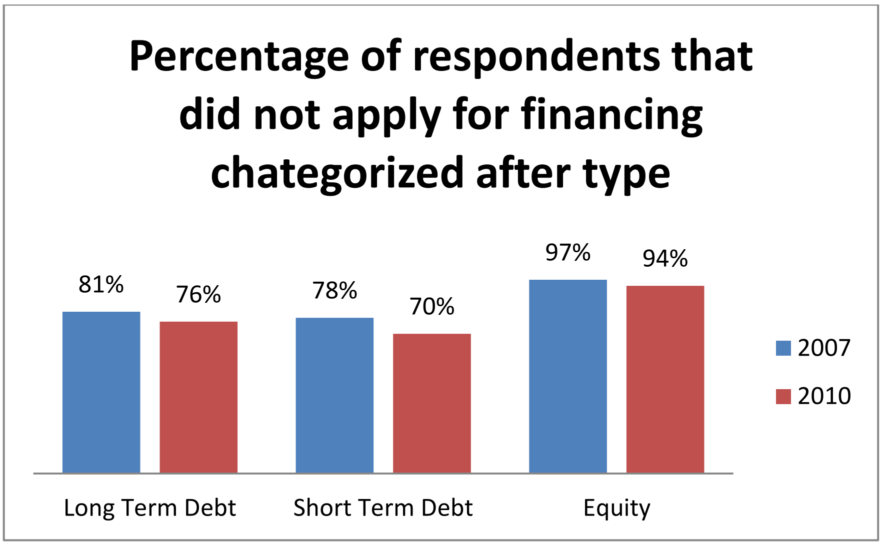

Figure 19, percentage of respondents that did not apply for financing in 2007 and 2010 categorized after type (Danmarks Statistik 2010).

There undoubtedly can be several reasons for why companies wish not to apply for financing in the two periods. But given that the two periods, 2007 and 2010 reflect distinctive economic periods and consequently one would expect that the objective for the financing would reflect distinctive motives. That is, while the motive in 2007 might have been to finance further expansion and thus to leverage on escalating demand the motive in 2010 might reveal intention to consolidate current operation and to have a temporary buffer to unforeseen demand shocks. Thus the increase in demand and failure in acquiring financing might reflect greater need due to adverse consequences of the current state of the economy rather than to finance expansion.

When asking the respondents for why they did not wish to apply for financing 78% stated that they did not need debt financing while in 2010 the percentage was 70%. In addition, 19% applied for equity or short-term debt instead in 2007 and 24% in 2010.

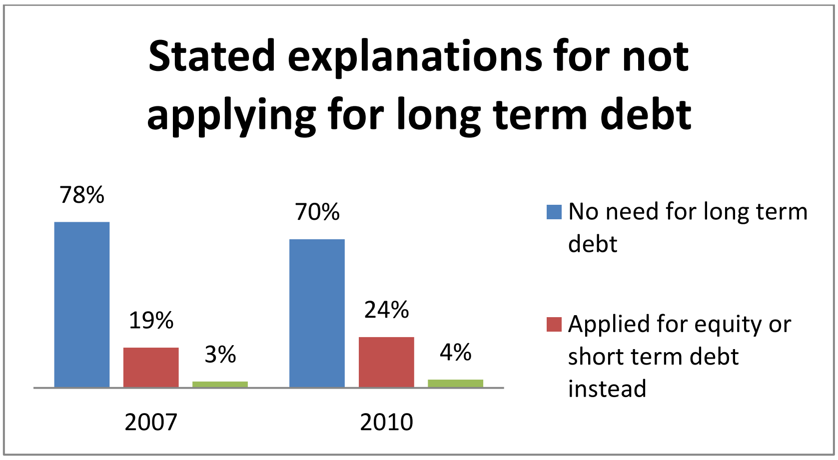

Figure 20, stated explanation given for not applying for long-term debt (Danmarks Statistik 2010).

There, are surprisingly many companies that do not regard the cost of financing as a barrier for applying long-term debt. The results of the demand survey are in conflict with the results generated from observing the financing structure of SMEs, which traditionally has been used as a proxy for argumentations for financing constraints. The results reveal that firms have experienced credit tightening from 2007 to 2010 as figure 18 shows. But SMEs do not in general demand financing as they self sufficient with internal financing. In this regard the majority of respondents state that the main reason for not applying for long-term debt is simply because it is not needed. This is further noticeable when asking the respondents to reflect on number of growth constraints including lack and cost of financing, staff costs, low demand, competition and etc. in this regard the respondents point at situation of the economy, competitive environment, general demand, and staff costs

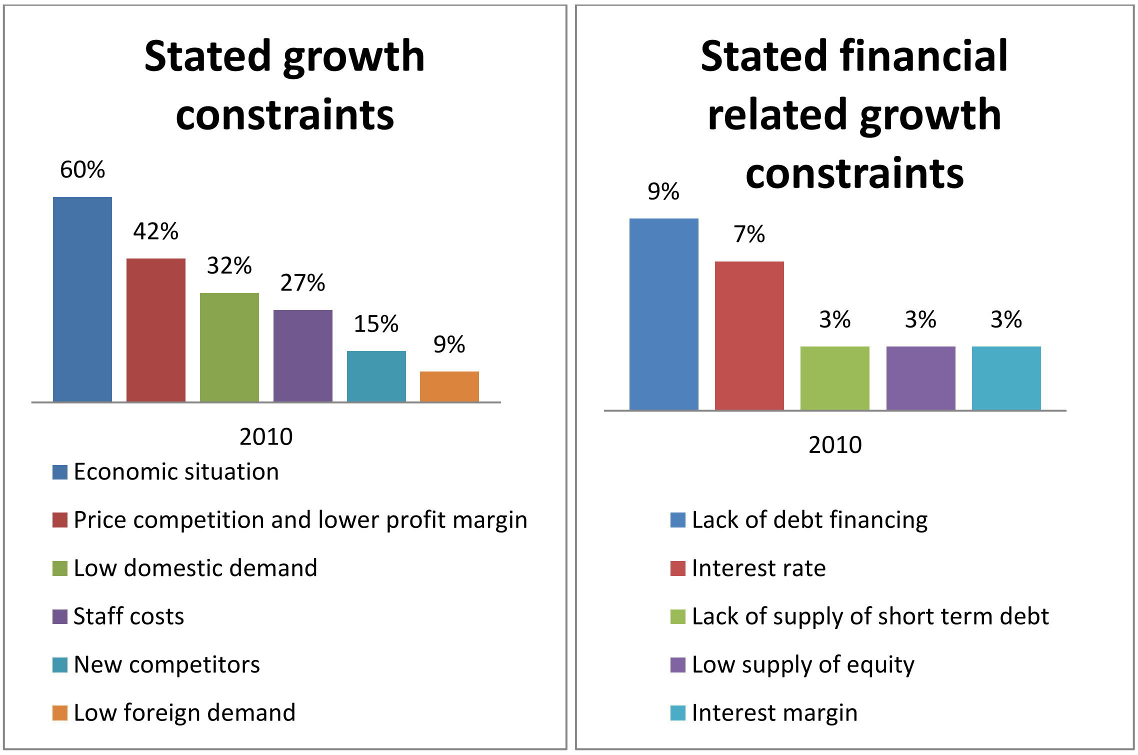

Figure 21, stated growth and financial related constraints (Danmarks Statistik 2010).

rather than financial constraints as an barrier for the firm's growth in the near future. In regards to financially related growth constraints, 9% and 7% respectively, point at lack of long-term and short-term debt financing, while 3% state that lack of short-term debt, equity and interest rate as a limitation for growth in the near future.

The survey results are in concordance with most of the results generated from the previous analysis but point at different explanation to the preference for internal financing over external financing. The survey show that overall, despite the current economic situation, most firms had success in satisfying their financing need from external sources. In general, however, SMEs do not demand financing, thus it seems that the required financing is fully satisfied internally i.e. through operation and/or owner contribution.

We do not know what the future growth motives were of the respondents that reported that they had no need for financing. However, the relatively high share of respondents that reported no need for financing could indicate that the financing need is moderated by the willingness to growth. But as previously mentioned growth motives of firms affects the financing need. Firms that want to growth and expand might thus be more prone to apply for external financing than those that don't. Thus, the self-sufficiency of financing could support some of the arguments brought forward by (Vos, et al. 2007) that SMEs have different objectives than their larger counterparts where maximization of share holder value is the primary objective where growth is the normative expectation. While the need for financing increased between 2007 and 2010 as indicated in figure 17, the increase in demand might reflect that more companies are in distress due to the adverse effect of the crisis on aggregate demand. Thus, increase in financing could be intended as a cushion for lower demand for the product/services of the company and/or to temporarily supplement shortfall in revenues to finance day to day businesses and avoid as much as possible liquidation of assets or other forms of contraction. In fact, among the respondents that stated that they would consider to apply for financing in the near future the majority stated that the motive where to finance consolidation of current businesses followed by growth related motives (increase domestic activities 37%, M&A 19%, export 19% and internationalize 11% see figure 16).

In other words, the principles that apply for large companies might not be applicable in the SMEs context. On the contrary, they might be more driven by “soft” factors and subject to owner preference and motives such as prioritizing security and business as usual rather than to growth and add complexity. The share of firms that did not apply for external financing in neither 2007 nor 2010, which as previously mentioned reflect distinctive economic periods, and the relatively low weight assigned to financial related growth constraints by the respondents indicates that they are not regarded as a major limitation for growth. In fact, the results point more towards general contentment in regards to financing than to financing constraints.

7. Conclusion

The objective of this project has been to reveal the extent to which Danish SMEs are financially constrained. The premise for choosing the topic was that firms have repeatedly attributed lack of financing as a limitation for their internationalization. Due to the economic importance of the sector, the member state countries of the European Union devote considerable resources in alleviating the problems which SMEs face. Despite programs directed at improving the supply of financing to the sector SMEs still denote lack of financing as one of key barriers for becoming internationally active. However, results from surveys have to be taken with care since firms may be tempted to overstate their constraints to induce greater governmental subsidy. It was argued that in order to determine the extent to which firms are financially constrained an integrated approach was required in order to capture the holistic nature of financing constraints. Consequently, the thesis started off by reviewing the literature in order to formulate a conceptualization of financing constraints which could assist the analysis of the projects by taking into account the holistic nature of the problem. As a reason various literature was examined, the literature review was separated into supply and demand factors related to financing constraints. Under the supply side it was shown that the characteristics and information opaque of SMEs constrained there access to financing as well as factors exogenous to the firm could influence the level of supply such as the development of capital markets and the lending technology applied. It was shown that the difficulties in obtaining financing might be even amplified in regards to financing internationalization projects. Demand factors provide an alternative explanation for the capital structure of firms. Under the demand side of financing constraints, factor related to the firm where examined. It was shown that influences of subjective factors can affect the propensity of firm to apply for external financing. These subjective factors include preferences, perception and knowledge and growth motives which can moderate and /or amplify the extent of financing constraints.

Based on the literature a holistic framework was formulated. The framework then guided the structure of the analysis which constituted the second part of this thesis.
In the analysis three separate analyses where conducted; an interview, regression analysis and SMEs and a survey result regarding SMEs access to finance.
The interview conducted on two employees of the credit department of Spar Nord showed that the perception of financing constraints among Danish SMEs might be due to high expectations. The

lending requirements were prior to the crisis where too relaxed. This contributed in building unrealistic expectation in regards to the requirements for being granted financing. As the lending decision of banks has adjusted to a new normal where provision of lending has to meet higher standards, firms that pre-crisis had easier access to financing are now faced with having to fulfill stricter requirements than before. This transition to a new normal situation may result in that firms perceive that they are constrained. But as noted by the respondents the unrestrictive lending requirements where unhealthy as too much risk taking did not in the interest of the banks or the society.

The extent to which banks use transaction based lending has in the literature been suggested to adversely affect the level of supply to SMEs. In regards to Spar Nord, the lending technology is based on combination of both transaction and relationship based factors that the loan administrator at each time weight and accesses in regards to the applicant. However, as noted in the literature fulfilling the requirements of the transaction based lending is often challenging to SMEs as they typically do not have the same ability to provide collateral. As a reason the propensity of being granted loan rest on the ability of the firm to signal credibility through establishing a trustworthy relationship with bank and thus reduce the information asymmetry.

The motive for acquiring financing was confirmed by the interviewees to affect the propensity of being granted financing. In this regard financing internationalization endeavors was argued to increase the complexity of the lending assessment and the risk perception as it involved change in the business concept of the firm. Due to the payment structure of bank loans (and debt in general) the incentives of the bank and the company can diverge. In this regard banks have incentives to reduce the inherent risk of projects they finance. Due to the perceived risk of internationalization the interviewees agreed that the bank may have influences on the internationalization process of firm by favoring lower risk and consequently gradual internationalization over greater commitment as the extension of financing rests on the risk and viability assessment of the loan applicant by the bank.

In other words, firms where external financing is limited to bank financing may choose a more gradual form for internationalization and internationalize to neighboring countries as they are perceived to be less risky by the bank. Recognizing the implication the form of financing can have on the internationalization may help us understanding better the internationalization process of firms, which empirically has been found to be slow and risk averse. This has been somewhat disregarded in the literature, as it is generally assumed that it is exclusively the preferences of the managers that have a role. In contrast, as the results of the interview indicate, the source of financing can also have implications. The potential influence the source of financing has on internationalization of firms is also evidenced by the early export activity observed among firms in venture capital portfolios (McNaughton and Bell 2004).

Overall the results did not indicate that firms where repressed in terms of financing, although the interviewees noted that the attention given in the media towards the financing condition of SMEs and their difficulties in obtaining financing might be a result of adjustment in lending procedure towards a new level of normal.

Following the interview secondary data on the financing structure of SMEs was analyzed. First descriptive statistics where produced in order to observe the financing structure of SMEs and the extent to which it indicated presence of financing constraints. In addition regression analysis where conducted to test whether a proxies for lower information asymmetry where associated with higher propensity to have external financing in this case long-term debt. But information asymmetry has in the literature been attributed as an underlying cause for financing constraints.

The descriptive statistics showed that firms where predominately financed by short term debt and equity (internal equity). This observed level of financing was argued to provide evidence for either pecking order theory or financing constraints. But from observing the data it was not possible to determine whether this was due to constraints or preferences.

The regression analysis, tested whether the extent to which firms had higher share of longer-term debt was associated with lower information asymmetry. Four proxies for lower information asymmetry where used, fixed asset ratio, size of the firm, age and equity to asset ratio. The result of the regression analysis where that fixed asset ratio, the size of the firm where found to influence the level of long-term debt while age was insignificant. Furthermore, equity to asset ratio was found to negatively affect the long-term debt levels. This can approve the pecking order argumentation, as equity to large extent is comprised of internally financing, which according to pecking order theory is the most preferred form for financing.

The results of the regression analyses did indicate that the capital structure of SMEs could be a result of constraints as evidenced by the relationship between lower information asymmetry and higher long-term debt levels. It was however not possible to exclude that the financing structure where due to preferences of the owner as evidenced by the negative influences of owner equity on long-term debt levels. Which otherwise in the literature has been argued to be related to lower information asymmetry and greater propensity of acquiring financing.

Finally, a survey data on firms' access to finance was analyzed. The survey was conducted in 2007 and 2010, reflecting a distinctive economic periods.
Although the data gave similar indication of the financing structure of SMEs it gave different explanation for it. In this regard, while the financing need increased between 2007 and 2010, firms where to large extent self sufficient both prior and after the crisis. The results show that the in general firms do not demand financing. The results are thus somewhat in line with arguments of (Vos, et al. 2007) that the financing need is moderated by willingness to growth. Furthermore, firms did not regard financing related constraints highly in comparison toother growth constraints.

Implication of findings and recommendation for future research

The results of this project are clearly in conflict with studies of internationalization constrains of SMEs where lack of financing has consistently been noted by managers to hinder firms from internationalizing. Therefore it is necessary to comment on what may be causing different conclusions.
It is my opinion that the differences could to some extent be attributed to the methodology of the EU surveys which don't distinguish between firms that have concrete plans to internationalize and those that don't, when accessing barrier for internationalization. As a result, the extent of financing constraints might be biased as they do not reflect an actual constraints but rather perception of constraints by firms that to large extent do not have any intention to internationalize. The fact that the barriers for internationalization have in previous studies been found to vary both in degree and form with the internationalization experience may suggest that the extent of financing constraints in EU surveys are overrated. The knowledge of firms about actual barriers for internationalization are likely to be inadequate when firms have no plans or intention to internationalize. The underlying assumption of the questionnaire is that growth is the objectives of all firms. But as we have learned from the literature review, SMEs do differ from registered companies and we do have to approach them accordingly.
While the objective of this thesis has been to analyze the extent to which Danish SMEs are financially constrained and to understand how it was affecting their internationalization commitment, it seems more appropriate to suggest that the largest constraint for Danish firm internationalization is internally imposed reflecting lack of willingness to growth. In addition, from the results it obviously necessary in future research to distinguish between firms that have

willingness to internationalize when understanding actual barriers for their internationalization. While, the analysis indicate generally contentment we are not able to exclude that firms have difficulties in obtaining financing and are financially constrained. However, this is not necessarily due to unwillingness of banks to provide financing as often assumed. The literature review reveals that demand factors can also be at play. Managers, due to factors such as preferences or lack of knowledge about other financing sources can be inclined to apply for bank loans which might be inappropriate given the inherent risk of the firm and the payout structure of debt. Consequently, governmental programs aimed at improving the internationalization activity by helping firms to overcome barriers such as financing constraints have to take the implication of demand factors into considerations. Persuading financial institution to increase supply of financing to the sector is unlikely to address the demand side of financing constraints. As a reason, demand factors should be addressed through advising and directing firms to proper financing sources as acquiring bank loans may possess greater challenge as the risk inherent in internationalization projects is not regarded favorably by banks.

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Appendices

Appendix i

Interview transcript

In order to understand the financing conditions of SMEs we have to go few years back. The fact is banks where to aggressive in lending to SMEs, we lost customers to other banks because we were simply not willing to lower our standards and participate in any speculation. While we lost customers, it turned out to be wise decision in the end as evidenced by the failure of some of the banks (Kristensen and Larsen 2011). This might have build op unrealistic expectations among SMEs about the requirements for being granted funding. While the pendulum swung during the boom, the pendulum has maybe swung too far back in regards to SME lending. While the focus of banks pre-crisis was to expand the focus has shifted towards the lending portfolio and reducing the risk as well as the exposure. This basically means that (banks) altered behavior from being loan sharks towards more prudent behavior. The system was defected, loan officers where praised for increasing/expanding their loans rather for prudency. My view is that we have reached more "normal" terms, or maybe in some cases are too stringent (Kristensen and Larsen 2011). The lending environment was unhealthy, the society does not benefit from simply increasing the supply of the financing if this means reduced requirements.

They say that there are lots of programs directed at SMEs, while it is good they are shown interest, this might turn out to be too complicated for firms to figure out. They argue that the process should be simplified i.e. it should be easier for firms to access what options are available to them. The credit standard should not be lowered.

They argue that the discussion in the media is overdramatized, directed at selling newspapers rather than telling the story from objective ground.

<u>Lending technology</u>

They do not have specific score which companies need to fulfill in order to be granted loan. They ably flexible approach when accessing the viability. Firm type can have an impact, this is more due to the assets they have which can guarantee the loan. The assets are important, they are beneficial, some assets are more appreciated than other, this all have influences. They, however, stress the importance of the applicant and his background e.g. academic background. While the academic background per se doesn't have direct influences it however can influence the quality of the business plan. They, say that the realism and clear strategy is crucial in the business plan. [Here governmental agency could even help SMEs to formulate their plan so the quality of it is sufficient].They look at assets (credit capital) as well as profile capital which consist of viability of the business plan, the integrity of loan applier as well as professionalism. Risk aversion is highly valuated trade, more skeptical about owners that just want to continue to grow. The relationship is also important and it is possible that it can reduce the reliance on the assets [transaction based lending, which is based on probability calculations], here the above mentioned traits are crucial. In short the apply combination of hard/soft lending technology where the weight of each factor is subjective and relies on the bank employee performing the due diligence of the lending applicant. That is the viability of the loan rests on the capabilities of the banker to assess the risk of the firm.

Internationalization

Internationalization involves change in the business concept, such as launch of new product. While the company might have good track record any change in the business concepts increase the complexity as well as the risk perception. They agree on that financing source can have influences on the internationalization of companies. Banks due to their investment form (debt) prefer risk reduction. They may advice companies to reduce their internationalization degree in order to reduce the risk. They argue that this is of their interest as well as for the company. They do not advice binding to much investment unless they have done proper due diligence and/or have some experience which they can rely on. Preference for neighbor markets all things equal.

Appendix ii

White test for heteroskedasticity

Note the white test tests the null hypothesis that the variance of the residual is homogenous (which is preferred) against the alternative. As the p-value is very small, we reject the null hypothesis of homogenous errors and accept the alternative i.e. that the variance of the error term confirms presence of heteroskedasticity.

Linear Regression Results

The REG Procedure

Model: Linear_Regression_Model

Dependent Variable: F1

Test of First and Second Moment Specification		
DF	Chi-Square	Pr > ChiSq
14	58.89	<.0001

The implication of heteroskedasticity is that the test statistics is incorrect. The coefficient estimates are however the same. In order to adjust for the biases heteroskedasticity might cause in the standard errors and consequently the test statistics we derive heteroskedasticity consistent (HAC) standard errors

Linear Regression Results of log transformed with regular and heteroskedasticity consistent standard errors in the log-model.

Dependent variable: F1 (Long-term debt to total assets)

Number of Observations Read	784
Number of Observations Used	784

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	161.88728	40.47182	121.57	<.0001
Error	779	259.33651	0.33291		
Corrected Total	783	421.22379			

Root MSE	0.57698	R-Square	0.3843
Dependent Mean	-1.08074	Adj R-Sq	0.3812
Coeff Var	-53.38796		

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
Intercept	1	-1.52730	0.14868	-10.27	<.0001	0.15435	-9.89	<.0001
F2	1	0.76566	0.04364	17.54	<.0001	0.06510	11.76	<.0001
F3	1	0.14016	0.04164	3.37	0.0008	0.04315	3.25	0.0012
F4	1	0.00200	0.00199	1.01	0.3139	0.00183	1.09	0.2740
F5	1	-0.59800	0.05497	-10.88	<.0001	0.06406	-9.33	<.0001

Heteroscedasticity Consistent Covariance of Estimates					
Variable	Intercept	F2	F3	F4	F5
Intercept	0.0238243309	0.0035468935	-0.006196207	0.0000295623	0.0014311427
F2	0.0035468935	0.0042375331	-0.000378032	-0.000016405	0.0008889771
F3	-0.006196207	-0.000378032	0.001861752	-0.000024997	0.0003075614
F4	0.0000295623	-0.000016405	-0.000024997	3.3451259E-6	-8.344545E-6
F5	0.0014311427	0.0008889771	0.0003075614	-8.344545E-6	0.0041039511

Appendix iii

Variance and standard deviation between regions

Fixed Assets			
		Variance	**standard deviation(sd)**
Northern Jutl	35%	0,0022	0,05
Zealand	31%	0,0000	0,00
South Denma	32%	0,0002	0,01
Central Jutlar	34%	0,0013	0,04
Capital city	25%	0,0031	0,06
Islands	49%	0,0351	0,19
Whole sampl	30%	1%	0,07

Short Debt			
		Variance	**standard deviation(sd)**
Northern Jutl	55%	0,0001	0,01
Zealand	52%	0,0014	0,04
South Denma	57%	0,0001	0,01
Central Jutlar	56%	0,0000	0,00
Capital city	59%	0,0006	0,02
Islands	34%	0,0490	0,22
Whole sampl	56%	1%	0,06

long debt			
		Variance	**standard deviation(sd)**
Northern Jutl	14%	0,0002	0,02
Zealand	14%	0,0002	0,01
South Denma	14%	0,0004	0,02
Central Jutlar	12%	0,0000	0,00
Capital city	9%	0,0013	0,04
Islands	34%	0,0468	0,22
Whole sampl	12%	1%	0,06

equity			
		Variance	**standard deviation(sd)**
Northern Jutl	31%	2,70E-05	0,01
Zealand	34%	5,16E-04	0,02
South Denma	32%	1,89E-05	0,00
Central Jutlar	31%	2,95E-06	0,00
Capital city	33%	1,55E-04	0,01
Islands	34%	7,33E-04	0,03
Whole sampl	31%	0%	0,01