

# THE EFFECT OF RELATIONSHIP LENDING ON SME'S CREDIT ACCESS

Master's Thesis  
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Aalto University School of Business  
Entrepreneurship and Innovation  
Management

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# **THE EFFECT OF RELATIONSHIP LENDING ON SME’S CREDIT ACCESS**

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in Entrepreneurship and Innovation  
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**Abstract**

This thesis studies the effect of relationship lending on small to medium sized enterprises' (SMEs') credit access from the companies' point of view. Relationship lending is a lending technique, which relies on the soft information collected about the lender over a period of the banking relationship. Soft information differs from hard information, in that, hard information is verified and publicly available financial data which does not require personal contact between the loan manager and the company.

The research is based on a survey of 433 small to medium sized enterprises (SMEs) in Finland. The relationship lending attributes measured in the study are "the role of informal information", "the length of relationship with the primary bank" and "the frequency of contact with loan manager". They are tested with a binary logistic regression over the binary dependent variable which measures whether the company accessed the amount of credit they primarily asked for or not.

The results on the primary model support the hypothesis, that informal information plays a significant role in the credit decision process. The results indicate that if informal information had a major role in the loan decision process, that company was more likely to access credit. The hypotheses for the length of relationship and the frequency of contact with the loan manager were not supported by the model. However, on a secondary model, the frequency of contact with the role manager does have a significant impact on the role of informal information. This suggests, that the more often the company representatives are in contact with the loan manager, the more important is the role of informal information in the loan decision making process.

This thesis contributes to the existing research on relationship lending by examining the concept from a firm perspective. Furthermore, the results support the earlier studies by suggesting that informal information had a major role in the loan decision making process and that higher frequency of contact increased the significance of informal information.

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**Keywords** relationship lending, credit access, informal information

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**Tiivistelmä**

Tässä tutkielmassa tarkastellaan luottosuhteen merkitystä pienten ja keskisuurten yritysten (pk-yritysten) lainansaantiin yritysten näkökulmasta. Luottosuhteella tarkoitetaan lainanantomenetelmää, joka perustuu nk. pehmeän tiedon keräämiseen lainanhakijasta pankkisuhteen aikana. Pehmeä tieto eroaa kovasta tiedosta siten, että kova tieto on vahvistettua ja julkisesti saatavilla olevaa tietoa yrityksen taloudellisesta tilanteesta, ja sen keräämiseen ei tarvita henkilökohtaista kontaktia lainanantajan ja saajan välillä.

Tutkielma perustuu yrityksille suunnattuun kyselytutkimukseen, johon osallistui 433 suomalaista pk-yritystä. Luottosuhteen muuttujina tutkimuksessa tarkasteltiin epämuodollisen informaation roolia, yrityksen pankkisuhteen pituutta ensisijaisessa pankissa sekä yhteydenpidon taajuutta lainanhoitajan ja yrityksen edustajan välillä. Tutkielmassa tarkasteltiin, että miten edellä mainitut selittävät muuttujat vaikuttivat selitettävään muuttujaan, eli saiko lainanhakija lainahakeuksessa haettavan lainan täysimääräisenä vai ei. Menetelmänä käytettiin binääristä logistista regressiota.

Tulokset tukevat hypoteesia, että epämuodollisella informaatiolla oli suuri merkitys yritysten lainansaannin kannalta. Tulokset esittävät, että mikäli epämuodollisen informaation rooli lainanhakuprosessissa oli merkittävä, yritykselle myönnettiin haettu lainamäärä todennäköisemmin, kuin jos epämuodollisen informaation rooli oli vähäinen. Hypoteesit pankkisuhteen pituudesta ja yhteydenpidon taajuudesta hylättiin, sillä regressioanalyysin tulokset eivät olleet tilastollisesti merkitseviä. Tutkielman toissijaisessa mallissa tarkasteltiin pankkisuhteen pituuden sekä yhteydenpidon taajuuden vaikutusta epämuodollisen informaation merkitsevyyteen. Mallin tulokset indikoivat, että yhteydenpidon taajuudella oli merkittävä vaikutus. Hypoteesi osoittaa, että mitä useammin yrityksen edustaja oli yhteydessä lainanhoitajaan, sitä suurempi oli epämuodollisen informaation merkitys lainanantoprosessissa.

Tämä tutkielma edistää tutkimusta yritysten ja pankkien välisistä luottosuhteista tarkastelemalla viitekehystä yrityksen näkökulmasta. Lisäksi, tulokset tukevat aiempia tutkimuksia osoittamalla, että epämuodollisella informaatiolla oli merkittävä rooli lainanantoprosessissa ja että suuremmalla yhteydenpidolla oli positiivinen vaikutus epämuodollisen informaation merkitsevyyteen.

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**Avainsanat** luottosuhteet, lainansaanti, kova ja pehmeä tieto

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## 1 INTRODUCTION

In terms of growth, innovation, job creation and social integration, the European Commission (2017) sees small and medium enterprises (SMEs) and entrepreneurship as the backbone of European Union's (EU) economy. SMEs are currently in the focal point in the enterprise policies in the EU. SMEs expansion, innovations and new investments are required in order to maintain competitiveness and foster growth. It is necessary to enable the financially healthy SMEs to flourish and expand in order to ensure their economic health (European Commission, 2017). However, due to their small size, lower creditworthiness and lenders' limited access to accurate information, SMEs do not have an easy access for the most competitive financing options, as opposed to large enterprises (Berger & Udell 1995; Berger, Klapper & Udell 2001). In addition, access to additional equity can be challenging for SMEs. Often the current shareholders have already invested their available assets at the start-up phase and the acquisition of external financing is difficult, but most importantly it reduces the managers' share of ownership and therefore restricts the freedom of managing the company at its early stages (Moro & Fink 2012).

Due to these reasons bank loans are the most common source of financing for SMEs and companies in their early stages. Lately, SMEs bank relationships and credit access have attracted a wide amount of scholarly attention and the information is important for the policymakers in the works of developing more efficient enterprise policies. The research has focused on the key aspects which may reduce the information gap between the lenders (bank) and borrowers (company), because typically, the lenders have experienced difficulties discriminating between good and bad businesses (Howorth & Moro 2006; Moro & Fink 2012; Howorth & Moro 2012; Moro, Fink & Kautonen 2012).

Banks have only limited access to the publicly available information on the current state of the SMEs economic situation. Analysing past data does not give the most realistic image of the companies' performance, especially for assessing the success of future investments of new businesses. The borrower has a lot more information about the prospective risks and returns of the investment than the lender, and this situation is referred to as information asymmetry (Moro, Fink & Kautonen 2012). Berger & Allen (1995) argue that asymmetric information leads to inefficient distribution of bank financing both from the bank's and the company's point of view. Firstly, the credit risk and transaction

cost for the bank is higher if the bank is not able to collect the necessary information effectively regarding the company's economic state. Secondly, the cost of financing is set higher the less the bank trusts their credit client. If the bank had more information on the company's economic state, they could potentially grant loans with lower interest rates and better loan conditions, which would benefit the borrowers. Furthermore, Moro, Fink and Kautonen (2012) suggest that all strategies, which reduce the information asymmetries, are beneficial to everyone, apart from bad entrepreneurs: healthy and good businesses have easier access to finance, the entire society benefits from successful companies that are able to grow and sustain their business activities and the lenders are able to reduce their default rates.

Moro and Fink's (2012 pg. 927) research concluded, "SMEs that enjoy high level of trust from loan managers obtain more credit and are less credit constrained". They determined that if companies wish to fulfil their financial needs with better terms, for good companies, it is beneficial to disclose additional information to banks voluntarily. Moreover, banks gather information about the lenders throughout the banking relationship, and use this information to assess the borrower's creditworthiness. This rationing is based on a concept called relationship lending, which is characterized by multiple variables such as the length of the bank relationship, the age of the company and the company's willingness to voluntarily disclose information to the persons in charge of loan decisions. Relationship lending is generally defined as a long-term implicit contract between the lender and the borrower. The relationship lending technique further suggests that the relationship between the lender and the borrower, improves the lender's ability to assess how credit-worthy the borrower is (Elsas 2005, Moro & Fink 2012).

## **1.1 Research objectives**

The purpose of this study is to examine the effect of relationship lending on SMEs credit access from the companies' point of view. The research question is 'How do the soft factors in the SMEs bank relationships affect bank loan decisions from the SMEs point of view?'. The theoretical framework is based on the principal-agent theory, which suggests that asymmetrical information results in an information gap between the principal and agent in a transaction (Akerlof 1970; Berger and Udell 1995). The previous research on asymmetrical information in banking relationships and the different

lending techniques attempt to determine which methods and attributes are significant in terms of reducing the information gap in the bank relationship. The theoretical framework of this thesis is based around relationship lending, which is a lending technique based on the relationship between a bank and a company.

This study builds on the previous research and enhances the studies results by looking at the topic from the SMEs point of view. The aim of this study is to assess whether certain relationship lending attributes within the bank relationship have a significant effect on the SMEs credit access. The relationship lending attributes taken into consideration are *the role of informal information, the length of relationship with the primary bank and the frequency of contact with the loan manager*.

## **1.2 Contributions and findings in brief**

The study in this thesis is based on a survey of 433 small to medium sized enterprises in Finland. The attributes are tested with a binary logistic regression over the binary dependent variable which measures whether the company accessed the amount of credit they primarily asked for or not.

The results on the primary model support the hypothesis, that informal information plays a significant role in the credit decision process. The results indicate that if informal information had a major role in the loan decision process, that company was more likely to access credit. The hypotheses for the length of relationship and the frequency of contact with the loan manager were not supported by the model. However, on a secondary model, the frequency of contact with the role manager does have a significant impact on the role of informal information. This suggests, that the more often the company representatives are in contact with the loan manager, the more important is the role of informal information in the loan decision making process.

This thesis contributes to the existing research on relationship lending by examining the concept from a firm perspective. Furthermore, the results support the earlier studies by suggesting that informal information had a major role in the loan decision making process and that higher frequency of contact increased the significance of informal information.

### **1.3 Structure of the thesis**

This paper is constructed under three main chapters following this introduction. The second chapter under the title *Literature review* introduces the theoretical framework of the thesis in the form of a literature review. The three major topics of the literature review are “Lending to SMEs as a principal-agent problem” and the two different lending techniques, “Transaction lending” and “Relationship lending”. The final subchapter of the *Literature review* sums up the theoretical framework by introducing the hypotheses for this thesis.

The third chapter *Data and methods* firstly describes how the primary survey data was collected and how the data was broken down and clarified for the use of the study. Secondly, the chapter describes the methods and variables used in the regression model.

The fourth chapter *Results* discusses the hypothesis test results and how they can be interpreted in the relationship lending context. The final chapter *Conclusions* draws together the key outcomes of this research and the final comments include limitations of the study along with suggestions for further research.

## 2 LITERATURE REVIEW

The following literature review introduces the theoretical framework and key studies, which have contributed and spurred the current research up to this date. The theoretical framework of relationship lending construes the hypothesis development of this thesis. Firstly, the discussion goes back to the bottom line theory of principal-agent problems caused by asymmetric information. Secondly, transaction lending will be considered in the SME context. Thirdly, the theoretical framework for relationship lending will be introduced. The final sub chapter draws together the research questions and hypotheses derived from the earlier studies.

The effects of soft information on debt financing for SMEs have been under research recently. In their respective studies, Howorth & Moro (2006), Moro & Fink (2012), Moro, Fink and Kautonen (2012) and Kautonen, Fredriksson & Minniti (2016) have considered the roles of trust, voluntary information disclosure and entrepreneurial competence of SMEs within the relationship lending framework. Their research and contributions serve as the basis of this thesis, and the results of their work will carry throughout the literature review.

### 2.1 Lending to SMEs as a principal-agent problem

Ever since Akerlof (1970) discussed the principal-agent theory and the concept of asymmetric information through the example of “lemons” in the car market, the theoretical framework has become a basis for an extensive amount of studies and it has been widely applied in economic research. The topics range from behavioural economics to the effectiveness of the financial markets, as asymmetric information is commonly featured in various market interactions (Grossman 1981; Spence 1973; Stiglitz & Weiss 1981).

The following citation from Lofgren, Persson, & Weibull’s (2002 pg. 196) study effectively summarizes the phenomenon of markets with asymmetric information: “In all cases, however, a key to the answer relies on one and the same observation: one side of the market is better informed than the other. The borrower knows more than the lender about his creditworthiness; the seller knows more than the buyer about the quality of his car; the CEO and board of a firm know more than the shareholders about the profitabil-

ity of the firm--“. Asymmetric information can result in inefficient outcomes in the market economy, and can cause adverse selection and moral hazard problems in market transactions (Akerlof 1970).

The principal-agent theory is the core basis of earlier studies regarding SMEs bank relationships, and this paper will build up on the earlier results (Berger & Udell 1995; Berger & Udell 2002; Howorth & Moro 2006; Moro & Fink 2012; Moro, Fink & Kautonen 2012; Moro, Fink & Maresch 2015). Information asymmetry refers to a situation in which two parties are in a transaction situation, and the other party possesses more information regarding the transaction than the other. The parties are called principal and agent, which in this case refer to the lender and the borrower.

The problem of asymmetric information in bank relationships arises when the principals (banks) try to determine whether the agents (companies) are creditworthy and whether they are able to repay their loans altogether and in due time. The companies have more information about their economic state and future prospects than the banks, and in order to make a good loan decision, the bank attempts to reduce the information gap whilst keeping the agency costs at a minimum (Akerlof 1970; Howorth & Moro 2006). Loan managers base their perceptions about the company on the available hard information complemented by the soft information they have collected throughout the bank relationship. Voluntarily disclosed information by the company further reduces the information gap, but is commonly not categorized as soft information per se, as it can also be hard information depending on the nature of the information. Soft information forms the basis of the relationship lending framework. The differentiation between hard and soft information and voluntarily disclosed information will be further explained in the following subchapter.

Berger & Udell (1995) researched small firm financing and looked into the role of relationship lending by examining price and non-price terms of bank credit. They stated that typically, banks manage asymmetric information problems firstly by producing and analysing available information, but as an effective means, they can also charge higher interest or require collateral in order to improve the borrower's incentives. Their study concluded that for small firms, longer banking relationships result in lower interest rates and they are less likely to be pledged for a collateral. In addition, they suggest that banks collect private information throughout the bank relationship, which can then be used for assessing the borrower's creditworthiness. These findings are in line with the

theoretical argumentation for improved knowledge on borrower quality through relationship lending, and forms the basis for discussion on bank relationships.

Berger & Udell (2006) summarized the characteristics of informationally opaque SMEs credit availability in an overall conceptual framework describing the issue from multiple perspectives around the globe, both in developed and developing countries. Their findings serve as a good base for understanding the different lending techniques and the implications of different surrounding restrictions. They considered the restrictive implications of the surrounding lending infrastructure and the financial institutions structure for informationally transparent and opaque SMEs credit availability. Lending infrastructure consists of the information environment, the legal environment, juridical environment and tax and regulatory environments. The financial institutions structure consists of the different types of credit providers and the competition between these institutions. These factors limit the different lending techniques SMEs could potentially employ in their financing. They argued that depending on the characteristics of the lending environment, relationship lending might not be the most effective technique for SMEs, especially for large credit institutions. The different lending environments are further described in the subchapter *The empirical determinants of relationship lending*.

Various transaction lending techniques, such as asset based-lending and credit scoring, are feasible for SMEs in situations where the lending infrastructure might limit the trustworthiness of the most traditional lending techniques. The most common transaction lending techniques will be described in the subchapter under Transaction lending. Berger and Udell (2006) emphasized the importance of a well-developed lending infrastructure as a significant implication towards being able to utilize multiple lending techniques. However, multiple studies suggest relationship lending in the SME context as the most effective means to reduce information asymmetries between borrowers and lenders. The two different lending techniques, relationship lending and transaction lending, will further be discussed separately in the following chapters.

Moro, Fink and Maresch (2015) studied the effect of reducing information asymmetries on the amount of credit provided to SMEs in Italy. They considered multiple factors regarding the information loan managers gather from SMEs, namely the quality, quantity, completeness and timeliness. Their conclusion was that a reduction in information asymmetry has a significant impact towards the amount of credit the SMEs obtained. Moro et al. (2015) study was the first one which proved the fact that information asymmetry reduction directly results in better access to credit.

### ***2.1.1 Problems related to SMEs lack of sufficient financing***

Beck and Demirguc-Kunt (2006) summarized an extensive amount of recent empirical research regarding SMEs growth constraints and they concluded that in terms of SMEs growth potential, poor access to finance acts as a major constraint. As discussed before, although SMEs share within the private sector is substantial, their access to credit is more challenging as opposed to large corporations and lack of sufficient financing poses them a competitive disadvantage and restricts their growth potential. Companies, which operate in countries with well-developed financial and legal institutions, are in a relatively better position in terms of credit financing. However, in the case of undeveloped institutions, the barriers can be lowered in other ways such as, by introducing new innovative means of financing, new systems for information sharing and by posing higher competition amongst banks.

The problems related to lack of financing for SMEs are more extensive in developing countries with undeveloped financial institutions. However, as the banking industry is going through a major transformation within the near future, the SMEs are facing new challenges in terms of accessing credit financing. Berger, Klapper and Udell (2001) raised the concern of banking industry consolidation, which creates large banks that are less able to provide relationship lending services for SMEs and their focus shifts more towards serving large corporate customers. This lessens the relationship lending oriented companies' ability to depend on local bank relationships where information of the companies relevant to relationship lending financing has been accumulated over time. Berger et al. research confirms that informationally opaque small businesses are less likely to access credit from large and foreign banks.

Another issue Berger et al. (2001) raised was how financial distress affects SMEs access to credit. Bank distress may result in small companies seeking credit from multiple sources, which reduces the benefits of relationship lending and increases the costs related to credit acquisition. In other terms, as will be discussed later in the chapter for relationship lending, lending from multiple banks versus a single bank is a key determinant of relationship lending.

### *2.1.2 The role of hard and soft information in bank relationships*

Petersen (2004) notes that the distinction between hard and soft information in finance literature has not been explicitly verified and agreed upon by different research institutions. The distinction varies and it depends on which institution is gathering the information, as their information needs differ from one other. As an attempt to clarify the distinction in his paper, Petersen lays out the characteristics of information and how the information is collected and processed. He states that the two most important differences between hard and soft information are firstly, that hard information is usually recorded as numbers, whereas soft information is recorded as text. Secondly, hard information is more comparable and does not require personal collection methods as opposed to soft information. Bertomeu & Marinovic (2015) state that commonly hard information refers to officially verified, quantitative and publicly available financial information in financial literature. Audited financial statements fall into this scope and they most commonly serve as the basis for financial analysis.

When it comes to collecting hard information from SMEs, Moro, Fink & Kautonen (2012) argue that the quantity and accuracy of SMEs publicly available hard information is limited due to various external and internal reasons. Companies' financial reporting is directed by legal requirements and financial reporting standards, but for small, non-listed firms the requirements are not as specific. Therefore, the financial reports are not standardized and as informative as for listed companies. Also, the strategic decisions taken by the management concerning financial reports might result in biased reporting. As a result, financial statements, and the hard information derived from them, do not provide with the best available information about SMEs economic state as such. Furthermore, hard financial data only tells about the past results, whereas in loan decision making, the main interest is in the future prospects of the companies. The main reason for applying additional credit is to finance future investment plans and expansion in most cases, and financial statements do not provide with relevant information regarding the future. This justifies the fact, that the use of soft information is necessary in order to get a coherent and comprehensive understanding about SMEs economic state in the future in loan decision making (Ang, 1992).

Bertomeu & Marinovic (2015) define that soft information refers to voluntarily disclosed informal information, such as press releases or unaudited statements, but this doesn't serve for the purpose of collecting privately held soft information, that is only

available for the specific borrower collecting the information, which is the core of relationship lending. For the purpose of this thesis soft information is defined as private and informal qualitative information, that has been gathered over a period of a long-term bank relationship with the SME. The information is gathered from interaction with the SME's owner or other members of the SME community. (Moro, Fink & Kautonen, 2012; Berger & Udell, 2006).

Berger & Udell (2006) further construe that soft information builds up on factors such as the character and reliability of the owner based on the subjective contact over time with the loan manager, transaction history of the SMEs past loan provision and the record of the other services the SME has used within the bank. The additional information that the fund provider has collected over time should remain confidential and collecting the information is a continuous process. Soft information might be in the exclusive use of a single loan manager, which is why it might not be observable and verifiable by other parties within the financial institution. This can be either an asset, or a burden in terms of using the information efficiently. Based on the soft information gathered over time loan managers are able to form subjective judgements about the trustworthiness of the company.

Moro, Fink and Kautonen (2012) discussed that voluntarily disclosed information is categorized as neither hard nor soft information, although the information collection and recording methods are rather similar to the characteristics of soft information. It is seen as a source of information to complement publicly available hard data and soft information gathered through observation. It is defined as information on the firm's past and future economic performance, which is relevant for the borrower's decision-making, but it is only available if the lender voluntarily decides to disclose it. Without the lender's consent to disclose the information, the borrower would not be aware of its existence and would not be able get access to it in any other way. The information is not publicly available and cannot be collected via third parties or through plain observation. The entrepreneur may use voluntarily disclosed information as a strategic mean to enhance the lending relationship, which, in the best-case scenario, can act as an effective mean to reduce the information gap from both parties' perspective. However, bad entrepreneurs may abuse this method by disclosing misleading or faulty information to loan managers in order to enhance their credit availability for the wrong reasons. A high level of trust could increase the risk of misuse by fraudulent entrepreneurs.

Moro, Fink and Kautonen (2012) suggest that the three aforementioned information collection methods, hard, soft and voluntarily disclosed information, each affect the lender's awareness and perception of the entrepreneur's competence and therefore improves their ability to discriminate creditworthy and and not creditworthy customers.

## **2.2 Transaction lending and SME financing**

The theoretical framework for this thesis lies within a lending technique called relationship lending. Relationship lending is rarely used as a sole method for loan decision making, which is why it is necessary to describe the other lending technique, transaction lending. Hard and soft information complement each other and the forms of information are rarely seen as either/or options, but for research purposes, it is necessary to differentiate the two lending techniques. This section introduces the most common transaction lending techniques used in the SME context and the main benefits and challenges it poses in terms of SME financing.

### **2.2.1 *Transaction lending techniques***

Research on bank lending is commonly divided under two main categories, transaction lending and relationship lending. Defined by Moro & Fink (2012), the key difference between transaction and relationship lending is that the loan decisions are primarily based on hard information in transaction lending and on soft information in relationship lending. Transaction lending can be broken down to numerous different techniques, but they are all characterized by the fact that the risk of the transaction is evaluated on publicly available, verified information, which is independent from the quality of the relationship between the lender and the borrower.

The three most common transaction lending techniques are (1) financial statement lending, which is solely based on the information from financial statements, (2) asset-based lending, which relies on a provision or a collateral with the borrower and (3) credit-scoring lending, which is based on statistical techniques to assess the lender's default risk. In addition, other effective lending techniques are (4) factoring and (5) trade

credit, which are two commonly used transaction lending techniques that provide information for credit decisions to reduce companies cash shortages in the short-term (Beck and Demirguc-Kunt 2006, Berger & Udell 2006).

Berger & Udell (2006) summarized the five transaction lending techniques and considered in which extent they solve the opacity problem of SMEs. (1) The borrower's financial statement's strength is at the core of credit access in financial statement lending and is primarily based on hard information. The lenders assess the borrower's creditworthiness based on future cash flow expectations, as it is the primary indicator for loan repayment. Using this technique requires the borrowers to provide audited and informative financial statements and a strong financial state calculated from the statements. The financial statement analysis result in different loan contract conditions as the results might require additional personal guarantees, loan covenants or collateral. This is a feasible and relatively low-cost technique for informationally transparent firms which operate in countries with developed financial and legal institutions. In addition, companies at their early stages cannot provide robust historical data. The early years of operation might have been unprofitable which does not provide feasible prospects about the profitability of future investments.

In (2) Asset-based lending the lender considers the borrower's underlying assets as the main source for loan repayment. The lender does not consider the borrower's creditworthiness as such, but rather they value the specific assets under collateralization. The assets are used as collateral for the loan and it can be considered for both short-term and long-term credit demand. In short-term financing the loan proceeds are used to finance working capital shortages, in which case the short-term assets, such as inventories and accounts receivables, are taken into consideration. In long-term financing for example the equipment for which the loan application is targeted for can be taken as collateral for loan repayment. This lending technique is purely based on hard information and the liquidation value of the underlying assets. Thus it can be used by large financial institutions without the problems related to diseconomies of scale. Asset-based lending can be used partially to support loan decision making. However, using purely the asset-based lending technique requires well-developed institutions and it is in use only in four countries, which again makes it a non-feasible method for most SMEs in its pure form.

The third commonly used relatively new transaction lending technique, (3) Small business credit scoring, is based on third party hard information about the SME and/or its owner. The banks use third party sources to collect the business owner's personal

consumer data in conjunction with data about the SMEs credit information. The data can be assessed quickly through a predetermined prediction model in order to create a credit score for the loan applicant. The credit scoring models are usually designed for smaller loan amounts and the model can effectively sort out good and bad borrowers. Yet again, this technology is completely based on hard historical data and does not consider the borrower's future prospects. In addition, it does not support trial-and-error type of entrepreneurship as past poor performance leads to bad results for the borrower.

As mentioned earlier, (4) factoring and (5) trade credit, provide a transaction lending based solution for short-term financing. Neither of them require a well-developed lending infrastructure, which make them a very useful technique for informationally opaque SMEs. (4) Factoring is very similar to asset-based lending, as it values the underlying assets in the lending decision. In this technique the lender simply purchases the borrower's accounts receivables, and it is up to the creditor to take care of the collection of receivables. This is commonly used by companies as a way to outsource their credit and collections function as well as to get additional financing. Factoring does not require the lender to assess the overall creditworthiness of the borrower, instead they are more interested in the value of the receivables and the creditworthiness of the borrower's clients. (5) Trade credit uses a combination of the aforementioned lending techniques which utilize hard information in addition with some relationship lending attributes such as trust in the process to assess the borrower's creditworthiness. It is categorized as its own lending technique, as it is viewed as an important source of credit for SMEs. The basic idea of trade credit is to allow the borrower to buy a stock of goods with an extended or a flexible payment schedule. It gives the borrower flexibility to pay for the stock depending on their success on selling the goods.

### ***2.2.2 Transaction lending in the SME context***

This chapter introduces what the key benefits and challenges for using transaction lending as a lending method in the SME context. Based on the aforementioned techniques transaction lending can be a feasible way to finance even informationally opaque businesses at specific situations as described before, but using transaction lending solely poses certain restrictions in the SME context. Due to these reasons transaction lending

is often complemented by relationship lending to cover for insufficient information acquired by transaction lending (Bartoli, Ferri, Murro & Rotondi 2013).

Berger, Klapper and Udell (2001) considered the banks' ability to lend to SMEs and they found that relationship lending services are difficult to provide to SMEs when the bank is large, has a foreign ownership or especially at times when the bank is facing financial distress. Companies tend to ensure their credit availability by borrowing from multiple banks when their primary bank is facing financial distress. They also found, that in lending purposes small firms are more likely to rely on an exclusive bank relationship.

Berger and Udell (2006) stated that a key benefit for using transaction lending in large institutions is that hard financial data is easy to observe, verify and transmit throughout the organisation. Furthermore, larger institutions hold a comparative advantage for using transaction lending in relation to small institutions as they have the means and the third party information sources to collect hard information about the borrowers. Large institutions have formed formal processes for transaction lending purposes. Brown and Zehnder (2007) considered the effects of information sharing between lenders on the borrower's repayment behaviour in a competitive credit market. They found that the expectation is that by having a good credit record the borrowers can further improve their access to credit, which in turn enhances the repayment rates. This type of credit reporting is valuable especially in markets where close banking relationships are hard to establish.

Large banks face several problems when providing credit to informationally opaque SMEs via transaction lending. Firstly, it could be difficult to distinguish the company's financial situation from the owner's personal financial situation, as in very small businesses these are often aligned (Berger, Klapper & Udell 2001). Small banks are better at processing soft information over large banks and large banks tend to have a more impersonal relationship with their client compared to small banks. Secondly, small business lending is very costly due to the fact that the available information is poor in quality and collecting this information requires a lot of personnel. Thirdly, collecting information about an informationally opaque small business requires a local presence and personal contact with the company, which makes it difficult for large institutions to access necessary information about the lenders. Finally, a majority of the relevant SME information is soft information, which is difficult to communicate and verify within large institutions (Berger & Udell 1995; Petersen & Rajan 1995; Petersen & Rajan 2002).

## 2.3 The relationship lending framework

The underlying motivation for relationship lending research is to reduce the information asymmetry between informationally opaque businesses and banks in loan decision making. The theory on relationship lending suggests that it may be economically beneficial to form close relationships between the businesses and banks. Relationship lending is commonly defined as a long-term implicit contract between the lender (bank) and the borrower (company). The lender collects information about the borrower through frequent interaction throughout the relationship. Several factors affect the lender's image and trustworthiness about the borrower and in exchange the borrower is more prone to disclose confidential information to the lender the more trustworthy they are (Elsas 2005).

Although relationship lending is viewed as being beneficial for both parties as it reduces the information gap which leads to more efficient debt distribution, it is not the most common type of financing. Relationship lending does not occur without additional costs and there are several factors which might reduce the benefit of close bank ties with a single borrower (Howorth & Moro 2006; Moro & Fink 2012; Howorth & Moro 2012; Moro, Fink & Kautonen 2012).

This section of the literature review will take a closer look into the concept of relationship lending by firstly introducing the empirical determinants of relationship lending. Then, the most common attributes of relationship lending will be discussed in further detail. Finally, the effects of relationship lending will be discussed.

### 2.3.1 *The empirical determinants of relationship lending*

One important aspect is to consider which kind of situations are most likely to enhance relationship lending type of bank relationships. Elsas (2005) identified three potential determinants for relationship lending type of financing, which will be described below with further detail. These determinants are used to assess whether the relationship is more likely to be based on relationship lending or other types of lending techniques, or a combination of many. The determinants are (a) the borrower's characteristics; (b) the bank's characteristics and (c) the characteristics and conditions of the markets, or the lending infrastructure as discussed earlier.

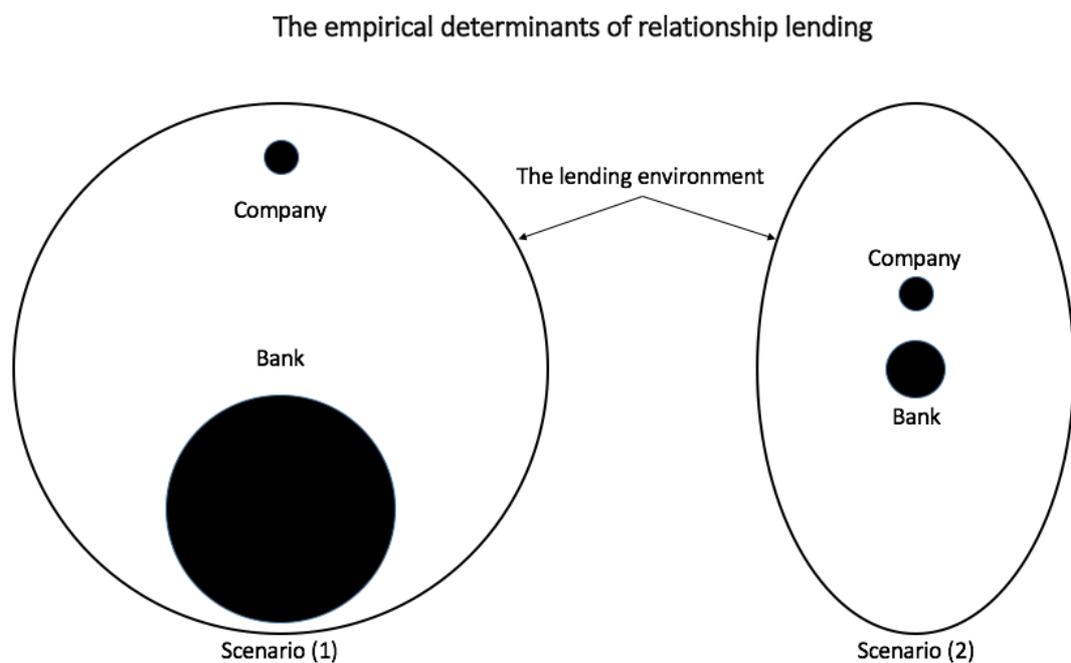
(a) The borrower's characteristics include factors such as the size and quality of the firm, the lack of available information and the company's access to public debt or equity markets. For example, young and SMEs do not provide similar regulated financial statement reporting as large corporations are obliged to do, which reduces the trustworthiness and availability of the available hard information. Furthermore, in the case of start-ups or firms that are under financial distress, the hard data does not realistically tell about the future prospects of the company.

(b) The bank's characteristics describe which type of bank is in question, for example whether it is a savings, cooperative or a private bank. The relative size and location are also important characteristics. A common belief about relationship lending is that the technique is often preferred by small, niche banks due to their ability to form personal relationships between loan managers and the company representatives. De la Torre, Pería & Schmukler (2010) questioned the common belief that most large banks neglect lending to SMEs due to their "chronic opacity", and that large banks rather leave serving this segment to small and niche banks. Smaller banks have a comparative advantage for reducing information asymmetries through relationship lending, but De la Torre, Pería & Schmukler concluded, that private banks of all size view SMEs as a strategic customer segment that has highly profitable prospects for growth. They do not question the importance of relationship lending in the case of SMEs, but instead show that large banks have developed different means to evaluate the creditworthiness of SMEs by exploiting their economies of scale and scope. For example, large banks can use their extensive networks to acquire information from third parties such as the SMEs supply and outsourcing relationships, and thus tend to rely more on transaction lending techniques in their lending decisions.

The third determinant (c) The characteristics and conditions of the market determine which lending techniques are feasible in the environment the SMEs operate. Elsas (2005) characterise this determinant by the regulatory, market structure and competitive aspects of the lending market, but this can be broadened by using Berger & Udell's (2006) lending infrastructure. As discussed in the first section of the literature review, Berger & Udell (2006) considered the restrictive implications of the lending infrastructure. For SMEs operating in countries with poorly developed lending infrastructure the lending options are limited. Short-term financing needs can be covered by short-term transaction lending techniques which do not require a vast amount of hard information

about the borrower, but in the long-term relationship lending could be the most feasible option.

The unique combination of the three determinants above determine whether the bank relationship most likely relies on transaction or relationship lending as the primary lending technique. This could be simplified in a graphic visualisation as in Figure 1, in which there are two types of situations with different characteristics. The shape on the left side of the figure describes scenario (1) in which the company and the bank operate in a well-developed lending environment, which is visualized as a wide area and a round shape. The company is physically located far away from the bank and the bank is large in relation to the company. On the right hand side in scenario (2) the lending environment is not well-developed, which is why it is visualized as a narrow oval. The company and the bank are physically located close to each other and the size of the bank is small in relation to the company. In the first scenario the bank relationship would most likely rely on transaction lending techniques as the lending infrastructure is well developed, the bank and the company is physically located far apart and the bank is relatively large in size. The second scenario represents a situation where relationship lending would most likely be the primary lending technique, where the lending infrastructure is narrow and poorly developed, the company and the bank are physically located close to each other and the bank is relatively small. This figure is merely a theoretical simplification of the relationship between the empirical determinants described in this chapter.



**Figure 1**      **The empirical determinants of relationship lending**

### **2.3.2 The common relationship lending attributes**

Relationship lending can be empirically measured with multiple attributes, which affect the intensity of the bank-borrower relationship. This chapter first introduces the independent variables used in this paper: *Informal information*; *Length of bank-borrower relationship* and *Frequency of contact with loan manager*. The attributes used in the study of this thesis can be identified by a star sign (\*) at the end of the title. In addition to the aforementioned variables, there are numerous other attributes which can be used in empirical relationship lending research. For the purpose of this study, only the most common attributes will be introduced in this chapter. The attributes *Number of bank relationships*; *The amount of loan from primary bank* and *Share of debt financing* will be described after the independent variables. Additionally, *firm age* and *firm size* are typically used measures in relationship lending research, and they are described in the Methods –chapter, as they are used as control variables in the study.

#### **2.3.2.1 Informal information\***

The first attribute Informal information can be also referred to as private information and it includes soft and voluntarily disclosed information about the borrower. Relationship lending assumes that throughout the banking relationship the bank collects privately held informal information about the firm, the managers and owners and the firm's financial performance (Berger and Udell 2006). The amount of informal information is affected by various characteristics of the bank relationship, such as the length of the relationship and frequency of contact, which are described below as individual attributes (Moro, Fink & Kautonen 2012).

The level of trust between the lender and borrower heavily affects informal information in the bank relationship. In the context of relationship lending, trust is important so that the exchange of informal information is possible in the first place. Howorth & Moro (2006) concluded that by enhancing trust in entrepreneur-bank relationships both parties could increase trustworthy behaviour and this could lead to a spiral of trust. In turn, the bank's heavy monitoring might lead to reduced trust and less trustworthy behaviour and lower demand for financing from the monitoring bank.

Moro & Fink (2012) were the first ones to include trust as a variate in an empirical study on lending relationships. As referred earlier, they concluded that a higher level of

trust between loan managers and SMEs result with better loan conditions. The trust components they included were the customer's ability, benevolence and integrity. They highlighted that in strong lending relationships trust can positively affect the amount of informal information loan managers are able to access, both soft and hard information. Trust is especially an important means for very small companies, who lack the necessary information regarding loan decisions. The implication of this result is that since the lender's subjective perceptions towards the borrower's creditworthiness significantly affects the price and the amount of credit granted, it is beneficial for the borrower to openly disclose informal information about the state of the company.

The characteristics of informal information, such as the amount, quality and the role of informal information gathered over time are difficult to reliably quantify as numerical measures. In this study the role of informal information is assessed as a measure based on the company representative's subjective assessment about information information's role in the loan decision process.

#### ***2.3.2.2 Length of bank-borrower relationship\****

Elsas (2005) defined Length of the bank-borrower relationship as the most commonly used attribute in applied empirical research on relationship lending. Basically the length of the relationship is assumed to reflect the level of the relationships intensity over time. Elsas pointed out that assuming the length of the relationship to be equivalent to accumulating private information over time it could also suggest that the borrower's lock-in with the lender increases in parallel with the duration. This in turn raises switching costs and increases the bank's bargaining power over the bank contract.

As the length of the bank-borrower relationship reflects the accumulation of soft information over time, the longer the relationship has been, the longer the lender has been able to evaluate the borrower's financial performance and characteristics. The accumulation of private information is a relevant factor in the loan decision process (Moro, Fink & Kautonen 2012).

### ***2.3.2.3 Frequency of contact with loan manager\****

The frequency of contact with loan manager can be seen either as a strengthening or as a weakening attribute in terms of relationship lending financing. High frequency of contact might indicate the lender and borrower to have a robust relationship and that they could have a more trusting relationship. However, at the same time, high frequency of contact could be a signal of poor trust, where the lender is forced to monitor the borrower. This in turn might lead to less trustworthy behaviour by both parties, as argued by Howorth & Moro (2006) in their trust research.

Uchida, Udell & Yamori (2012) were first to empirically confirm the commonly suggested hypothesis, that loan managers in commercial banks hold a critical role in terms of the bank relationship with SMEs. Loan managers have an important role collecting soft information about the borrowers. Uchida et al. research also proved that frequent contact and a more sustainable relationship with a single loan manager results in higher accumulation on informal information, whereas frequent turnover on the assigned loan manager results in poor and unsustainable information production. In addition, their study affirmed that small banks are able to gather more informal information as opposed to their larger counterparts and thus rely more on relationship lending.

### ***2.3.2.4 Number of bank relationships***

Elsas (2005) discussed that the number of bank relationships could act as an indicator as to whether relationship lending is present in the bank relationship. This is supported by the fact that by maintaining exclusive bank relationships it enhances a close relationship between the lender and borrower. As a result, competition between banks reduces, access to informal information increases and the usage economic benefits of relationship lending eases. On the contrary, an exclusive bank relationship is neither necessary nor enough in order for the relationship to effectively be categorized as relationship lending.

### ***2.3.2.5 The amount of loan from primary bank and Share of debt financing***

The name of the attribute The amount of loan from primary bank is self-explanatory, as the attribute tells how big of a share of the company's loan financing is acquired from the primary bank. Share of debt financing refers to the relationship between debt and equity in the company's balance sheet. Share of debt financing is used as a control variable in this study, and it is derived from the financial statement figure Debt to total assets.

The amount of loan from primary bank and the Share of debt financing are both indicators related to the previous attribute Number of bank relationships, in that, the same benefits and challenges apply. Berger, Klapper and Udell (2001) stated, that SMEs, which rely on relationship lending due to challenges caused by information asymmetry, tend to have a single lender compared to other companies. For the borrower, it is beneficial to rely on a single lender if they wish to reduce costs related to debt financing. Furthermore, Elsas (2005) argued that the higher the share of the company's debt financing, the more likely relationship lending is applied in the loan decision process. This is derived from the presumptions mentioned above relating to the number of bank relationships.

### ***2.3.3 The effects of relationship lending***

Relationship lending literature covers multiple aspects around the framework and the research has often focused on the effect of the relationship on the contractual terms, such as the interest rates, collateral and covenants on the loan contract. Although some of the effects have been aforementioned in the literature review, in this section, the most important implications of relationship lending will be highlighted in the timely order they were discussed.

Petersen and Rajan (1994) studied the benefits of lending relationships for small businesses. They suggested that firms form relationships with financial institutions through using their financial services. The banks are then able to collect non-public information about the companies over time, as they gain historical information about the companies' financial performance. They noted that small business borrowing is highly concentrated to one of few financial institutions. A strong relationship results in lower

prices but the length of the relationship did not seem to impact the rates charged. Moreover, multiple banking relationships lessened the strength of the bank relationship, thus increasing the loan rates. Berger and Udell (1995) however found that the length of the relationships does significantly affect the rates charged. They also argued that longer banking relationships have a negative correlation with required collaterals.

Cole (1998) tested whether pre-existing bank relationships have an impact on credit access. He found that companies who already used the banks' financial services, and more specifically if they had a savings account and relied on the banks' financial management services, the companies were more likely to extend credit from the primary bank. This suggests, that the prior financial services generate valuable information for the lender about the borrower's financial prospects. He also found that companies' multiple banking relationships decrease the likelihood of credit availability. This supports the theory that multiple banking relationships reduce the value of the private information collected by the banks, as the company uses several providers of financial services.

Elyasiani and Goldberg (2004) summarized the relationship lending literature up to date and they discussed how relationship lending affects credit availability and quantity, interest rates and the use of collaterals. The results are contradictory between studies but the underlying outcome is that in majority of the studies, relationship lending results in better credit availability and lower interest rates. They discussed that multiple banking relationships are less valuable for relationship lending activities than single lender relationships. Petersen and Rajan (1994) found that as a result of multiple banking relationships loan prices increase and credit availability decreases. Cole et al. (2004) hypothesised that banks prefer to be the only provider of the companies' financial services, because that way they are more capable of collecting private information.

Howorth and Moro (2006) discussed that higher level of trust between banks and entrepreneurs could lead to more trustworthy borrower behaviour. They also proved that soft information plays at least as significant a role as hard information in terms of developing trust between banks and entrepreneurs. Overall high levels of trust benefit the banks by reduced agency problems, such as adverse selection and moral hazard, which in turn reduces the need for screening and monitoring (Akerlof 1970; Berger & Udell 1995). From the entrepreneur's point of view, high level of trust reduces their efforts on

providing additional information for monitoring purposes and potentially lowers the requirements for collaterals. Therefore, trust may lower the costs of borrowing significantly from both parties' perspective.

Howorth and Moro (2012) studied the role of trust over interest rates and they concluded that the loan managers' perception of the borrowers' trustworthiness is correlated with the overdraft facility's interest rate. They also supported the hypothesis that trusting behaviour led to higher trust and vice versa. If the companies were monitored heavily, the trust was very low from both parties. Moro and Fink (2012) extended this result by proving that in situations where the loan managers trusted their SME counterparts, the SMEs were able to get more credit and were less credit constrained.

Moro, Fink and Kautonen (2012) considered entrepreneurial competence together with information disclosed voluntarily, and how they are affected in terms of interest rates. They found that voluntarily disclosed information has a significant role on how the loan managers perceive the entrepreneur's competence. They also showed, that the perceived competence has a negative correlation in terms of interest rates.

Moro, Fink and Maresch (2015) examined different characteristics on how information asymmetries can be reduced from the loan managers point of view. They looked at how short term credit access is affected by the amount, quality, completeness and timeliness of information the loan managers received, and also assessed the intensity of the relationship between the banks and the SMEs. They concluded that by reducing information asymmetries the firms were able to receive more short-term credit. They also showed that by hiding important information the SMEs could potentially harm the amount of credit they were able to get as it could reduce the reliability of the firm in the loan manager's eyes. In fact, additional information is beneficial for both parties, in that, by having a better overall perspective over the firm's financial situation, the loan manager is more capable and willing to support the firm.

Kautonen, Fredriksson and Minniti (2016) studied trust-based banking from the SMEs point of view. Their study is based on the same survey as the one used in this paper, but they focused primarily on how SMEs perceive the loan managers' trustworthiness. They concluded that that trust plays a significant role on whether the companies received a sufficient amount of credit, especially in the case of young firms. The survey data used in this research is partially the same as in the latest working paper of Kautonen, Fredriksson and Minniti (2016). This paper will extend their study by studying the

effect of various other aspects of the banking relationship on the result of the credit application.

The previous studies discussed in this article have primarily focused on how relationship lending typically influences the loan prices, credit availability, covenants and collaterals. Another interesting aspect studied by Jiangli, Haluk and Chiwon (2008) is how the relationship lending aspect benefits one another in times of financial distress. They studied whether the bank relationship is valuable in crises and how relationship lending and the availability of credit are associated to that. By studying the bank relationship in Asia during the Asian financial crisis, they found out that in some countries the credit availability was significantly more likely in situations where the companies had only one lending relationship instead of two or more. They argue that borrowers accepting higher interest rates for loans might expect lower interest rates in the future and better support and dedication from the lender during times of crisis.

All in all, multiple studies have shown that relationship lending affects the loan decision making process in many ways, and by reducing information asymmetries by the means of relationship lending, both parties can benefit from the win-win situation. In the long run it is more beneficial for each party to maintain good relationships if they wish to pursue business activities in the future.

## **2.4 Hypotheses**

The basic aim of this study is to assess whether certain soft factors, more specifically the selected relationship lending attributes, within the bank relationship have a significant effect on the SMEs credit access. The hypotheses measure how the relationship lending attributes affect the loan decision. The dependent variable is the outcome of the latest loan application and the outcomes are either that the SME got less loan than they applied for or that they got the full amount. The independent variables used in the hypotheses are (1) The role of informal information, (2) Length of relationship with the primary bank and (3) Frequency of contact with loan manager.

The first hypothesis proposes a direct projection about the significance of informal information in the lending process. The projection is based on the survey respondents' subjective assessment about the role of informal information in the latest loan application by asking them whether informal information played a minor or a major role in the

loan manager's credit decision in the latest loan application. The hypothesis is derived from the theory, that the bank collects informal information about the firm, the managers and owners and the firm's financial performance throughout the bank relationship, and that informal information has a significant role in the loan decision making process (Berger and Udell 2006).

Hypothesis 1: When informal information had a major role in the latest loan application the SME was more likely to access the requested amount of credit.

The second hypothesis measures the effect of the relationship's duration on the SMEs credit access. The hypothesis is based on the attribute of the second independent variable (2) Length of relationship with the primary bank. As discussed earlier in the literature review, the length of the bank relationship is argued to positively correlate with the intensity of the bank relationship, because the longer the relationship has been, the longer the bank has been able to collect private information about the firm. Through the collection of private information, the bank evaluates the trustworthiness of the firm (Moro, Fink & Kautonen 2012). The second hypothesis proposes that the longer the bank relationship is, the more likely the SME gets the full amount in their credit application.

Hypothesis 2: A longer relationship between the SME and their primary bank has a positive effect on the SMEs credit access.

The third hypothesis considers how the frequency of contact between the SME and the loan manager affects the credit access likelihood. The hypothesis assumes that high frequency of contact with the loan manager has a positive effect in terms of credit access. The hypothesis is based on the assumption that the banks, which are more frequently in contact with their credit clients and have a more sustainable relationship with a single loan manager, have a better access on the informal information relevant to the loan decision process (Uchida, Udell & Yamori (2012).

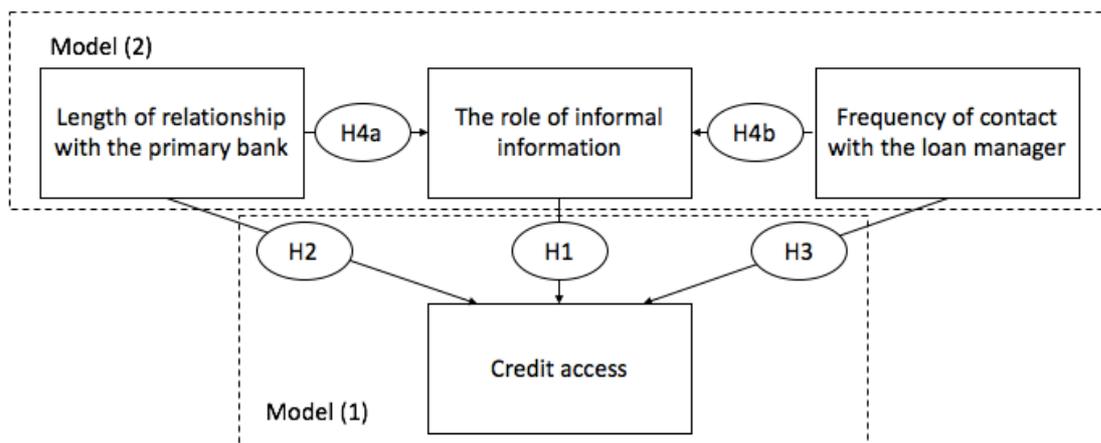
Hypothesis 3: Higher frequency of contact between the SME and the loan manager increases the likelihood of credit access.

The fourth hypothesis is divided in two parts 4a and 4b, which measure the effect of the two latter independent variables (2) Length of relationship with the primary bank and (3) Frequency of contact with loan manager over the first independent variable (1) The role of informal information. The two hypothesis test whether the two variables, which are typical proxies to measure relationship lending, have a significant effect on the survey respondents' subjective assessment about the role of informal information. The purpose of the fourth hypotheses is to support the theory, that the length of the bank relationship and the frequency of contact with the loan manager increases the quality and the amount of informal information gathered throughout the bank relationship (Berger and Udell 2006; Moro, Fink & Kautonen 2012).

Hypothesis 4a: The length of relationship between the SMEs and their primary bank increases the role of informal information in the loan decision-making process.

Hypothesis 4b: The frequency of contact between the loan manager and the SME increases the role of information information in the loan decision-making process.

Figure 2 shows a graphical illustration of the variables and hypotheses development. Model (1) is of primary interest and Model (2) provides with additional consideration over the independent variables in Model (1).



**Figure 2** The hypotheses

## 3 DATA AND METHODS

### 3.1 Survey and data

Kautonen, Fredriksson & Minniti (2016), collected the primary survey data used in this thesis for their earlier study on trust-based banking. Alongside with the survey data, hard financial data is used, which was obtained from a secondary source Orbis database. The primary survey data was collected through a questionnaire from SMEs in Finland in December 2014. According to a European Commission survey on the access to finance of enterprises (SAFE) (European Commission, 2016), in terms of the usage of bank loans Finland ranks very close to the average of the European Union, which makes the questionnaire on Finnish SME's a suitable research context for this study.

In the early stage of the study, Orbis database (Bureau von Dijk, 2014/2016) was used in order to identify firms for inclusion in the study. Firms with 10 to 249 employees were chosen from all sectors excluding insurance and financial activities, which met the European Union financial criteria for small to medium-sized enterprises: either total assets between 2 million and 43 million euros or turnover between 2 million and 50 million euros, and turnover and assets both at least 2 million euros in 2013. In addition, an important selection criterion in terms of the research scope was to include only firms which had a positive level of either loans or long-term debt (at least 1000 euros in 2013). This search identified 2790 suitable firms in terms of the survey's scope. The hard financial data of the selected firms was downloaded from the Orbis database in order to combine subjective and objective variables for the analysis.

From the list of 2790 suitable firms, 1541 firms were contacted. In the first stage, the surveyed firms were first contacted via phone, in order to ensure that the respondents were managers in charge of the firms' bank matters. If a suitable respondent (CEO, CFO, or equivalent) was reached and they were willing to participate in the study, they received a link to an online questionnaire by email right after the phone call. From the 1541 contacted firms 834 agreed to participate in the questionnaire from which 433 answered before the deadline, giving the survey a 52 % response rate. The nonresponse rate did not appear to constitute a major bias for the study. The nonresponse bias was controlled by comparing the mean number of employees and the means of several finan-

cial indicators between the 433 respondents and the remaining 2356 which did not participate. Differences in the means were only marginal and the highest t-value for the test of equality was  $t=1.38$  ( $p=.17$ ).

Out of the 433 respondents only the firms which self-reported of having bank debt were selected ( $n=389$ ). Furthermore, the sample was filtered from two factors which could have biased the results. Firstly, foreign-owned firms were excluded from the rest of the analysis due to the fact that they constituted a small minority ( $n=21$ ). Secondly observations which contained excessive numbers of missing values within the relevant variables of the analysis were also excluded ( $n=24$ ). Thereby, the eligible sample for this study comprises of 344 firms.

### 3.2 Methods

The hypotheses are tested with a binary logistic regression model, which is an appropriate statistical regression model for testing data that has a binary dependent variable. A binary dependent variable has only two possible outcomes, pass or fail, that are represented by numbers “0” and “1”. The numbers are not cardinal numbers, which is why a normal regression model is not a viable method for testing the outcome of such variable. The binary logistics regression model can be used for estimating the probability of the binary response based on one or more independent variables. This study has one dependent variable, *Outcome of loan application*, which yields the results of “1 Got the full amount” and “0 Got less than applied”, and three independent variables, *The role of informal information*, *Length of relationship with the primary bank* and *Frequency of contact with the loan manager*. In short, the model tests how the dependent variable, or the outcome of the loan application, is affected when one independent variable is varied, whilst keeping the other independent variables fixed.

In the following subsections the dependent variable, the independent variables and the control variables used in the analysis are described in further detail.

Dependent variable: Outcome of loan application

The dependent variable for this study addresses the outcome of the previous loan negotiations. The survey asked what was the outcome of the latest loan negotiation and the options were: (1) “The bank did not grant any loan”; (2) “The bank granted a loan, but

the amount was less than what we applied for” and (3) “We got the full amount we applied for”. In this study, the dependent variable is treated as a dummy variable where options (1) and (2) were grouped together as a negative outcome on the loan application and the option (3) as a positive outcome. So either the loan application resulted in “1 got the full amount” or “0 got less than applied”.

Independent variables: The role of informal information, Length of relationship with the primary bank, Frequency of contact with the loan manager

The first independent variable, which serves as the first explanatory variable is *The role of informal information to the bank relationship*. Informal information is one of the key factors of relationship lending and refers to all the soft information gathered throughout the bank relationship beyond the formal, audited and transparent financial data. Berger and Udell (2006) further conclude that the informal information serves as an ongoing confidential process throughout the bank relationship and in relationship lending the borrower heavily relies on the informal data to base their loan decisions. In the research the variable is a subjective estimate by the survey respondent to the question “In your opinion, how significant is the role of informal information to your company’s bank relationship?” The measures are (1) none at all, (2) minor role and (3) major role. The answer is treated as a dichotomous variable so that “none at all” and “minor role” grouped together are treated as an independent variable “the role of informal information is minor to the bank relationship” and “major role” solely as “the role of informal information is major to the bank relationship”. The questionnaire led the respondent into the question by first describing that banks’ loan decisions are commonly based on the company’s financial statements, collaterals and formal future projections of the companies. Secondly, the questionnaire stated that banks’ loan decisions are also affected by informal information based on conversations after which the respondent was asked to estimate how significant is the role of this information in their bank relationship.

The second independent variable is *The length of relationship with the primary bank*. This is the most frequently used measure in relationship lending research according to the summarizing research on the relationship lending empirical determinants by Elsas (2005). The relationship length reflects the accumulation of privately collected information over time and the depth of the bank relationship. The previous research on the length of the bank relationship has primarily focused on its effect on loan rates, which

should be discriminated from the credit availability. The questionnaire formulated the question as “How long has your company been your primary banks’ customer?”. The answer options were divided in five divisions in length order: (1) less than a year, (2) 1-2 years, (3) 3-5 years, (4) 6-10 years and (5) over 10 years. In the study, the length of relationship is measured as an ordinal variable and the responses are grouped in three categories in order to ensure sufficient cell counts in the categories of the variable, because some of the five categories above contained few observations. The first 3 options are grouped together as the first category and the fourth and fifth are treated as the latter two categories.

The third independent variable is *Frequency of contact with the loan manager*. This variable aims to assess the intensity of the bank relationship, which is a measure of relationship lending. This can be interpreted as a strengthening factor in the bank relationship or as a mean for the bank to monitor the debtor. The survey question was addressed by the question “How often have you been in contact with your loan manager during the past year (in person, via phone or via e-mail)?”. The answer options were (1) not once, (2) once, (3) 2-3 times, (4) 4-5 times and (5) over five times. In order to measure the variable effectively, the answers are grouped to an ordinal variable with three categories: Answers (1), (2) and (3) are grouped as “3 times or less” and answers (4) and (5) are treated as sole variables, “4-5 times” and “6 times or more”.

Control variables: firm age, number of employees, debt to total assets, profit margin, personal collateral, covenants

The control variables are held constant in the analysis in order to test the relationship between the dependent and the independent variables. The control variables selected for this study are variables, which are commonly used in relationship lending research, but are not of primary interest in terms of this study. The control variables are *firm age*, *number of employees*, *debt to total assets*, *profit margin*, *personal collateral* and *covenants*.

*Firm age* and the *number of employees* represent information about the companies in terms of their current state and size. The size and age of the firm are used in relationship lending to proxy how much hard information is available about the firm, and how the firm can benefit from relationship lending (Berger and Udell 1995). Firm age is measured in years, and theoretically the older the firm is, the more there is hard information

available. The number of employees is used in order to proxy the relative size of the firm. The assumption is that the bigger the firm is, the more hard information is available. Neither of the control variables, firm age and the number of employees, are normally distributed, which is why a logarithmic transformation is used on both attributes.

*Personal collateral, covenants, debt to total assets* and *profit margin* are typical proxies to represent transaction lending as banks typically use collaterals, covenants and financial ratios to assess credit applications in transaction lending. Via *collaterals* the lenders typically secure the loans from borrower insolvency, and the use of collaterals often reduce the prices of loans. *Covenants* are used in loan contracting to create rules for the borrower's activities in order to secure the loan payments. The use of collaterals and covenants are assumed to positively affect credit access, which is why they are important control variables in the analysis.

*Debt to total assets* is a measure of the company's indebtedness. Loan managers use the leverage ratio to assess how well the company is able to meet their financial obligations. If the leverage ratio exceeds a certain limit, the company's creditworthiness reduces. Typically, the higher the share of debt the company has in their assets, the less likely the company is able to get additional credit. *Profit margin* is used to measure the firm's profitability. A higher profitability is beneficial for the company. Therefore, a high profitability ratio is assumed to result in better access to credit.

Firm age, personal collaterals and covenants are derived from the survey data and number of employees, debt to total assets and profit margin are derived from the Orbis database.

### 3.3 Reliability of the study

The hypothesis tests of the study take into consideration only a limited amount of variables (independent variables) related to relationship lending, but additional control variables are used in order to minimize the omitted variable bias.

The descriptive statistics of each variable (dependent, independent and control variables) are shown in Table 1 under their respective headings. The second column named Additional information describes the variable in brief if necessary, and the source of the data is shown in parenthesis. The tables last columns show the min (minimum), max (maximum) and mean values of each variable. In addition, the standard deviations (SD)

of the continuous variables are shown. Two of the continuous variables, *firm age* and *number of employees* were not normally distributed. Therefore, in order to ensure the robustness of the results, their logarithmic transformations were used in the regression analysis.

**Table 1** Descriptive statistics

Descriptive statistics					
Variable	Additional Information	Min	Max	Mean	SD
<i>Dependent variable</i>					
Credit access	Outcome of the latest loan application (1=got full amount) (survey)	0	1	.18	
<i>Independent variables</i>					
Informal information	Subjective perception about the role of informal information in the loan decision process (survey)				
Minor role		0	1	.44	
Major role		0	1	.56	
Relationship with bank	Relationship length with primary bank (survey)				
5 years or less		0	1	.15	
6-10 years		0	1	.17	
More than 10 years		0	1	.68	
Frequency of contact	Frequency of contact with loan manager during the past year (survey)				
3 times or less		0	1	.31	
4-5 times		0	1	.20	
More than 5 times		0	1	.48	
<i>Control variables</i>					
Firm age	Age of the firm in years; logarithmic transformation used in analysis (survey)	1	161	36.41	25.69
Number of employees	Logarithmic transformation used in analysis (Orbis)	10	228	57.50	44.82
Debt to total assets	(Orbis)	.13	1.62	.66	.22
Profit margin	(Orbis)	-15.06	22.60	3.34	5.91
Personal collateral	Loans from main bank collateralized with personal assets (1=yes) (survey)	0	1	.24	
Covenant	Performance-related covenant attached to loans from main bank (1=yes) (survey)	0	1	.29	

Notes:  $n = 344$ . The data source for variables is indicated in parenthesis. Survey refers to survey data, Orbis refers to Orbis database.

Table 2 shows the correlation coefficient matrix between each variable. Because the data includes ordinal variables, the correlation analysis was done by using the Spearman rank correlation method. Spearman rank correlation is able to measure the association

between two variables by using ranks between the variables. A negative correlation coefficient expresses that the variables have a negative correlation and vice versa. Table 2 shows the correlation coefficients, which are denoted as Spearman's  $\rho$ s, and the star sign (\*) denotes the coefficients that are significant in the 5 % level. All of the coefficients had less than .4 variances from zero, which indicates that none of the variables showed troublesome correlations in terms of the logistic regression analysis.

**Table 2** Correlation matrix

Correlations

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Outcome of loan application	1									
2. The role of informal information	.14*	1								
3. Length of relationship with the primary bank	.05	.04	1							
4. Frequency of contact with loan manager	-.05	.22*	-.05	1						
5. Firm age (log)	.11*	.00	.38*	-.04	1					
6. Number of employees (log)	-.04	-.04	-.07	.05	.03	1				
7. Debt to total assets	-.37*	.05	-.14*	.15*	-.16*	-.02	1			
8. Profit margin	.23*	.04	-.04	-.05	-.06	-.09	-.38*	1		
9. Personal collateral	-.13*	.15*	-.03	.15*	-.07	-.09	.29*	-.16*	1	
10. Covenant	-.14	.09	-.14*	.15*	-.09	.20*	.13*	-.10	.11*	1

Notes: n=344. Spearman's rhos. \*p<.05

The independent variables were also tested for multicollinearity by using the variance inflation factor (VIF) analysis. The mean of the VIF scores was 1.93 and the highest score was 2.32, which indicates that multicollinearity is not a concern in this model.

## 4 RESULTS

### 4.1 Hypothesis tests

The hypotheses were tested by using a binomial logistic regression. Binomial logistic regression is an appropriate model to test data, which is a binary dependent variable. The regression analysis was run in two different models to test the hypotheses and the model specifications can be seen in Table 3. Model (1) tests the main Hypotheses 1, 2 and 3, which measure the independent variables in relation to the dependent variable *Outcome of loan application*. Model (2) tests the secondary Hypotheses 4a and 4b, which explain the independent variables *Length of relationship with the primary bank* and *Frequency of contact with the loan manager* in relation to the first independent variable *The role of informal information*.

Table 3 reports the logit coefficients, standard errors and the Average Marginal Effects (AME) for both models. If the regression test showed statistical significance at the 5 % level, it is shown as (\*) at the end of the logit coefficients. The likelihood ratio  $\chi^2$  and McFadden Pseudo  $R^2$  are reported at the end of the table. The LR  $\chi^2$  ratio in Model (1) is 70.89 with 11 degrees of freedom ( $P < 0.0001$ ) and in Model (2) 30.98 ( $P = 0.0006$ ) with 10 degrees of freedom, and they are both statistically significant. So as a whole, the model significantly differs from a null hypothesis with no independent variables.

**Table 3** Binary logit estimates

Logit estimates						
Dependent variables:	Model (1): H1 & H2 & H3			Model (2): H4a & H4b		
Model (1): Outcome of loan application	$\beta$	SE	AME	$\beta$	SE	AME
Model (2): Role of informal information						
<b>Informal information</b>						
(base: Minor role)						
Major role	1.18*	.35	.14*			
<b>Relationship with bank (base: 5 years or less)</b>						
6-10 years	-.82	.53	-.09	.27	.40	.06
More than 10 years	-.43	.49	-.04	.41	.34	.09
<b>Frequency of contact (base: 3 times or less)</b>						
4-5 times	.08	.49	.01	1.08*	.33	.26*
6 times or more	-.20	.39	-.02	.96*	.26	.23*
<b>Control variables</b>						
Firm age (log)	.24	.21	.03	.01	.16	.00
Number of employees (log)	.00	.23	.00	-.11	.15	-.03
Debt to total assets	-4.40*	.95	-.50*	.11	.59	.02
Profit margin	.05	.03	.01	.03	.02	.01
Personal collateral	-.19	.37	-.02	.61*	.29	.14*
Covenant	-.65	.36	-.07	.40	.27	.09
LR chi <sup>2</sup> (df)	70.89*(11)			30.98*(10)		
McFadden Pseudo R <sup>2</sup>	.22			.07		

Notes: n=344. Dependent variable and all independent variables were measured in the survey. Control variables were measured in the survey or derived from Orbis database in 2014.  $\beta$  = logit coefficient; SE = standard error; AME = average marginal effect. \* denotes statistical significance ( $p < .05$ ). Dependent variables are dummy variables. Outcome of loan application (1=got full amount), Role of informal information (1=major role).

Hypothesis 1 is supported in Model (1): the logit coefficient for *The role of informal information* reports significant results for *major role* in credit access. Major role had a positive correlation for the outcome of the loan application and it was statistically significant ( $p < .001$ ). Furthermore, the average marginal effect result shows that, that if the role of informal information had a major role in the loan decision process, the company had a 14% higher likelihood of getting the full loan amount as opposed to if the role was minor.

However, the model does not support Hypothesis 2 and 3 as the logit coefficients are not statistically significant. Hypothesis 2 tested the effect of longer banking relationships on credit access. For the variable *Length of relationship with the primary bank* the model reported that the longer the relationship with the primary bank the less likely the

company got the amount of loan they applied for. However, these results are not statistically significant (6-10 years  $p = .123$ , more than 10 years  $p = .377$ ), therefore Hypothesis 2 is rejected.

Hypothesis 3 tested whether higher *Frequency of contact with the loan manager* resulted in better access to credit. The model reports that if the frequency was 4-5 times, the company was more likely to get the amount of loan they applied for as opposed to 3 times or less, but if the frequency was 6 times or more, the association was negative. This would suggest that contact with the loan manager 4-5 times during the past year would result in a good success ratio in the loan application, but this would require further research. The results on Hypothesis 3 are also not significant (4-5 times  $p = .863$ , 6 times or more  $p = .613$ ), which is why Hypothesis 3 is also rejected.

Hypothesis 4a and 4b report interesting results. The model supports Hypothesis 4b but does not support Hypothesis 4a. The logistic regression for the relation between the dependent variable *The role of informal information* and the independent variable *Frequency of contact with loan manager* shows that higher frequency of contact with the loan manager significantly increases the role of informal information in the credit application process. The results are also statistically significant (4-5 times  $p = .001$ , 6 times or more  $p < .001$ ). The effects of this outcome in relation to Model (1) will be discussed in the next chapter.

Hypothesis 4a has positive correlation coefficients but the Hypothesis is rejected, as *Length of relationship with the primary bank* is not a statistically significant measure to explain the Role of informal information (6-10 years  $p = .509$ , more than 10 years  $p = .235$ ).

## 4.2 Discussion

The results in Model (1) show, that only Hypothesis 1 (When informal information had a major role in the latest loan application the SME was more likely to access the requested amount of credit) is supported by the model. This means that if the role of informal information is major rather than minor in the loan application process, the company had 14 % higher probability of getting the amount of loan they applied for (AME = .14). However, as the explanatory variable *The role of informal information* was only a subjective estimate by the survey respondent, we can not reliably know the actual role of

informal information in the loan decision making process. However, the model suggests that the survey responses have a positive correlation with the credit application outcome.

Hypothesis 2 (A longer relationship between the SME and their primary bank has a positive effect on the SMEs credit access) was rejected, since the results were not statistically significant. The logit coefficient of for the variable *Length of relationship with the primary bank* suggests the opposite outcome by saying that the longer the banking relationship, the less likely the company was able to access credit. Although the model does not suggest that the length of the relationship has no significant impact in terms of credit access, it could be argued that the time frame used in the model is not long enough for it to make a significant impact. The time intervals were 5 years or less, 6-10 years and more than 10 years. For future research it could be valuable to lengthen the time intervals to for example 10-year time frames. But as Hypothesis 4a reports significant results, the length of the bank relationship does have an impact to the role of informal information. This will be discussed in further detail below.

Hypothesis 3 (Higher frequency of contact between the SME and the loan manager increases the likelihood of positive credit access) was rejected, since the results were not statistically significant. The logit coefficient for the test was *Frequency of contact with loan manager*. The base for the test was that the bank and the company were in contact 3 times or less during the past year. Although not significant, the regression test showed, that if they were in contact 4-5 times the companies were more likely to access credit than when the frequency of contact was 3 times or less. And when the frequency of contact was 6 times or more, the regression showed a negative effect on access to credit. One could argue, that if the frequency of contact is too high, it could mean that frequent contact is for monitoring purposes. The model does not test for what purposes they have been in contact with and this could be further extended in future studies.

Model (2) tested Hypothesis 4a (The length of relationship between the SMEs and their primary bank increases the role of informal information in the loan decision-making process) by regressing the independent variable *Length of relationship with the primary bank* over the dependent variable *The role of informal information*. Hypothesis 4a is not supported by the model, as it is not statistically significant. But the correlation coefficients do have a positive effect over the dependent variable, which means that they do have a positive correlation.

Hypothesis 4b shows that *Frequency of contact with loan manager* is positively correlated with *The role of informal information*. The test for average marginal effect shows that if the frequency of contact increased from 3 times or less to 4-5 times, the role of informal information had a 26 % higher change of having a major role in the loan decision process. If the frequency increased from 3 times or less to 6 times or more, the effect was 23 %. This result shows that although frequency of contact did not have a statistically significant impact on the companies' access to credit, it does play a major indirect role in the loan decision making process via affecting the role of informal information. This could suggest that the contact has been for building up the relationship rather than for monitoring purposes.

The results do not support the commonly used hypotheses about the length of relationship with the primary bank or the frequency of contact between the loan manager and the company. However, several other studies show that there is a positive correlation, which could suggest that the time frame and frequency used in the study are too small. A ten-year relationship with a bank is not that long if you consider that the average age of the companies within the survey was 36 years and the oldest was 161 years old. For future research there could be a longer time span to be tested. Another variation for further research could be that the variables would measure the quality of the relationship rather than the amount of interaction.

As frequency of contact showed a significant positive correlation towards the role of informal information, one could extend the model by asking a specifying question about the purpose of the frequent contacts. On the one hand, high frequency of contact could suggest that the company is not trustworthy and the bank needs to be in contact with them in order to monitor their actions, and on the other hand, if the bank relationship is relatively young, the frequent contact could be a result of active relationship building.

## 5 CONCLUSIONS

### 5.1 Research summary

This thesis studies the effect of relationship lending on SME's credit access from the companies' point of view. Relationship lending is a lending technique, which relies on the soft information collected about the lender over a period of the banking relationship. Soft information differs from hard information in that hard information is verified and publicly available financial data which does not require a personal contact between the loan manager and the company. The relationship lending technique can be used in conjunction with transaction lending or exclusively. Relationship lending often complements transaction lending in the loan decision making process, when informationally opaque SMEs can not provide with a sufficient amount of hard data to support the lending decision.

The literature review firstly discusses problems related to a principal-agent situations and describes what is meant by hard and soft information. Then the key outcomes about transaction and relationship lending in the SME context are summarized from earlier studies and the most common attributes used to measure relationship lending activities are derived. Based on the findings 5 different Hypotheses are constructed.

The Hypotheses are tested by using a survey data of 433 small to medium sized companies in Finland. The attributes measured in the study are "the role of informal information", "length of relationship with the primary bank" and "the frequency of contact with the loan manager". They are tested with a binary logistic regression over the binary dependent variable which measures whether the company accessed the amount of credit they primarily asked for or not.

The results show that informal information plays a significant role in the credit decision process but the length of relationship and the frequency of contact with the loan manager do not. However, on a secondary model the frequency of contact with the loan manager does have a significant impact on the role of informal information, which suggests that a high frequency of contact with the loan manager has been about relationship building rather than monitoring purposes.

This thesis contributes to the existing research on relationship lending by examining the concept from a firm perspective. Furthermore, the results support the earlier studies by suggesting that informal information had a major role in the loan decision making

process and that higher frequency of contact increased the significance of informal information.

## **5.2 Limitations of the study**

The study includes certain limitations, which the reader must keep in mind. Firstly, the data was collected only from Finnish companies. This restricts the focus in a single lending infrastructure and cultural context. The characteristics of the Finnish credit market represents the European credit market quite well on average, but the Finnish lending infrastructure is relatively well developed within Europe. However, Finland is neither heavily relying on transaction nor relationship lending. A cross-cultural study could be an effective way to remove the bias of a single cultural environment.

Secondly, the dependent and independent variables were based on a survey from the SMEs. The responses were the survey respondents' one-sided subjective perceptions about the situations in question, which indicates that the survey data is not verified from the banks' point of view. This problem could have been avoided by using a two-sided survey from the loan managers' point of view, but unfortunately this is not possible due to legal restrictions in the Finnish bank data privacy. The hard financial data was collected from a renowned Orbis database.

Thirdly, the data consists only of SMEs, which typically are the most informationally opaque firms as they don't have the access to public equity markets. For non-listed companies the reporting requirements are very low compared to publicly listed companies, so the results can not be extended to large companies. Therefore, it is emphasized that the results only apply to small to medium sized enterprises.

## **5.3 Suggestions for further research**

The principles and data used in this thesis could be extended for testing the effects of relationship lending in family companies. By studying only family companies one could find interesting results over the effects of the same attributes used in this thesis and for example consider in depth the role of collateral and covenants in the hypotheses.

Steijvers, Voordeckers & Vanhoof (2010) state that "the relationship between SMEs and banks is often characterized by asymmetric information, adverse selection and

moral hazard problems” and that the problems might “lead to the problem of credit rationing which could be mitigated by the use of collateral in the credit contract”. They considered the impact of relationship characteristics, family ownership and their interaction effects upon the use of collateral in SME lending by using a decision tree analysis. Their results suggested that when obtaining high amount loans, the private family ownership increases the likelihood of pledging collateral. They argued that this is due to the higher likelihood of free riding by family members or bad management. To extend the research one could exclude non-family owned companies from the dataset and focus on the characteristics from the perspective of family ownership.

As the research context is solely limited to Finnish companies and the Finnish lending environment, future research could extend the study to a cross-cultural scope. The results of this study are useful in terms of the Finnish lending relationships, but can not be applied internationally.

Finally, although Model (1) does not support Hypotheses 2 and 3, it does not denote that the attributes for length of relationship with the primary bank and the frequency of contact are not significant measures of relationship lending. As considered in the Discussion part, longer measures for relationship length with the primary bank and frequency of contact could be adopted for future research purposes.

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