UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

Financing of Growth Companies within the Construction Industry: Are Small Players Gaining the Necessary Funds to Expand?

Bachelor Thesis 2015
Accounting
Authors:
Helga Haraldsdottir
Martin Thorén
Supervisors:
Niuosha Samani
Savvas Papadopoulus

Abstract

Student thesis within Business Administration, Gothenburg School of Business, Economics and Law, Bachelor Thesis, Accounting VT 15

Authors: Helga Haraldsdottir and Martin Thorén

Supervisors: Niuosha Samani and Savvas Papadopoulus

Title: Financing of Growth Companies within the Construction Industry: Are Small Players Gaining the Necessary Funds to Expand?

Background: Earlier empirical studies have shown that small companies suffer from a financial gap. There are different opinions about whether it is caused by a lack in demand or supply of external debt capital.

Purpose: This thesis examines if accounting information can identify a financial gap, if the debt-to-equity ratio as measure for this is useful and if the financial gap is caused by a lack in demand for external debt financing.

Delimitations: Only limited liability companies within the construction industry that historically has shown growth is examined.

Method: Annual reports from the companies gathered have been examined, using the debt-to-equity ratio as measure for finding those who experience a financial gap. A survey designed to answer if a financial gap exists because of a lack in demand for external debt capital is sent to a sample of the companies gathered. Statistical tests are performed and the theoretical framework is used to analyse the results.

Results and Conclusions: It is possible to identify a financial gap within small companies in the construction industry through their reported accounting information. Debt-to-equity ratio can together with other measures, be considered useful information for creditors' when looking for investment opportunities. A financial gap primarily exists because of a lack in demand for external debt financing.

Keywords: Financial gap, debt-to-equity ratio, Capital structure

Acknowledgments

Table of contents

List of figures

List of graphs

List of tables

List of abbreviations

ÅRL – the Swedish Annual Accounts Act (Årsredovisningslagen)
RFR – the Swedish Financial Reporting Council's recommendations
BFN – the Swedish Accounting Standards Board
K2 & K3 – recommendations published by BFN
IFRS – International Financial Reporting Standards

1 Introduction

1.1 Background

A financial gap exists when external financing is required in the company but not received. One of the first formal acknowledgements of a financial gap was made in the MacMillan report by the MacMillan committee in 1931. This committee was created by the British government after the great depression in 1929 and consisted mainly of highly recognized economists such as John Maynard Keynes and Lord Bradbury. Their assignment was to examine whether or not trade and industry was positively affected by the banks and financial systems and their findings were presented in the MacMillan report. One of their findings was that small British companies had troubles extracting long term external financing from domestic banks. The committee suggested that a new institution was to be created which would enhance the interaction between industries and banks. This would help industries as well as the British economy grow (Thomas, 1932).

Currently a common idea is that the gap exists because the demand for long term external capital exceeds the supply (Winborg, 2003). Much research has been made which focuses on the supply side where the lack in supply often is argued to be a consequence of an information gap between the investors and the company. Information gap means that the investors have too little information to make investment decisions. Today policy makers are still trying to ease small companies' access to long term external funding. Jean Claude Junker explained that his first priority as head of the European Commission was to encourage financiers to invest in small companies to create jobs (European Comission, 2014). Due to this some researchers argue that there is no point in helping small companies get access to external capital since there simply does not exist a demand since all companies that want external funding gets it (Landström, 2003). Those who do not want external funding often use different kinds of bootstrapping methods, i.e. methods to maximize the capital from operations – such as elongating supplier credits – to avoid external capital. These methods have limitations in terms of growth potential but are common in small and young firms (Winborg, 2003). The behavior could find explanation in the theory of control aversion amongst business leaders in small companies. Managers are scared of losing control over the firm if external capital is utilized which hinders the growth of the firm (Berggren, 2003). High growth companies are often called gazelles since they, often from an early age, start to grow at high speeds. According to associate professor Karl Wennberg, it is the gazelles that create jobs in Sweden, but they are not too many because they are hindered by a financial gap (Laufer & Wennberg, 2014). If there is to be created more jobs, more companies need to use external capital and therefore it is important to know if there exists a financial gap in Swedish growth companies.

There are different ways to identify a financial gap where looking at capital structure is one of them (Armstrong, et al., 2010). Today it is common practice for banks to look at leverage ratios – among a variety of other things – when evaluating credit opportunities (Treacy & Carey, 2000). Similarly equity investors are affected by the leverage of their businesses. Thus, the usefulness of an accounting measure of the relationship between equity and other liabilities (synonymous with debt in this paper) is of primary concern for the primary financial report users explicitly named in the Conceptual Framework of the International Financial Reporting Standards, IFRS, (creditors and investors) and implicitly served in the Swedish K-regulations and Annual Reports Act.

1.2 Purpose

This thesis will seek to demonstrate if it is possible to identify a financial gap within small growth companies in the Swedish construction industry through their accounting information. Simultaneously, the usefulness of the debt-to-equity ratio as a measure for investors when seeking investment opportunities is examined. Further knowing how managers in small growth companies want to finance growth will help explain if the financial gap is a phenomenon caused by a lack in demand for external debt financing.

1.3 Research question

1. *Is it possible to identify a financial gap within small growth companies in the construction industry through their reported accounting information?*
    a. *Can the relationship between reported liabilities and equity be considered useful information from a creditor's point of view?*
2. *Is the financial gap caused by a lack in demand for external debt financing?*

1.4 Delimitations

The study only focuses on Swedish limited liability construction companies because it is important that the companies are comparable in different aspects. This limitation means that all companies, in their respective size category, follow the same rules regarding the accounting information – information which additionally is easily accessed. The construction industry is of interest because of its high employee intensity (International Labour Organization, 2001) and because it most surely will create more jobs if it is able to grow, i.e. it has a large impact on the economy. The limitation to only Swedish construction firms also entails that they are involved in a somewhat homogenous business environment and the focus on limited liability companies means that some level of professional intention exists in the business that may be lacking in the case of sole traders for instance. Some factors, i.e. industry, geography and nationality, that might have been involved as variables in a regression are in other words instead determined beforehand when designing the study.

2 Theoretical framework

2.1 The financial gap

Since the MacMillan Committee published a report which recognized the phenomenon in small businesses, more observations have been made. Schiffer and Weder, professors in economics, published a study in 2001 which was based on results from a survey conducted by the International Finance Corporation. The International Finance Corporation is an affiliate of the World Bank and specializes in financing companies in the private sector in developing countries. The survey included companies in the private sector in 80 different countries, including both developing and industrialized countries. The study gave clear results: small companies have more troubles connected to financing than big companies (Schiffer & Weder, 2001). Another study, from 2002, based on a survey also conducted by the World Bank supports the fact that smaller companies have bigger troubles extracting financing. This study further examined if the troubles extracting financing hindered the growth of the company and the results showed that it did (Beck, et al., 2002).

Many attempts to explain the financial gap has been done. From the financiers' perspective, there are some factors that makes it more preferable to invest in larger companies. One reason, which empirical studies have shown, is that small companies are more likely to default than large companies which makes investments in small companies, from the financiers' perspective, more risky. Another reason is that the systems and procedures that financiers use when examining companies are primarily designed to be used on large companies and not on small. This makes it more difficult for the financiers to get the right picture of the company's situation. A third reason is that the transaction costs for the financiers are higher in relation when working with small companies than with large companies because the amount of money in comparison to the amount of work is less. These are reasons that can explain why financiers would resist investing in small companies (Berggren, 2003).

From the managers' point of view, there are two important issues that can explain the financial gap. Firstly managers in small companies often lack knowledge about sources of finance and what kind of information financiers are looking for. According to Berger and Udell small company managers have troubles communicating the quality of the company (Berggren, 2003) which makes it complicated to attain capital. Secondly, there is a widespread phenomenon that managers in small companies have a negative attitude towards external financing (Landström, 2003). One of the main things people want to accomplish when they start their own firm is autonomy. It is said that managers in small companies are not very excited about external capital since it threatens the autonomy. This behavior is called control aversion. Small firm managers are said to be control avert and studies show that control aversion correlates negatively with growth (Berggren, 2003).

This leads to the fact that there are two main conflicting ideas in this area of research. One is that there exists a financial gap because financiers discriminate small companies and the other is that small companies that want external financing gets it and that the financial gap exists only because many small company managers are uninterested in receiving external capital. The later idea leads to the first hypothesis:

Hypothesis 1 (H1): A majority of the small companies don't want to finance their growth with external capital.

2.2 Capital structure

Capital structure in its simplest form means the combination of equity and liabilities in a company. When the amount of liabilities rise in proportion to equity, the leverage gets higher. A higher leverage in a profitable company leads to a higher return on equity. However higher leverage also means higher financial risk which must be combined with the inherent risk in operations to attain an acceptable compromise between the likelihood of failure and increased profitability to shareholders from the leverage effect (Johansson & Runsten, 2005). Fama and French argue that there are two major conquering theories that can explain the capital structure within companies which are the trade-off theory and the pecking order theory. The trade-off theory means that managers take into account the marginal benefit or loss from expanding the leverage (Fama & French, 2002). The pecking order theory states that within company governance there is a hierarchal order in which they issue capital for investments. According to the pecking order internally raised capital is the most preferable. Second to that is safe bank loans because the companies do not want to be exploited for high risk. The least preferable way is equity financing (Meyers & Majluf, 1984).

2.2.1 The existence of an optimal capital structure

Particularly in the field of corporate finance has capital structure been the subject of extensive debate and investigation. See for example (Bradley, et al., 1984) for an overview. The basic idea, extensively discussed in (Modigliani & Miller, 1958), is that debt and equity would be perfect substitutes in a world of perfect capital markets under conditions of atomistic competition. It is in other words argued that, in this hypothetical world, the cost of financing is equal among corporations' alternative means of financing and it is evident that the concept of an optimal capital structure concerns optimality from the corporation's point of view – i.e. cost minimization.

The assumption of perfect capital markets is however generally regarded as an extreme over-simplification of reality. Indeed, the perceived view held by practitioners according to Modigliani and Miller's article is that debt constitutes a cheaper alternative to equity up to some point of the proportion of market value of debt to the market value of equity indicating that the professional community recognizes the existence of an optimal capital structure and a cost-differential between debt and equity. This view is later brought up for discussion in a correction to Modigliani and Miller's 1958 article (Modigliani & Miller, 1963) wherein the primary underlying factor making debt and equity imperfect substitutes is argued to be the difference in taxation between debt and equity.

2.2.2 Empirical studies on capital structure

Many empirical studies about capital structure and size has been made which confirms the theory that small companies have lower leverage than large companies. Faulkender found that companies with greater access to the capital market will have a bigger leverage and since large companies have greater access to the capital market it means that small companies have lower leverage (Berggren, 2003). Berger and Udell also found that small companies have a lower debt to equity ratio than big companies (Berger & Udell, 1998) and Hagberg's results also supports that the relationship between size and leverage is positive (Hagberg, 2012).

A positive correlation – except for the case of Germany – between size and leverage has been found in s study of international data (Raghuram & Zingales, 1995), both positive and negative correlations have been found in American data (Titman & Wessels, 1988) with results depending on whether market value or book value of equity is used as the dependent variable as well as on what category of debt constitutes the independent variable – long-term debt, short-term debt or convertible debt. Both of these are studies of publicly traded companies, i.e. does not include as small companies as are under investigation in this paper. Earlier research has further found that leverage correlates positively with fixed assets and growth possibilities. Two other studies indicates that leverage correlates negatively with profitability (Hagberg, 2012) and positively risk of bankruptcy (Hagberg, 2006). Hence there are strong theoretical and empirical reasons to believe that risk, as most often measured by volatility in either earnings or firm value, lowers the optimum level of the proportion between debt and equity (Williamson, 1982; Long & Malitz, 1985). This leads to the second hypothesis:

Hypothesis 2 (H2): On average, smaller companies with a certain risk-profitability profile have a lower debt to equity-ratio than larger companies with a similar risk-profitability profile.

2.3 External financiers' use of accounting information

Information asymmetry is a large factor believed to affect debt financing (Meyers & Majluf, 1984) and a firm's accounting system and quality of financial reports can have heavy impact on the sharing of information between creditor and debtor (Armstrong, et al., 2010). Smaller companies generally have less developed accounting systems which implies that the asymmetry may be accentuated in the relationship between a creditor and a smaller company. Additionally the smaller company is more reliant on a few key personnel and has looser control systems increasing the risk of fraud. Trying somehow to overcome information asymmetry, banks use internal rating systems where debt-to-equity ratio is frequently used – of course amongst many other factors – when evaluating companies. They can for example set a limit that companies that want to borrow money should have a debt-to-equity ratio below a certain number (Treacy & Carey, 1998). Hence it is interesting to evaluate the use of the debt-to-equity ratio as a measure for finding companies that could borrow but haven't. The debt-to-equity ratio involves debt and liabilities where the reported equity and liabilities depends partly on which accounting rules the companies follow.

Swedish limited liability companies traded on a regulated exchange must follow IFRS, and the Swedish Financial Reporting Council's – a private standards setting organization – recommendations, RFR 1 where the controlling corporation instead of RFR 1 must follow RFR 2 (Marton, et al., 2013). Other Swedish companies must, since 2014, choose one of the K-regulations published by the Swedish accounting standards board, BFN – a public standards setting organization. Large limited companies are required to use K3 whilst small limited liability companies can choose between K2 and K3. The size is defined by the Swedish Annual Accounts Act, ÅRL. In IFRS the purpose of the financial reports is to serve stakeholders' decision making where stakeholders are defined as old or potentially new owners, lenders and other creditors (IASB , 2001). In K3, the purpose of financial statements is to present information about the financial position, results and cash flow of the company, to the users, who are undefined (BFNAR, 2014). In K2 there is no definition of what purpose the financial reports has (BFNAR, 2011). Even if there is no definition of what purpose the financial reports has in K2, it is widely known that creditors make their investment decisions mainly based on accounting information (Svensson, 2003).

2.4   The Sharpe Ratio

No measure is a perfect representation of what it attempts to depict, which is why a theoretical motivation of a certain measure utilized in this paper is in order – $ROA_{adjusted}$, defined in *3.2.2 The analytical model*. Power (Power, 2004) distinguishes between first-order measurement and second-order measurement, where the former consists of basic counting and a socially accepted way of grouping similar objects together as to make them countable and the latter consists of mathematically or statistically deriving new measures from existing ones. Pure reported accounting information can be of both kinds but are probably, at least in smaller companies, often of the first-order variety.

$ROA_{adjusted}$ on the other hand obviously is of the second-order nature. It is loosely based on the Sharpe Ratio (Sharpe, 1994) from modern portfolio theory. In its original form the Sharpe Ratio is defined as:

$$SR = \frac{asset\ rate\ of\ return - risk\ free\ rate\ of\ return}{standard\ deviation\ of\ the\ asset\ rate\ of\ return}$$

The standard deviation is taken as a measure of risk, i.e. the ratio aims to adjust an asset's rate of return by its riskiness. For this measure to be comparable over many assets it is necessary that those assets' rates of return are somewhat similarly statistically distributed, an assumption that does not dissuade the measure's use in practice. Morningstar for example at least up until recently computed a variant of the ratio for their fund rankings (Sharpe, 1997).

Within the confines of modern portfolio theory it is important that a differential rate of return is used in the nominator. Ignoring this in a decision setting – of allocating assets in a portfolio – may imply that the measure yields erroneous decision signals.

3 Method

3.1 Choice of method

This is a quantitative study of a deductive character since it tries to explain theory through hypothesis tests (Bryman & Bell, 2015). Part I aims at answering the first research question and part II aims at answering the second research question.

3.2 Part I: The study based on numbers from annual reports

A study based on numbers from annual reports is made to answer the second hypothesis: *Hypothesis 2 (H2): On average, smaller companies with a certain risk-profitability profile have a lower debt to equity-ratio than larger companies with a similar risk-profitability profile.*

3.2.1 Data gathering

A selection of companies is downloaded from the database Retriever Business on 2015-04-08, a database containing information from Swedish companies' annual reports. Sampling is made with intention to get the widest possible selection within the industry. The sample consists of Swedish limited liability companies, with revenue of at least 1 thousand SEK, at least one employee, with construction as primary business – as classified by Retriever Business, primarily through SNI-codes. If consolidated numbers are available they are used, otherwise unconsolidated.

The information[1] is downloaded to an Excel-file where further sampling is done. Total growth in revenue is computed for each company in the largest interval within the period 2010-2014 that the company has reported non-zero revenue. The total growth figure is recalculated to an annual effective rate (geometric average) over each company's respective interval. The final pre error-checking sample is chosen as companies with annual effective growth in revenue above 15%.

Erroneous data is checked for and all companies containing such errors are truncated from the sample[2]. Summary data is compared against items supposedly adding up to the sum; e.g. Total Equity is compared to Stockholder's Equity, Balanced Earnings and This Year's Profit or Loss. Similarly is done for Income Statement items; e.g. Gross Profit is compared to Net Revenue and Cost of Goods Sold. This Year's Profit or Loss is verified to be the same for both the Income Statement and the Balance Sheet.

3.2.2 The analytical model

Results presented in *Chapter 4 Results* relies upon the gathered data, a set of accounting-based measures – which makes up the variables – and a set of assumptions. The variables are defined according table 1[3] and are calculated for each company and each year where data is available. For the flow measures, ROA and revenue, average values over the time period (2005-2014) are used. For the stock measures, debt-to-equity and tangibility, the last available values are used.

---

[1] See appendix 1a for a list of extracted data points.
[2] See appendix 1c for a list of truncated companies.
[3] See appendix 1b for a complete derivation of the variable measures from the data.

Table 1. Variable definitions.

Variable	Definition
Debt-to-equity ratio / Leverage	$$\frac{D}{E} = \frac{Total\ Debt}{Total\ Equity}$$
Revenue (Interpreted as size)	$$Rev = Total\ revenue$$
Risk-adjusted profitability	$$ROA_{adjusted} = \frac{Average(ROA - risk\ free\ rate\ of\ interest)}{Standard\ deviation\ of\ ROA\ time\ series}$$
Tangibility (Interpreted as collateral)	$$\frac{Tang}{A} = \frac{Tangible\ Assets}{Total\ Assets}$$

Tangibility serves as a proxy for available collateral within the firms, revenue as a measure of size and debt-to-equity is the dependent variable. Return on assets is calculated by dividing the current year's earnings by the closing balance of the assets – all balance sheet items are stated as closing balances. It is then reduced by the risk free rate of interest, approximated by the average yield on 10 year Swedish state bonds during the respective time periods. Each company's adjusted return-on-assets time-series (of varying length) is then averaged up and divided by its standard deviation to produce the measure for risk-adjusted profitability.

For the division by the standard deviation to do what it intends to do – adjusting for the different degrees of riskiness in the various companies – it is assumed that the return-on-assets time-series are somewhat similarly distributed. Otherwise the various standard deviations measure different things. A special case of this is when all distributions are normally distributed, a case which is tested. Additionally, it is emphasized that this measure does not adjust for all the variations in risk, largely because it is based on historical figures and ignores many low probability-high impact events that may or may not happen in the future. For a discussion on the theoretical foundations of this measure see *2.4 The Sharpe Ratio*.

One last variable is used to mark companies as either bankrupt or not bankrupt, information which is gathered manually through checking every company missing data regarding revenue for year 2013 (the annual reports for 2013 generally should have been available at the time of retrieval from the databases). The checking is done via allabolag.se, a database containing information from the Swedish Companies Registration Office (Bolagsverket). In total 88 companies were marked as being in the process of bankruptcy and these are excluded from the regression.

An ordinary linear regression with supportive ANOVA and two-sided t-testing – corresponding one-sided tests, $H_a: \beta > 0$ or $H_a: \beta < 0$ depending on the sign on the coefficient β, can be obtained by dividing the resulting probability of type I errors by two – is performed on the calculated measures from the gathered data to establish the truthfulness in *Hypothesis 2*. These models assume identically and independently distributed errors to the true – i.e. not estimated – functional relationship implied by the model. For validity in the ANOVA F-test and the t-tests it is in addition required that the errors be normally distributed. Testing of normality of the error distribution is done by visual plotting of the residuals.

To explain *Hypothesis 2 (On average, smaller companies with a certain risk-profitability profile have a lower debt-to-equity ratio than larger companies with a similar risk-profitability profile.)* the model is designed as following:

$$\ln\left(\frac{D}{E}\right) = \alpha + \beta_1 \ln(Rev) + \beta_2 \ln\left(ROA_{risk-adjusted}\right) + \beta_3 \ln\left(\frac{Tang}{A}\right) + \varepsilon$$

Non-logarithm values were tried and discarded, mainly due to low statistical significance of the results. Though, there generally is no reason to believe that a relationship between the studied variables should take on the form of linearity – or of exponentiality for that matter – specifically, only that some kind of correlation exists; positive for size (revenue) and negative for profitability ($ROA_{adjusted}$), cf. *2.2.2 Empirical Studies*. As a consequence it is reasonable to choose the specific model according to its fit to the data. Giordani et al. (Giordani, et al., 2014) for example finds that non-linear models greatly increase the predictive power in modelling bankruptcy risk and it also has been a common occurrence to use logarithm values; of revenue in particular. See for example Raghuram & Zingales (Raghuram & Zingales, 1995) which applies a very straight-forward linear regression or Titman & Wessels (Titman & Wessels, 1988) which use a more complicated variance-adjusted model.

3.2.3   *Quality of the database and loss of information from logarithmizing*
The population consists of Swedish limited liability construction companies with revenue growth above 15 % over the last 10 years. Since every Swedish limited liability company must submit its annual report to the Companies Registration Office (Bolagsverket) it is highly likely that every company that meets the criteria is registered in the utilized database, Retriever Business. It is a fact though, that the categorization as a company involved with construction is less than perfect. This means that some companies may have been omitted and some may have been included despite really being involved in some other line of business.

Logarithmizing implies that all negative observations are ignored. This is not a problem in the case of revenue or tangibility which by definition cannot be negative and is also not a large problem in the case of the debt-to-equity ratio since the only way for it to be negative is to have negative equity, which is a very unusual situation. It is more troublesome in the case of the return on assets which more commonly gives negative values. The results are materially the same when $ROA_{adjusted}$ is left non-logarithmized.

3.3   Part I a: Evaluating the use of debt-to-equity ratio for creditors'

3.3.1   *The analytical model*

Figure 1.
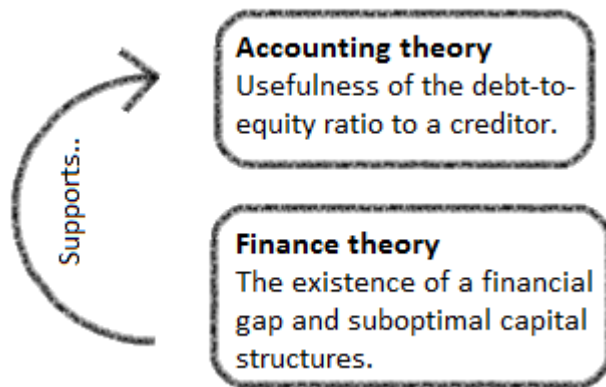
From accounting theory we learn that financial reports are supposed to be useful information when making investment decisions. From finance theory we learn that there exists a financial gap within small companies which means that there are business opportunities. If it is assumed that there exists a financial gap and it is possible to also see it through looking into financial reports, the accounting information can be said to be useful in this specific case. In this study, debt-to-equity ratio is used as a measure when identifying companies experiencing a financial gap, therefore this type of information's usefulness is examined.

Figure 2 illustrates how conclusions from the results of Part I will be drawn to answer research question 1a. If it is possible to see the financial gap within small companies in the construction industry, through annual reports using the debt-to-equity ratio, the debt-to-equity ratio can be said to be a useful instrument for creditors' when seeking investment opportunities.

3.4 Part II: The survey

A survey study is performed to answer the first hypothesis:

Hypothesis 1 (H1): A majority of small construction growth companies don't want to finance their operations with external debt capital.

It is difficult to design a survey to explain hypothesis 1 directly by statistical methods. Therefore *hypothesis 1* is divided into six sub-hypotheses that in concert is used to lend support to *hypothesis 1*. The most favorable outcome for each sub-hypothesis is depicted in table 1.

Hypothesis 1a: The majority of smaller firms does not feel constrained by the availability of debt financing.

If companies feel constrained by the availability of debt financing it points to the fact that they have a demand for it. If they don't feel constrained it either means that their demand is satisfied or that they don't have demand for it.

Hypothesis 1b: The majority of smaller firms feel that the demands from creditors are unreasonably high.

If this hypothesis is supported it means that there is demand for debt financing. If rejected it seems like the companies are satisfied with their capital structure, i.e. no demand.

Hypothesis 1c: More than a third of smaller firms would not want to borrow more if the terms from creditors were lower.

If this is true, there is not much demand for debt financing. A third is a significant number since when taking to its extreme - borrowing at no cost – no is quite a controversial answer. If rejected, it could mean that there is demand for debt financing at better terms.

Hypothesis 1d: More than a fourth of smaller companies have not applied for a bank loan within the last 5 years.

If true, there is not much demand for debt financing since not having applied for not even a small credit during the last 5 years, when in a growth phase, is quite remarkable (hence the significance of a fourth). I rejected, there is demand for debt financing.

Hypothesis 1e: The majority of smaller firms believes they can borrow if they need to.

If true, supply is not a cause of the financial gap, which makes demand seem more like it. If rejected, there is demand for debt financing.

Hypothesis 1f: The majority of smaller firms does not feel the need to use debt to finance their operations.

If true, smaller firm does not have demand for external debt financing. If rejected, there is demand for debt financing.

Table 2. Summary of the most favourable outcomes

Hypothesis	Most favourable outcomes for *hypothesis 1 to be supported*
Hypothesis 1a	Null rejected
Hypothesis 1b	Null not rejected
Hypothesis 1c	Null rejected
Hypothesis 1d	Null rejected
Hypothesis 1e	Null rejected
Hypothesis 1f	Null rejected

3.4.1 *Method of communication*

The survey is conducted in the online survey tool Webropol (Webropol, 2015) and a link to the questionnaire is sent out in an E-mail. Using an online web tool makes the survey look professional and the data gathering much easier. E-mail is chosen since it is a faster, cheaper and simpler method than posted letter or text messages that were the other options in Webropol. There is no known data base containing the e-mail addresses that are needed, they are therefore gathered manually. Using the same sample as in study 1, each company name is googled, and the first page with hits is used to search for the company's website or another contact site. If the website or contact site has the company's e-mail address available, it is collected in an Excel sheet. Out of 2765 companies, 1225 e-mail addresses are collected.

All e-mail addresses are uploaded in Webropol and an inviting cover letter is sent out in three different rounds since it is sent out in step with its collection due to the time limit and the importance to receive as many answers as possible but not send out reminders to close to each

other. This means that the number of reminders a company receives is depending on when the company's e-mail address is collected. The first 817 companies receives 3 e-mails. The later 332 companies receives 2 e-mails and the last 76 companies receives 1 e-mail.

For the survey to be statistically significant it must yield a sufficient amount of responses. The responses of small companies in particular must reach a certain amount since the attitudes and beliefs of small companies are the most essential for the study.

Table 3. Number of surveyed companies and number of responses.

Number of Companies Contacted	Number of Responses		Response Rate
1225	129		10,53 %
	Small	Large	
	121	8	

3.4.2 Non-response analysis
The sample derives from the 2765 companies in study 1. Study 1 consists of companies of all sizes since it tries to explain differences. The population can be of a different size today since the data in Business Retriever can be erroneous somehow or changed. Away from that, this is a good approximation of the population of companies of all sizes. The largest selection happens when 1540 companies drops out because there is no available e-mail address. After that, 1096 companies drops out when they do not answer the survey. This study only tries to explain the population of small companies which adds up to 2688 when rinsed for companies with revenues over 80 million SEK. The survey was sent out to companies of all sizes and 129 companies responded. Therefore the data must be rinsed from the large companies which leaves the number of responses from small companies to 121. The non-response rate of the approximated entire population is 95.5 %[4].

3.4.3 Questionnaire design and the analytical model
The questions asked tries to catch the respondents' fundamental attitude towards external financing. Is the fundamental attitude that they want external financing but are unable to get it or do they not want external financing? A neutral template is used and 15 questions are developed, some of which are linked to some sub-hypothesis – see table 3. The questions are of mixed character with yes, no or don't know answers, grading scales and empty spaces for filling in words or numbers.[5] In overall, the questionnaire is structured, which means that the respondent is bound to answer with the alternatives that are given. It is of importance that the answers can be read free from individual interpretations. This makes it possible to quantify the answers and make comparisons against the results from part I.

---

[4] Non-response rate is calculated: $\frac{(Population - Respondents)}{Population}$.

[5] The complete questionnaire is found in Appendix 3.

Table 4. Links between survey questions and hypotheses.

Nr	Question	Hypothesis
1	How well do you know about issues that regard the company's financing?	
2	Are there today any plans on making the company grow?	
3	Is the company's growth rate hindered by lacking availability of debt capital?	*H1: The majority of smaller firms does not feel constrained by the availability of debt financing.*
4	Is the company's growth rate hindered by lacking availability of new equity capital?	
5	Do you consider the demands from creditors unreasonably high?	*H2: The majority of smaller firms feel that the demands from creditors are unreasonably high.*
6	Do you consider the demands from other external financiers unreasonably high?	
7	If your company was able to borrow at more advantageous terms, would you in that case want to borrow more?	*H3: More than a third of smaller firms would not want to borrow more if the terms from creditors were lower.*
8	Has your company applied for any kind of bank loan in the last 5 years? In that case, was it approved?	*H4: More than a third of smaller companies have not applied for a bank loan within the last 5 years.*
9	Has your company applied for any kind of new equity financing in the last 5 years? In that case, was it approved?	
10	Has your company applied for a loan from ALMI within the last 5 years? In that case, was it approved?	
11	What are the prospects, according to you, for your company to obtain financing from banks, credit institutions or other lenders?	*H5: The majority of smaller firms believes they can borrow if they need to.*
12	What are the prospects, according to you, for your company to obtain financing from owners, new or old?	
13	What is the optimal capital structure for your company according to you?	*H6: The majority of smaller firms does not feel the need to use debt to finance their operations.*
14	What does your company's current capital structure look like?	
15	How do you plan to finance this growth? (if answered "yes" on whether they are planning to grow)	

Population proportions are tested through application of the central limit theorem and the z-distribution, these tests are performed in Stata. The same estimation as in Part I – i.e. regressing the debt-to-equity ratio, this time the ratio given in the questionnaire, to revenue and risk-adjusted profitability – were performed and found statistically insignificant. Where proportions are not the only relevant metric obtained the actual sample distribution are also presented in histograms.

4   Results

4.1   Results from Part I: The study based on numbers from annual reports

A quick look at the data reveals clues as to what relationship might exist between the variables. A positive relationship can be expected between leverage and revenue, and a negative relationship can be expected between leverage and risk-adjusted profitability – notice the trend lines.

Graph 1. Illustration of a simple linear relationship 1.
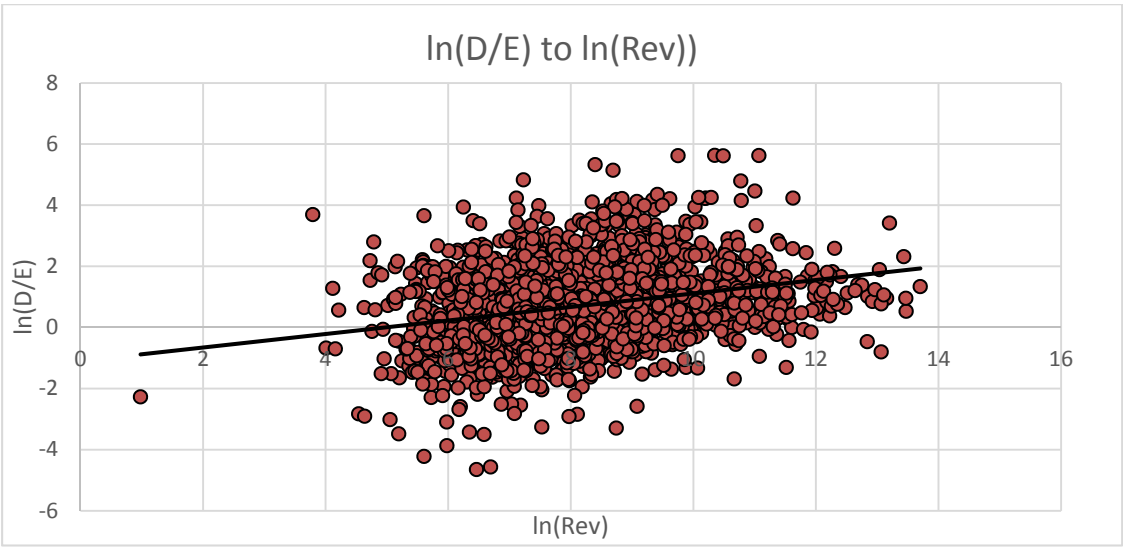
Graph 2. Illustration of a simple linear relationship 2.
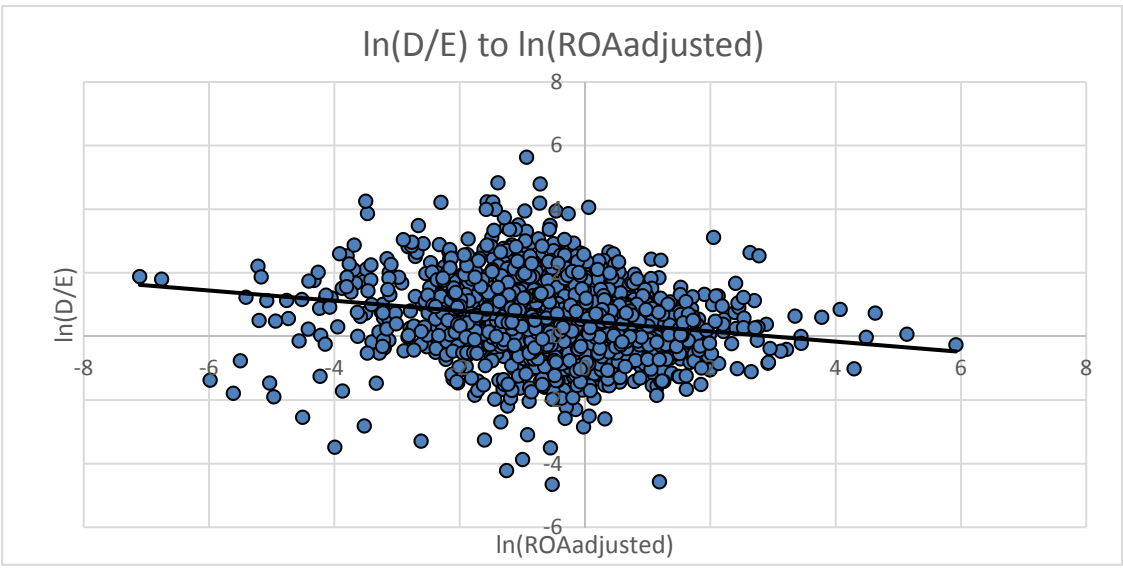
Table 5. Descriptive statistics.

Variable	Observations	Mean	Standard deviation	Minimum	Maximum
$\dfrac{D}{E}$	2763	3.857949	18.62467	-480.2	278.7805
$Rev\ (thousands\ SEK)$	2763	12559.61	46640.26	2.666667	892747.3
$ROA_{adjusted}$	2763	.8982405	13.59899	-498.7443	372.2892
$\dfrac{Tang}{A}$	2763	.1571791	.2087918	0	.9935065

Graph 3 & Graph 4. Some sample distributions.
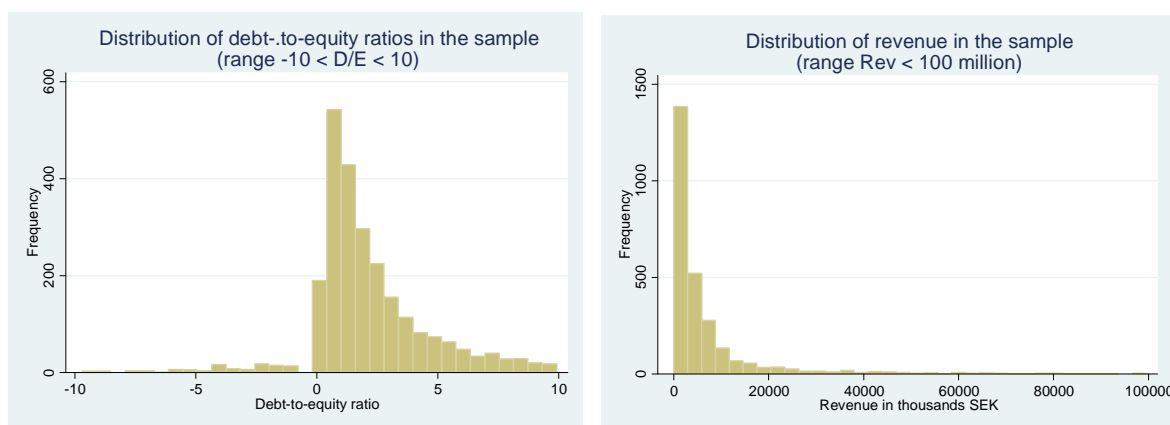
4.1.1 Test of normality of the profitability time-series

This test is performed to illustrate the suitability or the unsuitability of the measure $ROA_{adjusted}$ – confer sections *3.2.2 The analytical model* and *2.4 The Sharpe ratio* – and the results are illustrated in Graph 5.

Graph 5. Profitability time-series test of normality.
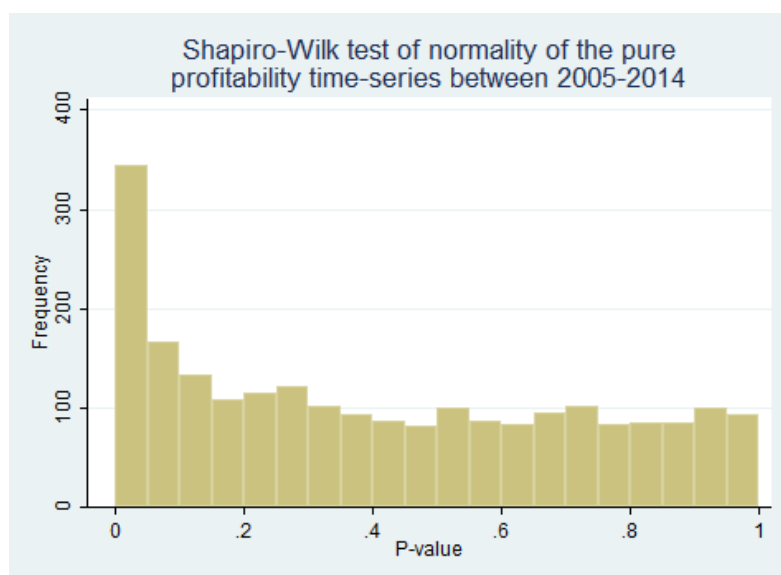
For less than 18 % (344 companies, the first column) of the return-on-assets time-series with data for more than 2 years (2264 of the 2763 companies) the normality assumption –

H_0: $normally\ distributed$ – can be rejected by a regular Shapiro-Wilk test with a significance level of 5 % which *does not* mean that the remaining 82 % is normally distributed, only that it is undecided based on the observations analyzed. 18 % is a rather large portion of all the time-series considering the low number of observations (3-10) for each, however the distributions can still be *close* to normal. Although not directly tested, if the distributions are similar among the companies, the measure $ROA_{adjusted}$ may still reasonably account for the companies' varying degrees of riskiness.

4.1.2   Regression and primary results
The results from the regression follows.

Hypothesis 2: On average, smaller companies with a certain risk-profitability profile have a lower debt-to-equity ratio than larger companies with a similar risk-profitability profile.

$$\ln\left(\frac{D}{E}\right) = \alpha + \beta_1 \ln(Rev) + \beta_2 \ln(ROA_{adjusted}) + \beta_3 \ln\left(\frac{Tang}{A}\right) + \varepsilon$$

Table 6. Regression statistics.

Regression statistics	
Number of observations	1671
Of total number of observations:	2675
R-squared	0.1323
ANOVA F-test	
Probability of type I error	0.000

Table 7. Regression coefficients and t-tests.

Variable	Coefficient	Probability of type I error for a two-tailed t-test	5 % significance confidence interval	
$\ln(Rev)$	.2408358	0.000	.2059089	.2757628
$\ln(ROA_{adjusted})$	-.1945066	0.000	-.2323261	-.1566871
$\ln\left(\frac{Tang}{A}\right)$	.0548249	0.001	.0218981	.0877516
α	-1.38398	0.000	-1.674566	-1.093395

The results are statistically significant and does not have a catastrophically bad fit as measured by R-squared. Here the ANOVA F-test indicates that at least one of the independent variables – risk-adjusted profitability, tangibility and revenue – can explain the average variation in the dependent variable – leverage. The individual t-tests then tells us that both independent variables has explanatory power in regards to firm leverage, again with confidence levels above 99.9 %. The function is given by:

$$\frac{D}{E} = e^{0.2408358\ln(Rev) - 0.1945066*\ln(ROA_{adjusted}) + 0.0548249*\ln\left(\frac{Tang}{A}\right) - 1.38398}$$

The estimated function implies large revenue- and profitability-dependent variation in leverage as well as some tangibility dependence. In particular, a positive correlation is found between debt-to-equity and revenue and the magnitude is material. As a matter of reference: companies with risk-adjusted profitability and tangibility ratios corresponding to the mean of the sample – see table 4 – and revenue of 5 million SEK are predicted to have leverage ratios of 1.798 while companies with the same risk-adjusted profitability and tangibility ratios but with revenues of 100 million SEK – 95 % of the sampled companies lies below the 100 million SEK revenue mark – are predicted to have leverage ratios of 3.699, a very significant difference. This means that the model has economically significant explanatory power as well as statistical significance.

Graph 6. Distribution of risk-adjusted profitability in the sample.
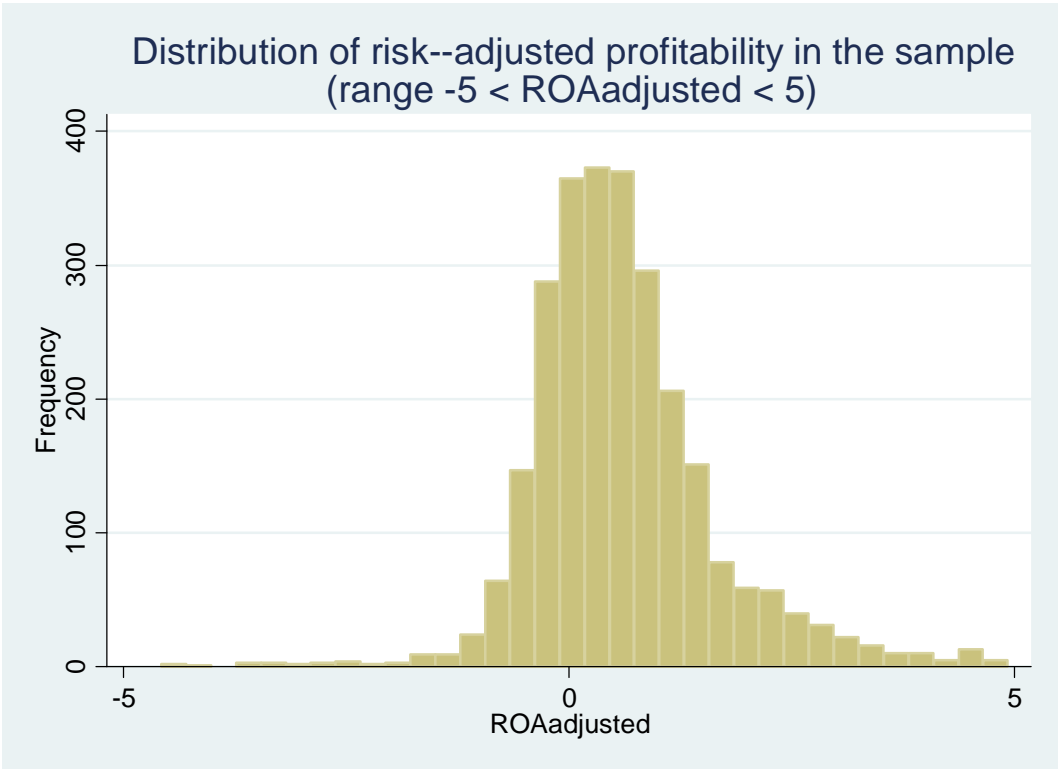
As expected from previous studies a negative correlation is found between debt-to-equity and risk-adjusted profitability, with approximately half the magnitude as with the correlation debt-to-equity and revenue. The magnitude of this negative correlation is however a little harder to interpret since it relates to a somewhat more complicated measure than plain revenue. To give an idea of how risk-adjusted profitability is distributed among the sample companies graph 385 is shown (only positive values were used in the regression). The measure is obviously very sensitive to extreme cases where the return on assets takes on radical values due to accounting oddities or if it varies extremely little or extremely much – extreme values are omitted from graph 6 for increased visual detail in the core distribution.

Graph 7. Residuals versus fitted values plot.
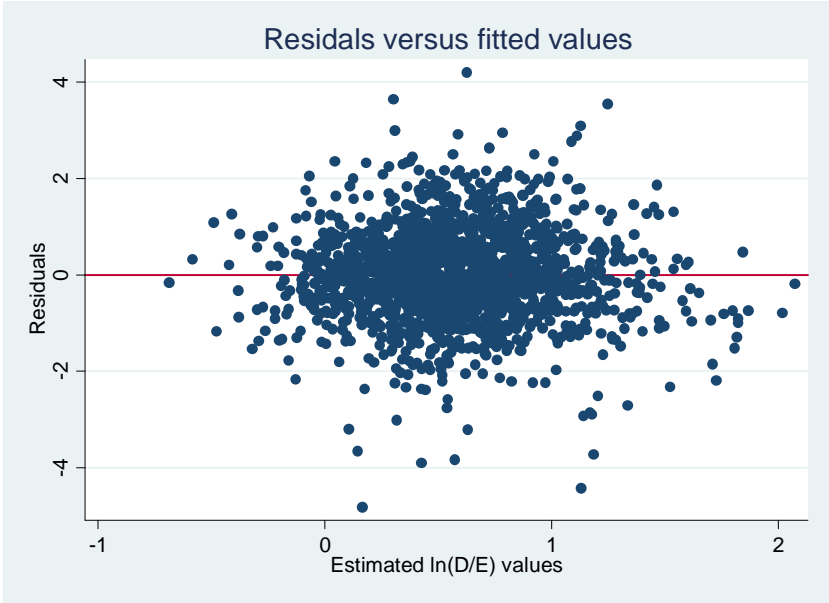
The residuals versus fitted values plot in graph 7 indicates that a very large part of the variance remains unexplained by the model. It is hard to find definitive evidence of heteroscedasticity of the residual variance which is generally regarded as positive. Though some skewness can be observed regarding the models fit for high values – often for larger companies since this is the primary factor (largest coefficient).

4.1.3   Testing the error normality assumption
Graph 8. Residual kernel densities.
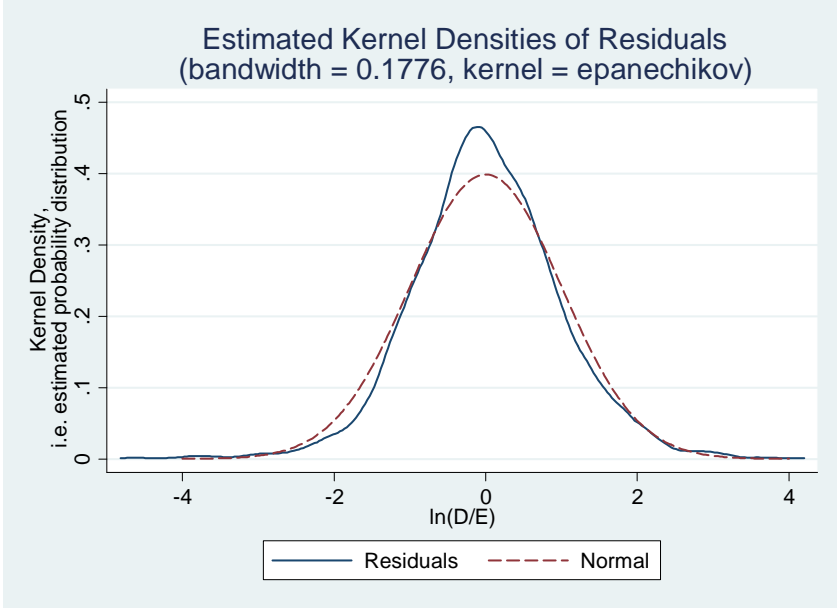
Graph 8 is basically a type of histogram with an estimation of the residual probability distribution. Visually the residuals seem too approximate a normal distribution pretty well – being slightly skewed to the right and having higher than normal kurtosis (pointiness) –,

which should serve as enough evidence for the normality property of the error distribution, with the robustness of the linear regression model in mind.

4.1.4   Concluding remarks on part I

The regression shows a clear relationship in accordance with expectations. *Hypothesis 1* is supported and smaller firms may be considered to have lower debt-to-equity ratios for certain risk-profitability profiles.

4.2   Results from Study/Part II: The study based on a questionnaire/survey

An overview of the data indicates that the companies in general does not have a strong desire to obtain additional funding, despite having some kind of intention to expand operations.

4.2.1   Accuracy of respondent statements
Graph 9. "How well do you know about issues regarding the company's financing?"
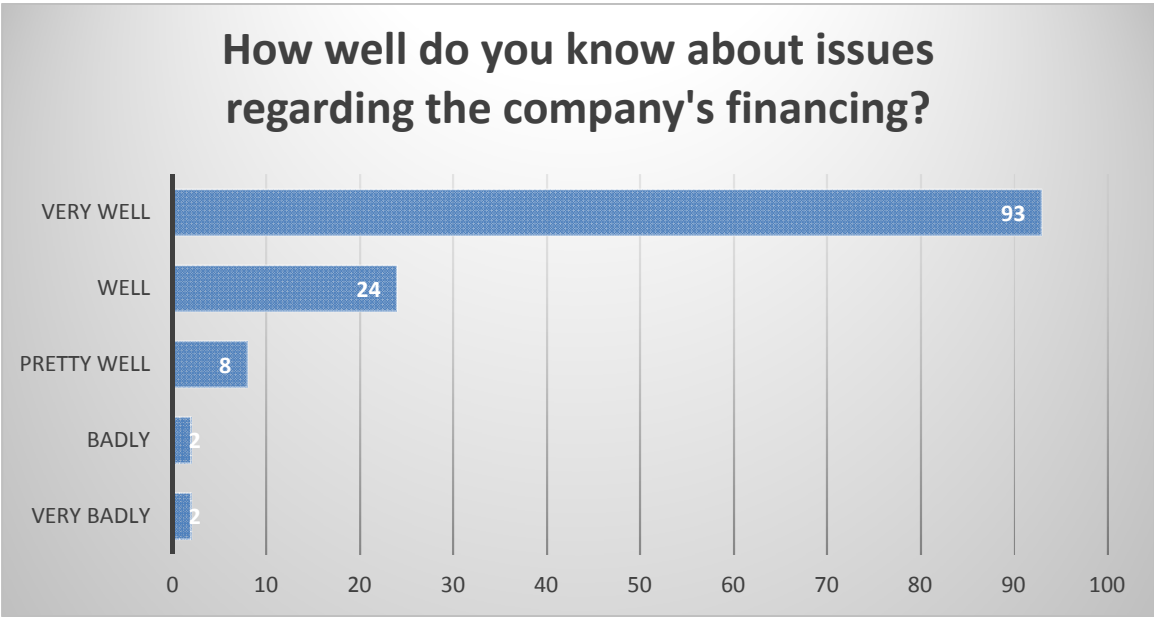
Most respondents seem to believe that they hold the relevant insights to make their responses have relevance for this study. The majority held position as CEO, many held positions as owners, controllers or financial managers, while a clear minority had more operating types of responsibilities.

4.2.2   Hypothesis testing and population proportion confidence intervals

The complete set of responses can be found in Appendix 2. Here, all tests are performed on *small* company answers. 121 of the 129 total, based on the criterion of an average revenue of 80 million SEK over the period where data is available. Generally, this restriction has no impact on the results – all 129 answers could practically be used instead.

Table 4 summarize the results from the proportion z-tests. The outcomes exclusively follow the distribution of most favourable outcomes depicted in table 1 in *3.4 Part II: The Survey*. In other words, the sub-hypotheses lend the maximum amount of support based on the formulation of the sub-hypotheses. To infer from them the truthfulness of *hypothesis 1*

however must include a large part of qualitative assessment. This will further be discussed in *Chapter 5.1 Result Analysis*.

Table 8. Summary of proportion z-tests with a 5 % significance level.

Hypothesis	Stated mathematically	Sample statistics	Probability of type I error	Outcome
Hypothesis 1a: The majority of smaller firms does not feel constrained by the availability of debt financing.	$H_{1a}:p$ $H_{0a}:p \leq 0.5$	p_s n	0.00%	Null rejected
Hypothesis 1b: The majority of smaller firms feel that the demands from creditors are unreasonably high.	$H_{1b}:p$ $H_{0b}:p$	$p_s = 42.7\%$ n	93.03%	Null not rejected
Hypothesis 1c: More than a third of smaller firms would not want to borrow more if the terms from creditors were lower.	$H_{1c}:p$ $H_{0c}:p$	p_s n	0.01%	Null rejected
Hypothesis 1d: More than a fourth of smaller companies have not applied for a bank loan within the last 5 years.	$H_{1d}:p$ $H_{0d}:p$	p_s n	0.48%	Null rejected
Hypothesis 1e: The majority of smaller firms are neutral or positive about their ability to borrow if they need to.	$H_{1e}:p$ $H_{0e}:p$	p_s n	0.00%	Null rejected
Hypothesis 1f: The majority of smaller firms does not feel the need to use debt to finance their operations to a greater extent than a debt-to-equity ratio of 0.33.	$H_{1f}:p$ $H_{0f}:p$	p_s n	4.04%	Null rejected

Table 8 summarize some 5 % significance confidence intervals for questions limited to two or three possible answers. They may fruitfully be compared to the conclusions drawn in table 7 and shows in more detail to what degree the companies' tend to feel about the question matters. For example, question 8 has a "Not applied" rate of 28.4% which is above the hypothesized proportion of 25%.

Table 9. Five percent significance level confidence intervals for some survey questions.

Nr	Question	5 % significance proportion confidence interval					
Nr	Question	"Yes"		"No"			
3	Is the company's growth rate hindered by lacking availability of debt capital?	20.0%	37.7%	62.3%	80.0%		
4	Is the company's growth rate hindered by lacking availability of new equity capital?	13.0%	29.4%	70.6%	87.0%		
5	Do you consider the demands from creditors unreasonably high?	32.3%	52.3%	47.7%	67.7%		
6	Do you consider the demands from other external financiers unreasonably high?	26.3%	50.6%	49.4%	73.7%		
7	If your company was able to borrow at more advantageous terms, would you in that case want to borrow more?	40.9%	61.1%	38.9%	59.1%		
Nr	Question	"Yes, and approved"		"Yes, not approved"		"Not applied"	
8	Has your company applied for any kind of bank loan in the last 5 years? In that case, was it approved?	45.1%	63.8%	2.9%	13.1%	28.4%	46.6%
9	Has your company applied for any kind of new equity financing in the last 5 years? In that case, was it approved?	4.3%	15.7%	-0.9%	2.7%	83.2%	95.0%
10	Has your company applied for aloan from ALMI within the last 5 years? In that case, was it approved?	1.1%	9.4%	-0.7%	4.2%	88.2%	97.7%

The firms are generally optimistic about their ability to obtain external financing if they should want to as illustrated in graph 10 in detail.

Graph 10. "What are the prospects for your company to obtain financing from…"
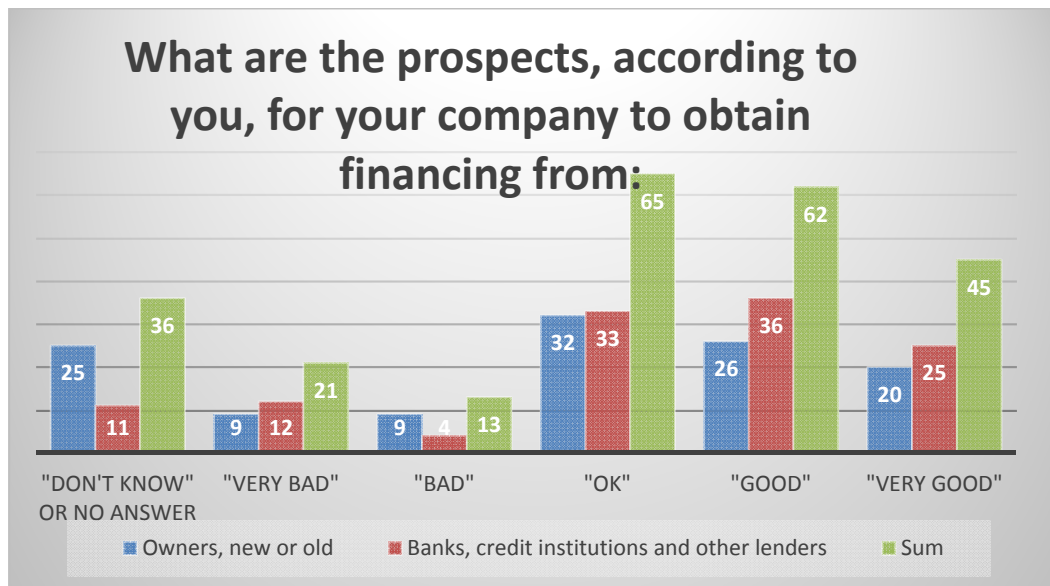
There is large congruence between the respondents perceived optimal capital structure (Q1 in graph 11) and their stated actual (Q2) which indicates that they are content with their current financing arrangements for the most part. Of the 80 companies answering both questions 60 stated a higher actual than optimal debt-to-equity ratio indicating a desire to lower leverage for most firms. Somewhat contradicting this is their financing plans for future growth (Q3) hinting at a desire to increase leverage to a greater extent. Though this is misrepresentative, all of the 12 responses categorized under "MORE" stated that their expansion be financed purely by debt and any simultaneous amortization of previous debt is totally ignored by the question.

Graph 11. Stated actual and optimal capital structures.
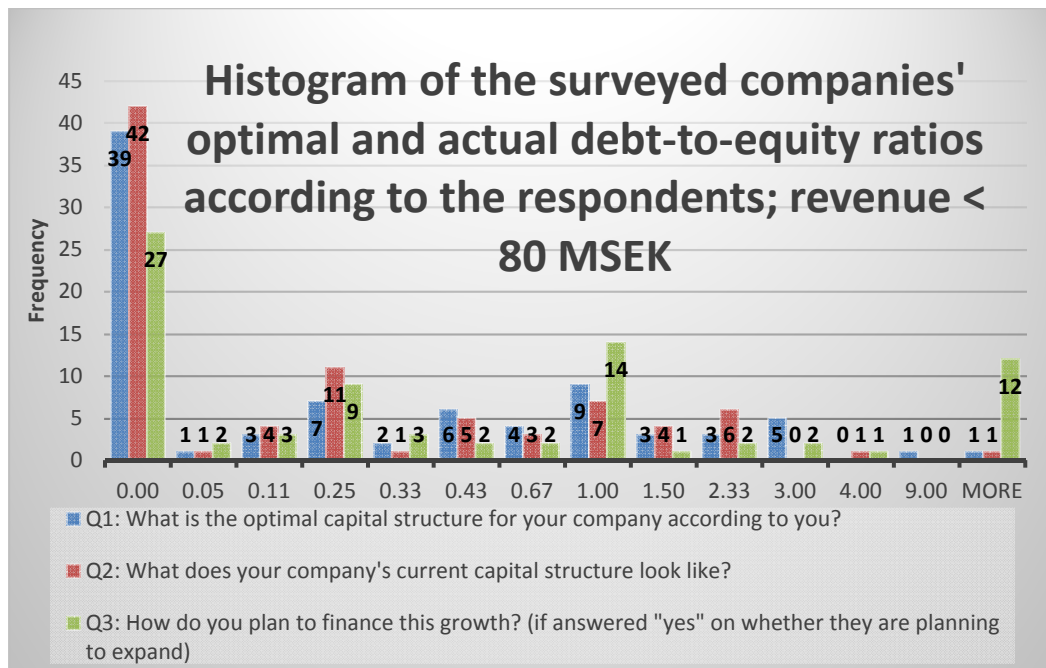
4.2.3   Concluding remarks on the survey results

The surveyed firms seem to be optimistic about their possibilities of obtaining external financing, in particular debt financing, if they should want it. On the other hand there seems to

be an unwillingness to obtain it. All sub-hypotheses points in the same direction, that *hypothesis 1* should be confirmed. Drawing that conclusion however requires qualitative assessment which leads to *Chapter 5 Analysis*.

5   Analysis

5.1   Result analysis

This study indicates that larger companies on average have a higher debt-to-equity ratio than smaller companies which is in line with earlier empirical studies (Berggren, 2003; Berger & Udell, 1998). From this it may be suggested that smaller companies on average supports a less than optimal capital structure. Large companies can be assumed to be governed in a rational manner by their staff of professional managers. Their administration can be assumed to possess the necessary resources in the form of employee time, competence and coordination to focus financing costs in their cost minimizing efforts and the organization has a proven ability of delegating tasks, thus making it easier to expand operations – and thereby to finance the expansion – when business conditions are right. A smaller company might very well feel inclined to pass up lucrative business opportunities – requiring financing – due to their lack of said resources and experience of expanding. If the small company feels at unease with expanding it is definitively common sense to err on the cautious, i.e. it may be considered rational behaviour. From a larger perspective the capital structure would still be considered suboptimal however, because they could benefit themselves, the owners and all the other parties affected by the foregone expansion simply by being a little bit more aggressive.

If the assumption about large companies having approximately optimal capital structures hold and if the difference in capital structures between small and large companies cannot be explained by reasons other than firm unwillingness the capital structures of smaller companies may be said to be suboptimal on average, i.e. that a financial gap exists. This suboptimality still may be explained by information asymmetry, larger systematic (non-diversifiable) risks in smaller companies or higher transactions costs in lending to smaller companies. However, the large quantitative difference between smaller and larger companies found in the linear relationship makes these factors intuitively seem incomplete. The primary reason for the discrepancy rather seems to be firm unwillingness due to the finding that small firms largely do not want to borrow if they can avoid it. This conclusion supports the results gathered from the Federal Reserve Board's 2003 Survey of Small Business Finances (Mach & Wolken, 2006), a nationally conducted survey of American small businesses. Financing does not seem to be a constraining factor amongst smaller businesses as measured by the question what the largest problem posing their business is. Contradicting this are the conclusions drawn from the two World Bank studies, the first by Schiffer & Weder (Schiffer & Weder, 2001) and the second by Beck, et al (Beck, et al., 2002). The worldwide nature of those studies should however comprise a less accurate comparison with the Swedish market than an American study should. Both USA and Sweden have relatively highly developed credit markets compared to large parts of the rest of the world.

As predicted, accounting information reveals a financial gap within small companies in the construction industry. Does this mean that the accounting information is useful? Yes, in many

ways it is. Accounting information is supposed to help investors make good investment decisions and since it can reveal a financial gap, which means that there are investment opportunities, the accounting information in this case can be said to be useful information. In this study debt-to-equity ratio was used to define the financial gap. Debt-to-equity ratio should definitely not be the only factor considered though, many other aspects must be taken into account when making investment decisions – e.g. profitability, cash flow. The implications for creditors' are to use capital structure to find those who might suffer from a financial gap. If a company that seems to be profitable shows a lower debt to equity ratio than similar companies in the same sector – a business opportunity could exist. That said it is not set that the company is interested in external capital which has been discussed.

Earlier research has shown that leverage correlates positively with growth possibilities in small firms (Huynh & Petrunia, 2010) and that the financial gap hinders the companies' growth (Beck, et al., 2002). The survey results reveals that many companies that have applied for loan also have received it. The results when asked about if lacking availability of external debt/equity capital constrained the growth rate, a clear majority said "no" which implies that supply of external capital is not the problem. Yet, a large proportion still feels constrained and not all companies that have applied for new capital have received it. The reasons that their applications have not been approved can be many. One reason could be that their financial reports were too simple or faulty since small companies can experience troubles communicating the quality of the company (Svensson, 2003). This is closely related to in which extent the manager is involved in the process of producing the financial reports (Blomkvist, 2008).

What is possible to infer from the data is that a large proportion of the respondents prefer all-equity financing or very low debt-to-equity ratios. Since these numbers cannot be directly compared against the calculated ones from the annual reports a reference number is not easily construed, but a debt-to-equity ratio of 0.33 implies 75 % equity and 25 % debt, which generally can be considered conservative. Again unwillingness to borrow is observed. The proportions found in questions about loans or equity in the last five years are generally expected, it is well known that many companies finance themselves with bank loans, few of the sample firms are publicly traded and ALMI is not a very large actor on the capital markets. Though, the large "Not applied" proportion for bank loans is somewhat noteworthy, again a pattern that could be perceived to indicate unwillingness to borrow. In the survey internally raised capital is embedded in "equity" when asked about it which makes it impossible to know for sure whether the respondents' mean new equity or internally generated profits when illustrating optimal capital structure. However since only a few respondents have applied for new equity in the last five years it is natural to believe that by equity the respondents' mean internally generated profits and not new equity. The order in which the companies prefer capital is therefore in line with the pecking-order which prefers internally raised capital before loans.

A majority of the respondents also did not think that the demands from creditors or other investors were too high. Even if many of the respondents say that they want their business to grow, they don't want to grow at any price. Though compared to the question if they feel constrained by the availability of debt finance the majority is not as overwhelming, i.e. a large number of firms still replied that they do consider creditor demands unreasonably high. This difference may partly be attributed to a natural desire amongst the companies to lower costs and lessen financial responsibilities regardless of their growth plans, it is basically always a good thing to do those things. The trade-off-theory explains that companies weigh cost and benefit when determining capital structure (Fama & French, 2002). The cost of losing autonomy might be a reason not to use external capital. The primary goal for many of the companies is probably autonomy and surviving, growing comes secondly to that. This could explain the answers to question E that otherwise are quite remarkable. If the question is taken to its extreme; who would not want to borrow at no cost? Again various interpretations can be made, this time concerning how much more advantageous terms would be had. In either case does the large part of "No" answers indicate an unwillingness to borrow just for the sake of it, a pattern that appears again. From this it can sensed a pride in not borrowing money, which can be considered something bad if autonomy is the primary goal. In addition to this, some small company managers might not have much knowledge about the capital markets and what it can offer them (Landström, 2003). An interesting (yet unsurprising by virtue of most of the companies' private ownership structure) finding that supports this is the frequency of respondents that answered that they did not know when asked about availability and demands from equity investors.

5.2 Method analysis

5.2.1 Part I: The study based on numbers from annual reports

Part I aims to test whether it is possible to identify a financial gap through financial reports. Its premise, which is that the financial gap exists, can be questionable and relies on the truthfulness of earlier empirical studies which led to it. If the result would have revised the hypothesis, it could either mean that there is no financial gap, or that it exists but it is impossible to see through the financial reports. Even though the data has been checked for different kind of errors as is described in the method, some can still exist. Some companies that are coded as construction businesses might be involved in other businesses as well.

5.2.2 Part I a: Evaluating the use of debt-to-equity ratio for creditors

This part of the study aims to know if debt-to-equity ratio is a useful measurement for creditors. The method is simple and the validity and reliability can be questionable because it relies fully on the validity and reliability of the method in part I If the study of part I would not have revealed a financial gap, the conclusion could be that the debt-to-equity ratio is not a useful measurement for creditors which could be wrong. The method therefore also relies on the truthfulness of earlier empirical studies which led to the premise.

5.2.3 Part II: The survey

The survey aims to test the hypothesis whether small companies don't want to finance growth with external capital. The questions asked focuses on how the companies plan to finance their growth, which capital structure they prefer, how they experience the access to capital markets and if they have applied for loans or new equity. The answers that are given points to the fact that there is a lacking demand for external financing. The possibility to come to this conclusion means that the questions asked measures what they are supposed to measure and the survey is somehow valid. Ideally though, a larger sample of larger companies would have been collected facilitating comparisons between large company and small company attitudes. Reliability can be split into four pieces measuring congruence, precision, objectivity and consistency. The survey shows congruence since it is standardized and all respondents are approached in the same way. Precision and objectivity is achieved through structured questions and the fill in form which makes it hard for the respondent to give an unintended answer and hard for us to misunderstand the given answers. Consistency is about giving all respondents' the same conditions when answering. In this case, the survey was sent out on business hours but at different hours. This could affect the response rate and also the respondents' attitudes. The non-responses by the survey responders consist of "don't know" answers and skipping the question in its entirety making the responses received all the more relevant since they come from – hopefully – knowledgeable individuals. Coupled with promised anonymity, bias is kept to a minimum. The wording of the 65-responses question probably contributed to the low number of responses – instead of "other external financiers" "new or old owners" could have been used for greater specificity. It is noteworthy, but not surprising, that the last three, more concrete questions collected the most replies. It is more likely that someone would hold a definitive opinion on more practical issues.

A large discrepancy on the other hand exists between their stated actual and the one calculated from annual reports. In this paper it is the companies' own attitudes that are of interest and the discrepancy can be explained by there being a large number of ways of calculating the ratio. In general the discrepancy is on the low side for the stated actual debt-to-equity ratio which for example might be motivated by the use of market (or model) value for equity instead of book value, since market value tends to be higher.

6 Conclusions

Small growth companies within the construction industry have a significantly lower debt-to-equity ratio than large growth companies with a similar risk-profitability profile. If it is assumed that large companies have an approximate optimal capital structure, the conclusion is that small companies suffer from a financial gap. The financial gap is identified through their annual reports by comparing the debt-to-equity ratios among size categories. Since the financial gap indicates investment opportunities and because it can be identified by the relationship between debt and equity contained in annual reports, the debt-to-equity ratio may be considered relevant and useful information. Even though the financial gap indicates business opportunities for creditors, it is not set that there is a demand for external capital since small company managers does not favor external capital. They rather want to finance growth entirely by internally raised capital. Together with the fact that most of the companies that have applied for a loan have gotten it approved, facts point towards a lack in demand for external financing amongst small companies.

6.1 Future research

The relatively large response rate from the survey in this study indicates the possibility to make similar surveys with good response rates. It would be interesting to look at other industries and countries as well as differences between them. This is true for the study of information from annual reports as well. Performing a logistic regression with country or industry as an independent variable could produce some interesting results and more control variables than utilized here would generally also be a good idea. This could facilitate a more flexible regression model where the relationship of leverage is also tracked across time.

7 References

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

Beck, T., Demirgüç-Kunt, A. & Vojislav, M., 2002. *Financial and legal constraints to firm growth: does size matter?,* Washington D.C.: The World Bank.

Berger, A. N. & Udell, G. F., 1998. The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. *Journal of Banking & Finance,* 22(6-8), pp. 613-673.

Berggren, B., 2003. Tillväxt och lönsamhet i småföretag -finansiärers bidrag sett ur företagets perspektiv. i: *Småföretaget och kapitalet.* Stockholm: SNS Förlag, pp. 46-64.

BFNAR, 2011. *FAR online.* [Online] Available at: http://www.faronline.se/Dokument/B/BFNAR20080001/?path=/3/8/26650/ [Accessed 04 05 2015].

BFNAR, 2014. *FAR online.* [Online] Available at: http://www.faronline.se/Dokument/B/BFNAR20120001/?path=/3/8/26715/ [Accessed 04 05 2015].

Blomkvist, M., 2008. *Entreprenörer som redovisare -bokslutsprocessen i Gasellföretag.* Göteborg: Bokförlaget BAS.

Bradley, M., Jarrel, G. A. & Kim, E. H., 1984. On the Existence of an Optimal Capital Structure: Theory and Evidence. *The Journal of Finance,* XXXIX(3), pp. 857-878.

Bryman, A. & Bell, E., 2015. *Business research methods.* 4th ed. Oxford: Oxford University Press.

European Comission, 2014. *Legal content.* [Online] Available at:

http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2014:903:FIN [Accessed 10 April 2015].

Fama, E. F. & French, K. R., 2002. Testing Trade-Off and Pecking Order. *The Review of Financial Studies,* 15(1 (Spring)), pp. 1-33.

Giordani, P., Jacobsen, T., von Schedvin, E. & Villani, M., 2014. Taking the Twists into Account: Predicting Firm Bankruptcy Risk with Splines of Financial Ratios. *Journal of Financial and Quantitative Analysis,* 49(4), pp. 1071-1099.

Hagberg, A., 2006. *Nyckeltal och konkurs: En studie av svenska företag 1998-2003,* Göteborg: s.n.

Hagberg, A., 2012. *Lönsamhet och finansiell flexibilitet Rederinäringen i Sverige 1997-2006.* 1st red. Göteborg: Bokförlaget BAS .

Huynh, K. P. & Petrunia, R. J., 2010. Age effects, leverage and firm growth. *Journal of Economic Dynamics and Control,* Issue 34, pp. 1003-1013.

IASB, 2001. *Redovisning.* [Online] Available at: http://www.faronline.se/Dokument/I/IASBFORESTALLNINGSRAM/?path=/3/8/26734/26744/ [Accessed 18 May 2015].

International Labour Organization, 2001. *The construction industry in the twenty-first century: Its image, employment prospects and skill requirements.* [Online] Available at: http://www.ilo.org/public/english/standards/relm/gb/docs/gb283/pdf/tmcitr.pdf [Accessed 27 05 2015].

Johansson, S.-E. & Runsten, M., 2005. *Företagets lönsamhet, finansiering och tillväxt : mål, samband och mätmetoder.* 3d red. Lund: Studentlitteratur.

Landström, H., 2003. *Småföretaget och kapitalet.* 1 red. Stockholm: SNS Förlag.

Laufer, M. E. & Wennberg, K., 2014. *Publikationer.* [Online] Available at: http://ratio.se/app/uploads/2014/11/financing-future-job-creators.pdf [Accessed 10 April 2015].

Long, M. S. & Malitz, I. B., 1985. Investment Patterns and Financial Leverage. In: B. M. Friedman, ed. *Corporate Capital Structures in the United States.* Chicago: University of Chicago Press, pp. 325-352.

Mach, T. L. & Wolken, J. D., 2006. Financial Services Used by Small Businesses: Evidence from the 2003 Survey of Small Business Finances. *Federal Reserve Bulletin,* pp. A167-A195.

Marton, J., Lumsden, M., Lundqvist, P. & Pettersson, A. K., 2013. *IFRS - i teori och praktik.* 3d red. u.o.:Sanoma Utbildning.

Meyers, S. C. & Majluf, N. S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics,* 13(2), pp. 187-221.

Meyers, S. C. & Majluf, N. S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics,* p. 219.

Modigliani, F. & Miller, M. H., 1958. The Cost of Capital, Corporation Finance and the Theory of Investment. *American Economic Review,* Vol. XLVIII(3), pp. 261-297.

Modigliani, F. & Miller, M. H., 1963. Corporate Income Taxes and the Cost of Capital: A Correction. *American Economic Review,* 53(3), pp. 433-444.

Power, M., 2004. Counting, control and calculation: Reflections on measuring and management. *Human Relations,* pp. Vol 57(6): 765-783.

Raghuram, R. G. & Zingales, L., 1995. What Do We Know about Capital Structure? Some Evidence from International Data. *The Journal of Finance,* L(5), pp. 1421-1460.

Schiffer, M. & Weder, B., 2001. *Firm Size and the Business Environment: Worldwide Survey Results,* Washington D.C.: The World Bank and International Finance Corporation.

Sharpe, W. F., 1994. The Sharpe Ratio. *The Journal of Portfolio Management,* 21(1), pp. 49-58.

Sharpe, W. F., 1997. *Morningstar's Performance Measures.* [Online] Available at: http://web.stanford.edu/~wfsharpe/art/stars/stars0.htm [Accessed 25 05 2015].

Svensson, B., 2003. *Redovisningsinformation för bedömning av små och medelstora företags kreditvärdighet.* Uppsala: Uppsala Universitet.

Thomas, S. E., 1932. *The Macmillan Report, a short summary of its main points..* 1 ed. St. Albans: Metropolitan College.

Titman, S. & Wessels, R., 1988. The Determinants of Capital Structure Choice. *The Journal of Finance,* XLIII(1), pp. 1-19.

Treacy, W. F. & Carey, M., 2000. Credit risk rating systems at large US banks. *Journal of Banking and Finance,* Volume 24, pp. 167-201.

Treacy, W. F. & Carey, M. S., 1998. *Federal Reserve Bulletin.* [Online] Available at: http://www.federalreserve.gov/pubs/bulletin/1998/98index.htm [Accessed 21 May 2015].

Trost, J., 2012. *Enkätboken.* 4th ed. Lund: Studentlitteratur.

Webropol, 2015. *Webropol.* [Online] Available at: https://www.webropolsurveys.com/Home.aspx [Accessed 14 April 2015].

Williamson, S. H., 1982. *THE MORAL HAZARD THEORY OF CORPORATE FINANCIAL STRUCTURE: EMPIRICAL TESTS,* s.l.: Massachusetts Institute of Technology.

Winborg, J., 2003. Pengar är inte alltid lösningen -användningen av finansiell bootstrapping i små företag. i: *Småföretaget och kapitalet.* Stockholm: SNS Förlag, pp. 29-44.
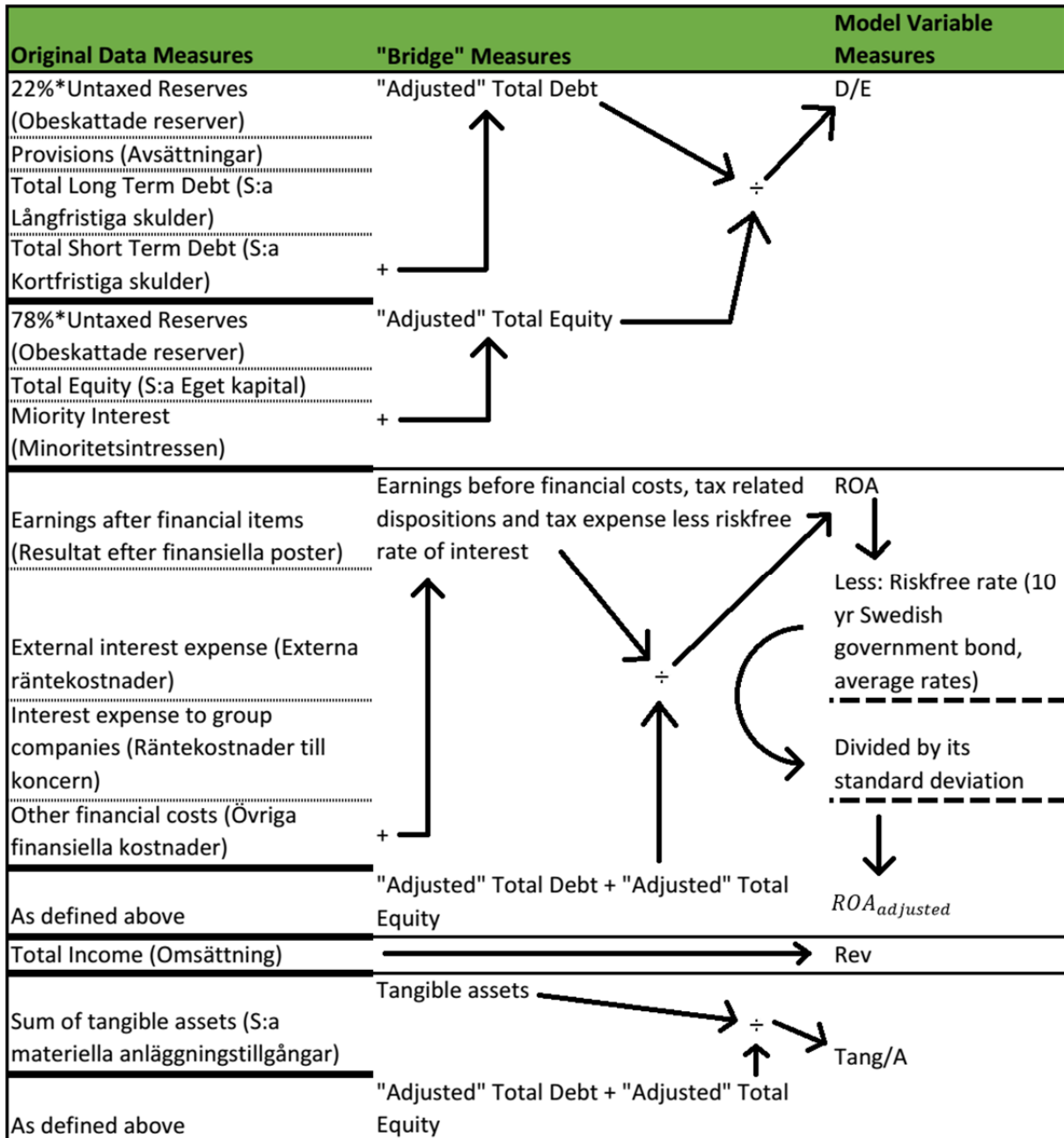
Appendix 1a: A list of extracted data points (in Swedish)

Bolagsnamn	S:a finansiella anläggningstillgångar (tkr)
Org. nr	S:a anläggningstillgångar (tkr)
Bokslutsår	Pågående arbeten för annans räkning (tkr)
Valuta	Övrigt varulager (tkr)
Antal anställda, aktiebolag (st)	S:a varulager (tkr)
Omsättning (tkr)	Kundfordringar (tkr)
Nettoomsättning, aktiebolag (tkr)	Fordr. hos koncern- och intresseföretag (tkr)
Kostnad sålda varor (tkr)	Övriga kortfristiga fordringar (tkr)
Bruttoresultat (tkr)	S:a kortfristiga fordringar (tkr)
Försäljningskostnader (tkr)	Kortfristiga placeringar (tkr)
Administrationskostnader (tkr)	Kassa och bank (tkr)
FoU-kostnader (tkr)	Övriga omsättningstillgångar (tkr)
Förändring av lager mm (tkr)	S:a omsättningstillgångar (tkr)
Aktiverat arbete egen räkning (tkr)	Totala tillgångar (tkr)
Råvaror & förnödenheter (tkr)	Aktiekapital (tkr)
Handelsvaror (tkr)	Överkursfond (tkr)
Personalkostnader (tkr)	Uppskrivningsfond (tkr)
Avskrivningar (tkr)	Övrigt bundet eget kapital (tkr)
Jämförelsestörande poster (tkr)	Balanserat resultat (tkr)
Övriga rörelseintäkter (tkr)	Erhållet/lämnat koncernbidrag (tkr)
Övriga rörelseintäkter - funkindelat (tkr)	Erhållet/lämnat aktieägartillskott (tkr)
Övriga rörelsekostnader (tkr)	Årets resultat (tkr)
Övriga externa kostnader (tkr)	ÅR = ÅR
Rörelseresultat (EBIT) (tkr)	S:a Utdelningsbart kapital (tkr)
Resultat från andelar i koncern- och intresseföretag (tkr)	S:a eget kapital (tkr)
Ränteintäkter från koncernbolag (tkr)	Obeskattade reserver (tkr)
Externa ränteintäkter (tkr)	Minoritetsintressen samt vinst/förlust i dotterbolag (tkr)
Räntekostnader till koncern (tkr)	Avsättningar (tkr)
Externa räntekostnader (tkr)	Obligationslån (tkr)
Övriga finansiella intäkter (tkr)	Skulder till kreditinstitut, långa (tkr)
Övriga finansiella kostnader (tkr)	Skulder till koncern- och intresseföretag, långa (tkr)
Jämförelsestörande finansiella poster (tkr)	Övriga långfristiga skulder (tkr)
Resultat efter finansnetto (tkr)	S:a långfristiga skulder (tkr)
Extraordinära intäkter (tkr)	Skulder till kreditinstitut, korta (tkr)
Extraordinära kostnader (tkr)	Leverantörsskulder (tkr)
Koncernbidrag (tkr)	Skulder till koncern- och intresseföretag, korta (tkr)
Aktieägartillskott (tkr)	Övriga kortfristiga skulder (tkr)
Bokslutsdispositioner (tkr)	S:a kortfristiga skulder (tkr)
Skatt (tkr)	S:a eget kapital och skulder (tkr)
Minoritetsintressen (tkr)	Företagsinteckningar (tkr)
Årets resultat (tkr)	Fastighetsinteckningar (tkr)

Tecknat ej inbetalt kapital (tkr)	Övriga säkerheter (tkr)
Balanserade utgifter FoU (tkr)	S:a säkerheter (tkr)
Patent, licenser mm (tkr)	Villkorat aktieägartillskott (tkr)
Goodwill (tkr)	Övriga ansvarsförbindelser (tkr)
Övr. immateriella anläggningstillg. (tkr)	S:a ansvarsförbindelser (tkr)
S:a immateriella anläggningstillgångar (tkr)	Utdelning (tkr)
Byggnader och mark (tkr)	Beviljad checkräkningskredit (tkr)
Maskiner (tkr)	Utnyttjad checkräkningskredit (tkr)
Inventarier (tkr)	Kommunkod
Maskiner och inventarier (tkr)	Länskod
Övriga materiella anläggnings tillgångar, ej avskrivningsbara (tkr)	Telefonnummer
Övr. materiella anläggningstillg., avskr. (tkr)	Reg. datum
S:a materiella anläggningstillgångar (tkr)	Avreg. datum
Andelar i koncern- och intresseföretag (tkr)	Koncernmoder org. nr
Fordr. på koncern- och intresseföretag (tkr)	Koncern modernamn
Lån till delägare och närstående (tkr)	Kommunsäte
Övriga finansiella anläggningstillgångar (tkr)	Länsäte

Appendix 1b: Relationships between the data and the variables

Original Data Measures	"Bridge" Measures	Model Variable Measures
22%*Untaxed Reserves (Obeskattade reserver)	"Adjusted" Total Debt	D/E
Provisions (Avsättningar)		
Total Long Term Debt (S:a Långfristiga skulder)		
Total Short Term Debt (S:a Kortfristiga skulder)	+	
78%*Untaxed Reserves (Obeskattade reserver)	"Adjusted" Total Equity	
Total Equity (S:a Eget kapital)		
Miority Interest (Minoritetsintressen)	+	
Earnings after financial items (Resultat efter finansiella poster)	Earnings before financial costs, tax related dispositions and tax expense less riskfree rate of interest	ROA
External interest expense (Externa räntekostnader)		Less: Riskfree rate (10 yr Swedish government bond, average rates)
Interest expense to group companies (Räntekostnader till koncern)	÷	Divided by its standard deviation
Other financial costs (Övriga finansiella kostnader)	+	
As defined above	"Adjusted" Total Debt + "Adjusted" Total Equity	$ROA_{adjusted}$
Total Income (Omsättning)		Rev
Sum of tangible assets (S:a materiella anläggningstillgångar)	Tangible assets	Tang/A
As defined above	"Adjusted" Total Debt + "Adjusted" Total Equity	

Appendix 1c: Truncated companies

Aktiebolaget Nordgrund
Amanco Holding AB
Andersson Bygg i Helsingborg AB
Artes BAS AB
ASSOL' Retro AB
Br. Erlandsson i Ystad Bygg o Allservice AB
Bulldog Bygg AB
Conkliv AB
DOMATIS BYGG AB
E.Storm-Säkra tak och bygg AB
ENVIRO BYGG AB
Hönö Husbyggen Aktiebolag
Kungdiam Aktiebolag
MICHAEL EMILSSON MURTJÄNST AB
Nordic trend Bygg & Interiör AB
Norrjobb AB
Nybrostrands Bygg & Anläggning AB
Operia Bygg och Anläggningstjänster i Stockholm AB
Otto Jacobssons Maskiner i Romelanda AB
P.Z.Ställningar AB
Rixmekanik Aktiebolag
Schermans Betongpumpar Aktiebolag
SERNEKE GROUP AB
Stabile Bygg & Ställningar AB
Swebel bygg AB
Thomas Lundström Byggnads Aktiebolag
Tilda & Co AB
Topanga Bygg och Kakel AB
Verkviken AB
VKF Bygg & Betong AB
Waldi Bygg AB
YEKTA BYGG AB
Älvsjö Glas & Byggtjänst AB
Ängby Byggnads & Entreprenad AB

Appendix 2: Survey (in Swedish)

Finansiering i tillväxtbolag

Tack för din medverkan! Vänligen ange:

Svaren används enbart som underlag för statistik och är helt anonyma i rapporten.

Företag / Organisation _____

Befattning _____

Hur väl insatt är du i frågor som rör företagets finansiering?

○ Väldigt dåligt insatt

○ Dåligt insatt

○ Ganska insatt

○ Väl insatt

○ Väldigt väl insatt

Finns det idag planer på att få företaget att växa?

○ Ja

○ Nej

Hur planerar ni att finansiera denna tillväxt?

Fördela 100 på de olika alternativen som ni har för avsikt att använda er utav. Om du inte vet, lämna denna fråga blank.

Lån från bank eller andra kreditinstitut _____

Andra lån _____

Nyemission _____

Balanserade vinster _____

Summan är 0

Hur ser enligt dig möjligheterna ut för ditt företag att erhålla nytt kapital från:

Vet ej	Mycket dåliga	Dåliga	Ok	Bra	Mycket bra

Ägare, nya eller gamla	○	○	○	○	○	○
Banker, kreditinstitut och andra långivare	○	○	○	○	○	○

Hindras företagets tillväxttakt av att det inte finns tillräcklig tillgänglighet till lån?

○ Ja

○ Nej

○ Vet ej

Hindras företagets tillväxttakt av att det inte finns tillräcklig tillgänglighet till nytt ägarkapital?

○ Ja

○ Nej

○ Vet ej

Upplever du att kraven från kreditgivare är orimligt höga?

○ Ja

○ Nej

○ Vet ej

Upplever du att kraven från andra externa finansiärer är orimligt höga?

○ Ja

○ Nej

○ Vet ej

Om ditt företag fick möjlighet att låna till mer förmånliga villkor, skulle ni i så fall vilja låna mer?

○ Ja

○ Nej

○ Vet ej

Hur ser den optimala kapitalstrukturen för ditt företag ut enligt dig?

Fördela 100. Eller om du inte vet - lämna blank.

Eget kapital _____

Skulder   _____

Summan är 0

Hur ser företagets kapitalstruktur ut idag?

Fördela 100. Eller om du inte vet - lämna blank.

Eget kapital _____

Skulder   _____

Summan är 0

Har ditt företag ansökt om någon form av banklån de senaste 5 åren? Blev det i så fall beviljat?

○ Ja, har ansökt och fått det beviljat

○ Ja, har ansökt men ej fått det beviljat

○ Nej, har ej ansökt

○ Vet ej

Har ditt företag ansökt om någon form av nytt ägarkapital de senaste 5 åren? Blev det i så fall beviljat?

○ Ja, har ansökt och fått det beviljat

○ Ja, har ansökt men ej fått det beviljat
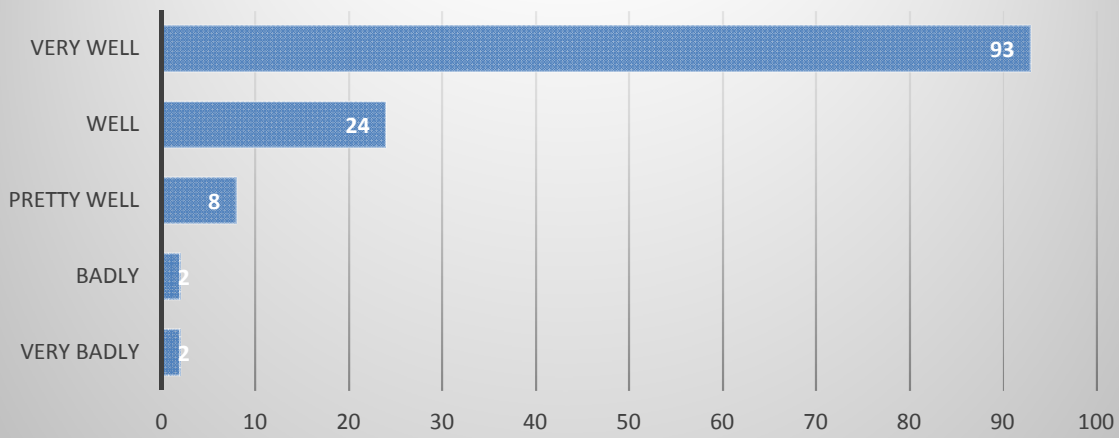
○ Nej, har ej ansökt

○ Vet ej

Har ditt företag ansökt om lån hos ALMI de senaste 5 åren? Blev det i så fall beviljat?

○ Ja, har ansökt och fått det beviljat

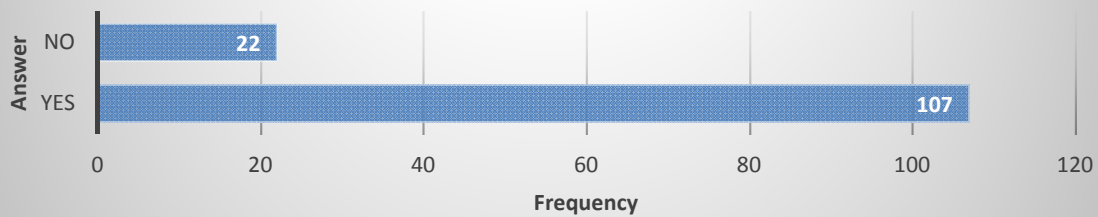○ Ja, har ansökt men ej fått det beviljat

○ Nej, har ej ansökt

○ Vet ej

0% genomfört (0 av 8 sidor)

Appendix 2: Results from the survey

How well do you know about issues regarding the company's financing?

Answer	Frequency
VERY WELL	93
WELL	24
PRETTY WELL	8
BADLY	2
VERY BADLY	2

Are there today any plans on making the company grow?

Answer	Frequency
NO	22
YES	107

Frequency

How do you plan to finance this growth?

Debt-to-equity ratio	Frequency
0,00	43
0,05	3
0,11	4
0,25	9
0,33	3
0,43	2
0,67	2
1,00	19
1,50	1
2,33	2
3,00	4
4,00	4
9,00	1
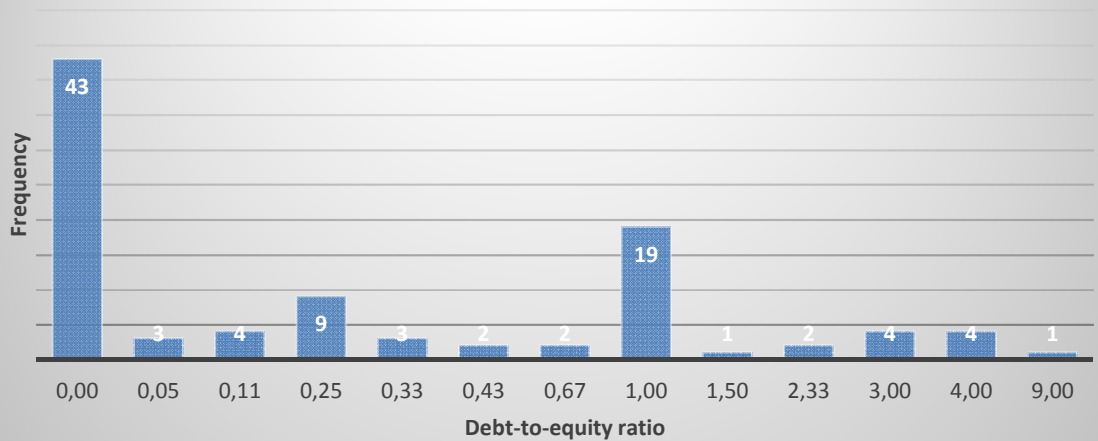
What are the prospects, according to you, for your company to attain capital from:
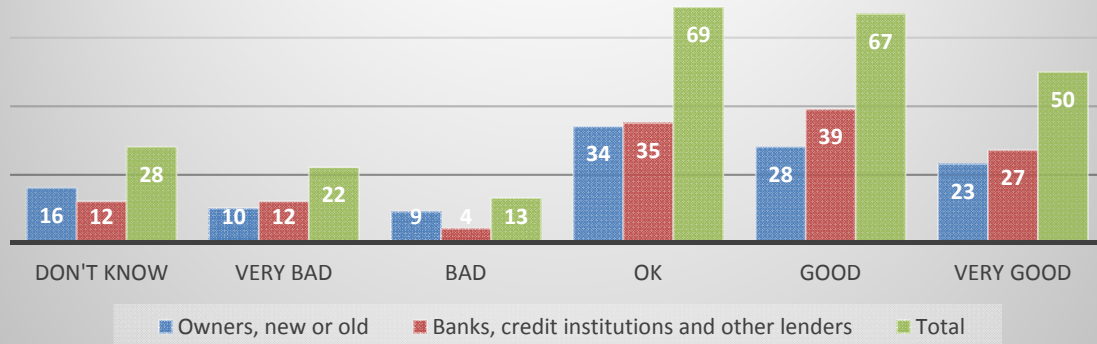
	DON'T KNOW	VERY BAD	BAD	OK	GOOD	VERY GOOD
Owners, new or old	16	10	9	34	28	23
Banks, credit institutions and other lenders	12	12	4	35	39	27
Total	28	22	13	69	67	50

- Owners, new or old
- Banks, credit institutions and other lenders
- Total

Is the company´s growth rate hindered by lacking availability of debt capital?

DON'T KNOW	12
NO	85
YES	32

0 10 20 30 40 50 60 70 80 90

Is the company's growth-rate hindered by lacking availability of new equity capital?

DON'T KNOW	14
NO	90
YES	24

0 10 20 30 40 50 60 70 80 90 100

Do you consider the demands from creditors unreasonably high?

Answer	Frequency
DON'T KNOW	19
NO	63
YES	47

Do you consider the demands from other external financiers unreasonably high?
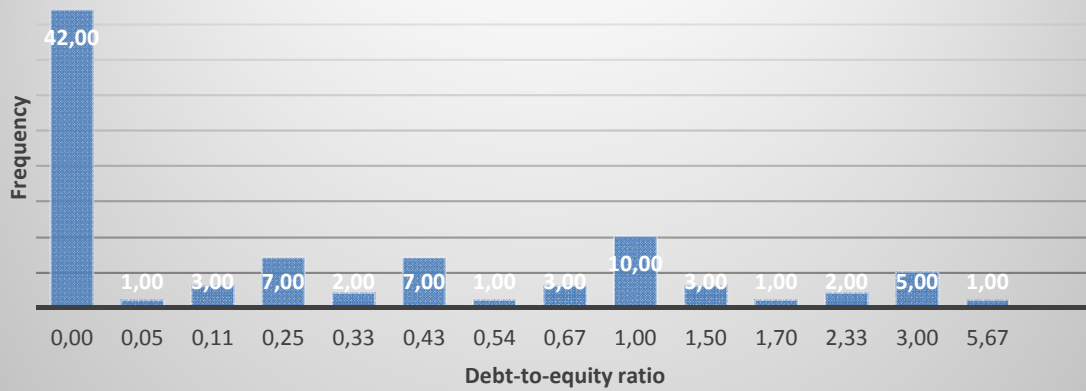
Answer	Frequency
DON'T KNOW	53
NO	47
YES	29
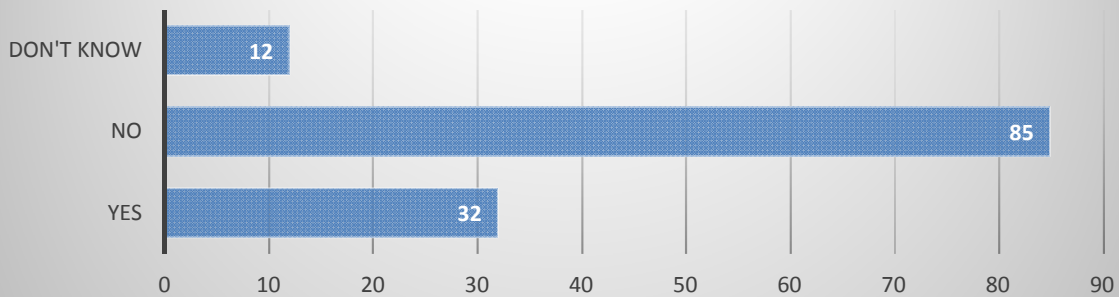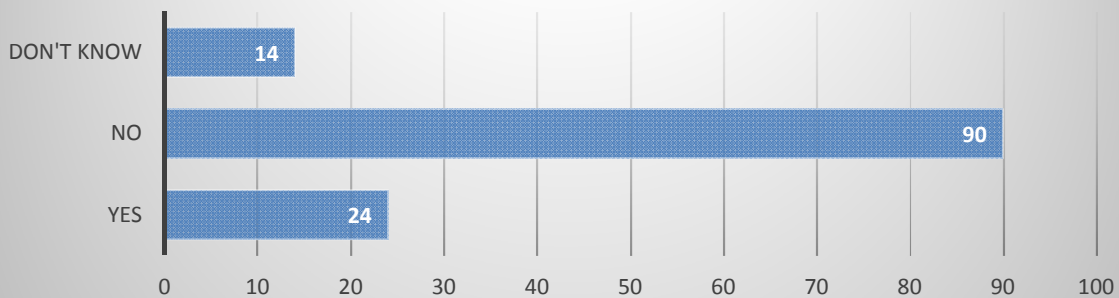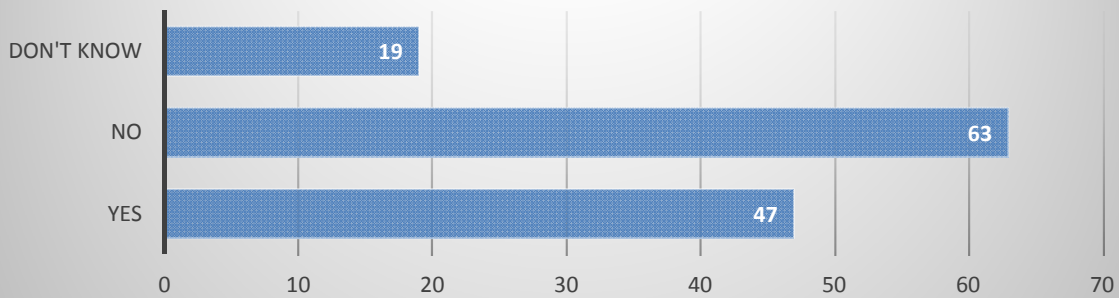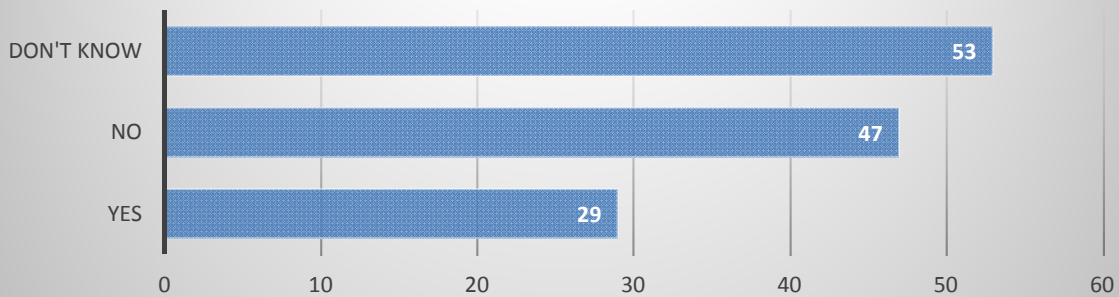
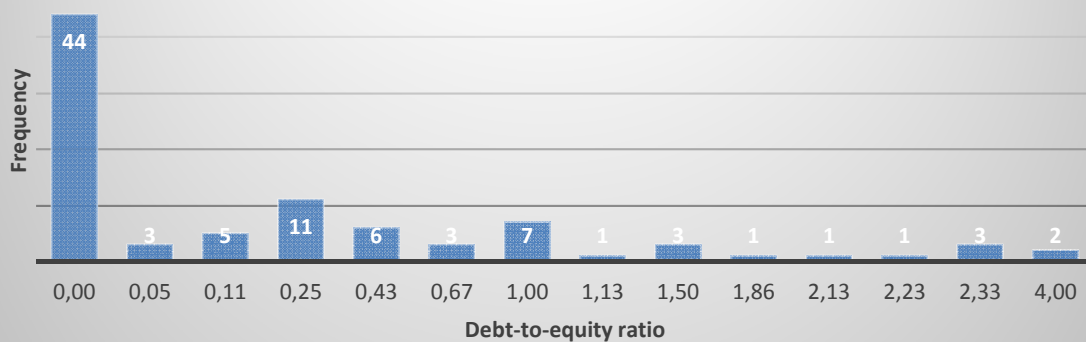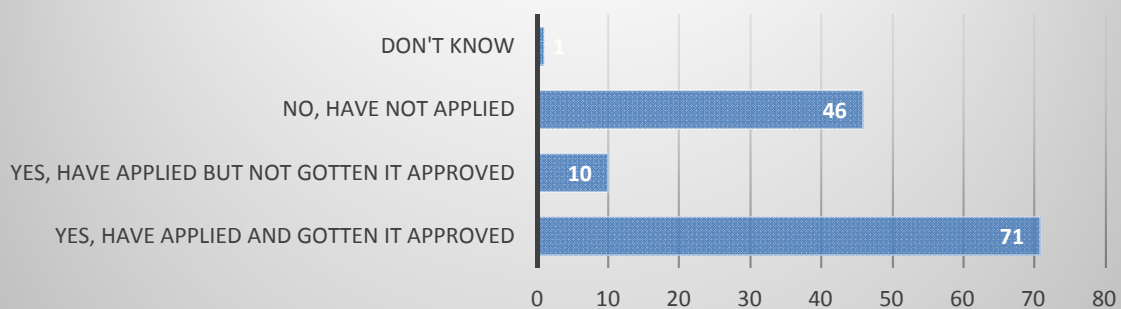# If your company was able to borrow at more advantageous conditions, would you in that case want to borrow more?
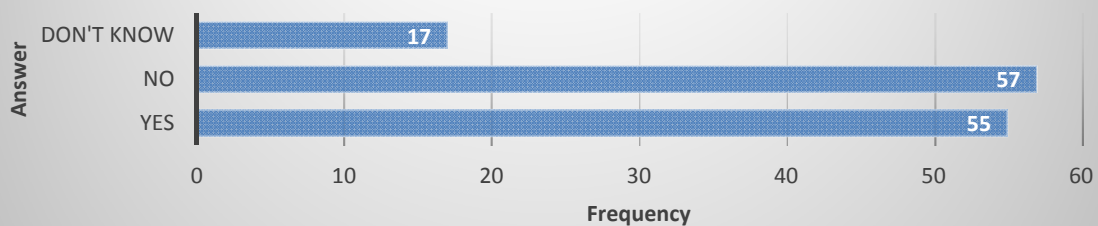
Answer	Frequency
DON'T KNOW	17
NO	57
YES	55

What is the optimal capital structure for your company according to you?

Frequency (y-axis)

Debt-to-equity ratio (x-axis): 0,00 | 0,05 | 0,11 | 0,25 | 0,33 | 0,43 | 0,54 | 0,67 | 1,00 | 1,50 | 1,70 | 2,33 | 3,00 | 5,67

Debt-to-equity ratio	Frequency
0,00	42,00
0,05	1,00
0,11	3,00
0,25	7,00
0,33	2,00
0,43	7,00
0,54	1,00
0,67	3,00
1,00	10,00
1,50	3,00
1,70	1,00
2,33	2,00
3,00	5,00
5,67	1,00

What does your company's current capital structure look like?

Frequency (y-axis)

Debt-to-equity ratio (x-axis)

Debt-to-equity ratio	Frequency
0,00	44
0,05	3
0,11	5
0,25	11
0,43	6
0,67	3
1,00	7
1,13	1
1,50	3
1,86	1
2,13	1
2,23	1
2,33	3
4,00	2

Has your company applied for any kind of bank loan in the last 5 years? In that case, was it approved?

Response	Count
DON'T KNOW	1
NO, HAVE NOT APPLIED	46
YES, HAVE APPLIED BUT NOT GOTTEN IT APPROVED	10
YES, HAVE APPLIED AND GOTTEN IT APPROVED	71

Has your company applied for any kind of new equity financing in the last 5 years? In that case, was it approved?

DON'T KNOW	5
NO, HAVE NOT APPLIED	110
YES, HAVE APPLIED BUT NOT GOTTEN IT APPROVED	1
YES, HAVE APPLIED AND GOTTEN IT APPROVED	12

Scale: 0, 20, 40, 60, 80, 100, 120
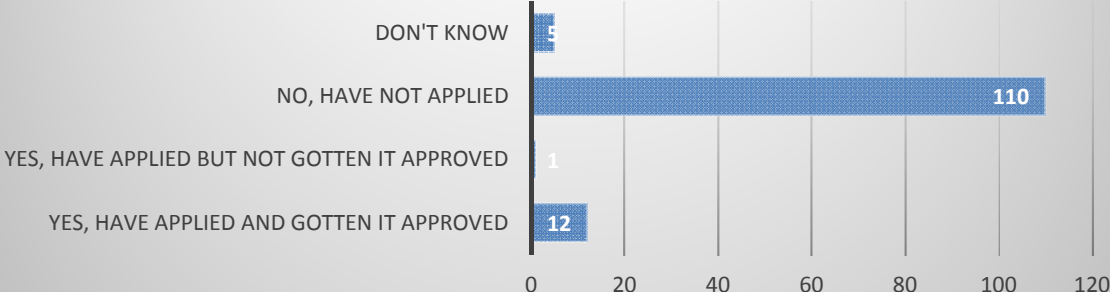
Has your compay applied for a loan from ALMI within the last 5 years? In that case, was it approved?

DON'T KNOW	1
NO, HAVE NOT APPLIED	119
YES, HAVE APPLIED BUT NOT GOTTEN IT APPROVED	3
YES, HAVE APPLIED AND GOTTEN IT APPROVED	6

Scale: 0, 20, 40, 60, 80, 100, 120, 140