Gender Effect on Corporate Risk Taking

A study of Swedish data from 2008 - 2012

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Abstract

In this thesis, data on 108 086 Swedish companies from the years 2008-2012 are examined to determine if there is a CEO gender effect on risk taking in corporations. The main risk measures chosen are *Volatility in ROE, Volatility in ROA* and *Volatility in Leverage*, intended to provide information about total risk, operational risk and financial risk. A linear regression model framework has been used in the study, controlling for several determinants of firm and personality characteristics. Firstly, results for the entire CEO population show no significant gender effect in any of the risk measures. Secondly, distinct results can be seen in companies with 1-10 employees, where the CEO gender effect decreases the volatility in all three risk measures. Thirdly, the industry comparisons show that female CEOs take lower risk if they are operating in an industry that is characterised by low risk, or if the fraction of female CEOs is high. This paper seems to be the first in Sweden to examine the CEO gender effect on corporate risk in all listed and unlisted companies.

Key words: Corporate risk taking, CEO, Gender effect, Volatility, Small firms

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1 Introduction

In recent years, women's presence in the corporate world has continuously increased. With more women being offered managing positions, being appointed board members and running their own businesses, the interest for investigating behavioural differences with respect to gender is larger than ever before. Do men and women lead companies in a different way?

On the 9th of March 2014, Elisabeth Thand Ringqvist, CEO of Företagarna, published an article in Dagens Nyheter, commenting on the organisation's recent findings on male and female CEOs in Swedish corporations. From extensive regression analysis involving all 125 529 Swedish listed and unlisted companies who have reported gender of their CEO, Företagarna came to the conclusion that the 14% of the companies having a female CEO in 2012 presented lower profit margins than the companies run by men. This is an interesting finding, but as no measure is entirely sufficient by itself, more research needs to be done to fully understand the implications of such a statement**.** Previous research has concluded that women are less risk taking than men in society at large. This fact, about gender differences, is in this study hypothesised to transfer to corporate settings, making female CEOs more risk averse in the way they lead their companies. If this is true it could help explain the differences in profit margins as well as any other research stating that men and women present differences in key ratios in any corporate area. Risk and return should go hand in hand, but important to remember is that a high or low risk is not necessarily better than the other. Acceptable risk instead depends on the investor's personal risk tolerance.

Previous research about individuals' influence on corporate risk exists, but show somewhat ambiguous results concerning whether gender matters or not. Those studies are though most often limited to listed companies. This could be because information about key ratios is more difficult to obtain for smaller corporations and moreover there is no optimal, commonly accepted, way to measure risk in private companies. This study handles real historical numbers presented by more than 100 000 Swedish companies, and assesses not *perceived* but *actual* accounting based risk in Swedish corporations. By solely focusing on the CEO and since also including small companies in the study, this is an area that has never been assessed in Sweden before. The purpose of the study is to investigate if there is a gender effect on risk in Swedish companies, and if this potential effect changes along different risk measures, components, industries and employee constellations. The objective is to map out the gender effect on risk in all types of companies to understand when differences might occur. Looking at various company sizes could potentially create the currently missing bridge in the gap between what has already

been concluded about individual risk behaviour in society and the behaviour of leaders of large firms.

The dataset has been collected from the database Retriever, containing information from annual reports in the years 2008-2012. All data points for companies that have not reported any information about their turnover for a certain year have been deleted for that corresponding year and extreme outliers have been excluded through John Turkey's boxplot method. The gender of the CEO is only available for the latest reported year in the dataset, and as the main risk variables refer to the volatility over the five year period, all other variables included in the regressions have also been transformed into only having one data point, a mean value over the five years. Thus, the final dataset is of cross-sectional nature rather than panel, and includes 95 421 companies.

From theories concerning risk, three risk indexes have been chosen to analyse data. These are based on Sven-Erik Johansson's formula *Hävstångsformeln;* ROE = ROA + (ROA – R_D) x D/E. This formula originally refers to performance, but through creating volatility measures over five years, an indication about the risk and stability in the company is given. The risk measures are *Volatility in ROE* as a proxy for the total risk, *Volatility in ROA* as a proxy for operational risk and the volatility in (ROA – R_D) x D/E, here called *Volatility in Leverage*, as a proxy for financial risk. It hence captures all types of the firm specific risk that could be present in corporations.

The model that has been used to test for a CEO gender effect on risk follows a linear regression model framework and has been obtained through cautious studying of two previously used models. The basis models come from *CEO succession, gender and risk taking* by Elsaid and Ursel (2009), and from *CEO, corporate risk taking and the efficiency of capital allocation* by Faccio, Marchica and Mura (2012). All variables used in these two regressions have been evaluated and adjusted to fit a study handling both large and small companies. All regressions have been run in a robust framework.

With the aim of studying the CEO gender effect on risk taking, the analysis is divided into three main areas: the overall CEO gender effect, the effect relative the company size and the effect relative the industry that the CEO operates in. In order to extract the general CEO gender effect, the three chosen risk measures are evaluated and then compared to four other measures, intended to be alternate ways of measuring the same type of risk. Thereafter, separate regressions are run to determine the CEO gender effect in different employee constellations. This is to determine if the gender effect increases or decreases when the company is smaller and the CEO compose of a larger part of the company. To further investigate if the CEO gender effect changes depending on the environment they operate in, the 15 most risky industries are

compared to the 15 least risky industries, and the 15 industries with the highest fraction of women are compared to the 15 industries with the lowest fraction of women.

The results from the overall CEO gender effect on risk taking, using the whole sample, outliers excluded, show no significant signs of a gender effect in any of the three risk measures. Also when using alternative risk measures the results hold for both total risk and financial risk. Operational risk shows significant results if using another measures: where the control risk measure indicating women taking lower risk.

While running the regression separately for different employee groups, the group 1-19 employees show significant results over all three risk measures. The coefficients indicate that female CEOs in this group have lower total risk, lower operational risk and lower financial risk. If further looking into this group it can be concluded that the large differences are only based on behaviour in companies with up to 10 employees. As hoped, this information helps to fill the gap between the concluded differences in risk behaviour in society, and the more ambiguous results about leaders in large corporations. Female leaders with up to 10 employees lead their companies more similar to how women in general behave, but female CEOs in companies above the size of 10 will not bring the gender effect in to the corporation.

Over different industries, the result is that female CEOs take slightly less total risk than their male counterparts in the industries that are already characterised by lower risk. This additionally holds in industries with a higher fraction of other women in leading positions, where female CEOs also take lower total risk.

The paper is structured in the following manner. Firstly, theories of risk in general and in corporations are presented. Secondly, an overview of previous research regarding gender differences in risk taking in society and in corporations is given. A description of the data and how it was processed to suit the study is thereafter presented. This is followed by the method where the risk measures, the regression model and additional tests are explained and motivated. The results section contains the outcome of the regressions, as well as implications for the gender effect on risk taking. Finally, the conclusion section summarizes the results and implications, and discusses potential further research on the topic.

2 Theory

In this section, fundamental theories for measuring risk in different situations will be presented. The section is divided into risk in society, risk in finance, and measuring risk in corporations.

2.1 Risk in society

Risk refers to situations in which it is possible, but not certain, that an undesirable event will occur. It is often quantifiable with known possible outcomes, but with a factor of uncertainty about something unknown. Perception of risk is the subjective judgement individuals make about the severity of a risk. With this in mind, risk attitudes vary among different people, environments and settings (Hansson, 2014). Payne et Al. (1993) argue that risk taking should be studied because of its importance to three major psychological fields; the adaptiveness of human behaviour, the rationality of human thought, and the relative importance of genes versus the environment in determining the expression of traits. While evaluating risk in the general population, the main focus is often on experiments and qualitative analysis; how people act in a simulated risky situation or how they believe that they *would* act if a certain situation occurred.

2.2 Risk in finance

In the financial field, risk most often refers to the balance between the potential of gaining or losing something of value. It is traditionally divided into two different components: market risk and firm specific risk. The first is associated with the market as a whole and varies with macroeconomic changes, whereas the latter is unique for each individual company (Cho, 1997). Firm specific risk is, according to theory, risk that investors should be able to remove if holding a diversified portfolio (Ross, Westerfield & Jaffe, 2010). Thus, if all investors held diversified portfolios, the only risk that anyone would need to account for is the market risk associated with the company. Firm specific risk consists of financial and operating risk: the first relating to how the business is financed and the second to risk in operative business decisions (Kallenberg 2008). Financial risk is usually described as the risk that the company will default on any type of debt, by failing to make required payments. High levels of debt increases the risk of insolvency as the company will be obligated to make interest payments and eventually pay back the entire value at maturity date. Financial risk further makes the return on equity more volatile since debt holder always get paid before equity owners. Operational risk, on the other hand, is the risk inherent in the company's operations and is defined by the Basel II Committee as "The risk of loss resulting from inadequate or failed internal processes, people and systems or from external events"

(Operational Risk, 2001).

One of the most influential theories within finance is the basic risk-return trade-off, stating that higher risk must be compensated by higher expected returns. It means that in an efficient market, higher returns can only come from situations where there is also a higher risk of losing the invested money. Thus, regardless of whether the risk is high or low, the expected return will compensate the investor for that particular level. In a perfect market all investments with the same risk should therefore yield the same expected return, which becomes the cost of capital to perform a certain type of risky project. The acceptable risk is henceforth not dependent on a certain formula, but based on the investor's personal risk tolerance (Ross, Westerfield & Jaffe, 2010).

2.3 Measuring risk in corporations

There are countless ways of measuring risk in all types of firms, looking at different key ratios, indexes and proxies. Most measures are created to estimate the risk in publicly traded companies, to simplify decisions for both professional and private investors. The majority of the measures involve comparing a calculated risk against a market index created for the group in which a certain company is located. It includes concepts such as alpha, beta, R-square, standard deviation and Sharpe ratio.[3]

When looking at risk in private companies, where no stock price can be used, one needs to broaden the view of risk estimation methods. Apart from qualitative analysis, accounting based measures are used to explain the different types of risk in these companies. Bromiley and Miller (1990) suggested several measures with basis in the income statement or the balance sheet, such as capital intensity, volatility in returns and R&D intensity. Also operational measures such as cash holdings and volatility in turnover are common. Furthermore, Sven-Erik Johansson (2005), professor emeritus in business economics at the Stockholm School of Economics, claims total risk to be made up of operative and financial risk according to the following relationship:

$$ROE = ROA + (ROA - R_D) \times D/E$$

Where ROE = Return on Equity, where the spread in the measure works as a proxy for total risk

[3] Risk Measures Definition (n. d.)

ROA = Return on Total Assets, where the spread in the measure works as a proxy for operative risk

R_D = Average interest rate on borrowings

D/E = Debt-to-equity ratio

(ROA – R_D) x D/E, a leverage measure, works as a proxy for financial risk

This formula, as it only includes accounting based numbers, is possible to use for all different kinds of firms and further has the ability to capture three different types of risk. When using the formula it should be noted that ROE and ROA are not plain risk measures to begin with, but rather key ratios to describe profitability. The same applies for leverage, which originally measures how much additional return equity holders should expect due to higher levels of debt. To be able to make assumptions about risk, it is required to study the changes in the key ratios over time. A higher volatility in ROA corresponds to a higher operative risk, a higher volatility in leverage leads to a higher financial risk and a higher volatility in ROE equals higher total risk (Johansson & Runsten 2005). To capture the volatility, standard deviation has proved to provide the best quantified estimate of the uncertainty of future returns, and is therefore the most common measure for historical volatility.[4]

[4] Standard deviation Definition (n. d.)

3 Previous research

With the theory in mind, previous research regarding risk taking and gender is both widespread and diverse. The following section provides a brief overview of the previous research on gender differences in risk taking, that make up the basis of the study.

3.1 Gender and risk-taking

The existence of gender differences in risk preferences has been documented in a large number of real-life and laboratory studies. One of the most influential ones is *Gender differences in risk taking: A meta-analysis* by Byrnes, Miller & Schafer (1999). The authors conducted a meta-analysis on 150 studies focusing on men's and women's tendencies and attitudes towards risk taking in their everyday decision-making. They concluded that literature clearly states that men are more likely to take on higher risk than women. With this in mind, researchers have tried to investigate in what areas women and men behave differently. Weber, Blais, and Betz (2002) assessed the risks men and women perceived within five different domains: financial, health/safety, recreational, ethical, and social. Female risk aversion was found in four of the five domains, with social decision making being the exception. The four categories showed males perceiving less risk and indicating a greater likelihood of engaging in risky behaviors.

Continuing to studies looking at simulated *financial environments*, it has repeatedly been found that women are less risk taking than men in these situations. Systematically collecting thousands of observations from existing data, Charness and Gneezy (2007) concluded that women choose to make smaller investments than men, regardless of the time frame and the settings in which the experiments were conducted, indicating women being financially more risk averse. The same conclusion was drawn by Powell and Ansic (1997), whose findings indicated that women are less risk taking than men regardless of familiarity, framing, cost and ambiguity.

Contradictive to these findings, Sarin & Wieland (2012) showed that differences in risk behaviour depend on the possibility to quantify the risk associated with a certain decision. Differences are more likely to occur in decisions under *risk*, where the probability of outcomes is known and objectively quantified, and less likely to occur in decisions under *uncertainty*, where one must rely on subjective expectancies of the probabilities of outcomes. This concludes that women take less risk than men under specific circumstances, but not in others. They also claim that situations in which women are taking less risk are the most common basis for testing risk hypotheses.

Weber et al. (2002) and Johnson et al. (2004) have additionally tried to examine why there

are differences in risk behavior between the genders. They found that relative to women, men perceived they would obtain greater benefits from engaging in risky behaviors. Using a risk-return framework, Weber and colleagues have suggested that risky decision-making can be seen as a trade-off between fear (risk) and hope (expected returns). If applying this framework it means that women expect to receive a lower return than men if engaging in the same level of risk.

3.2 Risk taking in corporations

Since studies conducted in society at large most often suggest that women are less risk taking than men, several attempts have been made to draw similar conclusions in corporations. A common metaphor, introduced by Neelie Kroes, European Union Commissioner for Competition, is whether the financial crisis would have occurred if the Lehman Brothers had instead been the Lehman Sisters (Kroes, 2009). People were convinced that more women in leading positions and in boardrooms would have saved the world from the corrosive gambling culture that dominated trading rooms.

With this metaphor in mind, several attempts to confirm it have been made since the start of the financial crisis. Masoudie (2008) concluded that among US public firms, having at least one woman among the top five executives decreases the firm's leverage, and hence the level of risk. Elsaid and Ursel (2009) conducted a study supporting these findings. They investigated whether personal risk attitudes carry over in a corporate setting, concluding that female CEOs in North American public companies are associated with a lower risk for the company, and should thus be considered if the board is seeking cautious leadership. Faccio, Marchica and Mura (2012) documented that female CEOs tend to avoid riskier investment and financing opportunities. Through a large European study of both public and private companies, they showed that the risk avoidance behaviour of female CEOs appears to lead to distortions in corporate investment policies, with a negative effect on the company as a whole.

Even though the mentioned studies all conclude that women take less risk than men in a corporate setting, no direct findings have supported Neelie Kroes' suggestion on the financial crisis. Studies of the banks showed that those with more female directors did not engage in fewer risk taking activities around the crisis and did not have lower risk than other banks (Adams and Raghunathan 2013). Additionally, a study by Palvia et al. (2012) concluded that even if smaller banks showed to have a higher rate of survival with a female CEO or women in the board, none of the genders were related to the bank failure in general. Ally Fogg wrote in the Guardian in

September 2013: "People who reach influential positions in corporations do so because of their ruthless personality, mind-set and talent needed for the job. It might be easier to find men like that, but this does not mean women appointed to such roles would behave any differently." Looking closer at the Swedish market, Adams and Funk (2012) have found that Swedish female directors, based on a survey of almost 2000 board members and top managers, are in fact more risk loving than their male counterparts.

3.3 Risk in smaller firms

Just as research has been made to determine differences in risk behaviour between men and women, the same has been done for different types of firms. Findings suggest that historically, risk taking in small corporations has been higher than in larger organisations. This has also been connected to a higher return in small companies, as is one of the most known relationships within finance. From 1926 to 2007, public companies saw an annual return in large company common stock of 12.3% while small company common stock had an average return of 17.1%. The additional return for small companies is the risk premium that investors receive to compensate for the higher levels of risk they have taken on (Ibbotson & Sinquefield 2008).

With smaller and larger firms' different profiles in mind, Företagarna, a Swedish organisation focusing on smaller companies, examined the relationship between gender and profit margin. The study involved all 125 529 Swedish listed and unlisted companies, both large and small, that had reported gender of their CEO. The main measure "profit margin" is an operational key ratio, sometimes considered a risk measure and sometimes not. The results stated that on average, female CEOs present a profit margin that is 18,8% lower than in the companies with male CEOs. While running the regression separately for different company sizes it became clear that the results were only applicable on smaller corporations, meaning that female CEOs in smaller companies present lower numbers for profit margin (Bongard & Sjöholm 2014).

Globally, conducting these kinds of studies with focus on the CEO is very rare. When assessing risk behaviour, studies have most often focused on board members, because of the fact that the percentage of female CEOs in large companies is still low worldwide. This was noted by Faccio, Marchica and Mura (2012) and was the foundation for their study involving over 100 000 companies in Europe of which 95% were private. This is one of few studies looking solely at CEOs, and additionally assessing private firms. Even if this study broadened the view of the corporate landscape, they still decided to remove smaller companies that did not meet their criteria of revenue, turnover or number of employees. These criteria thus resulted in only around

3% of all Swedish companies being included in the study.

3.4 Women as CEOs

To be able to understand the implications of male and female behavioural differences in corporations, many researchers have tried to find the possible underlying reasons. Determining if "typical" male and female behaviour emerge by chance, because of differences in genetic setup, norms of society or conditions in the working life, is thereby important to be able to approach the findings and determine how it affects the corporate landscape. One concept that is often brought up is the "Glass Ceiling", which is said to face women aiming for high corporate positions. Cotter et Al. (2001) describes the phenomenon as inequality in the chances of advancement that is not explained by other job-relevant characteristics of the employee. Ryan & Haslam (2005a, 2005b, 2007) extended the metaphor to what they called the "Glass Cliff". Their research demonstrated that when women break through the ceiling they were more likely to occupy positions that were precarious and thus had a higher risk of failure. Albrecht et Al. (2003) looked at Swedish wage gaps and concluded the glass ceiling effect to be present on the Swedish market which, according to Ryan & Haslam, would mean that women in high leadership positions may be forced to take higher risks than men in the same type of positions.

3.5 Our contribution

This study will look at real historical numbers presented by more than 100 000 Swedish companies, and assess not *perceived* behaviour concerning risk, but accounting based measures showing what risk levels in the corporate world *actually* look like today. With sole focus on the CEO (as opposed to boards like in many other studies), and since including small companies in the study, this is an area that has never been assessed in Sweden before. The aim is to investigate if there is a gender effect on risk in Swedish companies, and if this potential effect changes along different risk measures, components, industries and employee constellations. Through mapping out the gender effect on risk in all types of companies, different company sizes could potentially create a bridge between what has already been concluded about individual risk behaviour in society and the ambiguous results regarding behaviour of leaders of large firms.

4 Data

In the following section, an overview of the data that has been used in the study is presented. The section is divided into two parts: Processing of data and Summary statistics of data.

4.1 Processing of data

The data that has been used for analysis was originally obtained from the database Retriever, which includes all Swedish companies. From the available data of over 400 000 companies, the 125 529 companies that had reported gender of their CEO in their annual report were chosen for the dataset. Corresponding data has been downloaded for five consecutive years and thus the starting point was an unbalanced short panel dataset from the years 2008 to 2012. However, the gender of the CEO is only available for the current year, resulting in one data point for each company. To make the data consistent throughout the study, all variables used have been adjusted so that each company only has one value for each variable; a cross-sectional data has been created.

Since the aim has been to evaluate risk, the focus has been on active companies in the dataset. Consequently, 17 443 companies that had not reported any information regarding their turnover during the consecutive five years studied, were sorted out from the start. A problem arises in how to treat those companies that have been active for a few or the majority of the years but not for the remaining years. For simplicity, all data points for a company with an unreported turnover have been removed for that certain year (Note: companies with a reported turnover of zero have not been sorted out). Also companies that presented incomplete information for all three risk measures were additionally sorted out. The final number of companies was 95 421. See Appendix 1 for a descriptive table of final dataset.

The original variables collected from Retriever include ranges from the smallest to the largest number as large as *5 million percentage points*, indicating that some disproportionate outliers affect the sample (see Appendix 4 for information about original variables). Outliers can occur by chance in any distribution, but they are often indicative either of measurement errors or of the population having a heavy-tailed distribution. In the former case one wishes to discard them or use statistics that are robust to outliers, whereas in the latter case they are an indication of high kurtosis and one should be cautious in using tools or intuitions that assume a normal distribution (Grubbs 1969). In this case, as in most large samples of data, there is a mixture of both problems, where a few extremely high values affect the entire distribution more than what is deemed

reasonable. The high dispersion, which can be seen in histograms Appendix 5, indicates that normal distribution of data cannot be assumed.

To remove outliers, and to create a more robust data, filters have been introduced before creating the final risk measures. Since outliers may have statistical and scientific importance it can be argued whether these should actually be removed. However, to get a dataset suitable for the purpose of the study, these will in fact be excluded. To find the best approach on creating filters, two common methods have been tested.

The first method tested was identifying and excluding outliers according to the three-sigma-rule, a common statistical method for removing outliers lying one, two or three standard deviations from the mean. This method proved not to be optimal due to three main reasons. Firstly, the data was shown not to follow a normal distribution for any of the chosen risk measures. Secondly, if this method was to be used, with the most common "two standard deviations"-approach, only about 0,2% of the data points would be excluded instead of the intended 5%. Lastly, if using the method on this dataset, more extreme values than what would be considered possible to achieve in a normal company would be included. As an example, ROE values of over 8 000% would be included, even with one standard deviation. This should be compared to what is considered a very profitable stock in the investment world today; a stock with an ROE higher than 15% (Richard Loth, 2012).

The second method tried was introduced by John Turkey (1977) and involves using a boxplot to identify extreme values. When having datasets with extreme values it is important to work with robust estimators (Ripley 2004). The median is a robust statistic, while the mean is not. It thus makes sense to use Turkey's method, which is based on the median rather than the mean. Outliers are found through multiplying the interquartile range with 1,5. Extreme outliers are considered to be data points that lie further out than 3 interquartile ranges from the first or third quartile. Thus, observations below Q1 - 3*(IQR) or above Q3 + 3*(IQR) have been removed from the data. Doing a qualitative analysis of the numbers, this method provides a way to create a dataset that more accurately describes the majority of the companies. After the exclusion of extreme outliers, all variables additionally show a more normal distribution over the dataset. This can be seen in the table in Appendix 6 and in histograms in Appendix 7.

The final processing of the dataset was to divide the data based on different sizes and industries, enabling regressions to be run in smaller groups. The companies were divided in to five main size groups, *no employees, at least 1 employee, 1-19 employees, 20-49 employees,* and *above 50*

employees, and 30 industry groups (collected from Retriever) following the SNI-1 codes.[5] These groups were firstly used to see how large fraction of female CEOs that were present in each group. Further on, these groups were ranked to find how risky each size and industry group were considered to be, this to find if the genders behave differently in certain types of environments. (See Appendix 8 and 9 for risk ranking and relative fraction of female CEOs).

4.2 Summary statistics of data

Appendix 1 gives an overview of the data included in this study. In the data, 15% of the CEO's are women and 86% are men. The majority of the companies are fairly small, with 85% having less than 20 employees, and 69% having none or up to five employees. Only 6% of the firms have more than 50 employees and does thus meet one of the criteria for being considered a large company according to Swedish regulations. Further on, 89% of the corporations are owner lead, meaning that only 11% have appointed an external CEO with no ownership. Having an external role is slightly more common for female CEOs with 13% in this dataset. Even though the oldest company was founded in 1897, almost half of the companies have been founded since 2000.

Industry-wise, men are dominating all groups except for the *Hair & Beauty*-category in which 69% of the CEOs are female. However, it is important to notice that this industry only represents 0,2% of the total company population in the database. Within the group of female CEOs, the most common industry to be a CEO in is *Law, Accounting & Consulting Services*, which includes 16% of all female CEOs. Female CEOs are additionally spread out all over the country with the lowest numbers in Jönköping County, 9%, and the highest number in Stockholm County with 18%. See Appendix 2 for full list of industries and Appendix 3 for more information about counties.

[5] Statistical Classification of Economic Activities in Sweden

5 Method

In this section, the methods for choosing risk measures and regression model are presented. The section is divided into four parts; Models for measuring risk, Regression model, Final regression model and Additional tests.

5.1 Models for measuring risk

The chosen main model to measure risk is based on the volatility in components of the formula ROE = ROA + (ROA – R_D) x D/E, presented earlier and suggested by Johansson and Runsten (2005). To capture the risk associated with the key measures, standard deviation in each ratio will be used as a proxy for risk, showing how much variation or dispersion from the average that exists. Low standard deviation indicates that the data points tend to be closer to the mean and thus more stable over time. A high standard deviation indicates that the data points are spread out over a large range of values. The key ratios have then fluctuated over the period, making them risky in the sense that it is difficult for equity holders to estimate the future earnings of the company. Important to have in mind is that when creating these volatility measures, the perfect relationship between the components in the given formula does no longer hold. Thus, even if total risk in general can be divided in to operational and financial risk, the volatilities in the chosen measures do not necessarily summarise to the volatility in ROE. The components and variables that will be studied are explained below.

Volatility in Return on Equity (ROE): The fundamental key ratio ROE presents the amount of net income returned as a percentage of shareholders' equity. It measures profitability by revealing how much of the firm's profit that is attributable to the shareholders in relation to the equity they have invested. In this case, the volatility in return on equity over five years is a proxy for total risk over the period. The measure takes into account both operative and financial risk.

Volatility in Return on Total Assets (ROA): The basis key ratio ROA gives the investors an idea of how efficient the management is using the company's assets to generate earnings. The ratio is affected by changes in investment policies, product policies, pricing, market policies and everything else that is not connected to how operations are financed (Johansson & Runsten 2005). The five year volatility in return on total assets represents operative risk over the period.

Volatility in Leverage ((ROA – R_D) x D/E): The measure aims to explain how much of the total return on equity that varies because of changes in the financial situation. Lower borrowing costs compared to ROA, give a positive contribution to ROE due to leverage, whereas higher borrowing costs compared to ROA will make the ROE lower than what the company generated

in total. This is because interest rate on borrowings is paid out to debt holders before anything can reach the equity owners. A high volatility in the measure means difficulties for owners to calculate how the financial situation will affect their returns and is thus considered more risky. The measure represents the financial risk over five years.

Using volatility in ROE and ROA to calculate risk is a common method, but the suitability for private companies can be questioned. Private companies, especially minor ones, do not have the same requirements on presenting complete information about their operations and key ratios. This may lead to missing values affecting ROE and ROA. Due to this, four additional variables intended to capture similar risk, will be used as a control of results.

Liquidity - a control for both operational and financial risk: The ratio is an indication of a company's short-term ability to meet payments. Since the measure is calculated by dividing current assets with current liabilities, the ratio describes how much of the short-term debt that could be paid off today and is closely related to the financial structure of a company (Temple, 2001). Liquidity is not a measure that would usually be used as an indicator of total company risk, but since it is of both financial and operative nature it captures the overall, short-term, position of the company.

Turnover Volatility - a control for operational risk: Turnover refers to volume of sales, meaning it is a strictly operational measure. Looking higher up in the income statement has become a common method while evaluating risk in smaller companies. A lower volatility in turnover makes it easier for potential investors to estimate what amount of money that will actually be brought into the company. Even though the measure is also highly affected by market swings, looking at volatility in sales/turnover gives an indication of the stability in income from the company's operations.

Altman Z-score - a control for financial risk: The ratio indicates a company's likelihood of bankruptcy. It is based on five financial ratios, all calculated through information from the annual report of a company.[6] The Z-score combines five ratios to an index of risk, and each component in the formula is given a certain weight in calculation (Altman, 2000). The Z-score has been chosen as a control indicator of risk, since it is specifically applicable for private companies. The gender effect on Z-score will be compared to the gender effect on the financial risk measure.

Debt-to-Equity Ratio - a control for financial risk: The Debt-to-Equity ratio is a component in the leverage measure, but will additionally be included on its own, as it is one of the most

[6] The full formula is $Z' = 0{,}717T_1 + 0{,}847T_2 + 3{,}107T_3 + 0{,}420T_4 + 0{,}998T_5$, where T_1 = (Current Assets – Currents Liabilities)/Total assets, T_2 = Retained Earnings/Total Assets, T_3 = Earnings Before Interest and Taxes/Total Assets, T_4 = Book Value of Equity/Total Liabilities, and T_5 = Sales/Total Assets

common measures of financial risk. Even if it is commonly used, studies suggest that most companies have lower levels of leverage than what would be optimal for the firm.[7] The implication of this is that even if men/women are found to have higher levels of debt, this measure cannot fully conclude whether this makes the companies more risky, or if they are just closer to their optimal level of debt. Due to the ambiguity regarding the measure, it is only seen as a control measure in this study. (For more information about the final risk measures, see Appendix 6).

5.2 Regression model

An OLS regression model will be used to test for a gender effect on risk taking. When constructing the model, two major previous studies were used as basis. The first one is *CEO succession, gender and risk taking* by Elsaid and Ursel (2009), and the second one is *CEO, corporate risk taking and the efficiency of capital allocation* by Faccio, Marchica and Mura (2012). In this section, their chosen variables will be introduced, evaluated and adjusted to suit this particular dataset. For more information about included variables see Appendix 12.

Dependent variables: The dependent variables and how they have been obtained, were described in the previous section. The main variables are *Volatility in ROE, Volatility in ROA* and *Volatility in Leverage. Debt-to-Equity, Z-score, Liquidity* and *Volatility in Turnover* will be used in control regressions.

Independent variables: In accordance to all previous studies, the gender effect on the dependent variable is tested through adding a dummy for CEO gender, *Female CEO*. This is the coefficient that will be given most emphasis throughout the study. In the last regression, *CEO Fraction* has been added to see if female or male CEOs have different influence on their organisations.

Control variables: Several control variables have been included in the regression model to make sure that the independent variable does not show significant results that may actually arise from other circumstances. The included variables are presented below.

(CEO Age): Numerous studies show that increasing age can lead to changes in risk behaviour (Wallach & Kogan), which could jeopardise the results of a study if not accounted for. Elsaid and Ursel (2009) include the variable CEO Horizon, which aims to reflect the possibility that CEOs with short expected careers due to approaching retirement may make risky changes to

[7] Tradeoff Theory Definition. (n.d.)

improve near time earnings reports. However, this is less applicable for small companies, since these do not necessarily follow the same rules of retirement as the rest of society. Descriptive statistics show that 16 % of the CEO's in the dataset are working despite an age of more than 65 years old. Therefore, the variable *CEO Age* will be used in the regression to correct for actual age rather than closeness to retirement.

(Company Age): Companies may behave differently due to how long they have been active. It is said that the more mature a company is, the more it has to lose (Lindegaard, 2012). Faccio, Marchica and Mura (2012) add a variable based on company age, ln(age-1), to control for the life cycles of each company. Following their example, the natural logarithm of the company age is calculated to create the variable *ln(Company Age),* which is included in the regression to account for companies having different risk profiles due to maturity.

(Firm size): It is well known that large and small firms face different challenges and strategic decisions, as well as different prerequisites for growth and profitability (Chan & Chen 1991). Both Elsaid & Ursel, and Faccio, Marchica & Mura, add the natural logarithm of total assets as a control variable for firm size. Following their examples, the variable *ln(Total Assets)* is added into the regression. A control regression where *ln(Total Assets)* is replaced by *ln(Turnover)* will additionally be run. Turnover and total assets are both part of the criteria that according to Swedish regulations determine whether a company is considered large or small (Årsredovisningslagen 1kap. 3 §). Since the majority of the firms in the sample are small, it cannot be established if the asset base is the best way to estimate the size, and turnover thereby appears as a suitable way to control for firm size.

(Profitability): Accounting for profitability is an additional way to correct for firm size. Both Elsaid & Ursel and Faccio, Marchica & Mura added ROA as a control variable in their regressions. Following their example, (*ROA)* is included. Since previous research by Företagarna suggests a gender effect on profit margin (Bongard & Sjöholm 2014), a control regression will be run using (*Profit Margin)* and (*Turnover/Total Assets)* as indicators for profitability.

(External CEO): The incentive alignment theory suggests that equity ownership by the manager may increase corporate performance, due to better configuration of the monetary incentives between the manager and other equity holders (Jensen and Meckling, 1976). To correct for differences in behaviour, Faccio, Marchica & Mura added CEO ownership and cash flow rights into their regression, whereas Elsaid & Ursel use an indicator of whether a CEO is appointed from within or outside the firm. In this study the CEO's relationship to the company

will be controlled for by the dummy variable (*External CEO)*, indicating whether a CEO has any kind of ownership in the firm or not.

In the study performed by Faccio, Marchica & Mura a variable for growth in sales was additionally added. This is to correct for the fact that a perfectly steady growth will also increase volatility, making the company seem more risky. If adding this variable multicollinearity arises, due to correlation with *lnTotalAssets* as well as with the *ROA* measure. An idea would be to create an index. However, these three measures are very different, both in characteristics and in size. If the study was to include an index instead of the measures themselves there would be a risk for the index variable not giving the corrections desired. Growth in sales has thus been left out due to its correlation with both *lnTotalAssets* and *ROA* and can henceforth be assumed to already be included in the model.

(Fixed County Effects): Leading a company is related to different challenges depending on location, since the conditions for growth, demand and availability alter (Eriksson 2013). To account for fixed county effects, dummies for all Sweden's 21 counties have been added into the regression.

(Fixed Industry Effects): It is commonly known that industries have different risk levels and that some industries tend to have higher operational or financial risks than others (Chicken & Harbison 1990). 30 industry dummies have been added to the regression, where companies are categorized after their Swedish Standard Industrial Classification code (SNI). The coding is based on the European Union's recommended standard NACE Rev.2 and it is primary an activity classification (SNI 2007).

5.3 Final regression model

Based on above reasoning, the following regression model will be used:

$$Y_i = a + \beta_1 * CEOdummy_i + \beta_2 * CEOAge_i + \beta_3 * ln(CompanyAge)_i + \beta_4 * ExternalCEOdummy_i + \beta_5 * ln(TotalAssets)_i + \beta_6 * ROA_i + \beta_7 * 2008dummy_i + \ldots + \beta_{11} * 2012dummy_i + \beta_{12} * County\_1dummy_i + \ldots + \beta_{34} * County\_21dummy_i + \beta_{35} * Industry\_1dummy_i + \ldots + \beta_{64} * Industry\_30dummy_i + u_i$$

5.4 Additional tests

Tests for multicollinearity and heteroscedasticity have been performed to make sure the data is

robust. Multicollinearity is tested through a VIF-test and none of the included variables have any problems with multicollinearity (Appendix 10). The Breusch-Pagan method is used to see if the null hypothesis of a homoscedastic data should be rejected or not. As the data does not follow a normal distribution, Koenker's Score and Wooldridge's F-test, both including iid-errors, have been used. Both tests indicate that the null hypothesis must be rejected and heteroscedasticity assumed to be present (Appendix 11). To correct for heteroscedasticity, robust standard errors are used throughout the study.

6 Potential biases of the study

One of the main drawbacks of this study is that only the current CEO is reported in the database Retriever. Even though the dataset has been transformed from panel to cross-sectional data, it is still a problem that only one gender observation is available for 5 years. Companies may have changed CEO during this period and results would be affected if that also involves a change in gender. For example, if a company has had a male CEO for the first four years and then appointed a female CEO in year five, only the female CEO is registered in the database and thus associated with the company's volatility over five years. Looking at the global average for how long CEOs remain in position, it can be seen that in a listed company the average is six years (Guzmán 2011). This gives reason to assume an even higher number for this dataset, mainly consisting of unlisted companies. Further on, 89% of the companies are owner lead and 69% of the companies have no or up to five employees. The chance that these types of enterprises, which make up the majority of the data, would change both CEO and gender of the CEO within this time frame is considered fairly low. It is thereby assumed that the companies that have done this change make up a relatively insignificant percentage part of the total number of studied companies.

Furthermore it needs to be noted that it is not only the CEO that takes risk in a company, especially in larger corporations. Even if the CEO is overall responsible for all decisions being made in a corporation, he or she is, in most cases, not involved in every decision. In this study, the CEO is given full responsibility for the risk everyone in the company takes. Involving the entire executive team, the board, or other influential people could have made the results even more robust.

It can also be questioned whether the chosen risk measures are optimal for the study. Firstly, focusing on equity and assets in small companies may create issues due to different setups, operations and capital allocation. Normally, a potential investor in a small unlisted company would do a much more qualitative analysis to determine the risk profile. However, in a dataset with over 100 000 companies this is not possible to do. The best available numerical method is used instead, letting volatility in returns and leverage provide a picture of historical stability for both small and large companies. Secondly, a potential bias is the varying results from the risk measurements. The controlling risk measures do not consistently point in the same direction as the chosen main measures. As only the main measures are included throughout all regression, it is possible that other results would have been presented if different risk measures had been used in the study.

Furthermore, only companies that have reported gender of their CEO have been included in the regressions. This was a necessary adjustment to fulfil the purpose of the study. However, Sweden has 466 789 registered companies[8] and only 95 421 are included in this sample. Information from the excluded companies may have led to different results. It should also be noted that female CEOs make up only 15% of the total number of CEOs in the dataset. Naturally it would have been preferred to have a more equal set with approximately 50% of each gender. No attempts have been made to create such a dataset, since this would create more potential biases while selecting a group of male CEOs. The dataset represents the Swedish corporate world today, and it therefore makes sense to use the set just as it is.

Lastly, the data is collected from the years 2008-2012, meaning that the financial crisis may affect risk management during the time studied. The crisis could potentially have made managers and CEO's more risk averse than before. The crisis may have affected the included companies in different ways, or at least to a different extent, especially since a part of the companies were founded or closed down during the period. However, the aim is to map out the differences between male and female CEOs, and therefore the impact of the financial crisis is not vital. The differences might even be more visible during times of uncertainty, and if that is the case, the results of the study thus represent male and female CEOs in a pressured time and not for any given time period.

[8] According to Retriever 16 May 2014

7 Results

In the following section, an overview of the results from the regression analysis is given, as well as comments around them. The regression results are presented individually in Appendix 15-32, with a complete summary of all results in Appendix 13 and 14.

7.1 Main regression - gender effect on risk for the complete sample

When running the regression for the whole population, with *Volatility in ROE* as dependent variable, the CEO gender dummy gets a negative coefficient but is not significant at any level. The coefficients for the gender effect on *Volatility in ROA* and *Volatility in Leverage* are also negative and not significant. The economic interpretation of this is that after controlling for several other determinants of firm and personality characteristics, it is not possible to reject the hypothesis that the female dummy coefficient is equal to zero and that no gender effect exists. (Appendix 15).

The absence of a gender effect may be due to several reasons. The simple explanation would be that there is no gender effect, as has been concluded in earlier studies looking at corporate risk taking in Sweden. However, it is also possible that the regression model fails to pick up on smaller signs within the large sample. With 95 421 companies, total results may point in one direction even though many groups within the sample deviate from this result. No conclusions for differences in risk taking can be drawn from the total CEO population, but to further investigate if and when differences in risk taking can occur, additional regressions have been run with controlling risk variables, size groups and industry groups.

Summary: Looking at the whole CEO population, none of the risk measures show significant results for a gender effect on risk. This means that looking at all Swedish CEOs, there is no difference in risk taking between the genders.

7.2 Control regressions

With *Liquidity* as dependent variable, the female CEO dummy coefficient is positive but not significant. Companies with a female CEO thus do not show any significant difference in capability of paying off their short-term debt with their current assets. Liquidity is here considered a mixture of operational and financial factors and therefore compares to the result for *Volatility in ROE*. The measures point in the same direction, indicating without significance that

female CEOs contribute to a lower risk. It appears to be no differences in the measures, and thus *Volatility in ROE* will be used for the remaining part of the study.

Moving to *Volatility in Turnover*, the coefficient for female CEO is negative and significant at a 1% level. This indicates women decreasing the operational risk in their companies by approximately 0,88%, from the group mean of 6,44. This is compared to the gender coefficient in the regression for *Volatility in ROA*, which was negative and not significant. As these two measures point in the same direction but differ in significance, questions arise around which is the optimal way for measuring operational risk. *Volatility in ROA* will despite the differences in significance solely be used to measure operational risk further on. However, one should have in mind that the variable runs the highest risk of misleading conclusions as other results could have been presented using another risk variable.

The last control regressions have been done on financial risk. For interpreting the results it should be noted that the coefficients of variables for the *Altman Z-score* and *Debt-to-Equity* will show opposite signs to indicate lower or higher risk. A coefficient affecting the Z-score in a positive way contributes to a lower risk whereas a coefficient affecting the Debt-to-Equity in a positive way contributes to a higher risk. The results show that neither the *Altman Z-score* nor *Debt-to-Equity* as dependent variables generates significant results for the female CEO dummy. Since using these variables is intended to be a control on financial risk, they should be compared to the main regression results on *Volatility in Leverage*. None of the measures show significant results, indicating no gender effect on financial risk while looking at the whole sample. It additionally shows that all three financial risk measures have the same result, which is an indication that the *Volatility in Leverage* measure is able to capture the same effects as the control measures.(Appendix16).

Summary: The results for Liquidity, Altman Z-score and Debt-to-Equity point in the same direction as the variables they are intended to be a control for. None of them show significant results indicating that no gender effect is present. However, looking at Volatility in Turnover instead of Volatility in ROA, significant results appear for women taking lower operational risk than men. This difference in results should be in mind further on in the study.

7.3 Smaller versus larger firms

To further investigate how differences arise; the dataset has been divided into size groups based on the number of employees in the company.

0 employees: As shown in the descriptive table in Appendix 1, the group of zero employees account for 30% of the companies in the entire dataset, and has approximately 13% female CEOs. Running the regression on this group only, the female coefficient for *Volatility in ROE* is -1,108 and significant at a 5% level. The average in this group is a deviation of 31,48, and thus the gender effect corresponds to a decrease in total risk of approximately 3,52%. The female dummy coefficients with *Volatility in ROA* and *Volatility in Financial risk* as dependent variables are negative and not significant. (Appendix 17).

A possible explanation for lower total risk is that women running one-man/woman enterprises make up the CEO group that is most similar to female non-CEOs in society. These firms can be seen as a reflection of the CEO preferences and therefore show more similar result to the society overall. In that case it makes sense that women with zero employees show a lower volatility in ROE, which is considered equivalent to lower total risk.

Looking at the dataset, the companies with zero employees are the ones that most often report unusual values for the key ratios studied. As an example, 95% of the companies that reported a turnover of 0 can be found within this group. These numbers could arise from companies working in industries such as investment/trading, but could also be a result of reporting errors or inactiveness. Due to the inability to understand exactly why missing numbers occur and since too many numbers deviate from what could be seen as normal, no further conclusions will be drawn for this group.

At least 1 employee: The category "at least 1 employee" is included to account for the special circumstances around companies with no employees at all. When removing all companies that consist of only the CEO, the female dummy coefficient shows significant results for two of the three risk measures, with *Volatility in Leverage* being the exception. For *Volatility in ROE* and *Volatility in ROA,* these new findings contradict the outcome of the whole sample, where none of the two coefficients were significant. This indicates that the group of zero employees heavily affected the outcome of the original regressions, which makes sense considering 30% of all companies in the dataset have no employees. As for the sizes of the coefficients, a female CEO is associated with approximately the same effect on both *Volatility in ROE* and *Volatility in ROA,* lowering the risk with 2,54 and 2,76% respectively. (Appendix 18).

1-19 employees: As seen in the descriptive table in Appendix 1, the group of 1-19 employees account for 56% of the companies in the dataset, and has approximately 16% female CEOs. The coefficient for the female dummy is negative and has significance for all three risk measures, though with weaker results for *Volatility in Leverage*. With lower volatility in all

measures, this indicates that in companies with 1-19 employees, a female CEO is associated with a lower total risk, lower operative risk and lower financial risk for the company. Looking at the coefficients in relation to the average indicates that being a woman in this category has approximately the same effect on *Volatility in ROE* and *Volatility in ROA*, with -3,26% and -3,76% respectively, and a somewhat lower effect on *Volatility in Leverage* with -2,14% (Appendix 19).

A possible explanation to these results could come from the theories concerning portfolio diversification. Mentioned earlier, firm specific risk can be eliminated through holding a diversified portfolio. However, in the real world, CEOs of small corporations are often relatively undiversified with most of their investments in the firm. Instead of diversifying through holding other investments, and hence decreasing their risk exposure, they will match the risk levels of the company with their personal risk preferences. If this holds, it could explain why such an obvious gender effect occurs among the smaller firms, given that women in society overall are said to be more risk averse than men.

20-50 employees: This category accounts for 8% of the companies in the whole sample and approximately 11% of these have female CEOs. Running the regression for this group shows that the female dummy coefficient is for the first time since the main regression, not significant at any level for any of the risk measures. Consequently, no gender effect can be concluded in this category. (Appendix 20).

More than 50 employees: This category only represents 6% of the entire dataset. When the regression is run for companies with more than 50 employees, the result is similar to that from the previous group, with no significant results for a gender effect in any of the risk measures. Referring to previous research, this could be because some types of CEO positions are filled by a personality rather than a person. If you get a job because you are in a certain way and give a certain impression, this should account for both men and women and thus there would be no gender based differences. Furthermore, in a corporation with more than 50 employees, the CEO's decisions probably reflect the board and the executive team more than only the personal preferences of the CEO. Additionally, the CEO in a large company is in many cases not self-appointed, but chosen by a board. Most boards in Sweden are male dominated and might thereby be more likely to appoint a CEO similar to themselves. Thus, the gender of the CEO should be of less importance for a large company's key ratios, as indicated by the results. (Appendix 21).

Additional size groups: All the above results give reason for further investigating the group with 1-19 employees, since this is the only group showing a significant gender effect in all risk measures. To see where a gender effect is present and where the supposed transition occurs,

the group of companies with 1-19 employees has been further divided into four subgroups; 1-5 employees, 6-10 employees, 11-15 employees and 16-19 employees. Results show that significant results on all measures are only present in companies with up to 10 employees, meaning the two subgroups of 1-5 and 6-10 employees. In these groups, the gender effect corresponds to a varying impact of between 2,14 and 8,44% on the risk measures, with the strongest effects being seen in the group of 6-10 employees. For the companies with more than 10 employees, only *Volatility in ROA* shows significant results. (Appendix 29 and 30).

CEO behaviour in corporations thus only shows results consistent with the society at large in companies with up to ten employees. This could indicate either that the size of the company is the changing factor that allows or does not allow the personal traits of a CEO to transfer into a corporate setting, or that the CEO traits differ between CEOs of smaller and larger corporations. CEOs in smaller companies are like the majority of society, whereas female CEOs of larger corporations are not.

Summary: In the group of 1-19 employees a female CEO affects all three risk measures with an approximate 3% decrease in volatility. While further dividing this group, it is shown that the bridge, or the change in behaviour, is found where the number of employees falls below or exceeds 10.

7.4 Relationship risk and gender in industry groups

Apart from considering firm size, risk has also been studied from an industrial perspective. Two industry based separations have been made, the first being a comparison between the 15 industries ranked as least versus most risky (see Appendix 9) and the second between the 15 industries with the highest versus lowest fraction of female CEOs (see Appendix 2).

Low risk industries versus high risk industries: In the group of less risky industries it appears that female CEOs take lower risk than male CEOs, with an approximately 2,14% lower *Volatility in ROE*. No significant differences appear in *Volatility in ROA* or *Volatility in Leverage*. Females in low risk industries thus have similar operational and financial risk as men, but an overall 2,14% lower *Volatility in ROE*. Taking lower risk where others also do might be an indication of the environment playing a severe role in determining company risk taking. Female CEOs show similar patterns as women in society overall, but operating in a low risk industry is what allows those traits to transfer, resulting in women taking even lower risk than their male counterparts. (Appendix 22). Within the more risky industries, no significant results for a gender effect appear. (Appendix 23).

High fraction of women versus low fraction of women: The second industry division that has been done is based on the fraction of female CEOs in the industry. The results show that women present in industries with many other female CEOs take a lower total risk by 1,88%, compared to the average of 36,67%. The *Volatility in ROE* is significantly lower, whereas the operational and financial risk does not generate enough significance for interpreting results. The conclusion from this regression is that female CEOs take lower risks if they are working in industries where more of the other CEOs are female. This goes back to perceiving the environment to be a fundamental basis for personal traits to transfer into a corporate setting. Many women in an industry might simplify the transfer of their typical risk traits. (Appendix 24).

While running the regression for the industries with lowest fraction of female CEOs, this does not show as strong and coherent results as previous group. When the fraction of female CEOs is low, there is no significant gender effect on any of the risk measures. No gender effect in risk taking is thus visible in industries where not many women are present. One possible reason to this was previously stated by Fogg as "People who reach influential positions in corporations do so because of their ruthless personality, mind-set and talent needed for the job. It might be easier to find men like that, but this does not mean women appointed to such roles would behave any differently". If this holds in the data, an explanation to why there are no risk differences in this group could be that women reaching positions as CEO's in industries which are very male dominated do so because they have a more similar behaviour to that group originally. (Appendix 25).

An interesting notation is also that even if the results are not significant for the industries with lower fraction of women, the coefficient for *Volatility in ROA* is positive and would thus, if significant, indicate that women take higher operational risk than men while operating in industries that are male dominated. A possible explanation could be the previously discussed Glass Cliff concept (Ryan & Haslam 2007). This says that women reaching CEO positions are found in more precarious leadership positions. Thus, women within the group of high risk companies, which are usually male dominated, would be there because they have taken on positions in the most risky companies. The findings in this group would also have been the only results that correspond to Adams and Funk's (2012) earlier findings in Sweden, stating that women in a corporate setting are more risk loving than men. Their study only treated companies fulfilling certain size criteria, which might explain why their results deviate from those of this study. (Appendix 23).

Summary: Women are shown to take even lower risks than men in industries that are already characterised by low risk, or in which a larger fraction of the CEOs are women. In high risk industries or industries with a lower fraction of women, no gender effect is found.

7.5 Influence on risk women versus men

In the final regression, women and men have been divided into two groups to capture any differences between the genders in general. A dummy for *CEO Fraction* has replaced the gender CEO dummy and what these regressions show is that female and male CEOs overall seem to affect the companies in a similar way. The only result that stands out is the *CEO Fraction* compared to *Volatility in ROE*. In this regression, the size of the company impacts the results almost twice as much for female CEOs as for male CEOs. This indicates that when women become a larger part of the entire company, they will to a larger extent affect the total risk measured by the *Volatility in ROE*. This could further be a reason to why ROE overall has showed the most significant results for female CEOs. (Appendix 31).

7.6 Endogeneity concerns

As this study is based on real historical outcomes, the ceteris paribus assumption cannot be assumed and there is reason to believe that the data suffers from endogeneity. Possible endogeneity problems when looking at CEO gender and risk taking could be self-selection bias; people acting as CEOs in this study have chosen to take on this role and in many cases even founded the companies themselves. People starting a business and working as a CEO cannot represent the entire population, and a non-random variable problem is present. Further on, endogeneity could be present if firms with particular risk profiles are more likely to choose a specific gender of their CEO, creating reverse causality. An example of this is the "glass cliff" which was presented earlier (Ryan & Haslam 2007). It states that female CEOs are overrepresented in precarious leadership positions. On the other hand, Adams, Gupta & Leeth (2009) claim female CEOs to more often be appointed to companies in *better* financial health, indicating that female CEOs are selected to more stable and thereby less risky firms. These underlying problems indicate that there might be omitted variables affecting the risk measures.

Including several control variables is a way to somewhat address the problems with endogeneity before running the regressions. Furthermore, a comparison has been made between a group of male CEOs and a group of female CEOs, where all companies have similar characteristics apart from CEO gender. The aim is to create two groups between which the

ceteris paribus assumption holds and where gender is the only differing factor. For information regarding the chosen criteria of firm and CEO characteristics, see Appendix 32.

The comparison shows that even in these close to identical groups, female CEOs show a lower average volatility in all risk measures. This indicates that the results obtained from the regressions can be supported, even when correcting for other firm and personal characteristics that apart from gender may determine the appointment of a CEO.

8 Conclusion

The purpose of the study was to investigate whether there are any differences in companies lead by men and women, which would indicate them running their businesses in a more or less risky manner. As this study includes all company sizes but is based mainly on smaller private firms, it aimed to find the gap between what has been concluded in society in general, where women take less risks, and how leaders in large corporations act, where much more ambiguous results have been presented.

From previous result section, a general conclusion can be drawn saying that *when* there is a gender effect, that effect indicates women being less risk taking than men. The most consistent results are seen in smaller companies, between 1-19 employees, where a female CEO indicates lower risk in all three main risk measures. Additionally, women working in industries with either low average risk, or industries having a high fraction female CEOs, can also be concluded to take on lower levels of risk in their companies. For companies with more than 20 employees and for the CEO population as a whole, no effect is seen.

The first test aimed to find a pattern among the entire population regarding risk behaviours in general. The regressions showed no significant results for a gender effect in any of the three main risk measures. When controlling the results by using different measures, the results for total risk and financial risk pointed in the same direction, meaning no significant results for a gender effect. However, when using *Volatility in Turnover* as an indication for operational risk, female CEOs were shown to take lower risk than their male counterparts.

The second test looked at companies of different sizes. This showed clearly that the gender effect on risk taking is only present in smaller companies. In the categories of the largest companies, 20-50 and above 50 employees, the gender of the CEO does not at all affect the risk level of the company. Firms with 1-19 employees on the other hand showed strong results indicating female CEOs taking both lower financial, operational and total risks in these companies. Important to note is that these companies represent more than half of the entire sample. While further dividing this group into subgroups, these results showed that the gender differences were only consistent in companies with up to 10 employees, with female CEOs showing lower volatilities in all risk measures. Based on these results, the transition where CEOs do not have the same behaviour as society seems to occur when the number of employees exceeds 10. A potential explanation of this could be that CEOs of small firms are often undiversified, and the risk in the company will therefore more closely reflect the personal risk preferences of the CEO. Other possible explanations are that the size of the company is a critical

factor determining whether risk preferences of the CEO will be affecting the company risk level or not, or that the type of people choosing to take on a role as a CEO in a larger corporation does not behave the same as the majority of society.

The results from the industry groups show that women take lower risks when having the role as CEO in industries where the average risk is low, or when operating in industries where the percentage of female leaders is higher. When women lead companies in either high-risk industries, or in male dominated industries the differences seems to disappear. This could indicate a glass cliff to be present in these more "male characterised" industries, where women are forced to take on more precarious leadership positions compared to what they otherwise would have.

Finally, the overall results showed that the main hypothesis of the study, regarding women being less risk taking than men, could not be supported. No gender effect on corporate risk taking is present in Sweden as a whole. The results however showed that a gender effect is present in certain situations. Gender differences were most apparent in smaller firms, where women take lower risks, which do create a bridge between women in general, and CEOs of multi-billion corporations. The link between these two appears to be that women leading companies with less than 10 employees either act more as the general female population, or are to a higher degree able to affect the company in a more risk averse manner. When the corporations grow bigger the effect does not appear. Finally, the industry groups showed that women act more like the general population when there are many other female CEOs present or if the industry in general has lower risk, making it easier to take lower risks without standing out. On the other hand there are no clear differences in high risk industries or in male dominated fields, which indicates that when women are expected to take higher risks due to its company peers, they will do so.

Further research in this area is of high value to understand how CEOs behave around risk. This could further clarify what the corporate world looks like, and *when* and *why* differences occur. Firstly, a study where the CEO gender is known for all years would be of high interest. This could show how a change in CEO gender affects the company risk. Secondly, it would be relevant to look at a longer period of time, both to see changes, and also to get better indications of the risk measures over time. It would also be interesting to look more into the different kinds of risk connected to the measures, to understand in what type of situations differences could occur. Comparing the CEOs effect on risk with other top managers in companies or with the total number of men versus women in the company would further on provide insights about what in the end has the largest effects on company risk. Additionally, a study with a deeper focus

on industries would be of large interest as some industries are more risky than others. A question could be whether this is because men and women create different kinds of risks, or if they seek industries that fulfil certain risk profiles. Lastly, if the results in this study were further supported, this would be an important contribution to understand why differences in risk behaviour were seen in some situations but not in others. This could help both individuals as well as corporations to better tackle future risk, by distinguishing perceived and actual risk behaviour associated with the genders.

9 References

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10 Appendix

Appendix 1 – Descriptive Table General

Descriptive Table General

The following table provides information concerning the entire dataset. Ratios are compared to the total population in the first column. The ratios in the second and third column are compared against each other.

	Total Population	**Women**	**Men**
Total # Companies	95 421	13 899	81 522
Total % Companies	100%	15%	85%
Company Size: No Employees	30%	13%	87%
Company Size: Any Employees	70%	15%	85%
Company Size: 1-19 Employees	56%	16%	84%
Company Size: 20-49 Employees	8%	11%	89%
Company Size: 50+ Employees	6%	12%	88%
Company Size: 1-5 Employees	39%	18%	82%
Company Size: 6-10 Employees	10%	13%	87%
Company Size: 11-15 Employees	5%	12%	88%
Company Size: 15-19 Employees	3%	10%	90%
CEO with **Ownership**	89%	14%	86%
CEO without **Ownership**	11%	17%	83%
CEO Age - Mean	53	51	53
CEO Age - Median	52	50	52
Company Age - Mean	19	17	20
Company Age - Median	15	13	15
Industry: Most Common	Wholesale (11%)	Law, Accounting & Consulting Services (16%)	Wholesale (11%)
Industry: Second Most Common	Law, Accounting & Consulting Services (10%)	Retail (9%)	Construction, Design & Interiors Business (10%)
Industry: Third Most Common	Real Estate Activities (10%)	Real Estate Activities (9%)	Real Estate Activities (10%)

Appendix 2 – Descriptive Table Industry Groups

Descriptive Table Industries

The following table provides information concerning the industries included in the study, which are identified by using the SNI-1 codes (Statistical Classification of Economic Activities in Sweden). The ratios in the first column indicates the size of each industry compared to the total population. The ratios in the two last columns are the number of female/male CEOs in each industry.

Industry #	Industry Definition	Total Population	Women	Men
Industry 1	Other / Unknown	4%	11%	89%
Industry 2	Drain, Waste, Electricity & Water	1%	10%	90%
Industry 3	Banking, Finance & Insurance	5%	10%	90%
Industry 4	Staffing & Employment Services	1%	26%	74%
Industry 5	Industry, Employer & Occupation Organisations	0%	26%	74%
Industry 6	Construction, Design & Interiors Business	9%	7%	93%
Industry 7	Computer, IT & Telecommunications	6%	8%	92%
Industry 8	Retail	6%	22%	78%
Industry 9	Real estate activities	10%	13%	87%
Industry 10	Business Services	2%	14%	86%
Industry 11	Hotels & Restaurants	3%	27%	73%
Industry 12	Hair & Beauty	0%	69%	31%
Industry 13	Health Care	2%	38%	62%
Industry 14	Agriculture, Forestry, Hunting & Fishing	1%	13%	87%
Industry 15	Law, Accounting & Consulting Services	10%	23%	77%
Industry 16	Culture, Recreation & Leisure	1%	22%	78%
Industry 17	Manufacture of food products	1%	15%	85%
Industry 18	Media	2%	18%	82%
Industry 19	Commercial motor vehicles	1%	4%	96%
Industry 20	Public Administration & Society	0%	26%	74%
Industry 21	Wholesale	11%	10%	90%
Industry 22	Advertising, PR & Market	2%	23%	77%
Industry 23	Repair & Installation	1%	4%	96%
Industry 24	Travel Agent & Tourism	1%	31%	69%
Industry 25	Technical Consultancy	4%	9%	91%
Industry 26	Manufacturing & Industrial	9%	7%	93%
Industry 27	Transportation & Warehousing	3%	7%	93%
Industry 28	Education, Research & Development	3%	29%	71%
Industry 29	Rental & Leasing	1%	7%	93%
Industry 30	Other Consumer Services	1%	37%	63%
Total		100%	14%	86%

Appendix 3 – Descriptive Table Counties

Descriptive Table Counties

The following table provides information concerning the counties included in the study. The ratios in the column for the total population indicates the size of each county compared to the whole dataset. The ratios in the last two columns are the number of female/male CEOs in each county.

County #	County Name	Total Population	Women	Men
County 1	Blekinge county	1%	11%	89%
County 2	Dalarnas county	2%	14%	86%
County 3	Gotlands county	1%	16%	84%
County 4	Gävleborgs county	2%	13%	87%
County 5	Hallands county	3%	14%	86%
County 6	Jämtlands county	1%	15%	85%
County 7	Jönköpings county	3%	9%	91%
County 8	Kalmar county	2%	11%	89%
County 9	Kronobergs county	2%	10%	90%
County 10	Norrbottens county	2%	14%	86%
County 11	Skåne county	12%	13%	87%
County 12	Stockholms county	35%	18%	82%
County 13	Södermanlands county	2%	15%	85%
County 14	Uppsala county	3%	16%	84%
County 15	Värmlands county	2%	12%	88%
County 16	Västerbottens county	2%	12%	88%
County 17	Västernorrlands county	2%	12%	88%
County 18	Västmanlands county	2%	14%	86%
County 19	Västra Götalands county	15%	12%	88%
County 20	Örebro county	2%	13%	87%
County 21	Östergötlands county	3%	12%	88%
Total		100%	14%	86%

Appendix 4 – Descriptive Data *before* creation of Risk Measures

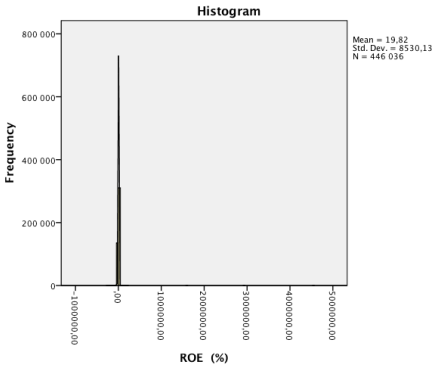
Original Variables

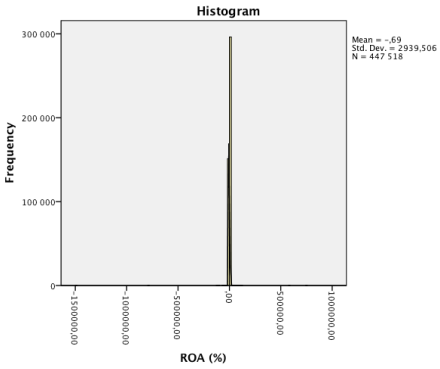
In this table, all original variables collected to create the risk variables are summarized. Return on Equity is defined as: (Before-tax-Profits)/(Total Equity)*100. Retun on Assets is defined as: (EBIT + Interest Incomes)/(Total Assets)*100. Leverage is defined as: (ROA-Average intesest rate on borrowings)*D/E. Debt-to-Equity is defined as: (Total debt)/(Total Equity). Z-score is created from five parts after the following formula: Z' = 0.717T1 + 0.847T2 + 3.107T3 + 0.420T4 + 0.998T5 Where T1 = (Current Assets - Current Liabilities)/(Total Assets), T2 = (Retained Earnings)/(Total Assets), T3 = (Earnings Before Interest and Taxes)/(Total Assets), T4 = (Book Value of Equity)/(Total Liabilities) and T5 = (Sales)/(Total Assets). Liquidity is defined as: (Current Assets)/(Current Liabilites). Turnover is annual sales calculated in '000 Swedish kronors. The table aims to display the distribution of the data, which has a large spread as can be seen when comparing standard deviations and means. The data represent five years, from 2008 to 2012. The number of observations are spread out over these five years, with approximately the same number of observations for each year.

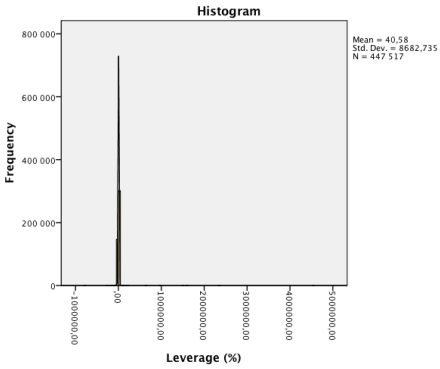
	Minimum	Mean	Maximum	Standard Deviation
Retrun on Equity (%)	-271 486	19,82	4 540 850	8 530
Retun on Assets (%)	-1 494 450	-0,69	751 500	2 940
Leverage (%)	-766 530	40,58	4 540 609	8 683
Debt-to-Equity (%)	-64 204	9,94	102 327	318
Z-score	-46 701	14,92	688 716	1 711
Liquidity (%)	-199 000	2 349,21	97 996 800	286 413
Turnover (tkr)	0	98 963,00	310 367 000	1 913 496

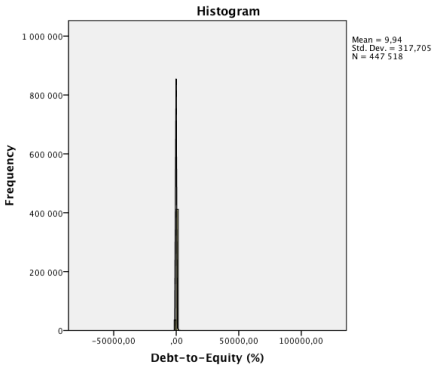
	Percentile 25	Median	Percentile 75	Count
Retrun on Equity (%)	-4,35	12,47	47,03	447518
Retun on Assets (%)	-1,11	4,42	16,27	447518
Leverage (%)	-0,13	6,80	30,74	447518
Debt-to-Equity (%)	0,37	1,22	3,49	447518
Z-score	1,22	2,84	4,28	447518
Liquidity (%)	72,65	134,97	260,16	447518
Turnover (tkr)	310	2 528	15 544	447518

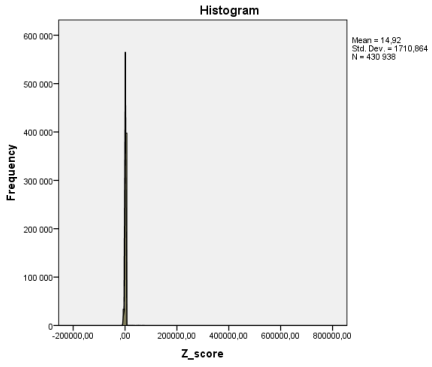
Appendix 5 – Histograms Original Variables *before* filtering

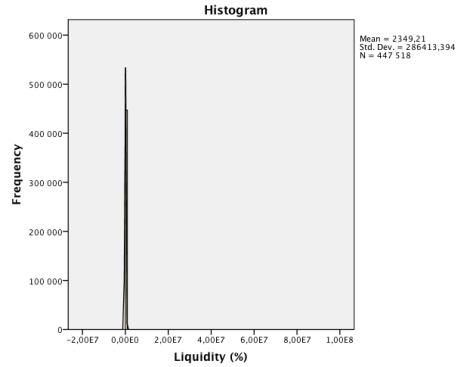


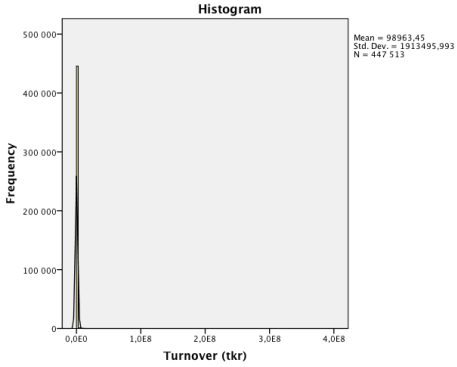












Appendix 6 – Descriptive Data *after* creation of Risk Measures

Risk Measures

In this table. the final risk measures used in the regressions. are displayed. All volatility measures are calculated by the standard deviation for the five year period and the rest of the measures are used as means for each company to enable the creation of a cross sectional data. The natural logaritm of the volatility in turnover is used to adjust for the skewness that existed in the volatility measure itself. All numbers are based on company information from 2008-2012. In the creation of these risk measures. extreme outliers were excluded according to the 3IQR-method.

	Minimum	Mean	Maximum	Standard Deviation
Volatility ROE (%)	0,00	33,32	220,49	27,51
Volatility ROA (%)	0,00	11,19	79,89	9,74
Volatility Leverage (%)	0,00	18,96	154,08	18,47
Debt-to-Equity (%)	-0,47	2,11	12,48	2,19
Z-score	-7,85	2,87	12,97	2,00
Liquidity (%)	-348	165	820	127
LN(Volatility Turnover) (%)	-0,80	6,44	10,64	1,81

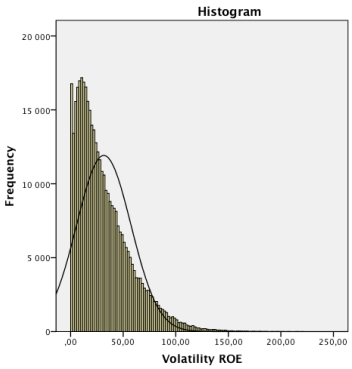
	Percentile 25	Median	Percentile 75	Count
Volatility ROE (%)	12,43	26,40	47,48	93 126
Volatility ROA (%)	3,81	8,59	16,09	93 212
Volatility Leverage (%)	5,01	13,50	27,55	88 553
Debt-to-Equity (%)	0,53	1,34	2,98	85 777
Z-score	1,48	2,88	4,03	88 225
Liquidity (%)	79	134	217	86 366
LN(Volatility Turnover) (%)	5,37	6,55	7,74	76 846

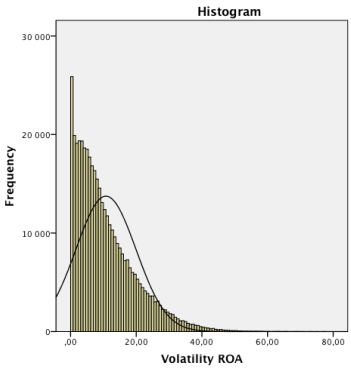
Risk Measures Women versus Men

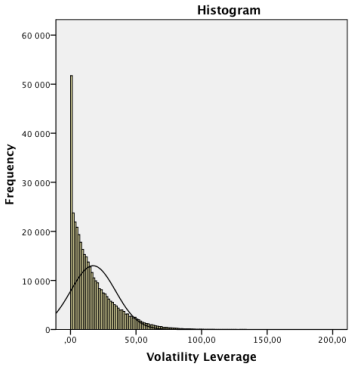
This table shows the difference between the genders in the risk taking measures before any regression is run. The columns for men and women show the mean for each variable, and the last column shows the difference between the genders. Risk averse numbers are in bold. The numbers show that men are on average more risk averse in the main risk measures, while women show to be more risk averse in the remaining risk variables.

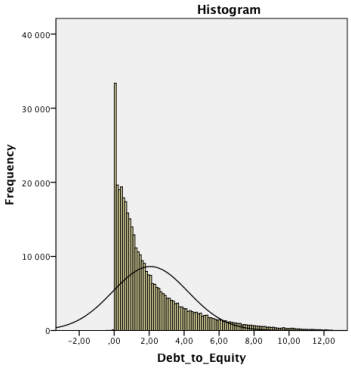
Risk Measures- Mean	Women	Men	Difference Women vs Men
Volatility ROE (%)	35,27	**32,99**	7%
Volatility ROA (%)	12,43	**10,99**	13%
Volatility Leverage (%)	20,09	**18,77**	7%
Debt-to-Equity (%)	**2,05**	2,12	-3%
Z-score	**2,99**	2,84	5%
Liquidity (%)	**172**	164	5%
LN(Volatility Turnover) (%)	**6,14**	6,50	-6%

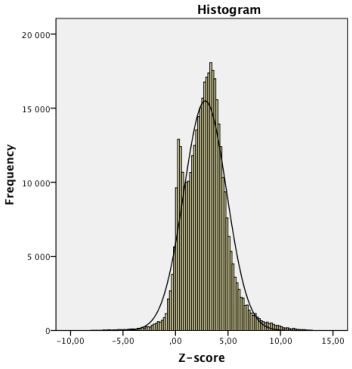
Appendix 7 – Histograms Risk Variables *after* filtering

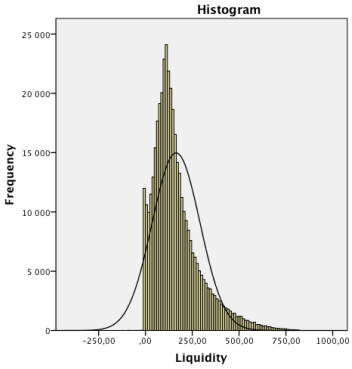


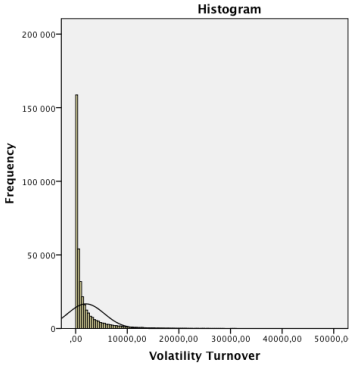


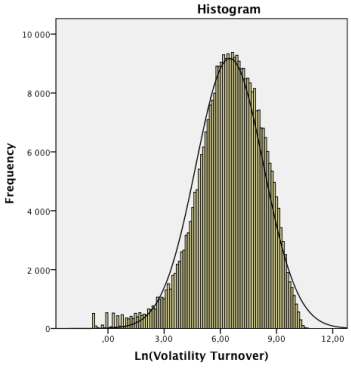










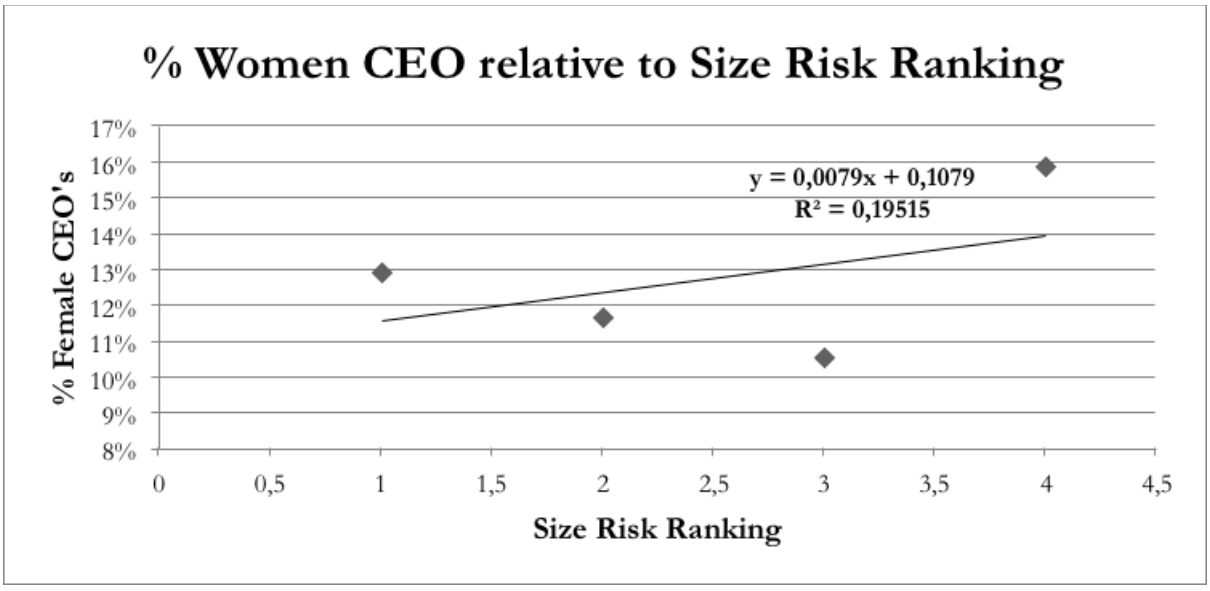


Appendix 8 – Risk Ranking Company Size

Company Size Ranking

The following table shows the risk ranking for each company size. The ranking is based on individual rankings for all the seven risk measures included in this study. They are equally weighted to create a risk index after which they are finally ranked. Low numbers indicate a low general level of risk, whereas high numbers represent a higher average risk in the particular company size.

	Total Ranking All Risk Measures	% Female CEO's
No Employees	1	13%
1-19 Employees	4	16%
20-49 Employees	3	11%
Above 50 Employees	2	12%



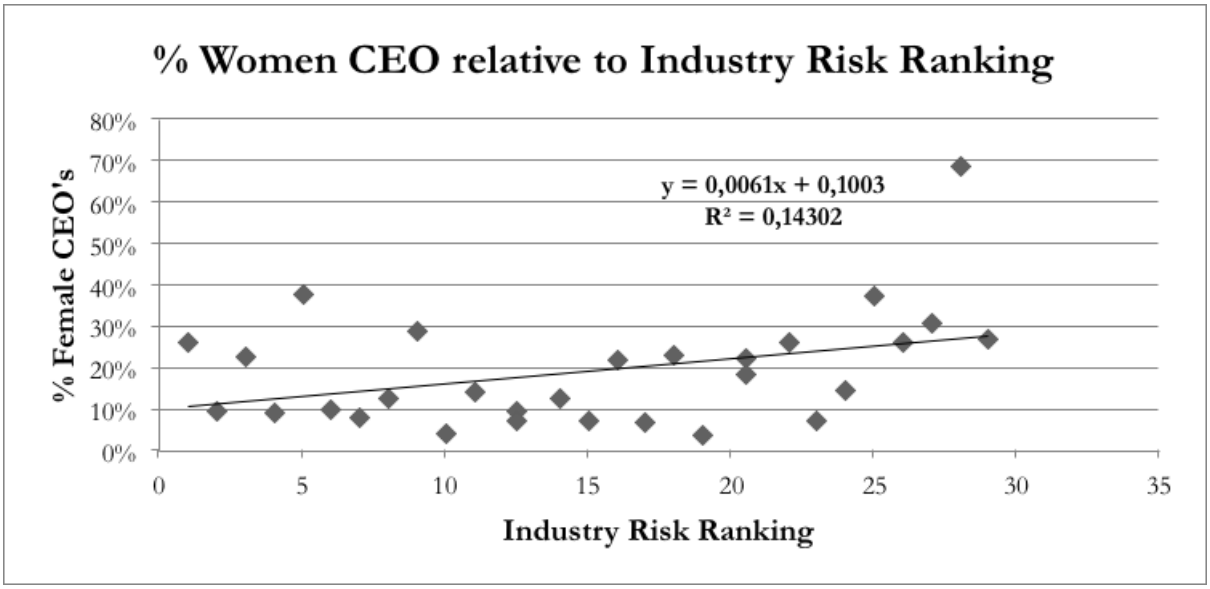
Appendix 9 – Risk Ranking Industries

Industry Ranking

The following table shows the risk ranking for each industry. The ranking is based on individual rankings for all the seven risk measures included in this study. They are equally weighted to create a risk index after which they are finally ranked. The first half of the industries are included in the "low risk industry group" in the regressions, whilst the second half creates the "high risk industry group". Low numbers indicate a low general level of risk, whereas high numbers represent a higher average risk in the industry.

	Total Ranking All Risk Measures	% Female CEO's
Industry, Employer & Occupation Organisations	1	26%
Banking, Finance & Insurance	2	10%
Law, Accounting & Consulting Services	3	23%
Technical Consultancy	4	9%
Health Care	5	38%
Wholesale	6	10%
Computer, IT & Telecommunications	7	8%
Real estate activities	8	13%
Education, Research & Development	9	29%
Commercial motor vehicles	10	4%
Business Services	11	14%
Drain, Waste, Electricity & Water	12,5	10%
Construction, Design & Interiors Business	12,5	7%
Agriculture, Forestry, Hunting & Fishing	14	13%
Rental & Leasing	15	7%
Culture, Recreation & Leisure	16	22%
Manufacturing & Industrial	17	7%
Advertising, PR & Market	18	23%
Repair & Installation	19	4%
Retail	20,5	22%
Media	20,5	18%
Public Administration & Society	22	26%
Transportation & Warehousing	23	7%
Manufacture of food products	24	15%
Other Consumer Services	25	37%
Staffing & Employment Services	26	26%
Travel Agent & Tourism	27	31%
Hair & Beauty	28	69%
Hotels & Restaurants	29	27%

Appendix 9 – Risk Ranking Industries cont.



Appendix 10 – Multicollinearity test, VIF Value

Test of Multicollinearity

This table shows the test of multicollinarity among the variables included in the regressions. A value above 10 indicates that the predictor variables are highly correlated and becomes problematic for the regression outcomes. As can be seen, no problems with multicollinearity are present in the dataset.

Variable	VIF	1/VIF	Variable	VIF	1/VIF
County_14	4.71	0.212326	Industry_14	1.36	0.737739
Industry_21	3.55	0.281924	Industry_23	1.36	0.737791
Industry_26	3.28	0.305007	Industry_16	1.35	0.738635
Industry_9	3.28	0.305049	County_17	1.35	0.739087
Industry_15	3.26	0.306598	County_20	1.35	0.739796
Industry_6	3.23	0.309370	County_6	1.34	0.746204
County_21	3.11	0.321340	Industry_2	1.34	0.747721
County_13	2.76	0.362004	lnCompanyAge	1.33	0.749251
Industry_7	2.53	0.395319	County_10	1.33	0.751635
Industry_8	2.40	0.416399	County_18	1.32	0.759038
Industry_3	2.21	0.451950	County_19	1.27	0.785362
Industry_25	1.92	0.521418	County_11	1.26	0.791952
Industry_27	1.84	0.543127	Industry_19	1.26	0.796466
Industry_28	1.64	0.609261	County_8	1.24	0.807244
Industry_12	1.63	0.612195	Industry_29	1.22	0.818870
Industry_22	1.61	0.620397	Industry_17	1.19	0.839945
Industry_11	1.57	0.635374	Industry_4	1.19	0.840545
County_9	1.55	0.644023	County_3	1.17	0.855084
County_23	1.52	0.659251	Age	1.16	0.864352
County_16	1.49	0.672575	CEO_Type_1	1.16	0.865178
Industry_10	1.46	0.684941	Industry_30	1.13	0.884718
County_7	1.44	0.692472	Industry_24	1.13	0.885271
Industry_18	1.39	0.717173	County_5	1.10	0.909288
lnTotalAssets	1.39	0.718289	CEO_Gender_1	1.07	0.930473
County_4	1.39	0.721534	Industry_5	1.05	0.948292
County_15	1.37	0.731025	Industry_13	1.05	0.948369
County_12	1.36	0.733827	Industry_20	1.01	0.986050
County_22	1.36	0.735263	ROA_mean	1.00	0.999284
Mean VIF	**1.67**				

Appendix 11 – Heteroskedasticity test, Breusch-Pagan

Test of Heteroskedasticity

This table shows the test of heteroskedasticity among the variables included in the regressions. The Breusch-Pagan method has been used to see if the null hypothesis of a homoscedastic data can be rejected or not. As the data does not follow a normal distribution, Koenker's Score and Wooldridge's F-test have been used, both indicating that the null hypothesis must be rejected and heteroskedasticity assumed to be present.

Risk Measure	Koenker's Score	Wooldridge's F-test	Heteroskedasticity
Volatility ROE (%)	chi2(1) = 6358.36***	F(1,383423) = 6465.55***	Yes (0.000)
Volatility ROA (%)	chi2(1) = 20736.11***	F(1,392156)= 21893.67***	Yes (0.000)
Volatility Leverage (%)	chi2(1) = 4194.25***	F(1,359848)= 4243.69***	Yes (0.000)
Debt-to-Equity (%)	chi2(1) = 10835.97***	F(1,374946) = 11158.39***	Yes (0.000)
Z-score	chi2(1) = 467.44***	F(1,392413)= 468.00***	Yes (0.000)
Liquidity (%)	chi2(1) = 3453.24***	F(1,389364) = 3484.12***	Yes (0.000)
LN(Volatility Turnover) (%)	chi2(1) = 280.04***	F(1,335482) = 280.27***	Yes (0.000)

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

Appendix 12 – Descriptive Statistics Regression Variables

Descriptive Statistics Regression Variables

The following table shows the descriptive statistics for all variables included in the regressions over the years 2008-2012. The dependent variables are the following: *Volatility in ROE*, defined as the standard deviation over the five year period for each company, measures the total risk in a company; *Volatility in ROA*, defined as the historical standard deviation over the period, shows the operational risk; *Volatility Leverage*, measured as the standard deviation in (ROA-Average Interest rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company; *Debt-to-Equity*, defined as total debt divided by equity, used to study financial risk; *Z-score*, measure defined by Altman for private firms, aims to measure a company's risk of bankrupcy, a high scrore indicates lower risk for bankrupcy, and this is thus also a used to examine financial risk; *Liquidity,* calculated by dividing current assets by current liabilities and measures the short-term total risk in a company; *ln(Volatiltiy in Turnover)* measures the spread in turnover during the five years included and indicates the level of operational risk. Independet & Control Variables are the following: *Female CEO* takes the value of 1 when the CEO is a woman and 0 otherwise; *CEO Age* calculated by 2014-Year of Birth; *ln(Company Age)* calculated by the natural logaritm of 2014-Registration Date; *External CEO* takes the value of 1 when the CEO is external and 0 otherwise; *ln(Total Assets)*, defined as the natural logaritm of the mean of total assets; *ROA* is the mean on return on assets; *ln(Turnover)* is the natural logaritm for the average turnover; *Profit Margin* is defined as (EBIT+Interest Incomes)/Turnover calculated as a five year mean; *Turnover/Total Assets* defined as the mean over the period.

	Obs	Mean	Std. Dev.	Min	Max
Dependent Variables:					
Volatility in ROE (5-year Standard Deviation)	93126	33,32	27,51	0,00	220,49
Volatility in ROA (5-year Standard Deviation)	93212	11,19	9,74	0,00	79,89
Volatility in Leverage (5-year Standard Deviation)	88553	18,96	18,47	0,00	154,08
Debt-to-Equity (5-year mean)	85777	2,11	2,19	-0,47	12,48
Z-score (5-year mean)	88225	2,87	2,00	-7,85	12,97
Liquidity (5-year mean)	86366	164,72	127,43	-347,62	820,00
Ln(Volatility in Turnover) (5-year Standard Deviation)	76846	6,44	1,81	-0,80	10,64
Independent & Control Variables:					
Female CEO (dummy)	95449	0,15	0,35	0,00	1,00
CEO Age	91263	52,34	11,02	19,00	97,00
Ln(Company Age)	95449	2,57	0,83	1,10	4,76
External CEO (dummy)	95449	0,10	0,30	0,00	1,00
Ln(Total Assets) (5-year mean)	95290	8,12	2,20	-1,61	20,50
ROA (5-year mean)	95449	1,99	1269,44	-298982	150160
Additional Control Variables					
Ln(Turnover) (5-year mean)	87414	8,14	2,52	-1,61	19,45
Profit Margin (5-year mean)	95449	96,67	17718,60	-994768	4359837
Turnover/Total Assets (5-year mean)	95449	1,74	7,84	-1,25	1795,30

Appendix 13 – Summary of Primary Regressions

Summary of Primary Regressions

This table shows a summary of all the primary regressions in this study. % Difference is calculated as the coefficient divided by the mean in that particular group.

Regression	Size	Risk Measure	Group Mean	Female Coeff	% Difference	Significance
Main Regression	Entire Population	ROE	33,32	-0.407	-1,22%	No
Main Regression	Entire Population	ROA	11,19	-0.0102	-0,09%	No
Main Regression	Entire Population	Leverage	18,96	0.0374	0,20%	No
Control Risk Regression	Entire Population	D/E	2,11	0.0127	0,57%	No
Control Risk Regression	Entire Population	Z-score	2,87	-0.00274	-0,07%	No
Control Risk Regression	Entire Population	Liquidity	164,72	0.906	0,55%	No
Control Risk Regression	Entire Population	Turnover	6,44	-0.0576***	-0,88%	Yes
Size Regression	0 Employees	ROE	31,48	-1.108**	-3,52%	Yes
Size Regression	0 Employees	ROA	9,73	-0.00273	-0,02%	No
Size Regression	0 Employees	Leverage	15,41	-0.163	-1,06%	No
Size Regression	>0 Employees	ROE	34,91	-0.886***	-2,54%	Yes
Size Regression	>0 Employees	ROA	12,26	-0.338***	-2,76%	Yes
Size Regression	>0 Employees	Leverage	20,49	-0.306	-1,49%	No
Size Regression	1-19 Employees	ROE	36,38	-1.185***	-3,26%	Yes
Size Regression	1-19 Employees	ROA	13,14	-0.494***	-3,76%	Yes
Size Regression	1-19 Employees	Leverage	20,93	-0.447*	-2,14%	Yes
Size Regression	20-49 Employees	ROE	29,62	-0.225	-0,76%	No
Size Regression	20-49 Employees	ROA	9,04	-0.429	-4,74%	No
Size Regression	20-49 Employees	Leverage	19,43	-0.355	-1,83%	No
Size Regression	50+ Employees	ROE	26,24	-0.166	-0,63%	No
Size Regression	50+ Employees	ROA	7,24	0.0742	1,02%	No
Size Regression	50+ Employees	Leverage	17,35	0.440	2,54%	No
Industry Regression	Low Risk Industries	ROE	33,16	-0.708**	-2,14%	Yes
Industry Regression	Low Risk Industries	ROA	11,37	0.0437	0,38%	No
Industry Regression	Low Risk Industries	Leverage	18,49	-0.168	-0,91%	No
Industry Regression	High Risk Industries	ROE	33,60	-0.0373	-0,11%	No
Industry Regression	High Risk Industries	ROA	10,89	-0.0946	-0,86%	No
Industry Regression	High Risk Industries	Leverage	19,78	0.302	1,53%	No
Industry Regression	High Fraction Female Industries	ROE	36,67	-0.691*	-1,88%	Yes
Industry Regression	High Fraction Female Industries	ROA	13,32	-0.180	-1,35%	No
Industry Regression	High Fraction Female Industries	Leverage	20,65	0.0417	0,20%	No
Industry Regression	Low Fraction Female Industries	ROE	31,75	-0.107	-0,34%	No
Industry Regression	Low Fraction Female Industries	ROA	10,21	0.0659	0,64%	No
Industry Regression	Low Fraction Female Industries	Leverage	18,16	0.0924	0,51%	No

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

Appendix 14 – Summary of Control Regressions

Summary of Control Regressions

This table shows a summary of all the additional control regressions in this study. % Difference is calculated as the coefficient divided by the mean in that particular group. In *Control Variable Regression* (1) no size variable has been included. In (2) has ln(Total Assets) been replaced by ln(Turnover). In (3) has profitability variable ROA been replaced by Profit Margin and Turnover/Total Assets. The final six regressions differs from the rest in the way that the independet variable Female CEO been replaced by CEO Fraction. These regressions aim to find if men or women have a larger impact on risk when organisations get smaller. CEO fraction is calculated by 1/Total number of Employees, a high negative coefficient indicates that when companies get smaller both genders decrese their levels of risk.

Regression	Size	Risk Measure	Group Mean	Indepdenent Coeff	% Difference	Significance
Control Variable Regression (1)	Entire Population	ROE	33,32	-0.00197	0,00%	No
Control Variable Regression (2)	Entire Population	ROE	33,32	0.00658	0,02%	No
Control Variable Regression (3)	Entire Population	ROE	33,32	-0.404	-1,21%	No
Control Variable Regression (1)	Entire Population	ROA	11,19	0.517***	4,62%	Yes
Control Variable Regression (2)	Entire Population	ROA	11,19	0.368***	3,29%	Yes
Control Variable Regression (3)	Entire Population	ROA	11,19	-0.00926	-0,08%	No
Control Variable Regression (1)	Entire Population	Leverage	18,96	0.211	1,11%	No
Control Variable Regression (2)	Entire Population	Leverage	18,96	0.373*	1,97%	Yes
Control Variable Regression (3)	Entire Population	Leverage	18,96	0.0440	0,23%	No
Size Regression	1-5 Employees	ROE	37,65	-1.262***	-3,35%	Yes
Size Regression	1-5 Employees	ROA	14,05	-0.450***	-3,20%	Yes
Size Regression	1-5 Employees	Leverage	20,85	-0.446*	-2,14%	Yes
Size Regression	6-10 Employees	ROE	34,04	-2.872***	-8,44%	Yes
Size Regression	6-10 Employees	ROA	11,19	-0.578**	-5,16%	Yes
Size Regression	6-10 Employees	Leverage	21,93	-1.585***	-7,23%	Yes
Size Regression	11-15 Employees	ROE	31,70	1.447	4,56%	No
Size Regression	11-15 Employees	ROA	10,17	-0.636*	-6,25%	Yes
Size Regression	11-15 Employees	Leverage	20,37	0.786	3,86%	No
Size Regression	16-19 Employees	ROE	30,95	-0.599	-1,94%	No
Size Regression	16-19 Employees	ROA	9,63	-1.058**	-10,98%	Yes
Size Regression	16-19 Employees	Leverage	20,18	0.737	3,65%	No
Gender Regression (4)	Only Women	ROE	35,27	-7.157***	-20,29%	Yes
Gender Regression (5)	Only Men	ROE	32,99	-4.396***	-13,33%	Yes
Gender Regression (4)	Only Women	ROA	12,43	-3.858***	-31,04%	Yes
Gender Regression (5)	Only Men	ROA	10,99	-3.670***	-33,41%	Yes
Gender Regression (4)	Only Women	Leverage	20,09	-8.154***	-40,59%	Yes
Gender Regression (5)	Only Men	Leverage	18,77	-7.331***	-39,06%	Yes

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

Appendix 15 – Regression 1: Original Risk Measures

Main Regression - Entire Population

In the first run of regressions, the three main risk measures have been run on the entire population. The dependent variables are (1) *Volatility in ROE,* defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) *Volatility in ROA*, defined as the historical standard deviation over the period, shows the operational risk; (3) *Volatility Leverage,* measured as the standard deviation in (ROA-Average Interest rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)
VARIABLES	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**
Female CEO	-0.407	-0.0102	0.0374
	(0.275)	(0.0948)	(0.190)
CEO Age	-0.123***	-0.0374***	-0.112***
	(0.00861)	(0.00294)	(0.00594)
lnCompanyAge	-6.284***	-0.766***	-3.643***
	(0.131)	(0.0428)	(0.0936)
External CEO	-1.020***	0.122	0.569***
	(0.302)	(0.0890)	(0.207)
lnTotalAssets	-0.981***	-1.263***	-0.408***
	(0.0479)	(0.0164)	(0.0345)
ROA	-0.000107	-1.62e-05	-0.000136
	(8.63e-05)	(1.49e-05)	(0.000117)
Constant	50.71***	16.65***	24.63***
	(0.758)	(0.249)	(0.519)
Fixed County Effects	Included	Included	Included
Fixed Industry Effects	Included	Included	Included
Observations	88,921	88,969	84,689
R-squared	0.078	0.182	0.074

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 16 – Regression 2: Control Risk Measures

Control Regression - Entire Population

In the second run of regressions, four control risk measures have been run to see whether the main regressions can be supported or not. The dependent variables are (1) *Debt-to-Equity,* defined as total debt divided by equity, used to study financial risk; (2) *Z-score,* which is a measure defined by Altman and aims to measure a company's risk of bankrupcy, a high scrore indicates lower risk for bankrupcy, and this is thus also a proxy for financial risk; (3) *Liquidity,* calculated by dividing current assets by current liabilities and measures the short-term total risk in a company; (4) *ln(Volatiltiy in Turnover)* measures the spread in turnover during the five years included and indicates the level of operational risk. *Female CEO* is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)	(4)
VARIABLES	**Debt-to-Equity (%)**	**Z-score**	**Liquidity (%)**	**LN(Volatility Turnover) (%)**
Female CEO	0.0127	-0.00274	0.906	-0.0576***
	(0.0212)	(0.0198)	(1.260)	(0.0145)
CEO Age	-0.0106***	-0.00940***	0.890***	-0.0177***
	(0.000700)	(0.000668)	(0.0452)	(0.000513)
lnCompanyAge	-0.407***	0.150***	5.538***	-0.118***
	(0.0110)	(0.00954)	(0.612)	(0.00797)
External CEO	0.0566**	-0.161***	-9.777***	0.171***
	(0.0272)	(0.0206)	(1.275)	(0.0197)
lnTotalAssets	0.244***	-0.0727***	-6.977***	0.660***
	(0.00405)	(0.00420)	(0.248)	(0.00449)
ROA	2.51e-06	1.74e-05	0.000527**	3.66e-06
	(8.62e-06)	(1.09e-05)	(0.000233)	(5.37e-06)
Constant	0.711***	2.440***	74.89***	0.443***
	(0.0585)	(0.0765)	(4.334)	(0.110)
Fixed County Effects	Included	Included	Included	Included
Fixed Industry Effects	Included	Included	Included	Included
Observations	81,975	84,364	82,432	73,257
R-squared	0.116	0.115	0.091	0.425

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 17 – Regression 3: Size Risk Measures (0 Employees)

Size Regression - 0 Employees

In the third run of regressions, the three main risk measures have been run in five different size groups. The groups are based on the number of employees and the table below represents companies with no employees. The dependent variables are (1) *Volatility in ROE,* defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) *Volatility in ROA*, defined as the historical standard deviation over the period, shows the operational risk; (3) *Volatility in Leverage,* measured as the standard deviation in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)
VARIABLES	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**
Female CEO	-1.108**	-0.00273	-0.163
	(0.505)	(0.189)	(0.354)
CEO Age	-0.0778***	-0.0209***	-0.0608***
	(0.0147)	(0.00534)	(0.0101)
lnCompanyAge	-7.409***	-0.880***	-3.093***
	(0.220)	(0.0764)	(0.159)
External CEO	-4.394***	-0.779***	-0.114
	(0.677)	(0.205)	(0.480)
lnTotalAssets	0.643***	-1.061***	-0.441***
	(0.0837)	(0.0288)	(0.0631)
ROA	-0.000168	-3.67e-05	-8.12e-05
	(0.000166)	(2.25e-05)	(0.000150)
Constant	37.63***	14.09***	20.43***
	(1.107)	(0.394)	(0.789)
Fixed County Effects	Included	Included	Included
Fixed Industry Effects	Included	Included	Included
Observations	28,633	28,468	25,745
R-squared	0.076	0.188	0.075

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 18 – Regression 3: Size Risk Measures (Any Employees)

Size Regression - Any Employees

In the third run of regressions, the three main risk measures have been run in five different size groups. The groups are based on the number of employees and the table below represent companies with any employees, meaning that it includes all companies where there is not solely the CEO her/himself working. The dependent variables are (1) Volatility in ROE, defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) Volatility in ROA, as previous measure, defined as the historical standard deviation over the period, shows the operational risk; (3) Volatility in Leverage, measured as the standard deviation in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)
VARIABLES	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**
Female CEO	-0.886***	-0.338***	-0.306
	(0.305)	(0.103)	(0.210)
CEO Age	-0.147***	-0.0388***	-0.122***
	(0.00985)	(0.00329)	(0.00680)
lnCompanyAge	-5.198***	-0.704***	-3.826***
	(0.154)	(0.0500)	(0.109)
External CEO	1.413***	0.646***	1.035***
	(0.330)	(0.0963)	(0.225)
lnTotalAssets	-2.588***	-1.780***	-0.938***
	(0.0582)	(0.0194)	(0.0410)
ROA	-9.43e-05	-3.89e-06	-0.00254*
	(9.05e-05)	(7.97e-06)	(0.00147)
Constant	79.67***	29.84***	41.16***
	(2.144)	(0.637)	(1.377)
Fixed County Effects	Included	Included	Included
Fixed Industry Effects	Included	Included	Included
Observations	68,101	68,099	66,425
R-squared	0.101	0.205	0.073

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 19 – Regression 3: Size Risk Measures (1-19 Employees)

Size Regression - 1 to 19 Employees

In the third run of regressions, the three main risk measures have been run in five different size groups. The groups are based on the number of employees and the table below represents companies with between 1 and 19 employees, which is the largest group; 56% of all companies examined. The dependent variables are (1) Volatility in ROE, defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) Volatility in ROA, as previous measure, defined as the historical standard deviation over the period, shows the operational risk; (3) Volatility in Leverage, measured as the volatility in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

VARIABLES	(1) **Volatility ROE (%)**	(2) **Volatility ROA (%)**	(3) **Volatility Leverage (%)**
Female CEO	-1.185***	-0.494***	-0.447*
	(0.335)	(0.115)	(0.229)
CEO Age	-0.132***	-0.0353***	-0.118***
	(0.0108)	(0.00371)	(0.00746)
lnCompanyAge	-5.533***	-0.760***	-3.945***
	(0.174)	(0.0587)	(0.123)
External CEO	1.330***	0.491***	1.293***
	(0.433)	(0.134)	(0.291)
lnTotalAssets	-3.134***	-2.207***	-1.243***
	(0.0815)	(0.0285)	(0.0576)
ROA	-8.59e-05	-4.96e-06	-0.00215
	(8.00e-05)	(6.62e-06)	(0.00133)
Constant	82.13***	32.52***	41.72***
	(2.353)	(0.775)	(1.447)
Fixed County Effects	Included	Included	Included
Fixed Industry Effects	Included	Included	Included
Observations	56,000	55,710	54,521
R-squared	0.092	0.181	0.073

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 20 – Regression 3: Size Risk Measures (20-49 Employees)

Size Regression - 20 to 49 Employees

In the third run of regressions, the three main risk measures have been run in five different size groups. The groups are based on the number of employees and the table below represents companies with between 20 and 49 employees, which is the second smallest group, only reflecting 8% of all companies examined. The dependent variables are (1) Volatility in ROE, defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) Volatility in ROA, as previous measure, defined as the historical standard deviation over the period, shows the operational risk; (3) Volatility in Leverage, measured as the standard deviation in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effect. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)
VARIABLES	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**
Female CEO	-0.225	-0.429	-0.355
	(1.012)	(0.278)	(0.728)
CEO Age	-0.156***	-0.0406***	-0.0628***
	(0.0312)	(0.00837)	(0.0218)
lnCompanyAge	-4.899***	-0.704***	-4.143***
	(0.481)	(0.124)	(0.345)
External CEO	0.865	0.667***	0.227
	(0.761)	(0.197)	(0.544)
lnTotalAssets	-3.769***	-1.585***	-2.778***
	(0.288)	(0.0776)	(0.201)
ROA	-0.270***	-0.0400***	-0.186***
	(0.0475)	(0.0107)	(0.0413)
Constant	104.2***	30.69***	70.49***
	(7.046)	(1.691)	(4.924)
Fixed County Effects	Included	Included	Included
Fixed Industry Effects	Included	Included	Included
Observations	6,789	6,933	6,681
R-squared	0.133	0.174	0.131

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 21 – Regression 3: Size Risk Measures (50+ Employees)

Size Regression - 50+ Employees

In the third run of regressions, the three main risk measures have been run in five different size groups. The groups are based on the number of employees and the table below represents companies with 50 or more employees, which is the smallest group, only reflecting 6% of all companies examined. The dependent variables are (1) Volatility in ROE, defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) Volatility in ROA, as previous measure, defined as the historical standard deviation over the period, shows the operational risk; (3) Volatility in Leverage, measured as the standard deviation in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)
VARIABLES	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**
Female CEO	-0.166	0.0742	0.440
	(1.003)	(0.249)	(0.711)
CEO Age	-0.199***	-0.0492***	-0.140***
	(0.0360)	(0.00841)	(0.0261)
lnCompanyAge	-2.811***	-0.209**	-2.717***
	(0.444)	(0.101)	(0.320)
External CEO	-0.264	0.268*	-0.602
	(0.672)	(0.159)	(0.469)
lnTotalAssets	-2.986***	-1.118***	-1.980***
	(0.193)	(0.0465)	(0.138)
ROA	-0.336***	-0.0430***	-0.200***
	(0.0320)	(0.00769)	(0.0200)
Constant	84.82***	24.22***	51.63***
	(6.299)	(1.489)	(2.813)
Fixed County Effects	Included	Included	Included
Fixed Industry Effects	Included	Included	Included
Observations	5,723	5,873	5,628
R-squared	0.125	0.192	0.121

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 22 – Regression 4: Industry Risk Measures (Low Risk)

Industry Regression - Low risk industries

The forth run of regressions have classified industres in differnt ways to see if risk preferences can be explained by the industry a CEO is present in. The three main risk measure have been run in 4 different industry groups. The first two groups are based on the average risk in the industry and the table below represent companies having a low average risk. The dependent variables are (1) *Volatility in ROE,* defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) *Volatility in ROA,* as previous measure, defined as the historical standard deviation over the period, shows the operational risk; (3) *Volatility Leverage,* measured as the volatility in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)
VARIABLES	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**
Female CEO	-0.708**	0.0437	-0.168
	(0.355)	(0.127)	(0.242)
CEO Age	-0.129***	-0.0378***	-0.124***
	(0.0107)	(0.00376)	(0.00727)
lnCompanyAge	-5.853***	-0.673***	-3.458***
	(0.166)	(0.0556)	(0.116)
External CEO	-0.702*	0.195*	0.714***
	(0.378)	(0.113)	(0.258)
lnTotalAssets	-1.295***	-1.366***	-0.423***
	(0.0608)	(0.0212)	(0.0431)
ROA	-6.86e-05	-4.01e-07	-0.00154
	(6.40e-05)	(4.10e-06)	(0.00160)
Constant	63.85***	24.83***	35.02***
	(1.979)	(0.713)	(1.271)
Fixed County Effects	Included	Included	Included
Fixed Industry Effects	Included	Included	Included
Observations	56,128	55,937	53,862
R-squared	0.075	0.184	0.059

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 23 – Regression 4: Industry Risk Measures (High Risk)

Industry Regression - High risk industries

The forth run of regressions have classified industres in differnt ways to see if risk preferences can be explained by the industry a CEO is present in. The three main risk measure have been run in 4 different industry groups. The first two groups are based on the average risk in the industry and the table below represent companies having a high average risk. The dependent variables are (1) *Volatility in ROE,* defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) *Volatility in ROA,* as previous measure, defined as the historical standard deviation over the period, shows the operational risk; (3) *Volatility Leverage,* measured as the volatility in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)
VARIABLES	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**
Female CEO	-0.0373	-0.0946	0.302
	(0.432)	(0.142)	(0.304)
CEO Age	-0.116***	-0.0367***	-0.0922***
	(0.0145)	(0.00470)	(0.0103)
lnCompanyAge	-6.982***	-0.930***	-3.963***
	(0.216)	(0.0667)	(0.158)
External CEO	-1.344***	0.0653	0.301
	(0.504)	(0.146)	(0.349)
lnTotalAssets	-0.466***	-1.090***	-0.379***
	(0.0780)	(0.0256)	(0.0586)
ROA	-0.000194	-5.25e-05***	-9.86e-05
	(0.000168)	(1.31e-05)	(0.000114)
Constant	47.30***	15.90***	24.16***
	(1.132)	(0.369)	(0.825)
Fixed County Effects	Included	Included	Included
Fixed Industry Effects	Included	Included	Included
Observations	32,793	33,032	30,827
R-squared	0.086	0.179	0.096

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 24 – Regression 4: Industry Risk Measures (High Fraction)

Industry Regression - High fraction female CEOs industries

The forth run of regressions have classified industres in differnt ways to see if risk preferences can be explained by the industry a CEO is present in. The three main risk measure have been run in 4 different industry groups. The last two groups are based on the fraction female CEOs in the industry, and the table below represent industries having a high fraction female CEOs. The dependent variables are (1) *Volatility in ROE,* defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) *Volatility in ROA,* as previous measure, defined as the historical standard deviation over the period, shows the operational risk; (3) *Volatility Leverage,* measured as the volatility in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)
VARIABLES	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**
Female CEO	-0.691*	-0.180	0.0417
	(0.395)	(0.139)	(0.265)
CEO Age	-0.145***	-0.0437***	-0.118***
	(0.0164)	(0.00586)	(0.0112)
lnCompanyAge	-5.367***	-0.983***	-3.162***
	(0.254)	(0.0887)	(0.175)
External CEO	-1.492**	-0.474***	0.499
	(0.595)	(0.184)	(0.414)
lnTotalAssets	-1.243***	-1.476***	-0.380***
	(0.0991)	(0.0352)	(0.0720)
ROA	-0.000415**	-5.91e-05***	-0.000223***
	(0.000167)	(1.50e-05)	(4.87e-05)
Constant	58.76***	27.81***	31.13***
	(3.756)	(0.828)	(2.067)
Fixed County Effects	Included	Included	Included
Fixed Industry Effects	Included	Included	Included
Observations	28,217	27,956	27,081
R-squared	0.054	0.120	0.049

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 25 – Regression 4: Industry Risk Measures (Low Fraction)

Industry Regression - Low fraction female CEOs industries

The forth run of regressions have classified industres in differnt ways to see if risk preferences can be explained by the industry a CEO is present in. The three main risk measure have been run in 4 different industry groups. The last two groups are based on the fraction female CEOs in the industry, and the table below represent companies having a low fraction female CEOs, highest number being 14%. The dependent variables are (1) *Volatility in ROE,* defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) *Volatility in ROA,* as previous measure, defined as the historical standard deviation over the period, shows the operational risk; (3) *Volatility Leverage,* measured as the volatility in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)
VARIABLES	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**
Female CEO	-0.107	0.0659	0.0924
	(0.382)	(0.129)	(0.273)
CEO Age	-0.117***	-0.0342***	-0.110***
	(0.0101)	(0.00337)	(0.00700)
lnCompanyAge	-6.667***	-0.672***	-3.848***
	(0.153)	(0.0483)	(0.111)
External CEO	-0.852**	0.393***	0.579**
	(0.351)	(0.101)	(0.238)
lnTotalAssets	-0.884***	-1.193***	-0.414***
	(0.0547)	(0.0184)	(0.0392)
ROA	-3.08e-05	-4.69e-06	2.95e-06
	(5.10e-05)	(8.13e-06)	(0.000169)
Constant	50.76***	15.73***	25.35***
	(0.847)	(0.276)	(0.584)
Fixed County Effects	Included	Included	Included
Fixed Industry Effects	Included	Included	Included
Observations	60,704	61,013	57,608
R-squared	0.082	0.190	0.082

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 26 – Regression 5: Changes of Control Variables (ROE)

Regression Change of Control Variables - ROE

In the fifth run of regressions, the three main risk measure have again been run on the entire population. The dependent variable below is *Volatility in ROE,* defined as the standard deviation over the five year period for each company, measures the total risk in a company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. In regression (1) is the main regression displayed where all original control variables are included. In regression (2) have the size factor *ln(TotalAssets)* been removed to show the impact of the size variable. In regression (3) *ln(Turnover)* have instead been added to test its suitability to adjust for size. As can be seen, using this variable show very similar results as the regression without any size variable. In regression (4) has ROA been replaced by profit margin and (turnover)/(total assets) to see if these could be better suited for the regression. This only has a very small impact on the Female CEO variable indicating no bigger difference in using these variables or ROA in the regression. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)	(4)
VARIABLES	**Volatility ROE (%)**	**Volatility ROE (%)**	**Volatility ROE (%)**	**Volatility ROE (%)**
Female CEO	-0.407	-0.00197	0.00658	-0.404
	(0.275)	(0.274)	(0.285)	(0.274)
CEO Age	-0.123***	-0.107***	-0.115***	-0.120***
	(0.00861)	(0.00856)	(0.00917)	(0.00874)
lnCompanyAge	-6.284***	-7.033***	-7.139***	-6.286***
	(0.131)	(0.125)	(0.137)	(0.131)
External CEO	-1.020***	-2.731***	-2.371***	-1.017***
	(0.302)	(0.291)	(0.310)	(0.302)
lnTotalAssets	-0.981***			-0.971***
	(0.0479)			(0.0480)
ROA	-0.000107	-0.000113	-0.000105	
	(8.63e-05)	(8.86e-05)	(8.37e-05)	
lnTurnover			-0.272***	
			(0.0415)	
Profit Margin				1.89e-06
				(6.36e-06)
Turnover/Total Assets				0.163*
				(0.0892)
Constant	50.71***	44.19***	55.11***	50.48***
	(0.758)	(0.688)	(1.151)	(0.765)
Fixed County Effects	Included	Included	Included	Included
Fixed Industry Effects	Included	Included	Included	Included
Observations	88,921	89,072	81,587	88,921
R-squared	0.078	0.073	0.073	0.080
Robust standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Appendix 27 – Regression 5: Changes of Control Variables (ROA)

Regression Change of Control Variables - ROA

In the fifth run of regressions, the three main risk measure have again been run on the entire population. The dependent variable is *Volatility in ROA,* defined as the standard deviation over the five year period for each company, measures the operational risk in a company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. In regression (1) is the main regression displayed where all original control variables are included. In regression (2) have the size factor *ln(TotalAssets)* been removed to show the impact of the size variable. In regression (3) *ln(Turnover)* have instead been added to test its suitability to adjust for size. As can be seen, using this variable show very similar results as the regression without any size variable. In regression (4) has ROA been replaced by profit margin and (turnover)/(total assets) to see if these could be better suited for the regression. This only has a very small impact on the Female CEO variable indicating no bigger difference in using these variables or ROA in the regression. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)	(4)
VARIABLES	**Volatility ROA (%)**	**Volatility ROA (%)**	**Volatility ROA (%)**	**Volatility ROA (%)**
Female CEO	-0.0102	0.517***	0.368***	-0.00926
	(0.0948)	(0.0972)	(0.101)	(0.0947)
CEO Age	-0.0374***	-0.0168***	-0.0314***	-0.0367***
	(0.00294)	(0.00302)	(0.00323)	(0.00298)
lnCompanyAge	-0.766***	-1.759***	-1.594***	-0.765***
	(0.0428)	(0.0425)	(0.0469)	(0.0428)
External CEO	0.122	-2.068***	-1.436***	0.122
	(0.0890)	(0.0881)	(0.0934)	(0.0889)
lnTotalAssets	-1.263***			-1.261***
	(0.0164)			(0.0164)
ROA	-1.62e-05	-2.02e-05	-1.62e-05	
	(1.49e-05)	(1.61e-05)	(1.51e-05)	
lnTurnover			-0.495***	
			(0.0150)	
Profit Margin				1.75e-06
				(1.85e-06)
Turnover/Total Assets				0.0388
				(0.0282)
Constant	16.65***	8.482***	15.75***	16.59***
	(0.249)	(0.223)	(0.392)	(0.252)
Fixed County Effects	Included	Included	Included	Included
Fixed Industry Effects	Included	Included	Included	Included
Observations	88,969	89,121	81,676	88,969
R-squared	0.182	0.124	0.125	0.183

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 28 – Regression 5: Changes of Control Variables (Leverage)

Regression Change of Control Variables - Leverage

In the fifth run of regressions, the three main risk measure have again been run on the entire population. The dependent variable is *Volatility Leverage*, measured as the volatility in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. In regression (1) is the main regression displayed where all original control variables are included. In regression (2) have the size factor *ln(TotalAssets)* been removed to show the impact of the size variable. In regression (3) *ln(Turnover)* have instead been added to test its suitability to adjust for size. As can be seen, using this variable show very similar results as the regression without any size variable. In regression (4) has ROA been replaced by profit margin and (turnover)/(total assets) to see if these could be better suited for the regression. This only has a very small impact on the Female CEO variable indicating no bigger difference in using these variables or ROA in the regression. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)	(4)
VARIABLES	**Volatility Leverage (%)**	**Volatility Leverage (%)**	**Volatility Leverage (%)**	**Volatility Leverage (%)**
CEO_Gender_1	0.0374	0.211	0.373*	0.0440
	(0.190)	(0.190)	(0.196)	(0.189)
Age	-0.112***	-0.105***	-0.0794***	-0.109***
	(0.00594)	(0.00591)	(0.00629)	(0.00603)
lnCompanyAge	-3.643***	-3.991***	-4.911***	-3.642***
	(0.0936)	(0.0875)	(0.0950)	(0.0935)
CEO_Type_1	0.569***	-0.147	-1.583***	0.564***
	(0.207)	(0.199)	(0.210)	(0.207)
lnTotalAssets_mean	-0.408***			-0.398***
	(0.0345)			(0.0346)
ROA_mean	-0.000136	-0.000140	-0.000180	
	(0.000117)	(0.000115)	(0.000122)	
lnTurnover_mean			0.638***	
			(0.0286)	
Profit_Margin_mean				1.15e-07
				(2.22e-06)
Turnover_Total_Assets_mean				0.126**
				(0.0630)
Constant	24.63***	21.81***	27.58***	24.38***
	(0.519)	(0.467)	(0.774)	(0.528)
Fixed County Effects	Included	Included	Included	Included
Fixed Industry Effects	Included	Included	Included	Included
Observations	84,689	84,745	78,943	84,689
R-squared	0.074	0.073	0.066	0.077

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 29 – Regression 6: Extra Size Risk Measures (1-10 Employees)

Size Regression - 1 to 10 Employees

In the sixth run of regressions, the three main risk measures have been run in four additional size groups as the previous group 1-19 Employees represented 56% of the entire population. The groups are based on the number of employees and the table below represents companies with 1-5 and 6-10 employees. The dependent variables are (1) Volatility in ROE, defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) Volatility in ROA, as previous measure, defined as the historical standard deviation over the period, shows the operational risk; (3) Volatility in Leverage, measured as the standard deviation in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	1 to 5 Employees			6 to 10 Employees		
	(1)	(2)	(3)	(1)	(2)	(3)
VARIABLES	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**
Female CEO	-1.262***	-0.450***	-0.446*	-2.872***	-0.578**	-1.585***
	(0.381)	(0.136)	(0.257)	(0.764)	(0.237)	(0.559)
CEO Age	-0.141***	-0.0318***	-0.121***	-0.0787***	-0.0297***	-0.0550***
	(0.0126)	(0.00450)	(0.00856)	(0.0257)	(0.00784)	(0.0190)
lnCompanyAge	-5.284***	-0.736***	-3.606***	-6.922***	-1.011***	-5.659***
	(0.204)	(0.0727)	(0.140)	(0.404)	(0.118)	(0.303)
External CEO	0.0159	-0.00603	0.719*	2.614***	0.570**	1.275**
	(0.594)	(0.194)	(0.398)	(0.859)	(0.245)	(0.579)
lnTotalAssets	-3.228***	-2.374***	-1.502***	-4.364***	-2.112***	-2.814***
	(0.100)	(0.0367)	(0.0714)	(0.255)	(0.0702)	(0.180)
ROA	-7.47e-05	-7.09e-06	-0.00161	-0.166***	-0.0203***	-0.115***
	(6.62e-05)	(6.25e-06)	(0.00113)	(0.0336)	(0.00545)	(0.0237)
Constant	81.19***	31.58***	41.43***	102.1***	37.16***	63.45***
	(2.955)	(0.947)	(1.725)	(6.108)	(1.847)	(3.781)
Fixed County Effects	Included	Included	Included	Included	Included	Included
Fixed Industry Effects	Included	Included	Included	Included	Included	Included
Observations	41,691	41,169	40,494	9,950	10,098	9,733
R-squared	0.083	0.162	0.076	0.140	0.174	0.127

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 30 – Regression 6: Extra Size Risk Measures (11-19 Employees)

Size Regression - 11 to 19 Employees

In the sixth run of regressions, the three main risk measures have been run in four additional size groups as the previous group 1-19 Employees represented 56% of the entire population. The groups are based on the number of employees and the table below represents companies with 1-5 and 6-10 employees. The dependent variables are (1) Volatility in ROE, defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) Volatility in ROA, as previous measure, defined as the historical standard deviation over the period, shows the operational risk; (3) Volatility in Leverage, measured as the standard deviation in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. Female CEO is the independent variable and takes the value of 1 when the CEO is a woman and 0 otherwise. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	11 to 15 Employees			16 to 19 Employees		
	(1)	(2)	(3)	(1)	(2)	(3)
VARIABLES	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**
Female CEO	1.447	-0.636*	0.786	-0.599	-1.058**	0.737
	(1.237)	(0.329)	(0.839)	(1.648)	(0.432)	(1.263)
CEO Age	-0.126***	-0.0418***	-0.0625**	-0.0310	-0.0320**	-0.0233
	(0.0377)	(0.0107)	(0.0268)	(0.0502)	(0.0135)	(0.0352)
lnCompanyAge	-6.237***	-0.898***	-5.537***	-5.941***	-0.876***	-5.040***
	(0.567)	(0.159)	(0.406)	(0.787)	(0.200)	(0.560)
External CEO	-0.802	0.671**	-0.219	0.224	0.297	1.452
	(1.002)	(0.296)	(0.698)	(1.305)	(0.344)	(0.955)
lnTotalAssets	-4.280***	-1.929***	-3.010***	-4.494***	-1.837***	-3.090***
	(0.365)	(0.101)	(0.245)	(0.514)	(0.127)	(0.319)
ROA	-0.304***	-0.0441***	-0.196***	-0.150*	-0.00965	-0.0847
	(0.0296)	(0.00741)	(0.0210)	(0.0828)	(0.0135)	(0.0536)
Constant	99.19***	35.79***	66.05***	87.15***	31.93***	62.87***
	(5.709)	(2.069)	(3.935)	(8.565)	(2.030)	(6.002)
Fixed County Effects	Included	Included	Included	Included	Included	Included
Fixed Industry Effects	Included	Included	Included	Included	Included	Included
Observations	4,905	4,982	4,811	2,663	2,707	2,615
R-squared	0.154	0.184	0.154	0.129	0.181	0.134

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 31 – Regression 7: Gender Effects on Control Variables

Gender Regression - Female versus Male CEO Companies

The seventh run of regressions **does not have a CEO gender dummy** to see if women and men affect risks but instead have the main regressions been run in two groups where companies run by women and run by men have been seperated. The three main risk measure have been run for both genders. The dependent variables are (1) *Volatility in ROE,* defined as the standard deviation over the five year period for each company, measures the total risk in a company; (2) *Volatility in ROA,* as previous measure, defined as the historical standard deviation over the period, shows the operational risk; (3) *Volatility Leverage,* measured as the volatility in (ROA-Average Interst rate on borrowings)*D/E, represents the financial risk and indicates how much return equity holders can expect from the extra debt in the company. In this regression is a new independent variable added, CEO Fraction. It is defined as the fraction the CEO makes up for in the company (e.g. a CEO with no employees gets 1 and a CEO with one employee gets 0.5). This has been added to see if women or men have a different degree on impacts in their companies. Control variables are defined in Appendix 13. Further are 21 county dummies included to adjust for fixed county effects, 30 industry dummies are included for fixed industry effects. Regressions are run cross-sectionally but represent the period 2008-2012. P-values are adjusted for heteroscedasticity and no multicollinearity is present in these regressions.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	**MEN**	**WOMEN**	**MEN**	**WOMEN**	**MEN**
VARIABLES	**Volatility ROE (%)**	**Volatility ROE (%)**	**Volatility ROA (%)**	**Volatility ROA (%)**	**Volatility Leverage (%)**	**Volatility Leverage (%)**
CEO Fraction	-7.157***	-4.396***	-3.858***	-3.670***	-8.154***	-7.331***
	(0.888)	(0.325)	(0.299)	(0.107)	(0.623)	(0.225)
CEO Age	-0.126***	-0.105***	-0.0132	-0.0260***	-0.0838***	-0.0858***
	(0.0253)	(0.00923)	(0.00889)	(0.00312)	(0.0175)	(0.00634)
lnCompanyAge	-6.199***	-6.527***	-0.899***	-0.930***	-3.708***	-3.974***
	(0.356)	(0.142)	(0.121)	(0.0459)	(0.254)	(0.100)
External CEO	-1.166	-1.072***	-0.161	0.114	1.374**	0.287
	(0.749)	(0.331)	(0.236)	(0.0955)	(0.544)	(0.222)
lnTotalAssets	-1.424***	-1.332***	-1.591***	-1.537***	-1.045***	-0.975***
	(0.158)	(0.0571)	(0.0528)	(0.0189)	(0.113)	(0.0404)
ROA	-0.000397***	-5.91e-05	-8.95e-05***	-9.99e-06*	-0.000286***	4.48e-05
	(0.000120)	(6.35e-05)	(2.20e-05)	(5.32e-06)	(5.23e-05)	(0.000181)
Constant	59.25***	57.64***	22.33***	22.26***	35.83***	36.22***
	(2.646)	(0.942)	(0.884)	(0.307)	(1.787)	(0.642)
Fixed County Effects	Included	Included	Included	Included	Included	Included
Fixed Industry Effects	Included	Included	Included	Included	Included	Included
Observations	12,261	76,660	12,213	76,756	11,654	73,035
R-squared	0.084	0.081	0.174	0.197	0.093	0.088

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 32 – Test of Endogeneity

Test of Endogeneity

In this table, a control samle of firms with the same characteristics have been created to test for endogenetiy. All control varaiables in the regression model are included. The test group showed below includes: Companies with employees between 1-10, CEOs in the age between 47-57, CEOs with equity ownership, Companies founded after year 2000, Companies in the Real Estate Business, Companies in Stockholm, Companies with an ROA between -100% and 100%, and Companies with an asset base smaller than 2 million SEK. The mean in V*olatility in ROE, Volatility in ROA* and *Volatility in Leverage* are thereafter compared between men and women. As can be seen women in this test group show lower volatility numbers for all risk measures. This indicates that the findings of the regression results can be supported even if correcting for other firm or personal characteristics that apart from gender may determine the appoinment of a CEO.

Risk Measure	# Men	Mean Men	# Women	Mean Women	Difference Women-Men
Volatility ROE (%)	222	40,01	108	35,34	-4,67
Volatility ROA (%)	222	13,49	108	13,36	-0,13
Volatility Leverage (%)	222	24,33	108	22,18	-2,15