An analysis of the usage of preferred stock in Sweden

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Abstract

This paper aims to explain why the few issuers of preferred stock in Sweden have chosen to issue this historically unpopular instrument. We examine characteristics of the issuers of preferred stock related to two possible explanations, the financial distress hypothesis and the agency costs hypothesis, relative to non-issuers. Our findings show that issuers of preferred stock have significantly higher Debt-to Equity ratios and significantly lower Altman's Z-score than the non-issuers. This leads us to conclude that Swedish preferred stock issuers have worse financial health than the non-issuers and have probably tapped their possibility to issue debt. However, we could not conclude any significant difference in managerial ownership (measurement of agency costs) between the two groups.

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1. Introduction

1.1 Background

Debt and equity are most certainly the most common sources of financing, but there are other sources, which fall in between these two, and are a mixture of both. Preferred stock is a security that shares characteristics of both debt and equity and are sometimes referred to as a "hybrid" security.

Preferred stock resembles debt with its regular pre-specified payments. Although similar in this way, dividends from preferred stock are not tax-deductible in Sweden, which is the case for interest payments. The tax shield created by the interest payments are an advantage, according to the classic work of Modigliani and Miller (1963), and this gives preferred stock a disadvantage versus debt. On the other hand, preferred stock has a lower financial distress cost compared to that of debt, since cancelled dividend payment does not put the issuer in bankruptcy. In this way, preferred stock is more like common stock (Jensen & Meckling, 1976).

When comparing the seniority, preferred stock comes between debt and common stock. It has higher seniority than common stock, but lower than debt. The owner of preferred stock has higher priority when it comes to a firm's assets, earnings and so forth, than the owner of common stock. No dividends are to be distributed to common shareholders before the preferred shareholders have gotten what they are entitled to. Debt is senior to preferred stock and preferred stock is senior to common stock in case of liquidation. (Berk & Demarzo, 2013)

The first time a preferred stock was issued in the United States as a financing tool was in 1836, but in Sweden firms have not been as keen to adopt this way of financing. Over the years, preferred stock has had a lot of critics, but the usage of preferred stock has increased of late. Up until 2006 there was no preferred stock in the Swedish market, but then Sagax AB issued one and broke the barrier. Several new preferred stocks have been issued in the Swedish market since then, and there are around 30 different firms that currently offer preferred stock in the Swedish market.

The issuers of preferred stock in the Swedish market are the main focus of this study.

1.2 Problem Definition and Problem Analysis

Shareholder interest is central to the management of a company and the alignment of interest between these parties is often reassured with higher managerial ownership. Preferred stock, with their special attributes, could be an alternative to make sure that shareholder interest is protected. Howe and Lee (2004) studied the corporate governance characteristics of companies that offer preferred stock versus similar companies who do not. Their research suggests that preferred stock is used to reduce agency costs, i.e. to align the interests of shareholders and managers (further explained in the Theoretical Framework). Is this also then true for the Swedish market?

Preferred stock could also be an alternative for firms that wish to avoid the financial distress costs associated with issuing more debt. Lee and Figlewicz (1999) examined the difference in characteristics between issuers of convertible preferred stock and issuers of convertible debt. Their conclusion is that issuers of convertible preferred stock are more likely to have higher levels of financial and bankruptcy risks. Does the Swedish issuers of preferred stock share these characteristics?

There is a lack of information about why preferred stock are used in the Swedish market. There is a limited amount of preferred stock in the Swedish market today and they are all relatively new, while in North America preferred stock have been used frequently for many years. The results from previous American papers might not be applicable to the Swedish market since there are several major differences between the markets, both legal and cultural. The American legal system is based on the British common law, which provides greater investor protection, while the Swedish law is based on civil law.

There are also some cultural differences between the two markets, which could affect the corporate governance. For example, Sweden follow the stakeholder model which is a disadvantage for the shareholders, in terms of investment protection, compared to the US market. As investment protection differ, there might be differences in both the scale and type of agency problems and the financial behavior of the firms. Because of these differences it is interesting to do a specific study of the Swedish market. This study aims to fill the lack of knowledge about these issues.

1.2.1 Research question

In order to understand the underlying reasons to issue preferred stock in Sweden, the problem is summarized as:

Given the few issuers of preferred stock in Sweden, why have they chosen this form of financing?

1.3 Purpose

The thesis aims to gain insight in the Swedish market of preferred stock and company behavior that are associated with issuing preferred stock. Since preferred stock are a relatively new phenomenon in the Swedish market, they have therefore not received much attention by academic researchers which provides an opportunity, to leave a contribution.

2. Theoretical Framework and Hypotheses

In this section, previous research of interest related to the subject of the thesis will be presented, put in relation to the research question and the hypotheses will be stated. It is divided into two sections (Agency costs and Financial distress), which will be the base of the research. These two parts both tries, independently, to partly explain the research question. They are not supposed to be viewed as substitutes but as providers of complementary explanations.

2.1 Financial distress

The financial distress hypothesis is the first theory this paper is testing as a possible explanation to why some companies choose to issue preferred stock. It was first stated by Donaldson (1962). He hypothesized that preferred stock was mainly going to be used by firms with financial difficulties (primarily industrial corporations). A version of his hypothesis was later brought up by Lee and Figlewicz (1999) in their study of convertible debt versus preferred stock. Their hypothesis argues that the strength of a firm's balance sheet will determine whether a company chooses to issue convertible debt or convertible preferred

stock. This is also in line with the results from Moyer, Wayne and Chatfield's (1987) paper, which supports the financial distress hypothesis.

In this context, a strong balance sheet is referred to as a firm with low Debt-to-Equity ratios, which means lower financial risk. A high Debt-to-Equity ratio imply higher financial risk. Lee and Figlewicz (1999) argue in their paper that a firm with strong balance sheet is in a better position to issue debt, than a firm with weaker balance sheet. The financial distress hypothesis predicts that a firm that issue convertible preferred stock has, ceteris paribus, a higher Debt-to-Equity ratio than those firms that issue convertible debt. The reasoning behind this is that a firm that choose to finance itself through convertible preferred stock has a high financial risk, and therefore do not want to add more risk by taking on more debt, hence choose to finance via preferred stock.

In Lee and Figlewicz (1999) paper they follow MacKei-Mason (1990) in the use of the Altman's (1968) Z-score, which is a measure of the risk of a firm going bankrupt. MacKei-Mason (1990) used this as a measure of the financial status of the firm. Also, Moyer, Wayne and Chatfield (1987) used the ratios from Altman's Z-score as measurements of financial distress. The higher the risk for a firm to go bankrupt the less access it will have to debt financing according to Lee and Figlewicz (1999). The predictions of the financial distress hypothesis tell us that a firm that issue convertible preferred stock, has a higher probability of going bankrupt, than a firm who issue convertible debt. Firms that issue preferred stock has tapped their ability to issue debt.

The reasoning about the issuers on the Swedish market of preferred stock is based on the financial distress hypothesis and therefore the first hypothesis to be tested is formulated as follows:

Hypothesis 1: Firms who issue preferred stock have, ceteris paribus, significantly larger financial risk, compared to those who don't.

2.2 Agency costs

Jensen and Meckling (1976) suggest that issuance of preferred stock can contribute to an even lower agency cost compared to the issuance of debt. Note that the issuance of debt could as well lower the agency costs because of the extensive monitoring performed by the banks. Preferred stock have the similar characteristics of debt but the main difference is that an omitted dividend payment to the preferred stockholders does not force the firm in to bankruptcy, i.e. less risk for bankruptcy. Furthermore, the bondholders have higher seniority claim on cash flows. While managers should act in the interest of the shareholders a conflict occurs when they pass on positive NPV projects if the expected payoff does not cover the debt claim. With preferred stock, they are not prevented to accept positive NPV projects and would therefore be able to act in the interest of the stockholders. This is also supported by Ang, Cole and Lin (2000) who finds that agency costs vary inversely with the manager's ownership share and that the monitoring by banks do reduce agency costs but to a much lesser degree.

According to Jensen and Meckling (1976), equity ownership by management, CEO in particular, and the usage of preferred stock both effectively decreases agency costs. They suggest that issuance of preferred stock can be used instead of managerial to reduce agency costs.

Jensen and Meckling (1976) states that if a manager sells a part of his ownership to outside investors agency costs are threatened. Their theory says that "*...the costs of deviation from value-maximization decrease as managerial equity ownership increases...*" This is also supported by the work of Morck, Shleifer And Vishny (1988), who describes a significant relationship between managerial ownership and corporate value.

There are other ways to measure agency costs. Singh and Davidson (2003) tests the relationship between agency costs and not only managerial ownership but also two other corporate governance characteristics: *outside ownership concentration* (large blockholders) and *board size and composition*. They find, consistent with Ang, Cole and Lin (2000), that there is indeed an inverse significant relationship between managerial ownership and agency costs. However, there is no significant relationship for large blockholders. They do find significance for one aspect of board size and composition for one year in their analysis, but the pooled results were insignificant. Hijazi and Conover (2011) provides similar results in their multivariable analysis of accounting measures of direct agency costs, only inside

ownership (i.e. managerial ownership) had a significant relationship with all measurements combined and strongly so. There is, however, a problem with enhanced managerial ownership, entrenchment, which could affect the results. The work of Collins and Huang (2011) finds a significant positive relationship between degree of management entrenchment and cost of equity capital. This suggests that investors perceive more risk and further monitoring costs are generated when the degree of entrenchment increases.

Generally, previous research provides, to some extent, proof that higher managerial ownership does in fact align the interests of stockholders and management. Following Howe and Lee (2004), this thesis uses managerial ownership as the sole measurement of agency costs. The research by Howe and Lee (2004) states that issuers of preferred stock in the U.S. have, on average, lower managerial ownership.

Based on the abovementioned theory, the second hypothesis to be tested in the Swedish market is:

Hypothesis 2: Firms that issue preferred stock have lower managerial ownership, in terms of CEO ownership, then those who choose to issue debt.

3. Methods and Data

The purpose of this section is to, in detail, explain the execution of our research. It is divided into four parts: *Industry categorization, Categories of preferred stock, Benchmark and matching firms*, *Method and Collection of data*.
The fourth part, *Method*, consist itself of 3 parts: Analysis of financial distress, Analysis of agency cost and Wilcoxon rank sum test. The first two is related to our two hypotheses and how they are measured. The last part explains how they are tested.

3.1 Industry categorization

The sample will be categorized by industry. The industries were categorized by the Global Industry Classification Standard, or GICS. The GICS is made up by 11 sectors, 24 industry groups, 68 industries and 157 sub-industries and each company was given the classification suggested by Bloomberg. The categorization is important to facilitate the matching process that follows.

3.2 Categories of preferred stock

The test group consists of companies that have issued preferred stock. This report will not, however make any difference in what type of preferred stock or the specific terms a certain issuer has on its preferred stock. It could have been interesting to see if there are any effects that could be associated with different terms, or types of preferred stock. With this in mind, this study is meant to test hypotheses on the financial and managerial reasons to issue preferred stock. In that context, including the type of preferred stock would not add much to the desired insights.

Dividing the test group into further categories would also weaken the significance of the test, given the relatively small sample in this study, that is due to the few issues on the Swedish market.

3.3 Benchmark and matching firms

In order to evaluate if preferred issuers, the test group, differs from non-issuers, the control group, in managerial ownership and in financial risk, a benchmark was constructed. Following Howe and Lee (2004), matching schemes were used to specify this benchmark. The criteria of the matching scheme are: Industry and size. The rationale for using industry as criteria is to remove potential effects of certain characteristics typical for a specific industry. The motivation for using size as criteria is that corporate governance structure is normally affected by firm size. *Size* is defined as a company's total assets and *industry* is defined according to GICS. In the process of selecting a matching firm, industry is prioritized over size and size is prioritized over sub-industry. When screening by size, the matching firm which minimized the percentage difference in absolute terms was chosen. As Moyer, Wayne

and Chatfield (1987) did, in order to capture the financial state of the test group before the issuance, the total assets of the firm were gathered from the fiscal year before the year of issuance. In order to make a fair match, the total assets of the control company were gathered from the same year as for the test firm. For every firm that issued preferred stock a non-issuer, which fulfilled the criteria, was matched. In addition to the criteria, the matching firms chosen could not have had preferred stock included in their capital structure for at least five fiscal years preceding the issue.

In the matching scheme, only two criteria were used, industry and size. It could have been desirable to have more criteria to make the match more accurate, and allow for the matched companies to be as similar as possible. This study does not use more criteria since this would dramatically limit the possibility to find a matching company in the small Swedish market.

3.4 Method

3.4.1 Analysis of Financial distress

To test if the financial distress hypothesis can explain the main question of this paper, following MacKei-Mason (1990) and Lee and Figlewicz (1999), two measures of financial health was used:

- A measure of the bankruptcy risk developed by *Altman* (1968), called the Altman Z-score, where a lower value indicates a higher risk of bankruptcy.
- A measure of financial risk, Debt-to-equity (D/E).

3.4.1.1 The Altman Z-score

The Altman Z-score is a linear model which in its original form takes into account five important company ratios that are weighted with different coefficients. By comparing a sample of companies that had gone bankrupt with a sample of matching firms that didn't the coefficients were estimated using discriminant analysis. The original model was based on public manufacturing companies.

In this study, the revised Altman Z-model was used. It contains of four ratios instead of five and have been adapted to be a better fit for non-manufacturing companies. One of the adjustments was that the ratio sales/total assets was dropped. The sample of this study is made up by companies from different industries and the aim was to have a model that was as little sensitive to industry as possible. By not including the sales/total asset ratio the effect of industry is minimized, since this ratio is very industry sensitive.

The Altman Z-score is calculated as below:
Z-Score = $6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$
Where:

X_1= Working Capital to Total Assets Ratio

X_2= Retained Earnings to Total Assets Ratio

X_3= EBIT to Total Assets Ratio

X_4= Book value of Equity to Book value of Total Liabilities Ratio

and the lower the score, the higher the probability for bankruptcy.

X_1 = *Working Capital to Total Assets Ratio*

Working capital is defined as a firm's current assets minus its current liabilities. The ratio is a measure of net liquidity relative to total capitalization. Normally, current assets will decline compared to its total assets in a firm that suffers consistent operating loss.

X_2 = *Retained Earnings to Total Assets Ratio*

Retained earnings shows the total amount of reinvested resources over the total life of a firm. The age of the firm is a factor in this ratio, since an older firm has had a longer period to accumulate retained earnings. Therefore, a young firm might show a lower ratio than an older one. This might be considered as a disadvantage of the model since a younger company easier is considered to be bankrupt. The reality though shows us that the risk of a company to go bankrupt is big in its early years. Dun & Bradstreet showed in their annual report of company failures (1994) that 50% of the failing firms in 1993 were in their first five years of business.

X_3 = *EBIT (Earnings Before Interest and Taxes) to Total Assets Ratio*

Since EBIT is a firm's earnings stripped from the influence of tax and leverage effects it can be considered to be the real productivity of a firm's total assets. The long-term survival of a firm is based of its ability to turn its assets into earnings, and a lack of this ability is of course tightly associated with bankruptcy.

X_4 = *Book value of Equity to Book value of Total Liabilities Ratio*

The book value of equity is defined as the difference between total assets and total liabilities. The ratio shows how much the value of a firm's assets can decline before it becomes insolvent.

(E. Altman & Max L Heine (2006))

The Altman Z-score is used among practitioners, but it has its disadvantages which can affect the result. Off balance sheet assets is not taken into account. A company that has off balance sheet assets might be better to tackle financial distress than the Altman Z-score suggests.

In the Altman model, negative working capital lowers the score and indicates a higher probability of bankruptcy. Although this might be true for some industries, negative working capital is normal in some industries and it doesn't necessarily make them more prone for going bankrupt. This study does not try to predict bankruptcy though, but to compare issuers to none-issuers. The flaw in the model is reduced due to the matching scheme that compares the test firm to a control firm that operates in the same industry, and if something is normal in a certain industry the probability is high that it appears in both companies. To test whether there is a significant difference in Altman's Z-score between the test group and the control group the Nonparametric Wilcoxon rank sum test was used.

3.4.1.2 Debt-to-Equity

Debt-to-Equity is calculated as Total Liabilities divided by Total Equity. It illustrates to what extent the firm have used debt to finance its assets compared to the value of shareholders equity. This ratio is used to gauge a company's leverage level and is commonly used to evaluate its financial risk. Since companies with high ratios have high financial risk they are less willing to take on more debt and, according to our hypothesis, might turn to other sources of financing, such as preferred stock. To test whether there is a significant difference in the Debt-to-Equity-ratio between the test group and the control group the Nonparametric Wilcoxon rank sum test was used.

3.4.2 Analysis of agency cost

3.4.2.1 Managerial ownership

As Jensen and Meckling (1976) did, managerial ownership was defined as the percentage ownership by the CEO. As the thesis aimed to test if preferred stock is used to reduce agency costs, the difference in managerial ownership was examined. To test whether there is a significant difference in managerial ownership between the test group and the control group, the Nonparametric Wilcoxon rank sum test was used.

3.4.3 Wilcoxon rank sum test

The statistic method which was used to test if the groups, the test group and the control group, are significantly different was the Wilcoxon rank sum test (following Howe, S., and H. Lee, 2004). The Wilcoxon rank sum test is a Nonparametric test of the null hypothesis that a randomly selected variable sample have the same probability of being greater or less than a randomly selected variable from another sample. It is an alternative to the t-test that does not demand the assumption of Normal distribution. Although the sample used in this report is just big enough to assume normal distribution, it is quite small and therefore the Wilcoxon test is preferred to the t-test. However, the Wilcoxon test is accurate for data from any distribution. It is also less sensitive to outliers than the t-test. When both sample sizes are larger than 10, W can be treated as if it were normally distributed and a z-score can be calculated.

It is calculated as:

- *Rank the values in both samples combined, lowest to highest values. The lowest value gets the rank of 1, the second lowest gets the rank of 2 and so on.*
- *Sum up the ranks in the sample with least observations, that will be your W value.*
- *Calculate the expected W value:* $E(W) = (n1 * (n1 + n2 + 1))/2$
- *Calculate the standard error of W:* $SE(W) = \sqrt{(n1 * n2 * (n1 + n2 + 1))/12}$
- *Calculate the Z-value:* $z = (W - E(W))/SE(W)$
- *At last look in the z-table to find the p-value which will be compared to different alphas.*

Where:

n1: Sample size of preferred issuers (test group)

n2: Sample size of non-issuers (control group)

Using the Wilcoxon Rank Sum Test has a disadvantage when you are primarily interested in the position of the distribution, since it also is sensitive to differences in the shape of the distribution. It also has a slightly smaller chance to detect a shift in the distribution, if the assumptions of the two-sample t-test holds, hence making it easier to make a type II error (Wild, C. 1997). According to Sawilowsky (2005), when normality is violated, the Wilcoxon rank sum test might be three or four times as powerful as the independent sample t-test.

When testing the hypotheses using Wilcoxon Rank Sum Test, the null hypothesis and alternative hypothesis of each test could be formulated as follows:

For the **Altman Z-score** the test is left-sided:

H_0 = *The Altman Z-score of the test group is not significant lower, than that of the control group.*

H_A= *The Altman Z-value of the test group is significantly lower, than that of the control group*

For the ***Debt-to-Equity ratio*** the test is right-sided:

H_0 = *The Debt-to-Equity ratio of the test group is not significantly higher than that of the control group*

H_A= *The Debt-to-Equity ratio of the test group is significantly higher than that of the control group*

And for the ***Managerial ownership*** the test is left-sided:

H_0 = *The CEO ownership of the test group is not significantly lower than that of the control group.*

H_A= *The CEO ownership of the test group is significantly lower than that of the control group.*

3.5 Collection of Data

The data has been collected from the Bloomberg database, annual reports and Finansinspektionen's insider list. Data was gathered about the issued preferred stock currently available on the Swedish market and their issuing date. The data gathered from Bloomberg is the firm specific information needed to determine size and industry of the firm and the data necessary to conduct the calculations required. If the needed information was not available on Bloomberg, the firm specific data was gathered from the annual report of the company in question. Finansinspektionen's insider list was used to retrieve information about CEO ownership. The year from which the firm specific data was retrieved from the fiscal year preceding the year of when the firm issued its preferred stock. The rationale behind this is that the financial data and capital structure of the firm, should be unaffected by the preferred stock, thus give a good picture of the financial state which might have affected the firm's choice to issue preferred stock.

4. Results

This section presents the results from the research, which has been executed as described in section 3, in order to test our previously presented hypotheses. The results are divided into 5 sub-sections. It begins with descriptive data, which presents results from the information gathering and matching process. Following descriptive data, the results from the analysis of the financial distress is presented, followed by the analysis of agency costs. In the fourth subsection, the result is compared with previous research. Finally, the fifth subsection contains the result from the robustness test.

4.1 Descriptive data

Listed in **Table 1** are all the companies that have issued preferred stock in the Swedish market, their industry categorization and their respective matching company. 35 different issuers were observed.

As stated in **Table 1**, there were no information about Coeli Real Estate Fund AB's issue available and it had to be dropped from the analysis. SAS AB also had to be dropped from the analysis because it had no relevant match in the Swedish market. Because of the limited

amount of companies in the Swedish Real Estate business Alm Equity AB had to be excluded from the analysis since there was no relevant match left on the market. At last, Samhällsbyggnadsbolaget i Norden AB lacked the necessary information needed to conduct the analysis and was also dropped.

Table 1 Preferred issuers

Company Name	Industry	Matching Companies
A Group of Retail Assets Sweden AB	Real Estate Services	Fastighets AB Trianon
Akelius Residential Property AB	Real Estate Services	Castellum AB
Amasten Fastighets AB	Real Estate Owners & Developers	Magnolia Bostad AB
Concent Holding AB	Real Estate Owners & Developers	Brinova Fastigheter AB
Corem Property Group AB	Real Estate Owners & Developers	Dios Fastigheter AB
Eniro AB	Internet Media	Modern Times Group
FastPartner AB	Real Estate Owners & Developers	Platzer Fastigheter Holding
Ferronordic Machines AB	Industrial Distribution & Rental	Duroc AB
Footway Group AB	E-Commerce Discretionary	Boozed AB
Genova Property Group AB	Real Estate Owners & Developers	Saltangen Property Invest AB
Hancap AB publ	Home Improvement	Malmbergs Elektriska AB
Heimstaden AB	Real Estate Owners & Developers	Heba Fastighets AB
Hemfosa Fastigheter AB	Real Estate Owners & Developers	Pandox AB
Hogkullen AB	Real Estate Owners & Developers	Maxfastigheter I Sverige AB
K2A Knaust & Andersson Fastigheter AB	Real Estate Owners & Developers	Amhult 2 AB
Karlbergsvagen 77 Fastighets AB	Real Estate Owners & Developers	Torslanda Property Investment
Klovern AB	Real Estate Services	Wihlborgs Fastigheter AB
NP3 Fastigheter AB	Real Estate Services	Stendorren Fastigheter AB
Obducat AB	Semiconductor Mfg	Smart Eye AB
Oscar Properties Holding AB	Real Estate Owners & Developers	Delarka Holding AB
Pegroco Invest AB	Private Equity	Stockwik Forvaltning AB
Preservia Hyresfastigheter AB	Real Estate Owners & Developers	Acrinova AB
Prime Living AB	Real Estate Services	Sbc Sveriges Bostadsrattscentrum
Quartiers Properties AB	Real Estate Owners & Developers	Atvexa AB
Real Holding i Sverige AB	Real Estate Owners & Developers	Nischer Properties AB
Sagax AB	Real Estate Owners & Developers	Home Properties AB
Sdiptech AB	Professional Services	Hifab Group Ab
Tobin Properties AB	Real Estate Owners & Developers	Aktiebolaget Fastator
Victoria Park AB	Real Estate Owners & Developers	Catena AB
Volati AB	Investment Companies	AB Traction
ZetaDisplay AB	Consumer Electronics	Multiq International AB
Alm Equity AB	Real Estate Owners & Developers	N/A
SAS AB	Airlines	N/A
Coeli Real Estate Fund I AB	N/A	N/A
Samhallsbyggnadsbolaget i Norden AB	Real Estate Owners & Developers	N/A

The table above shows the issuers of preferred stock on the Swedish market, their industry and the results of our previously described matching scheme.

4.2 Analysis of Financial distress

4.2.1 Altman z-score

In the analysis of the financial distress, the Altman Z-score and Debt-to-Equity were calculated for all the companies and the result was listed in two groups, test and control. The results are presented in **Table 3** and **4**.

To test the null hypothesis regarding the Altman's z-score the left-sided Wilcoxon rank sum test was conducted and the results are presented in **Table 2**.

Table 2: Results of the Wilcoxon Rank Sum Tests

Wilcoxon Rank Sum Test								
	n1	n2	W	E(W)	SE(W)	Z-score	p-value	Alpha
Altman Z-score	31	31	839	976.5	71.03	-1.94	0.03	0.05
Debt-to-Equity	31	31	1177	976.5	71.03	2.82	0.00	0.05
Managerial ownership	12	12	175	150	17.32	1.44	0.07	0.05

The table above is the results from three Wilcoxon Rank Sum Tests: Altman Z-score, Debt-to-Equity and Managerial ownership. Where the different columns represent different input/results from the test and are explained in detail under *Method*.

A z-score of approximately -1.94 was observed, which resulted in a p-value of 0.03. Since the p-value is less than the alpha of 0.05 the null hypothesis was rejected with a 95% confidence level. This result supports *Hypothesis 1*, regarding financial distress, and is coherent with previous research.

Table 3: Results of Altman's Z-score

Test group	Altman Z-score	Control group	Altman Z-score
A Group of Retail Assets Sweden AB	0.60	Fastighets AB Trianon	1.24
Akelius Residential Property AB	1.32	Castellum AB	1.54
Amasten Fastighets AB	-12.27	Magnolia Bostad AB	6.66
Concent Holding AB	3.00	Brinova Fastigheter AB	-0.57
Corem Property Group AB	1.49	Dios Fastigheter AB	0.45
Eniro AB	-1.43	Modern Times Group	1.09
FastPartner AB	0.47	Platzer Fastigheter Holding	0.97
Ferronordic Machines AB	1.44	Duroc AB	3.51
Footway Group AB	-1.06	Boozed AB	-9.09
Genova Property Group AB	2.06	Saltangen Property Invest AB	0.78
Hancap AB publ	1.33	Malmbergs Elektriska AB	10.82
Heimstaden AB	3.40	Heba Fastighets AB	2.11
Hemfosa Fastigheter AB	0.22	Pandox AB	2.82
Hogkullen AB	2.22	Maxfastigheter I Sverige AB	1.21
K2A Knaust & Andersson Fastigheter AB	1.95	Amhult 2 AB	8.78
Karlbergsvagen 77 Fastighets AB	0.82	Torslanda Property Investment	2.28
Klovern AB	1.13	Wihlborgs Fastigheter AB	1.29
NP3 Fastigheter AB	0.97	Stendorren Fastigheter AB	4.90
Obducat AB	-8.37	Smart Eye AB	-1.46
Oscar Properties Holding AB	2.61	Delarka Holding AB	1.15
Pegroco Invest AB	9.58	Stockwik Forvaltning AB	-33.52
Preservia Hyresfastigheter AB	-1.87	Acrinova AB	2.04
Prime Living AB	0.90	Sbc Sveriges Bostadsrattscentrum	10.89
Quartiers Properties AB	2.73	Atvexa AB	2.83
Real Holding i Sverige AB	-1.98	Nischer Properties AB	-1.29
Sagax AB	0.71	Home Properties AB	9.39
Sdiptech AB	3.72	Hifab Group Ab	4.22
Tobin Properties AB	1.56	Aktiebolaget Fastator	3.54
Victoria Park AB	0.46	Catena AB	4.88
ZetaDisplay AB	-1.36	Multiq International AB	-1.41
Volati AB	1.14	AB Traction	312.07

The table above shows the Altman's Z-score of the test and control group respectively.

4.2.2 Debt-to-Equity

The second part of the financial distress analysis is to analyze the second measurement, Debt-to-Equity. To test the null hypothesis regarding the Debt-to-Equity ratio a right-sided Wilcoxon rank sum test was conducted. The following are presented in **Table 2.** A z-score of 2.82 was observed, which resulted in a p-value of approximately 0.00. Since the p-value is less than the alpha of 0.05 the null hypothesis was rejected with a 95% confidence level. This initial result also supports *Hypothesis 1*, regarding financial distress, and is also coherent with previous research.

Table 4: Debt-to-Equity

Test group	D/E	Control group	D/E
A Group of Retail Assets Sweden AB	2.08	Fastighets AB Trianon	1.88
Akelius Residential Property AB	2.01	Castellum AB	1.90
Amasten Fastighets AB	2.78	Magnolia Bostad AB	0.94
Concent Holding AB	0.94	Brinova Fastigheter AB	1.18
Corem Property Group AB	2.39	Dios Fastigheter AB	2.59
Eniro AB	2.23	Modern Times Group	1.59
FastPartner AB	2.53	Platzer Fastigheter Holding	2.43
Ferronordic Machines AB	9.23	Duroc AB	0.99
Footway Group AB	0.67	Boozed AB	3.37
Genova Property Group AB	1.32	Saltangen Property Invest AB	1.54
Hancap AB publ	0.69	Malmbergs Elektriska AB	0.36
Heimstaden AB	16.51	Heba Fastighets AB	0.88
Hemfosa Fastigheter AB	6.23	Pandox AB	2.95
Hogkullen AB	1.63	Maxfastigheter I Sverige AB	3.44
K2A Knaust & Andersson Fastigheter AB	1.51	Amhult 2 AB	0.17
Karlbergsvagen 77 Fastighets AB	3.91	Torslanda Property Investment	1.35
Klovern AB	2.25	Wihlborgs Fastigheter AB	2.32
NP3 Fastigheter AB	2.08	Stendorren Fastigheter AB	0.21
Obducat AB	0.45	Smart Eye AB	0.38
Oscar Properties Holding AB	1.66	Delarka Holding AB	1.60
Pegroco Invest AB	0.09	Stockwik Forvaltning AB	2.67
Preservia Hyresfastigheter AB	12.07	Acrinova AB	1.09
Prime Living AB	11.96	Sbc Sveriges Bostadsrattscentrum	0.25
Quartiers Properties AB	1.99	Atvexa AB	0.86
Real Holding i Sverige AB	3.96	Nischer Properties AB	6.02
Sagax AB	4.84	Home Properties AB	0.29
Sdiptech AB	0.97	Hifab Group Ab	1.48
Tobin Properties AB	0.82	Aktiebolaget Fastator	0.83
Victoria Park AB	3.04	Catena AB	0.92
ZetaDisplay AB	3.65	Multiq International AB	0.58
Volati AB	8.14	AB Traction	0.00

The table above shows the Debt-to-Equity of the test and control group respectively.

4.3 Analysis of Agency cost

The data necessary to conduct the Wilcoxon rank sum test are presented in **Table 5**. Because of the hardship to get reliable information about CEO ownership the sample had to do with 12 sample pairs due to time limitations (note that the sample still is big enough for performing a Wilcoxon rank sum test).

Table 5: CEO ownership

Test group	CEO ownership	Control group	CEO ownership
Corem Property Group AB	38.67%	Dios Fastigheter AB	0.70%
Eniro AB	0.07%	Modern Times Group	0.03%
FastPartner AB	72%	Platzer Fastigheter Holding	0.83%
Heimstaden AB	0%	Heba Fastighets AB	0.06%
K2A Knaust & Andersson Fastigheter AB	27.71%	Amhult 2 AB	0%
Klovern AB	6.50%	Wihlborgs Fastigheter AB	0.45%
NP3 Fastigheter AB	0.30%	Stendorren Fastigheter AB	1.00%
Obducat AB	3.53%	Smart Eye AB	10.52%
Oscar Properties Holding AB	56.78%	Delarka Holding AB	0%
Victoria Park AB	16.60%	Catena AB	0.01%
Volati AB	0%	AB Traction	15.09%
ZetaDisplay AB	1.70%	Multiq International AB	3.69%

The table above shows the CEO ownership of the test and control group respectively.

The final step of the analysis is to test the null hypothesis regarding managerial ownership. A left-sided Wilcoxon rank sum test was conducted and the results are presented in **Table 2**.

These results are not as satisfactory as the previous. A positive z-score (1,44) can be observed which indicate quite the opposite of the hypothesis. However, it matters not since the p-value is higher than the alpha, the test is not significant. In conclusion, the null hypothesis cannot be rejected.

4.3 Connection to previous research

Concerning the financial distress analysis, the results are consistent with the research of Lee and Figlewicz (1999). Significant (5% level) results concerning the Debt-to-Equity ratio, indicating that preferred stock issuers do have higher financial risk than the non-issuers.

The result was significant (5% level), not as strongly but nevertheless significant, also when testing Altman's z-score. This also supports the financial distress hypothesis. This finding too

is consistent with Lee and Figlewicz paper, who also finds that issuers of preferred stock have a higher risk of bankruptcy.

When testing the agency cost hypothesis regarding the managerial ownership the results was the opposite of expected, but insignificant. This contradicts the hypothesis that issuers of preferred stock have lower managerial ownership than the non-issuers. This is also inconsistent with previous research by Howe and Lee (2004), who reports a strong significant difference between the two groups, which would have supported the hypothesis.

4.4 Robustness test

In order to check the robustness of the findings, one alternative matching scheme was introduced. This matching design consists of only one criteria, size (in terms of total assets). As before, the company chosen as match is the company that minimizes the percentage difference in absolute terms, the year perceiving the year of the issue. The results hold even without taking account for any possible characteristics that are typical for a specific industry.

The result of the new matching scheme is presented in **Table 7** (appendix). This time both SAS AB and Alm Equity AB could be included in the analysis.

In this new test both the measurements of financial distress show an even more significant difference between issuers of preferred stock and the new control group than with the original control group. The Wilcoxon rank sum test produces a z-score of -4.01 (-1.94) for Altman's z-score and 3.49 (2.82) for the Debt-to-Equity ratio. The p-value is approximately 0 for both measurements. The full test numbers are reported in **Table 6**(appendix).

Regarding the managerial ownership, the sample was again limited to 12 pairs. The managerial ownership test gave similar results as the previous one. The observed z-score was 1.27 (1.44) and the p-value was 0.10 (0.07). The full test numbers are reported in **Table 7**(appendix).

5. Discussion and Conclusion

5.1 Discussion

Our study provides both significant and insignificant results. The analysis of the financial distress hypothesis provided significant results, both regarding the Altman Z-score and the Debt-to-Equity ratio. This supports the hypothesis that issuing firms have weaker balance sheets, and that they not might have the same access to debt financing, hence issue preferred stock to finance their activities.

In this analysis, we had a larger sample. Although bigger, the sample is relatively small due to the few issuers of preferred stock in the Swedish market. Also, the industry who dominated the sample, the real estate industry, made the matching process complicated since we did not want to have one matching firm matched with several of the preferred stock issuers. The consequence of this was that an issuing firm could have had a better match with a firm that was already matched with another issuing firm. The choice not to use one matching firm several times was based on the rationale that the more companies we had, the higher the possibility of being able to make a stronger statement about possible differences between issuers and non-issuers. Using one company several times might bias the result to say more about that particular firm's relationship to issuers.

The result from the study regarding the managerial ownership and agency costs, does not support the hypothesis that firms issue preferred stock to decrease agency costs, suggested by Howe and Lee (2004). In fact, the result points towards the opposite, rather than supporting the hypothesis. The result, though insignificant, indicate a tendency of issuers to have higher managerial ownership than the non-issuers, according to the sample.

As mentioned, the test score is insignificant, and no conclusion can be drawn about the usage of preferred stock as a tool to decrease agency costs. Our sample is small, and a larger sample might have resulted in another outcome. The sample could also be biased, caused by the firms in the real estate industry with high managerial ownership, which might be a tendency in that specific industry, rather than saying something about the behavior of issuers of preferred stock in general. With this said, the matching scheme contains the category *industry* to deal with this problem, and limit possible varieties that is due to industry differences.

To gauge the possible agency costs arising from not aligning management interest with the interest of the owners, we use CEO percentage ownership of shares in the firm. Options are also a way to align the interest of management, which is not taken to consideration in this report, and could have been giving an even better picture of the agency cost in a firm. As mentioned in the Theoretical framework, there could be other measurements of agency costs that would have been interesting to investigate and that could have affected our results.

The robustness tests do provide us with similar results as the original ones, but with more extreme values. It might be the "industry effect" that causes the more extreme values. Since a large majority of our test group is in the real estate industry the test could be largely affected by characteristics associated by that industry. In the robustness test, we could also have conducted a test with additional criteria in the matching scheme, but as stated previously, this would have seriously decreased the number of possible matches, due to the limited number of firms in the Swedish market, which would have made it difficult to draw any conclusions. Another possible robustness test could have been to only consider the industry criteria in the matching scheme, but the problem with this method would arise when several firms are categorized in the same sub-industry. The picking of the matching firm would then become most arbitrary, since there would be no further way to determine which of the firms were the better match.

In the matching process, we did not take into account if the issuer of preferred stock, also had a common stock issued on the Swedish market. The feature of most importance in the matching process was that the matching firm did not have preferred stock issued on the Swedish market, but no consideration was taken to the issuing firm's financial activities beyond the preferred stock, or for that matter, the matching firms activities. This could have effects on the fitness of the match, since the goal with the matching scheme was to find a matching firm that was as similar as possible to the issuing firm, both operational and financial. The criteria, industry and size, was meant to capture both of these. They complement each other in the search of a firm that has approximately the same financial needs as the issuer of preferred stock. With this said, there is still a risk that the fit of the matching process decreases when not taking other financial aspects into consideration.

As in the case with managerial ownership, the sample is dominated by firms in the real estate industry. About 70% of the firms in the sample operates in the real estate business, and that makes it harder to draw conclusions about the general issuer of preferred stock, since it might say more about the real estate industry. However, the Swedish market of preferred stock is dominated by this industry, and the sample is therefore representative for this specific market, and this fact makes it more reasonable to draw conclusions about the market in question. As is also mentioned above, the matching scheme is designed to deal with this problem.

In their study, Lee and Figlewicz (1999) uses operational risk in addition to bankruptcy risk and financial risk to be able to make a stronger statement about the financial distress hypothesis. In their study, the group of issuers of preferred stock have significantly higher operational risk than the control group and this result supports the financial distress hypothesis. This study does not include an analysis of operational risk, due to difficulties with finding a good measure based on data that was not unreasonably hard to attain. A good gauge of the operational risk would have made a good contribution to the study and could have strengthen the argument about the financial distress hypothesis in the Swedish market.

5.2 Conclusion

Our research aims to explain why the few issuers of preferred stock in Sweden have chosen this, historically unpopular, instrument. Based on previous research two hypotheses were formulated, which could explain our research question. The hypotheses are not supposed to be seen as substitutes or fully explanatory, but as partial explanations. There could be other underlying reasons for issuing preferred stock.

Concerning the first hypothesis, we did observe results that supported the financial distress hypothesis. The robustness test provided us with similar results which strengthens our conclusion. When testing for significant difference in financial health, using Altman's Z-score, we did find that the issuers of preferred stock had significantly lower Z-score than the control group. We therefore reject the null hypothesis, and conclude that issuers of preferred stock tend to have lower Z-scores than non-issuers.

The results from testing the Debt-to-Equity also were coherent with our expectations. It states that there is indeed a significant difference between the groups that supports our hypothesis.

It can be concluded that issuers of preferred stock tend to have a higher Debt-to-Equity ratio than non-issuers and therefore carry more financial risk.

Both of these findings give support to that the financial distress hypothesis holds also in the Swedish market. The issuers of preferred stock, seem to have weaker balance sheets positions than other firms, which indicates that they have tapped their ability to issue debt. This is in line with the results from previous similar research on other markets.

We found that the issuers of preferred stock have significantly weaker balance sheet positions, therefore it would have been interesting to examine the market reaction to an announcement of an issuance of preferred stock.

Regarding our second hypothesis, we could not observe any evidence supporting that firms issue preferred stock to decrease agency costs. When testing for significant difference in managerial ownership between the issuers of preferred stock and the control group, we could only observe results that indicated the opposite of our hypothesis and not in line with previous research, nonetheless they were insignificant. We could not reject the null hypothesis and no conclusions can be made from these results.

Further research could also be conducted in the same line as this study, where other explanatory hypotheses are tested to answer why firms issue preferred stock, and why the issuers are relatively few in the Swedish market. As previously stated, a large majority of the issuers are real estate companies, and future research could focus on why this industry is overrepresented on the market for preferred stock.

The number of issuers of preferred stock in the Swedish market limits the possibility of making strong statements. If the market was larger, and with a greater diversity of firms, it would have been easier to make conclusions based on quantitative studies and statistical testing. A future qualitative study could be an alternative to our study, since other reasons for issuing could come forth, and possible problems arising from a small sample could be avoided.

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- Annual Reports

7. Appendix

Table 6: Results of Wilcoxon Rank Sum Test (Robustness)

Wilcoxon Rank Sum Test (Robustness test)								
	n1	n2	W	E(W)	SE(W)	Z-score	p-value	Alpha
Altman Z-score	33	33	793	1105.5	77.98	-4.01	0.00	0.05
Debt-to-Equity	33	33	1378	1105.5	77.98	3.49	0.00	0.05
Managerial ownership	12	12	172	150	17.32	1.27	1.10	0.05

The table above is the results from three Wilcoxon Rank Sum Tests from the Robustness test: Altman Z-score, Debt-to-Equity and Managerial ownership. Where the different columns represent different input/results from the test and are explained in detail under *Method*.

Table 7: Second matching process

Company name	Matching company
A Group of Retail Assets Sweden AB	ElandersAB
Akelius Residential Property AB	Getinge AB
Amasten Fastighets AB	Medcap AB
Concent Holding AB	Xano industry ab
Corem Property Group AB	Haldex AB
Eniro AB	AAK AB
FastPartner AB	Intrum Justitia AB
Ferronordic Machines AB	Addnode AB
Footway Group AB	Skåne-Möllan AB
Genova Property Group AB	Studsvik AB
Hancap AB publ	Electra Gruppen AB
Heimstaden AB	Beijer Ref AB
Hemfosa Fastigheter AB	Elekta AB
Hogkullen AB	Moberg Pharma AB
K2A Knaust & Andersson Fastigheter AB	Softronic AB
Karlbergsvagen 77 Fastighets AB	Biogaia AB
Klovern AB	Swedish Match
NP3 Fastigheter AB	Nobina AB
Obducat AB	Precio Fishbone AB
Oscar Properties Holding AB	Midway Holding AB
Pegroco Invest AB	Odd Molly International AB
Preservia Hyresfastigheter AB	Byggpartner i Dalarna AB
Prime Living AB	Drillcon AB
Quartiers Properties AB	Novotek AB
Real Holding i Sverige AB	Prevas AB
Sagax AB	Nolato AB
Sdiptech AB	Mangold AB
Tobin Properties AB	Paynova AB
Victoria Park AB	Active Biotech AB
Volati AB	Tethys Oil AB
ZetaDisplay AB	Vicore Pharma Holding
Alm Equity AB	Sectra AB
SAS AB	Atrium Ljungberg AB

The table above shows the results from the second matching scheme, where Total Assets is the only criteria.