

The Emergence of High Yield Bonds in the Nordic Region

An Empirical Study about the Characteristics and Rationale

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Abstract

In the Nordic region, companies have traditionally had a strong relationship with their lending banks. For this reason, bank loans have accounted for a significant portion of the corporate funding. However, after the financial crisis, a new trend was detected in the Nordic corporate bond market, especially among high yield bonds. The issued value of Nordic high yield bonds grew with a CAGR of over 90% between 2010 and 2013. Studies on the subject thus far have been from a qualitative perspective, due to lack of data. This thesis aims at providing a better understanding of the Nordic high yield bond market from a more quantitative aspect, as a good number of data observations are now obtainable. The focus of this study is on two main parts: firstly, describing the characteristics and structure of the Nordic high yield bond market and comparing it to the US; and secondly, trying to understand the specific characteristics of the Nordic firms that issue high yield bonds. The descriptive results show that Nordic high yield bonds have a lower credit spread and shorter maturity in comparison to the US. The regression results show that companies with positive profitability, low leverage, high interest coverage ratio, and non-sponsor backed ownership contribute to a lower credit spread. Compared to more mature markets, the Nordic high yield bond market is still characterised by strong local rootedness.

Keywords: High yield bonds, Leveraged loans, Credit spread, Nordic region, Europe

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1. INTRODUCTION

1.1 Background to the thesis

Companies play an important role in a country's economic well-being. In order to function and be able to improve and expand its operations, a company needs to regularly finance its business and has to have access to different financing sources. It needs capital to make payments to suppliers, employees or other stakeholders; for acquisitions; for refinancing of loans; and for other corporate related activities (Gunnarsdottir and Lindh, 2011). The company can choose between several alternatives, including internal financing through retained earnings, or external financing through the capital market. The capital market can in turn be divided into the stock market, which can be accessed through the issuance of equity, or the credit market, which can be accessed through debt financing. Debt financing is generally referred to bank loans or the issuance of bonds. For a typical company, debt financing is the crucial source of funding (Barr, 2011).

For a company that is not able to get any or sufficient loans from banks, the bond market is an alternative. A significant portion of the corporates that go to the bond market is able to procure capital through what is called investment grade bonds and in that way receives relatively standard terms; however there is a smaller share of the corporates that needs to raise capital through high yield bonds. High yield bonds are defined as issued by companies that are given a credit rating lower than BBB- (Standard & Poor's) or Baa3 (Moody's), or equivalent. By issuing high yield bonds, companies with relatively lower credit worthiness are able to finance their business, at the same time as investors are given the opportunity to invest in instruments with potentially higher returns. There are several characteristics of bonds that make them an attractive source of financing for corporations (Altman, 2002). Among others, bonds have more flexible terms with regard to covenants and reach out to a more diversified investor base. Bonds in general allow for significantly larger financial flexibility in comparison to, for example, traditional bank loans. For corporates that are not able to receive sufficient financing from banks, the bond market is therefore an attractive option.

Companies in the US rely to a large extent on the bond market as a capital source. Around 70% of the American companies' debt financing comes from the bond market, while around 30% comes from bank loans (Gunnarsdottir and Lindh, 2011). In contrast, companies in the Nordic region have traditionally had a strong relationship with their lending banks. For

this reason, bank loans have historically accounted for a significant portion of the corporate funding. However, a new trend has been detected in the Nordic market recently. According to data from Dealogic, the Nordic high yield bond market has increased from EUR 1.61 billion in 2010 to EUR 11.81 billion in 2013, which represents a CAGR of 94%.

The emergence of corporate bonds in the Nordics, in particular high yield bonds, has captured the interest and attention of researchers and practitioners alike. The fact that the Nordic high yield bond market has become an important financing source is recognised. However, the evidence and studies regarding the subject to date have mostly been qualitative based on interviews with practitioners and their perception of the Nordic high yield bond market (for example: Lagerlöf and Rosenlöf, 2012; Straume and Wetter, 2012), due to lack of data. As more than four years have elapsed since the first significant signs of high yield bond issuance, it is now possible to get hold of sufficient data observations to make a quantitative study. The US is often referred to as the most developed and largest market for high yield bonds and is thus a relevant benchmark in the analysis of the Nordic market.

This thesis consists of two main sections. Firstly, it aims at explaining the characteristics and structure of the Nordic high yield bond market from different perspectives. Secondly, it digs deeper into understanding the specific characteristics of the companies that issue high yield bonds in the Nordics and the variables' impact on the credit spread. The purpose is not to provide a consummate model of the variables that affect the credit spread, but rather to investigate the specific variables' impact on the spread. This study aims at providing a better understanding of the structure of the Nordic high yield bond market from a more quantitative aspect, as a complement to the qualitative studies that have been made in the area.

1.2 Research questions

The following questions are addressed in this study:

- What characterise the high yield bond market in the Nordics from the aspects of credit spread, credit rating, term to maturity, and currency choice?
- How do the above aspects compare to the high yield bond market in the US?
- What is the profile of the companies that issue bonds in the Nordic region in terms of profitability, leverage level, interest coverage ratio, and ownership type?

1.3 Hypotheses

The hypotheses for the last research question are the following:

1. *Profitability hypothesis*: A positive (negative) profitability is a positive (negative) aspect for the bond investors and would thus decrease (increase) the credit spread.

A company's profitability is used as a measure of cash flow generation, which is an important consideration for a bond investor. The ability of a company to generate cash flow directly affects its capability to pay coupon interest. Although historical profitability is not a guarantee for future performance, positive earnings indicate positive cash flows and are used as a base for financial forecasts.

2. *Leverage hypothesis*: A low (high) leverage level is a positive (negative) aspect for the bond investors and would thus decrease (increase) the credit spread.

The leverage metric is commonly used in the assessment of a company's likelihood of default. If the ratio is high, it indicates that the company does not have the ability to fulfil its debt obligations and therefore implies that bond investors take a higher risk.

3. *Interest coverage hypothesis*: A high (low) interest coverage ratio is a positive (negative) aspect for the bond investors and would thus decrease (increase) the credit spread.

A high ratio indicates that the firm has earned much more than is necessary to meet its required coupon payments. This works as a cushion for bond investors, who can find comfort in the issuer's ability to pay its interest obligations.

4. *Ownership hypothesis*: An ownership type that is associated with high risk would increase the credit spread.

There is a difference between corporates and sponsor-backed companies, where the latter is generally referred to as having a relatively higher leveraged capital structure due to its financing nature.

2. METHOD

2.1 Literature review

A literature review was performed to create a foundation for general market understanding and how high yield bonds are illustrated in academia. The theory was used as an analytical tool for the quantitative data with the aim of trying to assess the strength of the factors studied on the Nordic high yield bond market.

2.2 Data collection and processing

This study was mainly based on the gathering of quantitative and financial data, which are described in the following points:

- Data for the Nordic and the US high yield bond markets between 1984 and 2013 was collected through the database provided by Dealogic,
- Market updates and trends were collected from Standard & Poor's Leveraged Commentary and Data (LCD),
- Missing bond specifics were complemented through an account at Stamdata (Nordic trustee),
- Company financials were manually collected from Factset and Bloomberg, and
- Definitions of company specific characteristics came from Moody's and Standard & Poor's rating methodologies.

An analysis of the data in combination with the theory was then performed in order to finally come to a conclusion.

2.3 Limitations

A comparison was made between the high yield bonds issued from 1984 to 2013 in the Nordic region (Norway, Sweden, Finland, and Denmark) and the US. The reasoning behind excluding Iceland was due to the fact that there were only three observations ascribed to the region for the period. These have been excluded from the data sample. In order to keep focus, the following limitations were put in place:

- Nordic region

Only high yield corporate bonds issued in the Nordic region were considered when the amount of outstanding debt was described. In the cases where a reference rate existed (for example, 3 months NIBOR), only the spread was considered in order to make the comparison more valid.

In the section for the company specific characteristics, for comparability it would have been preferred to have the distribution of the variables (profitability, leverage level, interest coverage ratio, and ownership type) for Nordic firms that do not issue bonds, that is, a control group. This would nevertheless be complex to solve, as it would require a sample of non-issuing Nordic firms, and that raised the question regarding which companies that should be included in the sample for unbiasedness. Due to the restricted time frame, the scope of this study was limited to the distribution of variables for the Nordic firms that have issued bonds. It would therefore be difficult to conclude whether any of the patterns that are found describes the issuing choice, as there is no benchmark group to compare with.

- US market

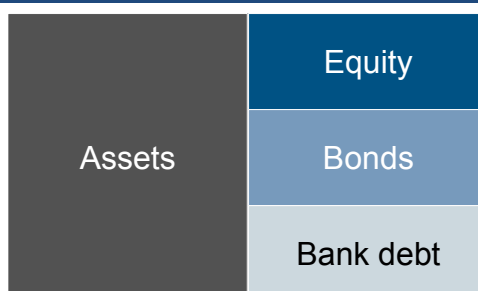
In the cases where a reference rate existed (for example, 3 months Treasury note), only the spread was considered in order to make the comparison more valid.

3. THEORETICAL FRAMEWORK

This section aims to cover the fundamentals of corporate bonds and in particular high yield bonds. The characteristics of high yield bonds will be given account for, as well as the differences compared to traditional bank loans. Furthermore, a brief historical overview of the development and emergence of high yield bonds will be outlined for the US, Europe, and the Nordic region, respectively.

There are many ways for a company to finance its operations. Besides using its own retained earnings, it can either go to the equity or debt markets. The company can access the equity market through the issuance of equity, and the credit market through a bank loan or the issuance of a bond. Which financing alternative the company chooses to use has a direct impact on its capital structure. Bolton and Freixas (2000) proposed a model which stated that a firm's financing is divided into equity, bank debt, and bonds. Below is an illustration of the financing options on the balance sheet.

Exhibit 1: Financing options illustrated on the balance sheet



Source: Author's own illustration

The riskiest firms would have difficulties obtaining financing through debt and might be forced to find capital through the equity market. Consequently, the firms bear a cost of information dilution, which Myers and Majluf (1984) discussed. They suggest that firms can reduce dilution, in other words, mispricing, by issuing debt over equity, which can be recognised in the pecking order theory. Debt is considered to be less sensitive to private information, why it is preferred over equity.

Bolton and Freixas (2006) distinguishes between bank debt and bond financing in terms of flexibility. They argue that bank debt is easier to restructure, but since the capital in a bank is short in supply, there is an endogenous flexibility cost of bank loans. The direct costs of

running banks and the regulations of capital requirements for banks are, among others, contributing factors to expensive loans.

Within corporate bonds, there is a categorisation called high yield. A high yield bond is defined as a bond with a credit rating below investment grade. It can also be referred to as a speculative grade or junk bond (Standard & Poor's, 2007). Per definition, this means that the bond is rated below BBB-, if using Standard & Poor's system, or Baa3, if using Moody's system. In other words, the bond has a rating of BB or Ba, CCC or Caa down to D (where the company is in default). In practice, a high yield bond differs from an investment grade bond in terms of seniority, security, maturity, credit spread, and terms (Rosenbaum and Pearl, 2008). Typically, a high yield bond gives a significantly higher spread compared to investment grade companies, as the issuer is perceived to be riskier.

3.1 Characteristics of high yield bonds

3.1.1 Credit spread

High yield bonds typically pay out coupons with either a fixed credit spread or a floating one. The fixed credit spread is, as the name implies, constant until the bond expires. The floating credit spread, on the other hand, consists of two parts: the reference rate and the quoted margin rate (Fabozzi, 2002). The reference rate often refers to a benchmark risk free rate, such as LIBOR (London Interbank Offered Rate) or EURIBOR (Euro Interbank Offered Rate), and the quoted margin rate can be inferred as the risk premium for the bond. The fixed credit spread and the quoted margin rate are referred to as the credit spread throughout the thesis.

There are several factors that affect the credit spread. Fabozzi (2010) brings up the following aspects of the bond and the market conditions:

1. Default / credit risk

One of the most important factors that affect the credit spread is the circumstances of the bond issuer. The characteristics of the company that issues the bond affect the perceived level of risk and returns, as well as how likely the issuer is to default. This risk is often reflected in a rating of the bond, either through a formal assessment by a credit rating agency or a shadow rating provided by the issuing institution. It is expected that some corporate bonds will default.

Investors therefore want to be compensated for the expected loss from defaults by requiring a higher promised return (Elton, Gruber, Agrawal and Mann, 2001).

2. Bond options

It is not uncommon for bonds to include options for the bondholders or the issuer. A typical call option is the issuer's right to repay the bond before the maturity date, that is, early redemption. The earlier the call date is, the better for the issuer, as this gives the company the opportunity to, in an early stage, replace the bond as soon as a more attractive financing alternative is available. Naturally, an option that benefits the issuer should increase the spread, and correspondingly lower the spread if the option profits the bondholders. An example of the latter is a put option, which gives the investors the right to sell their holdings back to the issuing company. The put option would therefore provide an insurance against, for example, default risk and term structure risk (Elkamhi, Ericsson, and Wang, 2011), and therefore decrease the spread.

3. Interest rates

A large number of bonds issued by companies are so called "plain vanilla" bonds, which mean that they have a fixed coupon and a fixed term to maturity (Chaudhry and Feasey, 2011). The credit spread that is paid to the bondholders can, however, either be fixed or change over time, that is, a floating rate. The floating rate bond usually consists of a reference rate (for example, EURIBOR) with an additional add-on spread. This type of bond is often referred to as Floating Rate Notes (FRN) and is considered to be less risky than fixed rate bonds, as the price of the bond does not decline when the market rates rises. That is, the FRNs only account for the bond's credit risk and do not carry the interest risk.

4. Securities

The credit rating of a bond, and thus the credit spread, is dependent on the level of seniority that the bond has if the company defaults. The seniority level determines the bondholders' right to the company's securities in the case of a bankruptcy. Subordinated debt instruments have a lower priority than secured debt and therefore bear a higher credit risk, which result in a higher spread. A secured bond gives the bondholders the right to sell the pledged asset in order to be repaid in the case that the company defaults (Johnson, 2010). The issuer can use a secured bond to mitigate agency costs, which might have otherwise been dealt with by including restraining

covenants in debt contracts. Compared to unsecured debt, secured bonds should include less number of covenants or be less restrictive, which in turn result in a lower price due to the decreased risk that the bondholders take on, as they have collateral (Roberts and Viscione, 1984; Barclay and Smith, 1995; Nash, et al., 2003).

5. Term to maturity

The time until the bond expires has an impact on the perceived risk that the bondholders carry. In general, *ceteris paribus*, the longer maturity the riskier investment, as the uncertainty for the company to be able to fulfil its debt obligations is higher further into the future. Greenwood, Hanson, and Stein (2010) argued in their theory for choice of corporate debt maturity that the bond market is partially segmented, in terms of that some groups of investors, for example, pension funds, have a preference for investing in given maturities. Based on the structure of their liabilities, the investors have a natural demand for assets that can match with the maturity period (Greenwood, Hanson, and Stein, 2010).

6. Liquidity

The more liquid the market for the bond is, the easier it is to sell or buy the bond. It typically results in a lower spread, since it becomes easier for an investor to sell the bond in a liquid market in the case he or she no longer wants to hold it.

3.1.2 Credit rating

The credit rating agencies play an essential role in assessing the credit worthiness of a company and have an impact on the financing options that a company can access. There are two leading credit rating agencies in the market, namely Standard & Poor's (henceforth also referred to as "S&P) and Moody's. Their assessment of companies influences the companies' opportunities to access the credit market (Rosenbaum & Pearl, 2008). The two institutions have different approaches in analysing the credit worthiness of companies. Nevertheless, the agencies have similar systems when presenting credit ratings and tend to arrive at similar ratings as well (Straume and Wetter, 2012). A comparison between the rating systems for long term issue credits by Standard & Poor's and Moody's is illustrated in exhibit 2.

Exhibit 2: Comparison between Standard and Poor's and Moody's credit rating systems

S&P	Moody's	Implication
AAA	Aaa	Prime
AA+	Aa1	High grade
AA	Aa2	
AA-	Aa3	
A+	A1	Upper medium grade
A	A2	
A-	A3	
BBB+	Baa1	Lower medium grade
BBB	Baa2	
BBB-	Baa3	
BB+	Ba1	Non-investment grade / Speculative
BB	Ba2	
BB-	Ba3	
B+	B1	Highly speculative
B	B2	
B-	B3	
CCC+	Caa	Substantial risks
CCC	Ca	Extremely speculative
CCC-	C	In default, with little prospect for recovery
D	/	In default

Source: Standard & Poor's, Moody's; Authors own illustration

The companies that have a rating above the double border, that is, BBB- (S&P) / Baa3 (Moody's) or above, are classified as investment grade and are considered to be of the highest quality, subject to low or moderate level of credit risk (Moody's, 2014). Meanwhile, the companies that have received a credit rating of BB+ (S&P) / Ba1 (Moody's) or below are called non-investment grade. These companies are judged to be speculative and are subject to substantial or high credit risk. In other words, non-investment grade companies are perceived as having a higher probability to not being able to fulfil their payment obligations. In practice, this results in that these companies have restricted access to funding from capital markets, compared to investment grade companies.

There are several explanations for a low credit rating. Antczak, Lucas, and Fabozzi (2009) give three major reasons for companies to be classified as non-investment grade:

1. **Companies in a growth phase:** A company that is in the early or growth stage of its business cycle is generally considered to be more risky than a mature company, as the view of the future performance is highly uncertain. Also, a young and growing company has often not built up a balance sheet with assets that can be used as securities for credit suppliers.
2. **“Fallen angels”:** Companies that have once had a high credit rating and later receive a lowered one are referred to as “fallen angels”. The reasons for the downgrade can be tough market conditions and declining financial performance, which cause a re-assessment of the company and result in a lower rating. Prior to 1977, the public high yield bond market in the US was almost fully made up by these “fallen angels”, that is, bonds whose initial investment grade ratings were downgraded over time (Taggart, 1987).
3. **Companies that are highly leveraged:** Highly leveraged companies are perceived as more risky as they have high interest expenses that they are obliged to pay. The highly leveraged capital structure of a company might have originated in a leveraged buyout (LBO), a leveraged acquisition, or the raising of debt proceeds, among others.

A high credit rating is positive for an issuer in terms of pricing, as a higher rating lowers the credit spread. However, there are a large number of companies that do not turn to a credit rating agency prior to a bond issue. A contributing factor is that a credit rating from a formal agency costs around SEK 2 million a year (Gunnarsdottir and Lindh, 2011). Additionally, the issuing company would need to assign an employee to be responsible for the dialogue with the credit rating agency, which would result in additional costs.

3.1.3 Term to maturity

There is a length of life for the majority of bonds, which is referred to the maturity date. The maturity date is the final repayment date of the bond (Berk and DeMarzo, 2011). That is, the number of years that are left for when the issuer has promised to pay back the outstanding debt amount. The market for debt instruments is classified in terms of the time remaining to its

maturity: a money market instrument has one year or less until maturity, while capital market instruments are debt instruments with a maturity greater than one year (Fabozzi, 2002).

Bonds can be classified into three groups with regard to the maturity (Fabozzi, 2010):

- Short-term bonds, which have maturities between one to five years,
- Intermediate-term bonds, which have maturities between five to twelve years,
- Long-term bonds, which have maturities beyond twelve years.

It is generally perceived as a more risky investment if the term to maturity is longer, since there is an increased risk for the probability of default.

3.1.4 Currency choice

The European Central Bank published a working paper in 2007, which investigated the bond issuance of non-financial corporations in advanced economies during the period 1999-2003 (Siegfried, Simeonova, and Vespro, 2007). The aim with the paper was to understand motives and determinants for the choice of currency. The authors found a strong home bias in their sample of issuers: 96% of US companies issued their bonds in their home currency, while the corresponding share for UK firms was 41%. The authors argued that one reason for this phenomenon was the extra costs associated with issuing in foreign currency, for example, transaction and legal costs.

3.1.5 Theoretical motives for using high yield bonds

High yield bonds have a relatively junior position in the capital structure compared to traditional bank loans. Typically, borrowing through bonds gives the issuing company more flexible terms, for example, none or fewer covenants than loans, but is under normal circumstances more expensive than bank loans as the credit spread is higher. The payment of interest is usually in cash, but there are other features as well. An example would be Payment-In-Kind (PIK), which means that the interest is paid through the issuance of a new debt instrument and is made with the same outstanding value as the interest payment and with a maturity and credit spread

structure that coincides with the underlying bond (Rosenbaum and Pearl, 2008). So instead of paying out the interest in cash, the interest is accumulated and the outstanding debt increases successively.

Main advantages with high yield bonds, from the issuer's perspective, are that they generally offer a higher leverage multiple and longer time horizons. This means that the issuing company can potentially receive more financing proceeds than a loan from the bank and does not have to repay or refinance its debt as frequently. Bank loans typically require amortisation on its senior loans (term loan A), which limits the company's ability to use generated cash flow for corporate activities. The terms and conditions of the bonds are generally more flexible compared to financing through banks, with none or few maintenance covenants¹ that restrict the company's activities and can be less restrictive regarding dividend pay outs. Covenants are placed by the creditors to assure that the debt proceeds are not used for too shareholder friendly activities, such as paying out dividends or engagement in overly risky projects. The purpose is to prevent the management from exploiting the debt holders and thus help in reducing agency costs (Berk and DeMarzo, 2011). With none or fewer covenants, the companies have larger flexibility in investing the capital in corporate enhancing activities.

A main disadvantage with high yield bonds compared to traditional bank loans, from the issuer's perspective, is the limited possibility for the issuing company to prepay the bond in the case that another financing alternative becomes more attractive. Bank loans are in this case more flexible, since they generally allow prepayment without any penalty fees. One way for the company to mitigate this disadvantage is to include a call option when issuing the bond. However, a clause like this, which is beneficial from the company's aspect, naturally results in a higher spread required by investors. Another disadvantage with bonds is that in the case that the company wants to make important decisions, it is more cumbersome with many bond investors as compared to a limited group of counterparties in a bank financing situation.

¹ A maintenance covenant can be, for example, a maximum ratio of net debt to EBITDA that is not allowed to be exceeded. In the case of a covenant breach, the bank can intervene and force the company to, for example, sell off assets in order to lower the ratio.

3.2 Historical overview of high yield bond markets

3.2.1 The US market

The US is referred to as the largest and most developed market for corporate bonds in an international setting. In the US, there is a strong tradition of companies issuing bonds instead of going to the banks. Around 70% of the American companies' debt financing comes from the bond market, while around 30% comes from bank loans (Gunnarsdottir and Lindh, 2011). The US bond market has, thanks to its well-developed and substantial market, a strong investor base (González-Páramo, 2007).

The investment grade bond market in the US can be traced back to the 1800's. However, the high yield bond market is a much younger financing instrument in comparison and is said to have emerged in the 1970's (Reilly, Wright, and Gentry, 2009). High yield bonds became more familiar to investors through the surge of leveraged buyouts (LBOs) that took place during the 1980's. The prevailing market back then was characterised by the unsatisfactory performance of the equity, government and corporate bond markets. This resulted in investors' exploration for new investment opportunities (Yago and Trimbath, 2003). The market for high yield bonds developed during the 1980's, but stagnated in the overall recession in 1990. It recovered not too long after and can be considered to be relatively stable in present time. During the recent financial recession, banks over the world became less willing to lend money to companies (Chui, et al, 2010). As a consequence, the issuance of corporate bonds increased significantly. The bond market increased especially in 2009 as the companies had to find alternative ways to finance its business when traditional bank loans were restricted (Fitch, 2010). Today, the high yield bond market account for an important source of financing, especially for companies that do not have an investment grade rating or easy access to capital markets (Choudhry, 2011).

3.2.2 The European market

The bond market in Europe was established during the 1980's. However, there were very few companies that used bonds as a financing source and it never became as developed as in the US. Not until the end of 1990's would the investors notice a swing in the number of bonds issued (Yago and Trimbath, 2003). In chapter four, the market for leveraged loans, including high yield bonds, in Europe is illustrated in order to provide an understanding of the scope.

3.2.3 The Nordic region

Bank financing has traditionally been the common source of funding in the Nordics. In this study, the Nordic region covers Norway, Sweden, Finland, and Denmark. As mentioned in the limitations, Iceland was excluded due to too few observations.

The corporate bond market in Norway is the leading and most developed in the Nordics. Norway is especially known for the large amount of high yield bonds that are issued, which is much ascribed to its large oil, gas, and shipping industry with high returns (Lagerlöf and Rosenlöf, 2012). Bank loans are however the main source of funding for companies and account for approximately 70% of the total debt for non-financial companies (Ailis and Bauers, 2013). That is, the opposite of the US market.

The high yield bond market in Sweden has emerged in the last four to five years, since the recent financial crisis. The Swedish corporations have historically relied on financing through bank loans (Gunnarsdottir and Lindh, 2011). A bilateral loan between the bank and a company is often called a "relationship-loan", which has its origin in that lending banks under several years have long standing relationships with companies. Although this is still the case to a large extent today, high yield bonds have successively taken market share from loans.

The sources of financing for companies in Finland and Denmark are of similar structure as in Norway and Sweden, that is, bank loans account for a significant share of the corporate financing (Ailis and Bauers, 2013).

3.3 Company specific characteristics

3.3.1 Profitability

A firm's earnings before interest, taxes, depreciation, and amortisation (EBITDA) are often used to measure the profitability (Berk and DeMarzo, 2011). Since depreciation and amortisation are not real cash expenses for the firm, the EBITDA reflects the cash a firm has earned from its operations. As this metric is unaffected by interest expenses, tax rates, depreciation, and amortisation, it provides a comparable measure between companies regardless of capital structure and composition of assets. Barber and Lyon (1996) recommend dividing EBITDA by sales in order to be able to directly compare companies to each other. The EBITDA margin (EBITDA to sales) is used in this study as the measure for the firm's profitability. Credit rating agencies, for example, Moody's, use the EBITDA margin as it indicates a company's staying power to: operate through economic downturns; reinvest in fixed assets; and service debt and other obligations (Moody's, 2013).

3.3.2 Leverage level

There are several ways to measure the leverage level. Total debt to EBITDA is commonly used as an indicator for leverage (Moody's, 2013). It measures the company's ability to pay back its outstanding debt. Simplified, this ratio gives the investor the approximate period of time for the company to be able to pay back all its debt with its current performance, adjusted for interest, taxes, depreciation, and amortisation. This metric is used by credit agencies, such as Standard & Poor's and Moody's, in the assessment of a company's likelihood of default. If the ratio is high, it indicates that the company does not have the ability to fulfil its debt obligations and would therefore naturally result in a lower credit rating. A low ratio, on the other hand, might suggest the opposite; that there is room for more debt to be issued.

3.3.3 Interest coverage ratio

In order to assess a firm's debt obligations, lenders typically compare the firm's income or earnings to its interest expenses (Berk and DeMarzo, 2011). This ratio is called the interest coverage ratio and often uses operating income, that is, EBIT or EBITDA, as a multiple of the

firm's interest expenses. A high ratio indicates that the firm is earning much more than is necessary to meet its required interest payments. Since EBITDA is used for measuring the profitability of the firm, the ratio EBITDA to interest expense will be used for the interest coverage metric for consistency. Moody's also uses this metric in their rating methodologies (Moody's 2013).

3.3.4 Ownership type

For lenders and bond investors, companies are generally divided into sponsor backed or non-sponsor backed ownership (corporates). A sponsor is typically a private equity firm, which has bought into a significant part of the equity shares in a company, in order to be able to influence important strategic decisions. The private equity firm finances the acquisitions through a combination of own equity contribution and leveraged loans, with typically a substantial share of the latter. Although it might be perceived that private equity owned firms are more likely to default, due to the highly leveraged capital structure in general, the default rate has not been appreciably higher among these companies according to a study made by Moody's (Moody's, 2009). However, the same study brings up that distress, that is, low ratings with negative outlooks, is much more common among private equity sponsored companies. This can be seen as an indication of future default rates, since a lower credit rating implies a higher likelihood of default. In order to avoid a distressed situation, the private equity deals have been able to safeguard "covenant-lite" loan agreements over time (Moody's, 2009). Covenant-lite agreements generally refer to loans that comprise incurrence based financial covenants, as opposed to maintenance based ones (Christenfeld and Goodstein, 2013). This means that financial tests, such as leverage and interest coverage ratios, which banks usually measure periodically, are only measured in the case of a specific event, for example, issuance of new debt, payment of dividends, acquisition of another company or other large investments. The ownership type is therefore important in the assessment of a company's risk profile.

4. THE MARKET FOR LEVERAGED LOANS

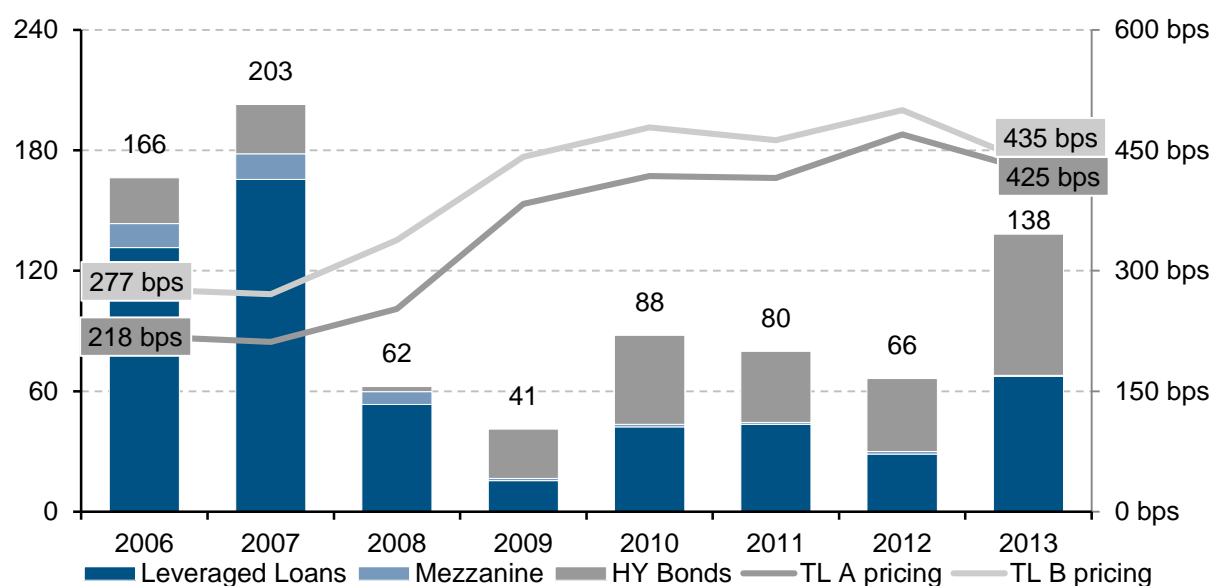
Standard & Poor's has a unit called Leveraged Commentary & Data (LCD), which gathers data and give an insight into the leveraged loan market through analysis, commentary, and real-time news. When LCD was founded in 1996 (then called "Portfolio Management Data LLC"), the purpose was originally to provide data to banks and other players that were active in the US leveraged loan market. It extended its scope and started to cover high yield bonds, as well, in 2003 and expanded the coverage to also include Europe. LCD's main clients include firms in the leveraged loans market, for example, banks, asset management firms, hedge funds, private equity players, among others.

Following are relevant market updates from the LCD European Leveraged Loan Review 2013, which is a report of over 170 presentation pages. The purpose is to provide the reader with the setting of the leveraged loan market and the role of the high yield bonds in Europe, and therefore get a better understanding of the Nordic market. As can be interpreted from the below graphs, the share of high yield bonds has increased significantly since 2009 / 2010 compared to previous years.

4.1 Market setting

There was a significant decline in leveraged loan volumes since the financial crisis around 2008. However, the trend moved upwards in 2013. The share of high yield bonds increased significantly in 2009 and accounted for more than half of the total leveraged finance volume in four out of five years between 2009 and 2013. In 2008 and the preceding years, the share of high yield bonds was only a fraction of the total leveraged finance volumes. The increasing share of high yield bonds might have been driven or affected by the increased pricing of senior bank loans (term loan A and B), which for term loan A, for example, increased from 2.18% in 2006 to 4.25% in 2013.

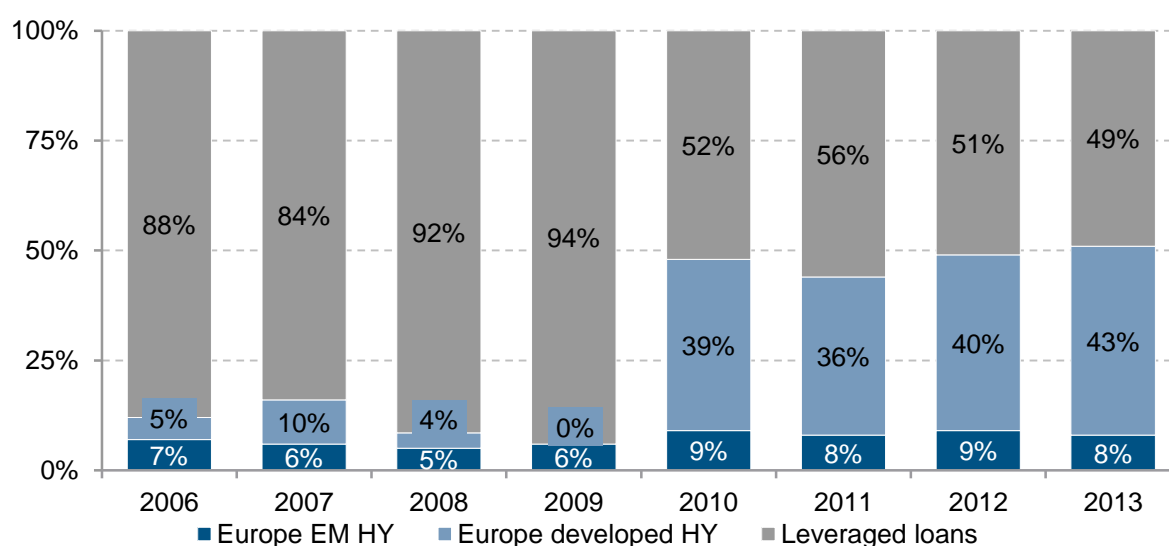
Exhibit 3: European leveraged finance volumes and pricing of TL A / TL B (2006-2013)



Source: Author's illustration based on S&P LCD Q4 2013

There was a significant shift between 2009 and 2010 in the European leveraged issuance, where high yield bonds issued in European developed markets became an almost as important credit funding as leveraged loans. The trend has been maintained in recent years as well.

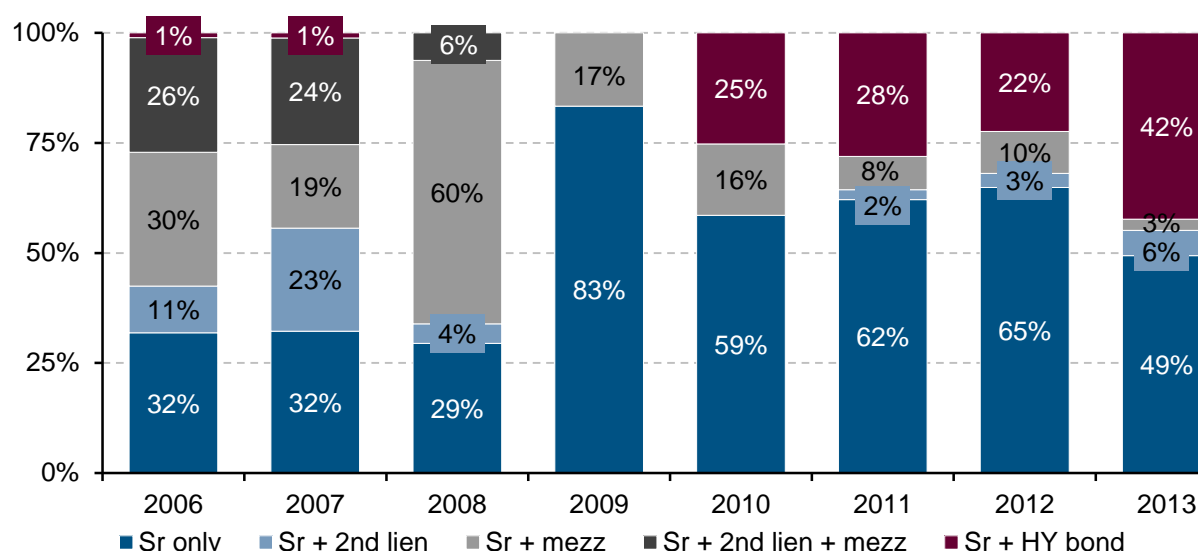
Exhibit 4: European leveraged issuance (2006-2013)



Source: Author's illustration based on S&P LCD Q4 2013

Looking at the total transaction structure in Europe, the importance of high yield bonds in combination with senior loans has increased significantly from 2010 and onwards. Meanwhile, the importance of subordinated financing instruments, such as second lien and mezzanine loans, has decreased, which suggests a shift to high yield bonds in its place.

Exhibit 5: Total transaction structure in Europe (2006-2013)



Source: Author's illustration based on S&P LCD Q4 2013

2013 was according to LCD a record year in the high yield primary market in Europe. The total new issue volume of EUR 70.4 billion exceeded the earlier peak of EUR 44.4 billion in 2010 by 59%. There was a significant increase in number of bonds priced in 2013, from around 100 each year between 2010 and 2012, to a total of 212 bonds. The issuers of the bonds were of all sizes, credit qualities, and various demographic and industry backgrounds. LCD argued that the reason for this surge in supply of bonds is a combination of the following: a low yield environment, low default rates, improving corporate balance sheets, and modest economic growth provided a highly accommodating backdrop.

Not only the supply of newly issued bonds was record high, there was also a strong demand. J.P. Morgan's weekly analysis of European high yield funds showed that of the first 50 weeks in 2013, 39 weeks contained inflow and merely 11 an outflow. The attractiveness of turning to the high yield bond market as an alternative for refinancing and recapitalisations for new buyouts is, according to LCD, due to: lower yields, greater tolerance for risk among investors, and a lack of maintenance covenants. Around 25% of the supply in 2013 had the

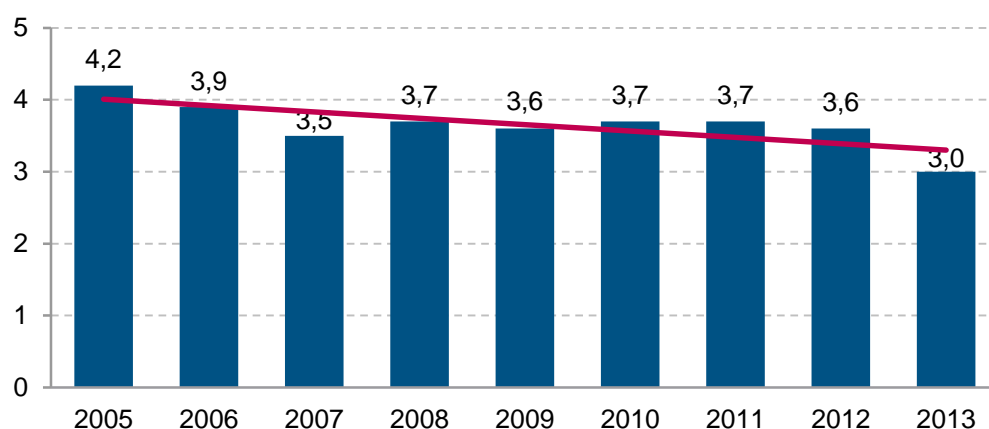
purpose to refinance bank debt. Overall borrowing that was related to refinancing accounted for almost half of all new issues, and activities related to recapitalisation accounted for 10%. Noteworthy is also the surge in bond financing included in LBOs. In 2013 there was a volume of EUR 6.4 billion of bonds, either accounting for all of the debt financing or part of it. This can be compared to the volume of EUR 2.4 billion in 2012 and marks a seven year high.

4.2 Covenants

Covenants are clauses in a loan agreement that restrict the borrower from acting in ways that would in any way challenge its ability to repay its debt obligations (Berk and DeMarzo, 2011). These are mostly taking the form of financial ratios, which have to be fulfilled by the debtor. Examples are the leverage ratio (debt to EBITDA) or cash interest coverage, which are brought up in exhibit 8 in the end of this section. Covenants constitute an essential part of the loan agreements. In this section, the covenants in the European market will be addressed. The data refers to transactions containing any covenants. The purpose is to show how the market conditions have changed and that issuers are pushing for covenant-lite agreements, which look more like bond arrangements.

As can be inferred from exhibit 6, the number of covenants has decreased with more than a step, from on average 4.2 in 2005 to 3.0 in 2013. This implies that banks have had to back on the amount of restrictions put in the loan agreements.

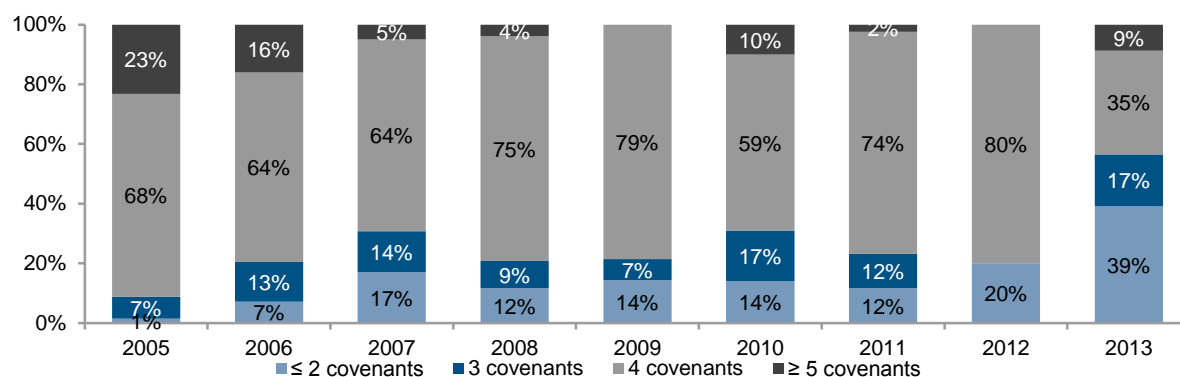
Exhibit 6: Number of covenants (2005-2013)



Source: Author's illustration based on S&P LCD Q4 2013

Exhibit 7 shows that the share of transactions with fewer covenants (three or less) has increased to account for more than a half of the transactions in 2013, compared to 8% in 2005. This further supports the trend towards “covenant-lite” agreements.

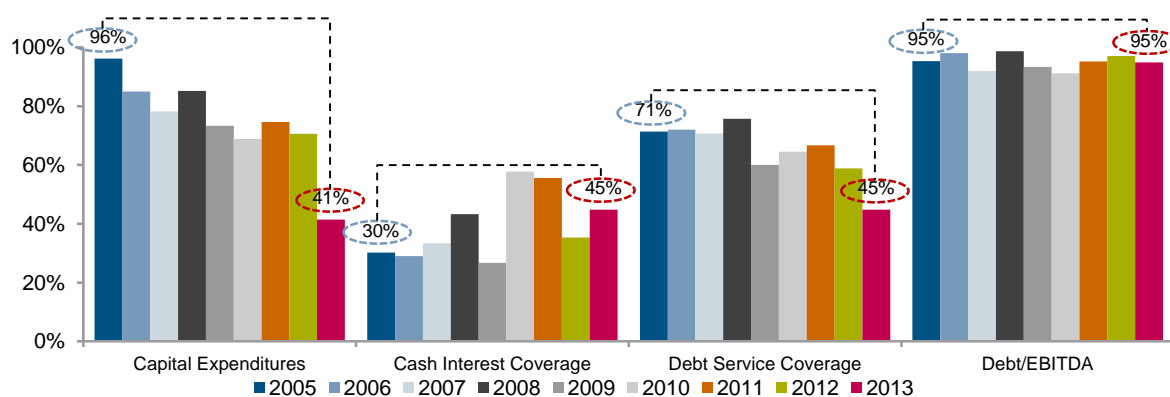
Exhibit 7: Distribution by covenants per transaction (2005-2013)



Source: Author's illustration based on S&P LCD Q4 2013

Four of the most common covenant types are illustrated in exhibit 8. The importance of the capital expenditure covenant has decreased over time and was only utilised in 41% of the cases in 2013, as opposed to 96% back in 2005. The same decreasing trend is observed for the debt service coverage covenant. The covenant for cash interest coverage has, however, increased from 30% in 2005 to 45% in 2013, which indicates a higher importance of the company's ability to pay interest expenses on outstanding debt. One of the most utilised leverage covenants, that is, debt to EBITDA, has maintained a stable level around 95% between 2005 and 2013.

Exhibit 8: Financial covenants: utilisation by covenant type (2005-2013)



Source: Author's illustration based on S&P LCD Q4 2013

5. ANALYSIS OF EMPIRICAL DATA

5.1 Descriptive analysis of the general characteristics in the Nordics and the US

The full sample of observations in the Nordic region from Dealogic includes in total close to 400 high yield bonds that were issued between 1984-01-01 and 2013-12-31. The Nordic region includes the countries Norway, Sweden, Denmark, and Finland. Iceland was excluded from the sample as it only had three observations for the period.

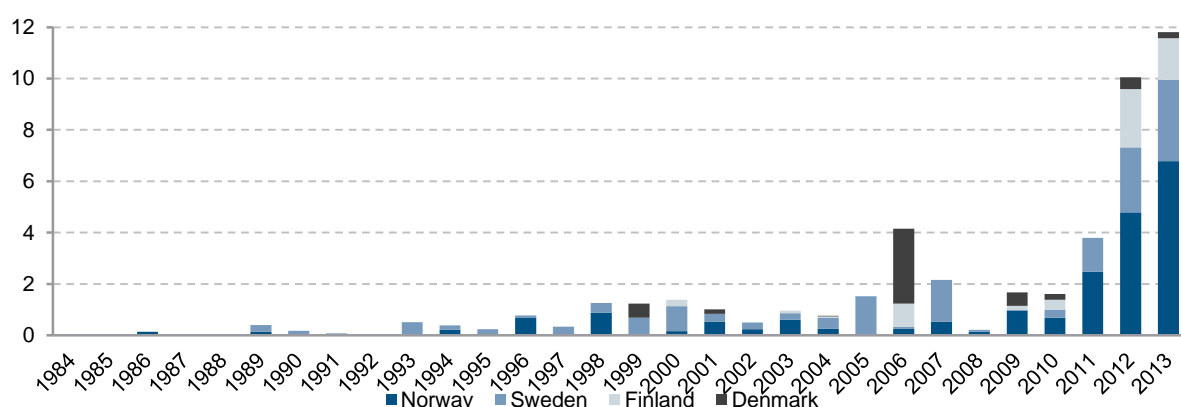
The corresponding sample for the US market includes in total close to 7000 observations for the same period as for the Nordic sample, that is, between 1984-01-01 and 2013-12-31. The information is the same as for the Nordic sample. A comparison between the US and the Nordic markets will be made in the following subsections.

5.1.1 Market size

The amount of high yield bonds has increased significantly over the last four to five years, starting with a sharp increase in 2009, when the Nordic economies started to recover from the worst part of the financial crisis. Generally, Norway has been the driving market for high yield bonds in the Nordic region historically.

There is an observable deviation in 2006 compared to the earlier issued values, which was driven by the Danish market. The significant value increase was due to large issuances by Nordic Telephone and FS Funding A/S.

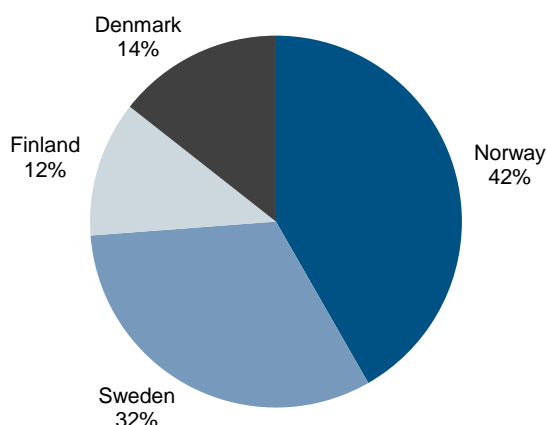
Exhibit 9: Observations divided by country and year (value in EURbn)



Source: Author's own illustration based on data from Dealogic

Norway and Sweden are the two largest markets in terms of issued values. In total, 42% of the value was issued in Norway; almost one third was issued in Sweden; and the remaining shared between Finland and Denmark.

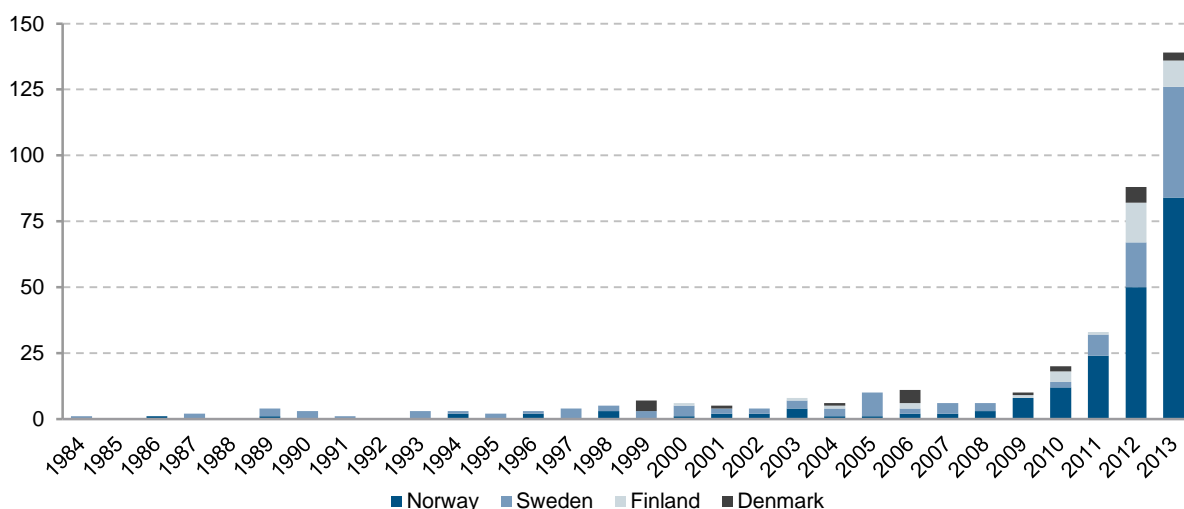
Exhibit 10: Observations divided by country (value in EURbn)



Source: Author's own illustration based on data from Dealogic

When looking at the number of issuances in the Nordic region, the trend follows the one seen in exhibit 9 in general. There is, however, a smoother transition between the years 2005 to 2010 in terms of the number of issuances and not the value issued. This can be ascribed to greater fluctuations in the value of each issue between the years. It might imply that when the market is more attractive, the companies issue larger amounts. On the contrary, when the market is not as attractive, the companies still issue bonds but to a smaller amount.

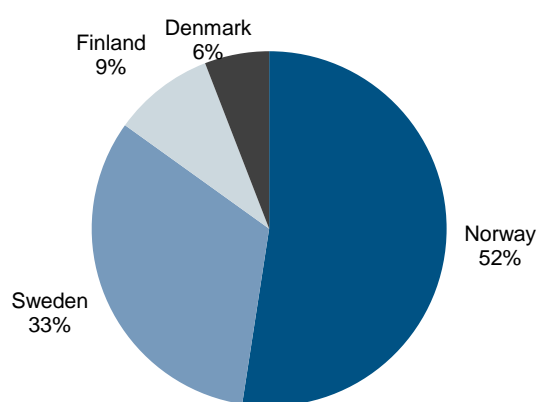
Exhibit 11: Observations divided by country and year (number of transactions)



Source: Author's own illustration based on data from Dealogic

Regarding the number of transactions distributed over the four Nordic countries, there is a deviation in exhibit 12 compared to the issued value seen in exhibit 10. More than half of the total number of observations stems from Norway; one third from Sweden; and the remaining shared between Finland and Denmark. Norway is still the largest market; however, the share of the value of issues (in EUR billion) is significantly lower. Denmark, on the other hand, have a much smaller share of the number of transactions, but a considerably larger share of the total value issued. This might suggest that Norway issue many bonds with relatively smaller values, as compared to the value of bonds issued in Denmark.

Exhibit 12: Observations divided by country (number of transactions)



Source: Author's own illustration based on data from Dealogic

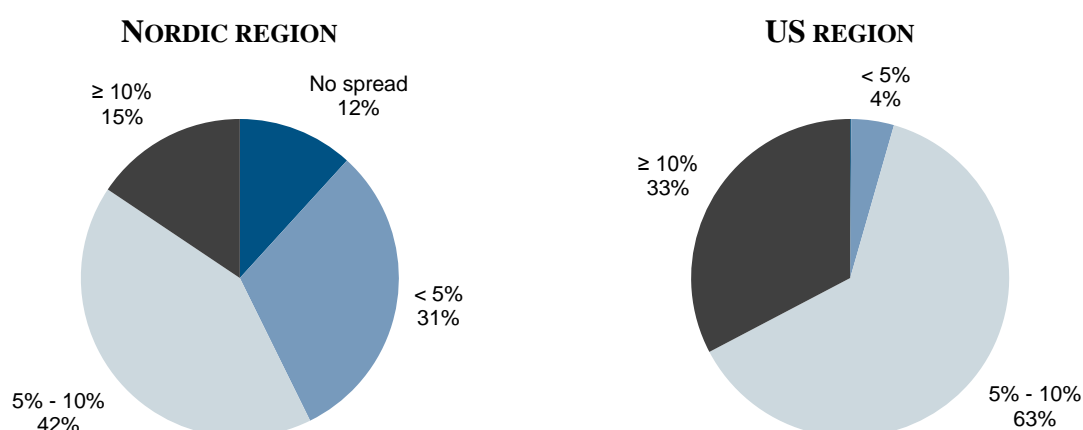
5.1.2 Credit spread

High yield bonds can either have a fixed coupon or be a floating rate note. As the floating rate note depends on a reference rate, which creates a mismatch when comparing different bonds issued at different periods of time, the reference rate was neglected in this study (for example, NIBOR, EURIBOR, STIBOR, or LIBOR), as it is the spread that mostly reflects the perceived riskiness of the bond. For the purpose of providing a sentiment of the data: almost 50% of the observations were floating rate bonds, with the majority using 3 months NIBOR as the reference rate.

The distributions of the credit spreads in the Nordic and US samples are presented in exhibit 13. No spread refers to when there has only been a reference rate present. There are no spreads that were negative, that is, less than 0%, in the Nordic sample. However, in the US

there were three cases of negative credit spread, according to the data. These are included in the category “< 5%” and were ascribed to the bond for the Salomon Brothers Inc, which was issued in 1994, and the bonds for Suntory Ltd, which were issued in 1998. The distribution is tilted towards higher credit spreads in the US market, which might imply riskier bonds that are issued or that US investors demand higher returns.

Exhibit 13: Observations divided by credit spread



Source: Author's own illustration based on data from Dealogic

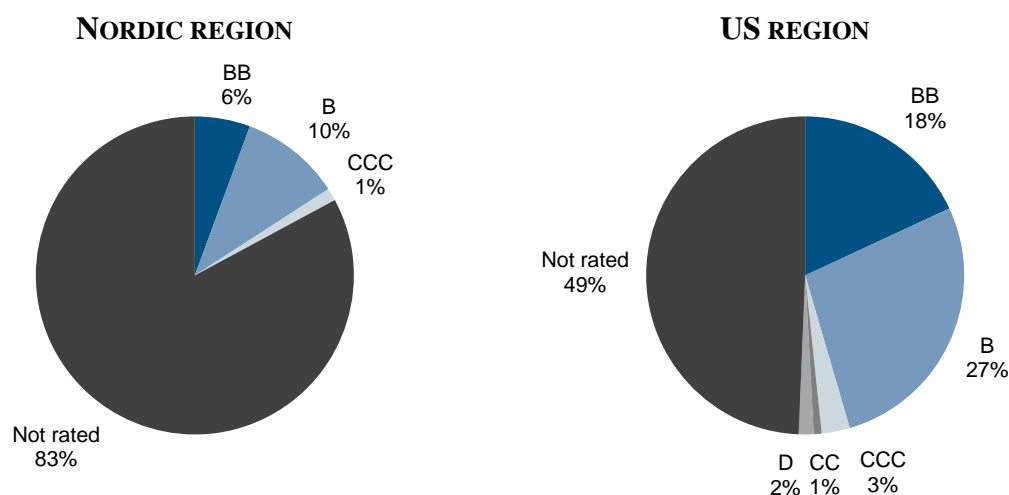
5.1.3 Credit rating

Most high yield bonds that were issued in the Nordic region did not receive an official credit rating from agencies such as Standard & Poor's or Moody's. In these cases, the issuing institution typically would provide a shadow rating in order to give the investors an indication of the perceived riskiness of the issuer. This rating is, however, not considered to be a formal rating.

The distribution of observations divided by credit rating is shown in the exhibit below, where all the presented credit ratings were translated to the S&P system according to exhibit 2 in section 3.1.2 for easier comparison. As can be seen from the graphs, the share of unrated bonds is substantially high and seems to be the typical case in a high yield bond issue. The share of ratings that are on the higher end of the speculative range is much larger in the US compared

to the Nordics, which implies that the credit quality of the rated bonds is generally better in the US. A logical explanation to the high amount of unrated bonds is the significant costs associated with receiving a credit rating from a formal agency. This also indicates the investors' willingness to rely on shadow ratings. Especially in the Nordic region, where the market is small and characterised by local rootedness, the confidence among institutional investors in Nordic issuers is fundamentally based on the closeness and familiarity with local brands and management reputations.

Exhibit 14: Observations divided by credit rating



Source: Author's own illustration based on data from Dealogic

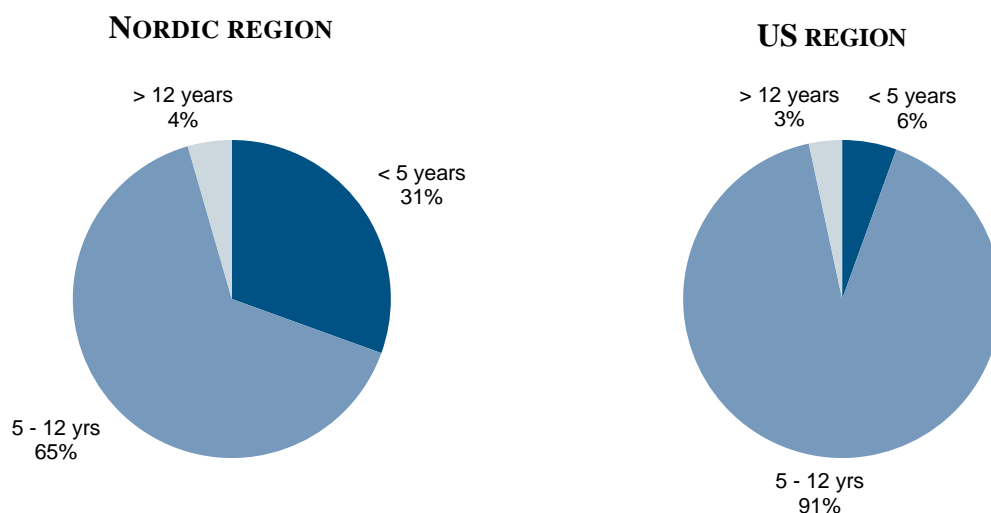
5.1.4 Term to maturity

The distribution of the bonds' term to maturity is illustrated in exhibit 15. The maturity was divided into: short-term bonds (1–5 years), intermediate-term bonds (5–12 years), and long-term bonds (exceeding 12 years).

When regarding the term to maturity, it can be inferred that high yield bonds are typically not longer than 12 years in the Nordic region. The observations with maturities longer than 12 years are in essence perpetual bonds. The similar trend can be seen in the US; the intermediate-term bonds are dominating with the majority number of observations. However, compared to the US market, the Nordic region has a larger share of short-term bonds. Bonds

with longer maturity mean that investors face a longer exposure towards the issuing company and are therefore riskier investments. The higher share of short-term bonds in the Nordics might be a result of the still undeveloped Nordic market, which is shown in the investors' doubt in keeping the holdings for a longer period of time.

Exhibit 15: Observations divided by maturity

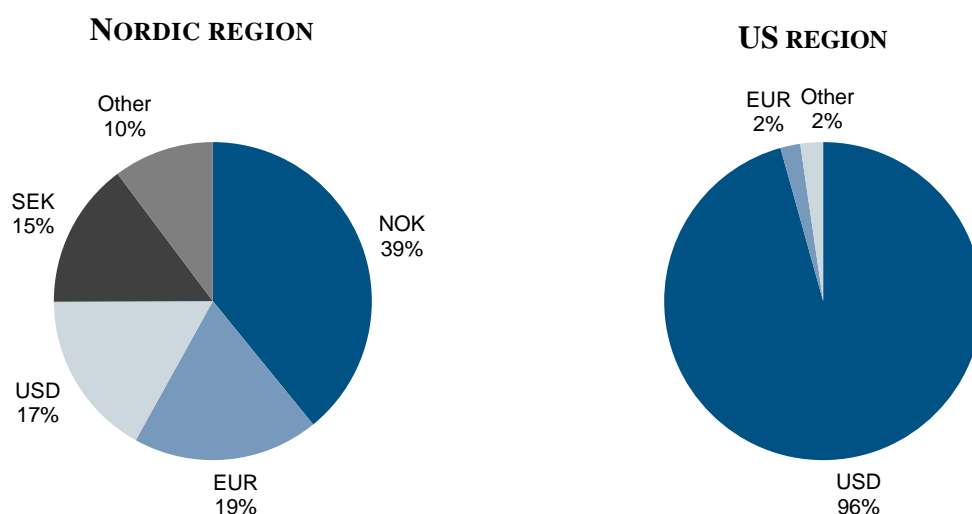


Source: Author's own illustration based on data from Dealogic

5.1.5 Currency choice

It is evident in which currencies high yield bonds are most commonly issued in the Nordics: the Norwegian Krona (NOK) stands for 39% of all observations between 1984 and 2013, EUR, USD and SEK stand for 19%, 17% and 15%, respectively, while other currencies stand for 10% (other includes: BDT, BRL, CHF, DEM, DKK, FRF, GBP, JPY, LUF, RUB, THB, and UAH). In the US market, the dominant currency is the US dollar, which accounted for 96% of the number of observations divided by currency.

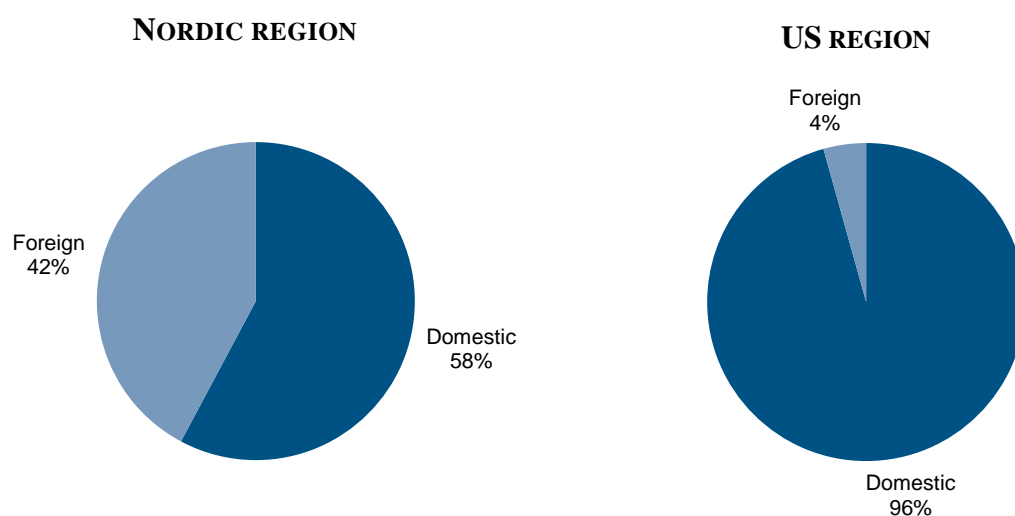
Exhibit 16: Observations divided by currency



Source: Author's own illustration based on data from Dealogic

A perhaps more representative way to illustrate the currency choice is to divide the issuing currency into domestic and foreign currency. Exhibit 17 shows that there is a strong indication of home bias, that is, the choice to issue in the domestic currency, among the firms both in the Nordics and the US. The domestic currency is defined as the following: NOK in Norway, SEK in Sweden, EUR in Finland, DKK in Denmark, and USD in the US. The share of firms that issued bonds in domestic currency in the Nordic region was 58%, which can be compared to 41% of the UK firms that was found in the ECB working paper. This suggests that Nordic firms are even more prone to issue in local currency compared to the UK. For the US firms, the 96% share that issue in local currency is well-aligned with the mentioned paper and indicate a longstanding trend.

Exhibit 17: Observations divided by issuance in domestic vs foreign currency



Source: Author's own illustration based on data from Dealogic

5.2 Regression analysis of the general characteristics (2010-2013)

In this section, the regression results from the Nordic sample between 2010 and 2013 will be presented. As shown in the exhibits in section 5.1.1, the Nordic high yield bond market started to surge in 2010 and has since then increased significantly year on year. The purpose of the regression analysis is to provide an understanding of the characteristics of the high yield bond market in the Nordic region during this period.

There are more than 250 observations between 2010 and 2013. For all regression results, coefficients that are significantly different from zero at a 1%-, 5%- or 10% level are indicated by ***, ** or *, respectively. An asterisk in parenthesis indicates a significance level with a maximum one percentage point deviation from the aforementioned 10%. From the regression, the goodness-of-fit (adjusted R-square) will be referred to, as this indicates how much the independent variables explain the variation in the dependent variable. Both univariate and multivariate regressions were carried through and analysed. The results from the univariate and multivariate regressions, as well as the summary statistics and correlation matrices, can be found in section 8 Tables.

5.2.1 Issuing year

The impact of the issuing year was carried through by the regression of the dummy variables for the years 2010, 2011, 2012, and 2013, on the credit spread.

According to the univariate regression result, the coefficients for 2010, 2011, and 2013 were significantly different from zero at a 1%-, 10%-, and 1% level. The coefficient for 2012 was insignificant. The goodness-of-fit of 0.09 indicates that the year variables would explain 9% of the variance in the spread. From the results, it can be inferred that there was a price pressure the latest two years, that is, in 2012 and 2013, where slight discounts on the spread were detected. This is aligned with exhibit 9, which showed a sharp increase in the issued values in the Nordic bond market in 2012 and 2013. When the cost is low for suppliers, that is, low spread, more suppliers are attracted to enter the market. Naturally, the surge in supply must also be matched by a demand in the form of investors that are willing to take holdings in the bonds. From the investors' perspective, the higher spread, that is, the return they receive on their investment, the better. However, a price decrease combined with a record high value of bonds issued would indicate that the demand for bonds as an investment alternative was so high that investors were acting more like price takers. In other words, the market was characterised by an "issuers' market".

< TABLE 1 FOR UNIVARIATE RESULTS >

In the multivariate regression, only the coefficient for 2011 was significantly different from zero at a 10% level. The values are higher compared to the univariate regression, especially for the years 2012 and 2013. However, as the results are not significant even at the 10% level, it is difficult to make a conclusive interpretation. The trend of a lower spread in 2012 and 2013 hold on in the multivariate regression as well.

< TABLE 2 FOR MULTIVARIATE RESULTS >

5.2.2 Credit rating

A majority of the high yield bonds that were issued in the Nordic region did not receive an official credit rating from agencies such as Standard & Poor's or Moody's. The bond was in this case referred to as being "not rated". All presented credit ratings were converted to the S&P system according to exhibit 2 in section 3.1.2 for easier comparison. The impact of the credit rating was carried through by the regression of the dummy variables for the credit ratings existent in the sample, that is, BB, B, CCC, and not rated, on the credit spread.

According to the univariate regression result, all the coefficients for the ratings are significantly different from zero at a 1% level, with the exception for the BB rating, which is not significant at all. The goodness-of-fit of 0.08 indicates that the credit rating variables would explain 8% of the variance in the spread. The results for the B and CCC ratings are expected; a worse rating would naturally result in a higher spread. However, the results also indicate that a formal rating might not be necessary for the bond issuer, as an unrated bond has a lower spread than a B-rated bond. This suggests that in general, if a bond receives a B-rating it might be worth to not publish the rating at all in order to get a lower credit spread. However, as the B-range includes all the ratings B-, B, and B+, a breakdown would have to be made in order to confirm this statement. Although not significant, the coefficient for the BB rating indicates a slightly discounted spread. This might be linked to a positive perception of an improved credit quality, which a BB rating implies.

< TABLE 1 FOR UNIVARIATE RESULTS >

In the multivariate regression, the coefficient for BB is highly significant at a 1% level, as opposed to being insignificant in the univariate regression. The trend is similar to the former regression; a worse credit rating results in a higher credit spread.

< TABLE 2 FOR MULTIVARIATE RESULTS >

5.2.3 Term to maturity

The impact of the maturity was carried through by the regression of the dummy variables for the different terms to maturities, that is, short-term bonds (1–5 years), intermediate-term bonds (5-12 years), and long-term bonds (exceeding 12 years, in essence perpetual bonds), on the credit spread.

According to the univariate regression, the coefficients for short-term, intermediate-term, and perpetual bonds are significantly different from zero at a 10%-, 1%-, and 1% level, respectively. The goodness-of-fit of 0.02 indicates that the term to maturity variables would only explain 2% of the variance in the spread. A bond with a maturity less than five years had almost a 100 basis points discount, while an intermediate-term bond gave almost a 140 basis points discount, both compared to a perpetual bond. This is in line with the general perception that an investment is more risky if the term to maturity is longer, as there is an increased uncertainty regarding the probability of default.

< TABLE 1 FOR UNIVARIATE RESULTS >

In the multivariate regression, the term to maturity did not seem to have a significant impact on the credit spread. The intermediate-term bond has a slight significance at a 10% level; however, the result is notched up around 170 basis points compared to the univariate regression.

< TABLE 2 FOR MULTIVARIATE RESULTS >

5.2.4 Currency choice

The impact of the currency choice was carried through by the regression of the dummy variables for the issuance in domestic or foreign currency on the credit spread.

According to the univariate regression result, both coefficients are significantly different from zero at a 1% level. The goodness-of-fit of 0.15 indicates that the currency variables would explain 15% of the variance in the spread. If the firm would issue the bond in local currency, there would be a discount of around 240 basis points compared to foreign currency. This supports the idea of home bias and suggests that issuance in foreign currency might be

associated with higher costs (for example, transaction costs) and therefore result in a higher spread.

< TABLE 1 FOR UNIVARIATE RESULTS>

The multivariate regression shows the similar result as in the univariate one, with a slight increase of 30 basis points for the domestic currency.

< TABLE 2 FOR MULTIVARIATE RESULTS>

5.2.5 Deal nationality

The impact of the currency effect was carried through by the regression of the dummy variables for the four Nordic countries in the sample, that is, Norway, Sweden, Finland, and Denmark, on the credit spread.

The goodness-of-fit is highly insignificant, which is applicable for the coefficients as well. None of the coefficients for the variables is significantly different from zero. Data does not seem to give evidence on the deal nationality as being an affecting factor on the credit spread. This might be solved with more data observations in the future.

5.3 Descriptive analysis of the specific characteristics (2010-2013)

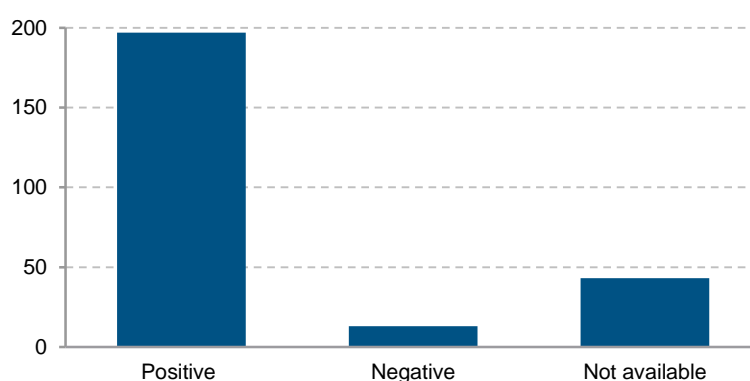
In this section, the specific characteristics of the companies that issued bonds in the Nordic region between 2010 and 2013 will be described. The specific characteristics include: profitability (EBITDA / sales), leverage level (total debt / EBITDA), interest coverage ratio (EBITDA / interest expense), and ownership type (sponsor backed or non-sponsor backed). The financial information was manually collected using data from the investment analytics tool Factset and complemented by Bloomberg.

5.3.1 Profitability

The EBITDA to sales was used as a measure of a company's profitability. The financials were taken for the financial year prior to the issuing year. For example, if the bond was issued in 2010, then the EBITDA and sales figures for year 2009 were used.

In exhibit 18, the distribution of positive and negative profitability is presented. In some cases, the EBITDA margin has not been available, thereof the last column. The average EBITDA margin for the sample was +14%. The majority of the observations had a positive EBITDA margin prior to the issuance of the bond, which was expected. A positive profitability indicates a company's staying power and financial performance, which is positive from a credit perspective.

Exhibit 18: Distribution of observations by EBITDA margin



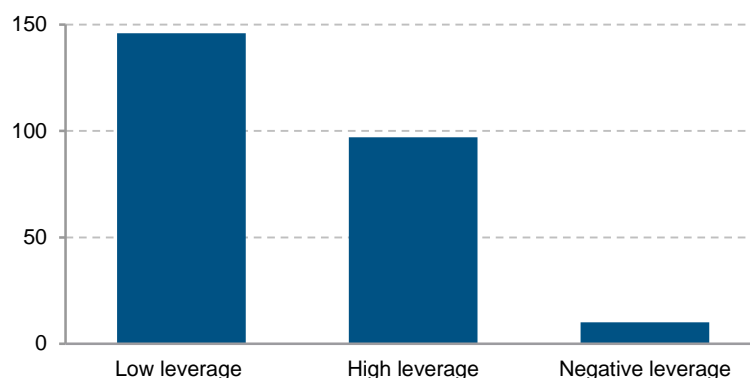
Source: Author's own illustration based on data from Factset / Bloomberg

5.3.2 Leverage level

The total debt to EBITDA ratio was used as a measure of a company's leverage level. The financials were taken for the financial year prior to the issuing year. For example, if the bond was issued in 2010, then the total debt and EBITDA figures for year 2009 were used.

In exhibit 19, the distribution of low and high leverage is presented. Low leverage is defined as below six times, while high leverage is defined as equal to or above six times. The cases of negative leverage were due to negative EBITDA values. The average leverage level for the sample was 15.88 times. The share between low and high leverage was about 60% and 40%, respectively.

Exhibit 19: Distribution of observations by leverage level



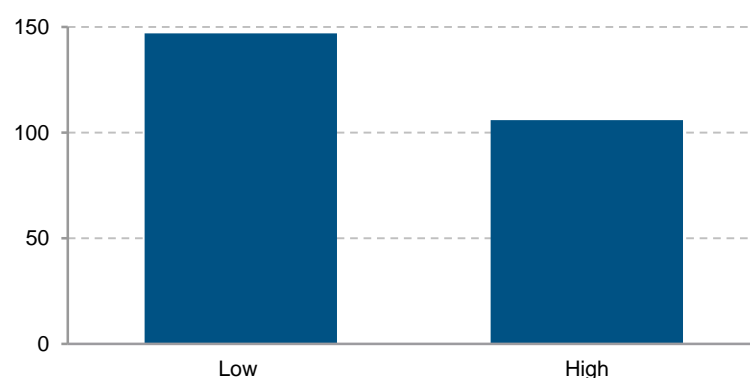
Source: Author's own illustration based on data from Factset / Bloomberg

5.3.3 Interest coverage ratio

The EBITDA to interest expense ratio was used as a measure of a company's interest coverage ability. The financials were taken for the financial year prior to the issuing year. For example, if the bond was issued in 2010, then the EBITDA and interest expense figures for year 2009 were used.

In exhibit 20, the distribution of low and high interest coverage is presented. Low interest coverage is defined as below three times, while high interest coverage is equal to or above three times. The average interest coverage ratio for the sample was 5.10 times. The share between low and high interest coverage was about 60% and 40%, respectively.

Exhibit 20: Distribution of observations by interest coverage ratio



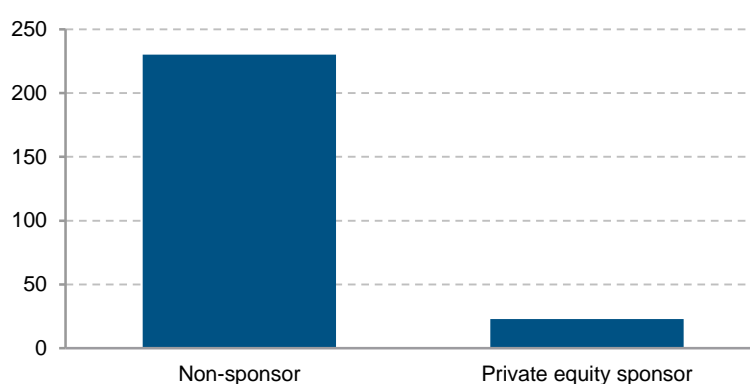
Source: Author's own illustration based on data from Factset / Bloomberg

5.3.4 Ownership type

Companies can be divided into two broader ownership categories: sponsor backed or non-sponsor backed ownership. A sponsor is in this case a private equity firm, which has bought into the equity shares of a company and thus possess a significant influence in the strategic decision making process.

From the data sample, we can see that the non-sponsor backed owned companies are dominating in the Nordic region.

Exhibit 21: Distribution of observations by ownership type



Source: Author's own illustration based on data from Dealogic / Nordea

5.4 Regression analysis of the specific characteristics (2010-2013)

In this section, the regression results for the specific characteristics of the companies that issued bonds in the Nordic region between 2010 and 2013 are analysed. The specific characteristics include: profitability (EBITDA / sales), leverage level (total debt / EBITDA), interest coverage ratio (EBITDA / interest expense), and ownership type (sponsor backed or non-sponsor backed). The financial information was manually collected using data from the investment analytics tool Factset and complemented by Bloomberg.

There are more than 250 observations between 2010 and 2013. For all regression results, coefficients that are significantly different from zero at a 1%-, 5%- or 10% level are indicated by ***, ** or *, respectively. An asterisk in parenthesis indicates a significance level with a maximum one percentage point deviation from the aforementioned 10%. From the regression, the goodness-of-fit (adjusted R-square) will be referred to, as this indicates how much the

independent variables explain the variation in the dependent variable. Both univariate and multivariate regressions were carried through and analysed. The results from the univariate and multivariate regressions, as well as the summary statistics and correlation matrices, can be found in section 8 Tables.

5.4.1 Profitability

The impact of the profitability was carried through by the regression of the dummy variables for the EBITDA margin, which were divided into negative, positive, and not available, on the credit spread.

According to the univariate regression result, the coefficients are significantly different from zero at a 10%-, 5%-, and 1% level, respectively. The goodness-of-fit of 0.04 indicates that the profitability level variables would explain 4% of the variance in the spread. The results show that a negative EBITDA margin would increase the credit spread with about 150 basis points compared to the case where the EBITDA margin was not available, which is in line with the hypothesis. A negative EBITDA margin indicates a less than satisfactory performance and that the firm has not been successful in delivering profitability in the recent year. This would be considered a risk for the investors, who therefore want to be compensated with a higher spread. Correspondingly, a positive EBITDA margin is an indication of better-managed business operations, at least from the aspect of delivering profitability. Unsurprisingly, a positive EBITDA margin would lower the credit spread with 80 basis points compared to the case where the EBITDA margin was not available.

< TABLE 5 FOR UNIVARIATE RESULTS >

The multivariate regression gives a significant coefficient for the negative EBITDA margin at a 5% level, but the coefficient for the positive margin is no longer significant. The coefficients are in terms of value in line with the univariate regression.

< TABLE 6 FOR MULTIVARIATE RESULTS >

5.4.2 Leverage level

The impact of the leverage level was carried through by the regression of the dummy variables for the leverage level, which were divided into high, low, and negative, on the credit spread. High leverage is defined as the total debt to EBITDA ratio exceeding six times. Negative leverage is due to a negative EBITDA.

According to the univariate regression result, the coefficients for low and negative leverage are significantly different from zero at a 1% level. The goodness-of-fit of 0.06 indicates that the profitability level variables would explain 6% of the variance in the spread. The reasoning around a high leverage would be an increasing impact on the credit spread. For this sample, however, the coefficient has a slightly decreasing effect. On the other hand, the coefficient for high leverage is not significant, whereas it does not find support in the empirical data for its impact. The coefficient for low leverage, that is, a total debt to EBITDA ratio less than six times, is significant at the 1% level and would lower the credit spread with around 150 basis points. This is aligned with the hypothesis that a lower leverage is positive from a credit perspective, as the perceived risk of the issuing company is lower.

< TABLE 5 FOR UNIVARIATE RESULTS >

In the multivariate regression, the coefficients are no longer significantly different from zero.

< TABLE 6 FOR MULTIVARIATE RESULTS >

5.4.3 Interest coverage ratio

The impact of the interest coverage ratio was carried through by the regression of the dummy variables for the interest coverage ratio, which were divided into low and high, on the credit spread. The interest coverage level is defined as EBITDA to interest expense and a ratio below three times is considered to be low, while a ratio exceeding three times is high.

According to the univariate regression result, the coefficients for both low and high interest coverage are significantly different from zero at a 1% level. The goodness-of-fit of 0.06 indicates that the interest coverage level variables would explain 6% of the variance in the

spread. The results show that a low interest coverage ratio would increase the credit spread with around 130 basis points compared to a high ratio. A low interest coverage ratio implies that there is not as much room for the generated profitability (measured in EBITDA in this case) to cover the interest expenses. The risk of the company is therefore considered as being higher from the bond investors' perspective, thereof the higher credit spread.

< TABLE 5 FOR UNIVARIATE RESULTS >

In the multivariate regression, the coefficients are no longer significantly different from zero.

< TABLE 6 FOR MULTIVARIATE RESULTS >

5.4.4 Ownership type

The impact of the ownership type was carried through by the regression of the dummy variables for the ownership type, which were divided into corporates (non-sponsor backed) and private equity (sponsor backed), on the credit spread.

According to the univariate regression result, the coefficients for both variables are significantly different from zero at a 1% level. The goodness-of-fit of 0.03 indicates that the ownership variables would explain 3% of the variance in the spread. The results show that a non-sponsor backed ownership would lower the credit spread with around 150 basis points. That is, there seems to be a discount if it is a corporate ownership. This corresponds well with what was expected, as a sponsor-backed ownership is often related to a highly leveraged capital structure and is therefore a riskier investment for the investors.

< TABLE 5 FOR UNIVARIATE RESULTS >

The multivariate regression shows the similar result as in the univariate one, with a slight increase of 13 basis points for corporate ownership.

< TABLE 6 FOR MULTIVARIATE RESULTS >

6. CONCLUSION

The Nordic high yield bond market is still premature compared to more matured markets, such as the US, but has in recent years grown significantly. Theses made on the subject have thus far been restricted to qualitative studies based on interviews with practitioners and their perception of the Nordic high yield bond market. Not until recently has data been sufficient for the feasibility of a quantitative study. The focus of this study was on two main parts: firstly, describing the characteristics and structure of the Nordic high yield bond market; and secondly, trying to understand the specific characteristics of the companies that issue high yield bonds in the Nordics.

For the credit spread, the distribution is tilted towards higher spreads in the US market, as opposed to the Nordics. This might imply riskier bonds that are issued in the US or that the investors require higher rates of return on their investments. On the other hand, a mapping of the credit ratings shows that the credit quality in the US market seems to be better than in the Nordics, which would suggest that investors in the Nordic region are not paid accordingly for the risk they are taking if the US market is used as a benchmark. This can be due to the fact that the Nordic market is still under development and not as mature as the US. However, a large share of the bonds does not have a rating. The fact that Nordic investors are willing to rely on shadow ratings indicates that formal credit ratings do not necessarily have to be a deal breaker; the close relationship between debtors and investors prevails not only in the loan market, but in the bond market as well. Regarding the term to maturity, Nordic high yield bonds are more inclined to be shorter compared to the US. This can be a sign that Nordic investors might not be willing to tie capital for too long, which could be a result of a reserved approach to the still young market. When it comes to the currency choice for the bond issuances, the share of firms that issue in domestic currency is aligned with previous studies: 96% of the US firms (compared to the previous finding of 96%) and 58% of the Nordic firms (compared to 41% of the UK firms, which is used as a proxy).

Four hypotheses were presented for the second part regarding the specific characteristics of the companies that issue high yield bonds in the Nordics. These will be accounted for in the following paragraphs.

- 1) The EBITDA margin (that is, EBITDA to sales) was used as a measure of a firm's profitability. The distribution of observations by EBITDA margin shows that a clear

majority of the companies had a positive profitability in the previous financial year. Aligned with the first hypothesis, profitable companies are rewarded with a lower credit spread compared to unprofitable ones. A negative EBITDA margin increased the credit spread, while a positive EBITDA margin slightly decreased the credit spread at a 5% significance level.

- 2) Total debt to EBITDA was used as a measure of the firm's leverage level. A low leverage, that is, a leverage level below six times, decreased the credit spread. However, no significant result was given from the high leverage, and thus the second hypothesis is only partially accepted.
- 3) The interest coverage ratio (that is, EBITDA to interest expense) was used as a measure of the company's ability to fulfil its interest obligations. A low interest coverage ratio, that is, below three times, increased the credit spread, while a high ratio decreased the spread. As the results were significant at a 1% level, the third hypothesis is accepted.
- 4) The ownership aspect was divided into sponsor-backed and non-sponsor backed companies. A sponsor-backed ownership would generally be considered to be more risky, as it is associated with a highly leveraged capital structure. A large majority of the sample consisted of non-sponsor backed companies. The results showed that a sponsor-backed ownership would have a relatively higher credit spread, and vice versa. As the results were significant at a 1% level, the fourth hypothesis is also accepted.

This study has taken a first attempt to analyse the characteristics of the Nordic high yield bond market by using available data from Dealogic. The purpose of this study is to provide a better understanding and increase the knowledge of the structure of the market from a more quantitative aspect, complementing the qualitative studies that have been done in the area. As a final conclusion: although there are indications of a shift from leveraged loans to bonds in the Nordic corporate funding market, the region is still strongly reliant on its relationship-based trust between debtors and investors. The region is characterised by local rootedness and investors have built their confidence in the issuers on the closeness and familiarity with local corporations.

As the market is still in its early development stage, there is room for a more extensive study when more data observations are accessible in the future. Also, it would be recommended to construct a control group of Nordic companies that do not issue bonds and find the general characteristics of these in order to give a fair assessment of the variables' impact on the credit spread.

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8. TABLES

Table 1: Regression results for general characteristics – Univariate regressions

The dependent variable in the regressions is the credit spread, that is, the coupon rate (not including the reference rate, if any) of the bond.

	Coefficient	Standard error	Adjusted R ²	Observations
<u>Year</u>			0.0890	253
2010	0.0692***	0.0053859		
2011	0.0124838*	0.0067875		
2012	-0.0097518(*)	0.0060069		
2013	-0.0106932*	0.005828		
<u>Rating</u>			0.0784	253
BB	-0.0056816	0.0064728		
B	0.0189619***	0.0053185		
CCC	0.0466684***	0.0140858		
Not rated	0.0608316***	0.0016639		
<u>Maturity</u>			0.0214	253
< 5 years	-0.0095896*	0.0053443		
5-12 years	-0.0135419***	0.005013		
Perpetual	0.0734583***	0.0045576		
<u>Currency</u>			0.1527	253
Domestic	-0.0235307***	0.0034534		
Foreign	0.0808153***	0.0030241		
<u>Nationality</u>			-0.0085	253
Norway	-0.0035875	0.0091925		
Sweden	-0.0062149	0.0094951		
Finland	-0.0062777	0.0101594		
Denmark	0.0672187***	0.0089597		

Table 2: Regression results for general characteristics – Multivariate regressions

The dependent variable in the regressions is the credit spread, that is, the coupon rate (not including the reference rate, if any) of the bond. The model yielded an adjusted R-square of 0.2972 and had 253 observations. The variables in parenthesis are omitted due to collinearity.

	Coefficient	Standard error
<u>Year</u>		
(2010)		
2011	0.0108898*	0.0063577
2012	-0.0078587	0.0055
2013	-0.0083995	0.0056346
<u>Rating</u>		
BB	-0.0235535***	0.0074473
B	0.0097288*	0.0052937
CCC	0.0213099	0.0133207
(Not rated)		
<u>Maturity</u>		
< 5 years	-0.0015636	0.004995
5-12 years	-0.0084949*	0.0046679
(Perpetual)		
<u>Currency</u>		
Domestic	-0.0250336***	0.0037803
(Foreign)		
<u>Nationality</u>		
Norway	0.0087971	0.0082205
Sweden	0.0016635	0.0085933
Finland	0.0111026	0.0089774
(Denmark)		
Constant	0.0855495***	0.0088384

Table 3: Summary statistics of the general characteristics

Variable	Mean	Standard error	Min	Max
Creditspread	0.063	0.025	0.014	0.140
<u>Year</u>				
2010	0.079	0.270	0	1
2011	0.134	0.342	0	1
2012	0.324	0.469	0	1
2013	0.462	0.500	0	1
<u>Rating</u>				
BB	0.059	0.237	0	1
B	0.091	0.288	0	1
CCC	0.012	0.108	0	1
Not_rated	0.838	0.369	0	1
<u>Maturity</u>				
< 5 years	0.316	0.496	0	1
5-12 years	0.565	0.497	0	1
Perpetual	0.119	0.324	0	1
<u>Currency</u>				
Domestic	0.767	0.424	0	1
Foreign	0.233	0.424	0	1
<u>Nationality</u>				
Norway	0.601	0.491	0	1
Sweden	0.257	0.438	0	1
Finland	0.111	0.314	0	1
Denmark	0.032	0.175	0	1

Table 4: Correlation matrix of the general characteristics

The numbers in red represent negative correlations. There are 253 observations.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 Credit spread	1.000																	
2 2010	0.075	1.000																
3 2011	0.296	0.115	1.000															
4 2012	0.091	0.203	0.273	1.000														
5 2013	0.157	0.272	0.366	0.642	1.000													
6 BB	0.076	0.237	0.050	0.148	0.233	1.000												
7 B	0.214	0.009	0.037	0.043	0.010	0.079	1.000											
8 CCC	0.195	0.032	0.171	0.002	0.102	0.028	0.035	1.000										
9 Not rated	0.175	0.149	0.047	0.062	0.171	0.571	0.719	0.249	1.000									
10 < 5 years	0.030	0.084	0.143	0.035	0.085	0.027	0.038	0.075	0.068	1.000								
11 5-12 years	0.129	0.186	0.088	0.023	0.062	0.085	0.028	0.022	0.083	0.775	1.000							
12 Perpetual	0.156	0.164	0.071	0.086	0.218	0.092	0.012	0.073	0.029	0.249	0.418	1.000						
13 Domestic	0.395	0.081	0.057	0.018	0.099	0.337	0.281	0.199	0.493	0.053	0.031	0.029	1.000					
14 Foreign	0.395	0.081	0.057	0.018	0.099	0.337	0.281	0.199	0.493	0.053	0.031	0.029	1.000	1.000				
15 Norway	0.042	0.001	0.108	0.039	0.037	0.240	0.276	0.134	0.408	0.019	0.067	0.076	0.180	0.180	1.000			
16 Sweden	0.041	0.105	0.020	0.079	0.144	0.071	0.286	0.186	0.232	0.145	0.068	0.104	0.061	0.061	0.721	1.000		
17 Finland	0.026	0.083	0.102	0.160	0.125	0.445	0.020	0.039	0.289	0.104	0.004	0.143	0.074	0.074	0.433	0.207	1.000	
18 Denmark	0.032	0.115	0.071	0.020	0.032	0.050	0.021	0.020	0.043	0.123	0.024	0.213	0.221	0.221	0.222	0.106	0.064	1.000

Table 5: Regression results for specific characteristics – Univariate regressions

The dependent variable in the regressions is the credit spread, that is, the coupon rate (not including the reference rate, if any) of the bond.

	Coefficient	Standard error	Adjusted R ²	Observations
<u>Profitability</u>			0.0426	253
Negative	0.0148423*	0.0078153		
Positive	-0.0081431**	0.0041562		
Not available	0.06835***	0.0037655		
<u>Leverage level</u>			0.0551	253
High	-0.0036382	0.0038631		
Low	-0.0150371***	0.0039543		
Negative	0.0693377***	0.0029531		
<u>Interest coverage</u>			0.0616	253
Low	0.013049***	0.0031149		
High	0.0551901***	0.0023743		
<u>Ownership type</u>			0.0250	253
Corporate	-0.0148857***	0.0054493		
Private equity	0.0763043***	0.0051957		

Table 6: Regression results for specific characteristics – Multivariate regressions

The dependent variable in the regressions is the credit spread, that is, the coupon rate (not including the reference rate, if any) of the bond. The model yielded an adjusted R-square of 0.0915 and had 253 observations. The variables in parenthesis are omitted due to collinearity.

	Coefficient	Standard error
<u>Profitability</u>		
Negative	0.0152462**	0.0076355
Positive	-0.0056489	0.0076517
(Not available)		
<u>Leverage level</u>		
High	0.0046546	0.0068305
Low	-0.0011939	0.0070168
(Negative)		
<u>Interest coverage</u>		
Low	0.0065522	0.0042973
(High)		
<u>Ownership type</u>		
Corporate	-0.0121694**	0.0054257
(Private equity)		
Constant	0.0722691***	0.0074123

Table 7: Summary statistics of the specific characteristics

Variable	Mean	Standard error	Min	Max
Creditspread	0.063	0.025	0.014	0.14
<u>Profitability</u>				
Negative	0.051	0.221	0	1
Positive	0.779	0.416	0	1
Not available	0.170	0.376	0	1
<u>Leverage level</u>				
Negative	0.040	0.195	0	1
High	0.383	0.487	0	1
Low	0.344	0.476	0	1
<u>Interest coverage</u>				
Low	0.581	0.494	0	1
High	0.419	0.494	0	1
<u>Ownership type</u>				
Corporate	0.909	0.288	0	1
Private equity	0.091	0.288	0	1

Table 8: Correlation matrix of the specific characteristics

The numbers in red represent negative correlations. There are 253 observations.

	1	2	3	4	5	6	7	8	9	10	11
1 Credit spread	1.000										
<u>Profitability</u>											
2 Negative	0.189	1.000									
3 Positive	0.191	0.437	1.000								
4 Not available	0.100	0.105	0.849	1.000							
<u>Leverage</u>											
5 Negative	0.105	0.780	0.381	0.038	1.000						
6 High	0.092	0.147	0.401	0.357	0.160	1.000					
7 Low	0.244	0.169	0.386	0.328	0.147	0.571	1.000				
<u>Interest coverage</u>											
8 Low	0.256	0.198	0.453	0.384	0.172	0.291	0.650	1.000			
9 High	0.256	0.198	0.453	0.384	0.172	0.291	0.650	1.000	1.000		
<u>Ownership type</u>											
10 Corporate	0.170	0.011	0.063	0.077	0.077	0.062	0.200	0.129	0.129	1.000	
11 Private equity	0.170	0.011	0.063	0.077	0.077	0.062	0.200	0.129	0.129	1.000	1.000