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PATTERNS OF INTERNATIONAL BOND ISSUANCES

AN EMPIRICAL STUDY OF NORWEGIAN FIRMS

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ABSTRACT

This thesis documents and analyses patterns associated with international bonds issued by Norwegian firms and compares them with patterns of domestic bond issuances. The analysis is focused towards characteristics and features at firm level. The analysis is based on empirical data from the recent period of 1998 – 2008 in order to encourage and guide future research. Three particularly noticeable patterns have been found: (1) The firms which issue bonds internationally have very different characteristics compared to the firms issuing only domestically. Firms issuing internationally have a significantly larger amount of assets, higher profitability, higher level of investment and ability to service debt. (2) Despite the link between firms doing business abroad and issuing bonds abroad, the shipping and fishfarming industries appear to be more attracted to the prominent and renowned features of the Norwegian domestic market. (3) Only 3 of the 25 banks underwriting domestic issues are responsible for underwriting Norwegian bonds internationally. This indicates that the recognition of the underwriter is as important as the recognition of the firm. These findings are then discussed in the light of existing theoretical views.

PREFACE

It has been difficult to set limits to the chosen topic because of the many interesting and exciting theories and findings connected to the patterns and field of bond issuance. Since it is a topic that has only recently begun to receive focus from the academic community it is hoped that this thesis may contribute to motivate others to research the topic further.

In addition to the appendices, I have enclosed a CD containing the full database with complete spreadsheets and Stata files. Please feel free to contact me for a copy of the data or if you have any questions.

Gathering and putting together the database proved at times to be a daunting challenge, consuming a large part of the limited time available to produce the thesis. Nevertheless, the work laid down in the thesis has provided me with valuable knowledge and, altogether, has been an enriching experience.

I wish to extend special gratitude to the following people:

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Tomas Alexander Tveit

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1. INTRODUCTION

Capital markets are the centre stage for firms aiming to raise capital. With the progressive state of globalization, capital markets are constantly evolving by integrating nations and their domestic markets and by creating a larger international marketplace with greater possibilities. The securities, corporate activity and market dynamics surrounding the new capital markets need to be fully investigated in order to understand how the evolution and patterns of globalization are affecting them.

Because of the ever increasing selection of securities and capital vehicles, the available choices for raising capital are becoming more and more complex. However, studies show that the most utilized and valued way of raising capital is through issuing debt. J.C Gozzi et al (2010) show that approximately 81% of all capital raising is done through debt. 35 % of this is issued abroad. For corporations, the main type of debt is through bonds. While securities bearing status as equity has been a hot topic for a long time, the focus and research around corporate bonds and issuance of debt has surprisingly, to date, been a fairly uncovered topic.

Norway is a small country in the scheme of capital markets, domestic corporate markets and domestic demand. It is not a part of a commonwealth such as the European Union (EU), although it is part of the Schengen Agreement (EØS) which forces it to follow trade regulations from the EU. It has a large wealth from its oil and natural resources, making it one of the richest countries in terms of wealth per capita. Owing to its small population, the majority of its industries are capital intensive and few are large scale international. However, the firms that are large are world-leaders within their industry. These industries are mainly Oil and Gas, Energy and Utility, and Shipping and Fishfarming.

The aim of this thesis is to research the patterns of bond issuances in the international market by Norwegian firms. The focus is at the firm level, looking specifically for differences between firms issuing bonds abroad, and firms not doing so. In order to obtain a better understanding of the results, the analysis covers additionally some aggregated patterns as well as surrounding factors which may play a part. Furthermore, the thesis uses theories from recognized literature in order to provide plausible explanations for the patterns.

1.1 LIMITATIONS

Since this is a fairly undocumented area of research there are many interesting aspects which could be examined. Unfortunately, the amount of data accessible within the available time-frame has limited the extent of possible analysis.

The first limitation arose from a natural aspect. Because the Norwegian bonds market is relatively small, especially in terms of international issues, statistical significant results of a full analysis of aggregated patterns are difficult to achieve. This is a common problem for many smaller markets and, in other research, Norway is often placed in accumulated groups because of its small representation. For this reason this thesis has focused on the firm level.

Acquiring available data proved to be more complex than at first anticipated. Obtaining access to or getting hold of historical data such as credit ratings, financial income statements and international bond data required a significant amount of effort. Owing to access problems, some of the data had to be manually retrieved by external consultants and banks. Some data was simply unavailable thus limiting the extent of the analysis. This was especially a problem when trying to get hold of the less recognized firms' credit ratings.

When determining the direction of the analysis the scale of the project and problems related to accessing and collecting data were important factors. The most central findings in this thesis are the firm characteristics and their coefficients. Ideally it would have been interesting to perform further analysis from this basis. Two possible alternatives were (a) to examine the differences between the firms before and after the first international issuance, or (b) to compare the characteristics of firms issuing equity. Unfortunately, owing to the limited time frame and obstacles in accessing data, these further analyses were deemed too extensive to pursue.

Many of the individual theories which support the theoretical views described in this thesis also illustrate and test the resulting outcome from the presence of these theoretical views. The effects are for example lower yields, higher underwriting prices, etc. This thesis does not aim to prove these effects, but rather acknowledges them. The intention of adding them to the description of the theories is to provide an intuitive explanation of the patterns found in the thesis and to show the importance of uncovering their presence. An overall intention with this

thesis is that the patterns and findings will help to encourage more detailed research on patterns and effects of Norwegian firms issuing bonds.

1.2 THE STRUCTURE OF THE THESIS

Firstly, relevant theoretical views accumulated from various research publications are presented in Part 2. Most of the articles are published after 2000, and the majority very recently. The theories are therefore up to date and built on recent evidence. These theoretical views provide the basis of the discussion in part 6, where they are linked and matched with the results.

The Norwegian market and background information relating to Norway's corporate, industrial and bond market features are presented in Part 3. The intention is to give the reader a general awareness of local features and characteristics which are idiosyncratic for the Norwegian market, in order to obtain a better understanding of the analysis and the subsequent reasoning.

Part 4 describes how the database was created, which sources were used and further complications and decisions made prior to the analysis.

The analysis in Part 5 commences with the aggregated level and is followed by the industrial and firm level. The final sections explain the surrounding factors of exchange rates, credit rating and the choice of underwriter.

Part 6 discusses the relation between the existing theoretical views from Part 2 and the analysis results in Part 5.

The conclusions in Part 7 summarize the most important findings of the thesis and plausible explanations.

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2. THEORIES – WHAT AFFECTS THE CHOICE OF ISSUANCE?

There are several different theories and beliefs as to why companies issue bonds in international and domestic markets. This analysis does not aim to test or formulate theoretical hypothesizes, but rather to document patterns of issuances and relate them to existing theories that explain them. This part aims therefore to introduce and describe potential theories of what affects the choices of issuance. Potential links between these theories and the patterns found in section 5, will be discussed in section 6.

2.1 THE LITERATURE

The literature on raising capital is mostly related to raising equity. However, the processes and mechanisms that exist when issuing equity are fairly similar to those of issuing debt. The theories describing equity are therefore also to some extent compatible and applied for issuing debt.

A large part of the literature directly related to debt issuance tends to focus on the investor's point of view. The definition of an attractive market for the investor may often be at the expense of the firm, and vice versa. But they have also common interests, and are basically mutually dependent upon each other. The investor wants, and presumably seeks, to invest his free cash flow, and the firm needs to raise capital. In this sense they are financially complementariness. Intuitively, the theories of the investor's behavior should therefore to a large extent coincide with the firm's behavior.

2.2 MARKET SEGMENTATION VIEW

The Market Segmentation view is an accumulation of empirical analyses and theories which try to explain potential differences in markets that makes them independent or segmented. It is often linked to various biases and barriers. In a domestic market the possibilities of segmentation may exist as different preferences towards firms listed on the main stock exchange opposed to the alternative OTC exchanges. In international markets there is a wider range of market characteristics that may isolate markets. These may be within macroeconomics, market structures or legal frameworks. The main concept of this view is that the factors driving the segmentation in markets prevent the capital markets in functioning efficiently.

As long as there is trade across markets with that have different jurisdiction, structural distinctions will exist. The question is whether these dissimilarities are significant enough to make a difference. Firms issuing debt in a segmented market may suffer from the restrictions and conditions that limit it. Issuing in a different market may therefore prove to be a better solution of escaping them.

The biases that create segmented markets have a more natural origin. The segmentation through bias leans more towards market clustering of products and interests. This is more of an international trait since an intra-national cluster of similar production would seem fairly normal. They may affect the market in the same ways, but unlike barriers they don't restrict capital markets. A usual assimilation for this bias is specialization of markets.

The main focus of the literature dedicated to segmentation of capital markets is based on the investor's point of view. In 1988 the World Bank surveyed 125 institutional investors from 16 different countries with a view to improve debt issuance and trading[1]. The survey found that liquidity, investor base and trading convenience were the three most valued attributes. Despite corporations having slightly alternative interests than investors, it seems fairly intuitive that the existence of these attributes also would create a more advantageous arena for firms issuing debt.

Most of the developed countries and markets are known to have fewer investment barriers which help encourage international flow of capital and investors. They are therefore considered to be more integrated. Less developed, small, or emerging markets are, on the other hand, known to have self-imposed barriers such as limits on FDI or tax regulations, as well as barriers caused by lack of legal framework, poor accounting systems and lack of information.

There are different levels of segmentation. This is usually proportionate to how far the country has come in developing their monetary system and economical structure. Factors affecting the risk premium and bond spread may differ between markets. Antzoulatos (2000) found that liquidity has a large impact on determining the emerging market bond spreads. In addition H. Min, Lee, M. Nam, Park and S. Nam (2003) found that liquidity as well as solvency problems determine a great deal of the bond spreads in emerging markets. They also discovered that macroeconomic factors such as inflation rate, terms of trade real

[1] "Mobilizing Private Savings for Development: IBRD and the Capital Markets", by Kenneth G. Lay, 1994

exchange rate, and net foreign assets play a large part in the difference of cross country yield spreads. Being indicators of national risk they affect the creditworthiness related to the country which, in turn, affects the firms. Firms in such countries may, therefore, be subject to increased cost of debt by having to compensate for the risk investors take. Though a portion of investors seek the higher returns that come with these markets, many are often prohibited from accessing them either because of other market barriers, or simply because the risks are too high.

This theory offers two potential reasons for companies looking to issue debt abroad. The first one is to avoid fluctuating legal systems, poor accounting systems, regulations, taxes and illiquid domestic markets which either crave risk premiums for existing investors or simply discourage investors from entering the market. The second is to exploit specialized markets that have investors with the same market or production interests as the firm's.

2.3 INVESTOR RECOGNITION

Like any product that needs to be sold, the product or brand's recognition among buyers is an important attribute. Recognition, or awareness, among buyer and investor will in most cases mean an increase in demand. With an increase in demand, the product may get sold or even achieve a better price. This reasoning also applies to bonds - the investor who is familiar with or recognizes the firm will most likely accept a lower risk premium or compensation, than the investor who doesn't have any knowledge of the firm.

Another important factor in creating the demand is the pool of investors wanting to invest. Since bonds are of a certain magnitude, a larger pool of investors is therefore needed to cover the amount issued. For smaller markets, there may be a problem in having a large enough pool of interested investors - especially if the issue size is large. This may force the firm to lower its offering price or increase the yield, which increases the issuers' cost of debt. An alternative is to issue the bonds in international markets were the pool of investors is large enough to create a sufficient demand and therefore keep the cost of debt down. However, in the international market, smaller firms may not be recognized by the investors, which again would mean an increase the cost of debt, in order to compensate for an increase in perceived risk.

So far the reasoning has been intuitively based on common economic mechanisms. There are several articles that argue and debate the topic on how the firm's recognition affects the cost associated with issuing debt in multiple or international markets. Merton (1987) argues that the issuing firm's cost of capital is lower when a larger proportion of the investors recognizes, or is familiar with, the firm and its operations. His argument suggests that large firms that do business in international markets, and are therefore more recognized, may achieve lower cost of capital by issuing in international markets. Puthenpurackal (2001) found that the international issuance's at-issue yields and underwriting costs are 12 to 15 basis points lower than the domestic issuances. However, Tawatnunchai and Yaman (2008) find that the overall cost of issuing internationally is approximately the same as for domestic firms. They measure the overall cost by adding the indirect costs of change in stock value to the direct costs of the issuance. They do, however, find that the majority of firm that choose to issue abroad, have good reputations

There appears to be are mixed beliefs concerning the total lower cost of issuing in international markets. However, the literature seems to agree that firm recognition and awareness among investors is a vital feature to issuing bonds successfully in the international market**.**

2.4 BONDING VIEW

The bonding view is an accumulation of theories which aim to challenge the ownership, control and governance of the corporations. One theory is that bondholders may be affected by the extent of rules and regulations limiting the open market for corporate control. Corporate control is meant as the market for takeovers. The idea is that few barriers for corporate control reduces the managerial preference for a "quiet life", and enhances profitability and firm value. (Bertrand and Mullainathan, 2003). This reasoning assumes that the market for corporate control is a market in which managers compete for the privilege to manage a firm's resources (Fama, 1980; Jensen and Ruback, 1983). The theory is, however, somewhat unclear as to how bondholders view this governance mechanism. Bondholders may benefit from increase of firm value, but with the change in risk often associated with takeovers, their wealth may go in either direction (Billett, King and Mauer, 2004; Warga and Welch 1993).

From a corporation's view point, the majority and most recognized capital structure models project maximization of shareholders wealth. However, research increasingly recognizes potential theories and models projecting managers' self-interest deciding the capital structure. These do not necessarily coincide with the optimizing of shareholder wealth. Though the self-interest may be related to various issues, the matter of interest here is related to the findings of Garvey and Hanka (1999), which suggested that managers issue debt depending on the protection their firms are subject to. They found that while protected companies reduce their use of debt, unprotected firms do the opposite. This is in-line with the findings of Bertrand and Mullainathan (2003) and supports more recent research suggesting managers use excess debt to avoid the threat of hostile takeovers.

Recently Qiu and Yu (2009) suggested that bondholders react negatively to a restraining of the market for corporate control. This was based on empirical evidence suggesting an increase in cost of debt after the passing of the US's business combination (BC) laws, which raised the cost of takeovers. This was, however, found only to apply to firms in non-competitive industries, and for firms rated with speculative grade (BB or lower). This would suggest that bondholders are more afraid of the increased risk of bad managerial governance rather than the added risk of leverage-increasing takeovers. This seems a fairly intuitive choice as a potential takeover may offer better results than worsening the managerial governance of a firm already considered to be at a large risk of default.

Another theory which plays a part in the bonding view and which is a contrast to an open market for corporate control, is the effect of having large and controlling owners. The issue is directly linked to the private benefits of control. The meaning of private benefits covers company resources captured by a controlling shareholder and using it to his/her own benefit. It may range from extensive use of executives' perks and deviations from "fair" prices of assets, to inside information directly related to the firm's business.

The controlling party will naturally initiate such extraction when it is difficult to prove. Private benefits are, therefore, difficult to measure. Dyck and Zingales (2004) use two methods related to the difference in stock values, and the price difference between voting rights and their strategic role. Having a controlling party is a characteristic most often found in less developed economies. The evidence varies therefore a good deal. Dyck and Zingales found that legal and institutional mechanisms play an important part in limiting private benefits – especially tax enforcement and media pressure. This also seems intuitive since the

more developed countries have more experienced and stronger legislation and monitoring of ownership and fraud.

The ownership control's effect on debt and bonds is well documented. The general factors affected are ratings and yield spread. Bhojraj and Sengupta (2003) documented lower yields and higher ratings for firms with larger institutional ownership. Anderson and Reeb (2003) found that family controlled firms have significant advantage in yield spreads than non-family firms. The reasoning is that families don't diversify to the same extent, and are therefore more concerned and protective of the firm. More risky projects are therefore more easily turned down, which again reduces the risks related to holding the bonds, and hence a lower yield spread. Furthermore, Ashbaugh et al. (2006) found that firm ratings are negatively related to shareholder rights, CEO also acting as the Chief of the board, and ownership control.

These analyses are all based on the US domestic market and can therefore not be generalized for other markets. They do, though, represent plausible theories.

Recently Boubakri and Ghouma (2010) tested a hypothesis of whether ultimate owners with voting rights and cash-flow rights would threaten the interest of bondholders through investing in less or non-profitable projects. Using a mixture of developed and developing markets, their evidence showed that family control gives a increasing effect on bond yields and a negative effect on ratings. This is contradictory to the findings of Anderson and Reeb (2003). Boubakri and Ghouma (2010) also found that control of widely held financial firms only has an effect on the ratings, while State control has no effect on either of the two. Their reasoning was that families in controlling positions are more likely to extract private benefits that harm the debt holders' interest. Also, since the owners are less likely to dilute their control when raising capital, they are more likely to use debt financing.

Their analysis also tested the effect of investor protection on debt and bonds. They showed that better bondholder protection generally reduces the bond yields and increases corporate bond ratings. This is in line with the findings of Dyck and Zingales (2004) which have been mentioned earlier. However, Boubakri and Ghouma (2010) went even further and suggested that the protection is related to the *enforcement of debt law* being more important than simply *the existence of book law*. In effect, their conclusion runs in favor of issuing in more developed countries which tend to have more controlling agencies and institutions.

A solution often appearing in the bonding view's theories, is to issue internationally. One idea suggests issuing debt in foreign markets and internationalizing as a way for firms to bind themselves to better corporate governance frameworks, which theoretically increases the firm's protection against corporate takeovers. Another suggests that issuing abroad in more developed markets should lessen the fear of insufficient legal protection for the bondholders. The potential outcomes are shortly summarized as; limitation of negative effects on bondholder's risk and wealth, inefficient governance, and exploitation of private benefits that otherwise would increase the cost of debt for the corporation and bondholders.

2.5 HEDGING CURRENCY RISK

If a company receives cash flows or income in different currencies than their domestic currency, they are exposed to exchange rate risk. A common way to deal with this is to issue debt in foreign markets and or denominated in the currencies which they expect to receive the cash flows and income in. This is a method called straight hedging, and offsets the risk of a fluctuating value of the underlying. Another alternative is cross-hedging, which implies that the firm issues debt denominated in currencies that is correlated with the underlying cash flow's currency. When hedging with debt, it is important to notice that issuing debt only provides a suitable hedge for revenues. For many firms that do business abroad, an equally important factor is the costs that materialize. Issuing debt to hedge the cost, however, only increases the exposure towards the currency rather than decrease it.

Kedia and Mozumdar (2003) found strong evidence that debt issuance in foreign currency is related to foreign activity. Furthermore, they showed that the significance of this factor is consistent with foreign debt playing the role as a hedging instrument. In the results they found evidence of both straight and cross hedging. Also Elliott, Huffmann and Makar (2003) found a strong relationship between the exposure to foreign currency and the level of foreign-denominated debt for US multinational firms. Additionally, they found that the foreign denominated debt is negatively correlated with foreign denominated derivates. This supports the evidence that the debt is used for hedging purposes.

Firms that have international relations, either through production, export or investments abroad are known to hedge their cash flows denominated in foreign currency. The method of hedging cash flows and income has through times varied somewhat, owing to different types of financial vehicles evolving and a constantly increasing globalization of business. Elliott,

Huffmann and Makar (2003) find that due to a large quantity of derivatives used in the end of the century, foreign denominated debt is increasing as the popular vehicle to hedge with. But hedging the cash flows with bonds in a foreign denominated currency does not dictate the choice of market. The currency market is like most other capital markets globalizing at and equally fast pace. In large marketplaces like London Stock Exchange and NASDAQ, it is common that firms issue bonds denominated in a wide variety of currencies. The most common bonds are the individual Eurobonds, and Global bonds that have multiple currencies.[2]

[2] Tawatnuntachai and Yaman, "why do firms issue global bonds" (2008)

3. THE NORWEGIAN MARKET

Norway is both a small and a fairly young nation in the world market. It does, however, have several distinctive features that make it different from other nations. Starting off by going back to the first issued bond should help to emphasize the importance of government involvement in the corporate ownership and governance. This part aims to give an overall illustration of the Norwegian industries, bond market and the government's role in the corporate market.

3.1 HISTORY OF BONDS

The first bond issued in Norway was by the Norwegian state in 1820, six years after the country's independence. It was issued in Berlin, but owing to high interest and administration costs, it was regarded as a national disgrace. Most bonds between this period and WWI were either issued by the Norwegian government or by the state bank, Kongeriket Norges Hypotekbank, which was established in 1851. Until 1920 the bonds issued were mainly characterized by extremely long-term maturity lasting 20 – 60 years. Most of the government bonds were issued on European markets, while the Hypotekbank issued most of its bonds on the domestic stock exchange in Oslo. In the pre-WWI period money was pegged to the metals silver and gold. This meant that there was relatively low or no volatility between currencies[3]. Government bonds were therefore issued in multi-currencies. The coupons of bonds denominated in Norwegian Kroner from the Hypotekbank were also paid out in Swedish and Danish Kroner. The bond markets in Europe were thriving, with a second-hand market much larger and more liquid than the issue market. The mean yield differentials for Norwegian bonds in Europe were very low, indicating trends today associated with an efficient market. Europe was therefore considered as one market.

During the period between the world wars a lot changed in the bond markets which caused increased fluctuations in the currency exchange rates. This implied that the multicurrency bonds issued by the Norwegian government had different yields and prices depending on currency. Bondholders wanted their coupons to be in appreciated currencies, thus creating arbitrage situations. In the 1930's a new legislation was introduced which prevented the flow

[3] Chapter 4, "bond markets and bond yields in Norway", Jan T.Klovland, Norges-Bank.no, referenced; Feb 2010

of bond capital across borders. This made the strong international bond market turn more towards domestic issuances. Government bonds soon dominated the Oslo Stock Exchange and were denominated in NOK.[4] It was also in this period that the Norwegian market first started attracting private corporate bonds. Initially they started off small, financing building projects and mortgage loans. As they proved successful the issuances increased both in amount and size.

WWII caused the bond market activity in Norway to shrink noticeably. Most of the remaining bonds issued were the government's bonds financing the Wehrmacht claims.

The period from the end of WWII until 1979 was dominated by the ruling and regulations of the authorities. The interest rate started at 2.5 percent in 1946 when the newly issued bonds were basically controlled for both amount and price. Despite increasing market pressure the interest rate was administratively fixed, only changing 6 times up until 1979[5]. There were, however, certain changes in this period especially concerning the corporate bonds. The credit enterprises experienced a large increase in activity and, despite quotas restricting their bond financing, these institutions consolidated their importance. Also, the government approved the first industrial companies to issue bonds. These approvals were mainly granted for purposes that were favoured by the authorities – mainly export-orientated manufacturing companies or projects associated with electricity.

In 1980 the government turned on their strict monetary policies and started a deregulation process of credit markets. The bond market was largely affected by dismantling control of new issues and bond investment requirements for financial intermediaries. At the end of the decade the control measures were removed from the market and returned to the normality of 50 years earlier[6].

The reaction led to many new issues driven by both credit enterprises and private industrial companies. The issues were often small, which resulted in infrequent trading once released on the second-hand market. With the market regulations normalized and credit flowing more

[4] Chapter 5 – "three busts and booms involving banking crisis in Norway", Karsten R. Gerdup Norges-bank.no referenced; Feb 2010

[5] Chapter 4, "bond markets and bond yields in Norway", Jan T.Klovland, Norges-Bank.no, referenced; Feb 2010

[6] "Shaken or Stirred? Financial Deregulation and the Monetary Transmission in Norway", G.Bårdsen and Jan T. Klovland,(2000)

freely and rapidly, the loan portfolios eventually revealed a lot of bad loans. Restructuring the debt became a problem, causing failure for many lead credit enterprises. Many of the survivors ended up with bad credit ratings. On the industrial side, the stock market crash of 1989 became a worldwide phenomenon affecting Norwegian industry which was very dependent on export. With the high interest rates starting to fall at the end of the 1980's, many bond issues were called. From 1990 there was a vast reduction in private bond issues to just above 20 for credit enterprises and 10 for industrials[7].

3.2 CENTRAL INDUSTRIES

Most of Norway's wealth comes from exports and imports, where the main export products are refined primary resources. On the top of the list is the export of oil and gas. Discovered in the late 1960s, oil and gas gave Norway a large boost in its economy and development. Most of the oil and gas extracted from the Norwegian reservoirs is exported. In 2010 it accounts for 50% of all exports and 34% of the government's revenues. Norway is also the fifth largest provider of oil and the third largest of gas in the world[8]. The experience and technology which followed the extraction has also given rise to the growth and development of Norwegian companies in the supporting fields of oil extraction such as oil exploration, subsea operations and drilling.

Norway is one of the world's leading countries when it comes to hydroelectric power. It produces in total 4 times the amount of energy it needs[9], with hydroelectric power covering almost the whole domestic demand. Because the production of hydropower cannot be stored, it has a seasonal trend for both consumption and production. However, the net export is normally positive, with European countries as the main buyers[10]. The dams and waterways experienced a building boom in the late 1980s and early 1990s. Since then the expansion has been strictly regulated. These dams and hydro plants are in most cases owned by the local government, but governed as individual firms[11].

Norwegian Shipping has its roots all the way back to the Viking Age. Having been among the leading countries in innovating ship technology and maritime law, Norway is today major

[7] Chapter 4," bond markets and bond yields in Norway", Jan T.Klovland, Norges-Bank.no, referenced; Feb 2010
[8] www.State.gov, April 2010
[9] Source: Tour of StatoilHydro's Oil and Gas plant at Mongstad, 2006
[10] Statnett.no, April 2010
[11] Regjeringen.no, April 2010.

league player in the international market. The figures for 2001 show that the Norwegian shipping industry was the 3rd largest shipping nation in the world, and transporting 10% of the world's tonnage.[12]. This is also an industry where the firms have been founded by entrepreneurs and families rather than the government. It is also one of the larger industries in Norway that is not based on primary resources.

Norwegian salmon is the country's second largest export product. Norway is a world leader in fishery and fishfarming. Like shipping, this is also an industry mainly built by entrepreneurs rather than the government.

3.3 THE GOVERNMENT'S CORPORATE INVOLVEMENT

At first, Norway was mainly dominated by the primary sectors and the general population was poor. Because of this, the government has played a significant role in developing the nation's business market and wealth. Lacking both prosperity and current resources, Norway was forced into the bonds market early, as already mentioned in section 3.1. It was, therefore, quite some time before secondary and tertiary sectors, being more capital intensive, became central contributors of GDP.

Norwegian law states that an array of natural resources originating from Norwegian territory belongs to the government, and hence the common wealth of the Norwegian people.[13] At the beginning of the 20th century some of the wealthier families and merchants invested more significantly in business and created some of the larger corporations still existing today, such as Orkla, GC Rieber and Norsk Hydro. Except for Norsk Hydro, none of them extracted natural resources. Investing in the areas covered by the laws related to extraction of resources was dominated mainly by the government. This was not, however, unexpected. The law stated that any excess return made on the resources would pass to the state. The initial and investment costs were also extremely high. Many state-owned companies such as Norske Skogsindustrier, Statoil, Statkraft and local energy companies related to hydropower are examples of this. Apart from the corporations within natural resources, the state was also founder of amongst others Telenor, Kongsberg Gruppen and partially SAS.

[12] Regjeringen.no, June 2010.
[13] lovdata.no, Lov om erverv av vannfall og bergverk kapittel 1§1, and "Lov om undersjøiske naturforekomster" §2, June 2010.

The revolutionizing discovery of oil in the North Sea gave Norway a large upswing in wealth. As well as Statoil growing to become one of the world's larger oil companies, the gains from taxes and royals from the oil was transferred to a sovereign fund, today called the "Oljefondet". One of its investment strategies is to serve the Norwegian society as much as possible through investing in Norwegian companies.[14] It must be noted that, though the fund is owned by the state, the ownership does not affect the governance or investments beyond the guidelines originally state in the fund's purpose. This will be described in more detail later.

By the beginning of the 21st century the more liberal parliament decided that some state companies were starting to get so large that they were best governed as individual entities. Among the more known corporations affected were Statoil and Telenor. The new corporate structures had state-owned majorities of between 53% -68% with 32% - 49% publicly listed and the state assuming a more passive governance role. [15] This is also expressed in figure 1, where the green line does a sharp turn up 10% in 2001. The increase is due to the government owning large stakes in the newly listed large firms.

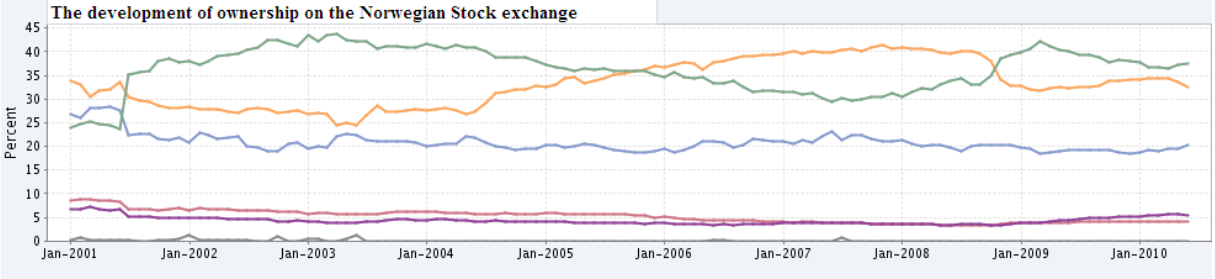


Fig. 1. The development of ownership on the Norwegian Stock exchange. *The figure shows the proportions of ownership in firms on Oslo Børs. Green: Central and local government, orange: Foreign investors, blue: private firms, pink: private investors, purple: mutual funds, grey: others. Source:VPS*

Since 1990's and up until today the Norwegian government holds large positions in a lot of Norwegian listed companies. Examples are Norske Hydro, Yara International, Aker and Orkla. The government generally keeps a semi-passive ownership where they do not issue any specific security backing, nor do they directly affect the governance of the companies. Their involvement is mostly in terms of expressing expectations related to topics such as business moral issues and in ways of protecting Norwegian interests. This is also how they relate to the sovereign funds, which act as normal investors, but with guidelines.

[14] "Petroleum economics: issues and strategies of oil and natural gas production", Rögnvaldur Hannesson
[15] Regjeringen.no, "Eierskap av Statoil og fremtidig forvaltning av SDØE" March 2010, and Stortinget.no, "4.Delprivatisering og børsnotering av Telenor"

Of the small amount of research that has been committed to discovering patterns in capital raising through debt, most of it has been towards the more liberal US and British markets. Both countries have quite different politics and constitutional frameworks from Norway. US corporations are dominated by private or public ownership, and post-Thatcher Britain has many of the same features.

This section tries primarily to illustrate that the level of privatization in Norwegian corporations cannot be compared in full with the more open markets. While discarding firms due to state involvement does not largely affect the outcome in US, UK or other more liberal countries, discarding the same firms in Norway would drastically reduce the already small number of issuing firms. However, as long as the government only plays a passive ownership role in the firms, either through their own directives or through sovereign funds, the findings on firms in Norway may realistically be compared to other benchmarked countries.

3.4 OSLO STOCK EXCHANGE

Oslo Børs is the only Norwegian stock exchange where bonds are listed and traded. It is a small stock exchange in comparison to many of the large bourses and stock exchanges in Europe and the world. It holds a substantial selection of firms covering a considerable variety of sectors, and is often referred to as a stock exchange for commodities. However, over 50% of them are related to either Energy or Oil and Gas. It is also the world's leading stock exchange for the fish-farming industry, as well as holding a large number of the world's shipping bonds[16].

In order to attract a larger investor base and make Norwegian stocks and bonds more accessible, the stock exchange cooperates with the London Stock Exchange Group (LSEG). This cooperation is fairly new (2009), and is a replacement of the previous contract with NASDAQ OMX. Through these networks the Oslo Børs shares members and trading systems with several other stock exchanges around the world. Oslo Børs has today 57 members, where 33 of them are of international origin[17]. This shows the importance of the role which foreign investors play on the Norwegian market.

[16] Oslobors.no May 2010
[17] Oslobørs.no May 2010

The traditional section of Oslo Børs is required to follow all directives from the European Commission (EC) owing to the agreement of European Economic Area (EEA). In 2006, the EC put new directives into effect requiring listed firms in Norway to use IFRS in their consolidated accounts[18]. As a reaction to this, Oslo Børs established the Alternative Bond Market, ABM, in 2005. This functioned as an unofficial market place organized and administrated by Oslo Børs in order to avoid the strict rules of the EC. In other words, it functioned like the traditional exchange, but adopted simplified application process and prospectus regulations[19].

3.5 BOND MARKET TODAY

The Norwegian corporate bond market follows two main benchmarks for the domestic market. The first benchmark is the government bonds. With its large wealth as its backing, Norwegian government bonds are rated top of the class at all rating bureaus, and serves therefore as the benchmark for risk free investments. The second is the Nordic interbank offered rate, NIBOR, which projects the interbank rate on loans in the Nordic region. In terms of credit default swap rates there are only the iTraxx indices that cover Europe and Asia. They operate either as total market indices or specifically on industries. These second hand market rates do, to some extent, affect the issuing market. However, the iTraxx has Telenor as the only Norwegian firm, and has therefore a minimalistic influence on the domestic market.

In order to set the correct price or yield on any bond being issued, the market must be large enough to be able to supply a sufficient amount of liquidity. This is a problem in Norway, as it is relatively small market. Compared to its neighbours, Sweden and Denmark are considered twice and four times larger, respectively. In an attempt to increase the liquidity, many of the government's sovereign funds, such as "Folketrygdsfondet", "Oljefondet" and "Pensjonsfondet" have instructions to do a certain amount of investments in the domestic market. An important feature in this strategy is that the funds are independent of the government and aims therefore to maximize their profits like any other investor. The fund "Folketrygdfondet" is one of the largest funds, holding 4.9 % of the total domestic

[18] Estandardsforum.org/Norway/ May 2010
[19] Osloabm.no, May 2010

bondmarket. They hold 3.1% of the total corporate market, excluding the financial sector[20]. Figure 2 illustrates the proportion of bonds the fund holds.

Historically, there are very few incidents of issuers defaulting on their debt. Despite this, only a minimum of the bonds issued are rated by the recognized rating agencies of Standard and Poor, Moody's and Fitch. In fact, there are so few, that many databases choose not to collect the data on ratings. For international investors, portfolio managers and hedge fund managers that base large parts of their analysis on ratings, only a few firms stand a chance of being included in the portfolios. A normal assumption among investment banks is that if the firm or bond is not rated by Standard and poor, or Moody's, it is considered non-rated[21]. There are, however, some smaller agencies and banks that rate Norwegian firms. DnB NOR, Nordea and

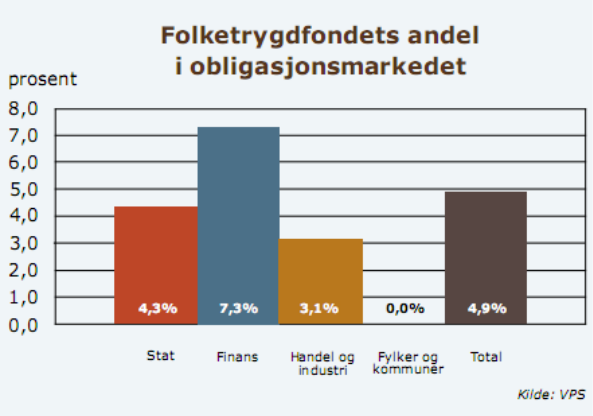


Fig. 3. "Folketrygdfondet"'s domestic bond involvement. *Illustrates the proportion in which the Sovereign fund has invested in the Norwegian bond market. Source: nftf.no, VPS*

Fig. 2. Investor groups in the Norwegian market. *Source: nftf.no, VPS.*

Dun & Bradstreet all produce ratings for the Norwegian market, but are less recognized and are often subjected to criticism for having a conflict of interest. For the banks, the ratings are largely used for their own and their clients' use. Fortunately for the firms issuing bonds, investors don't only look at ratings. As described under section 3.2, the Oslo bourse has a large proportion of international investment banks and investors, despite the few ratings[22]. Figure 3 illustrates the proportion of investor groups in the domestic market.

[20] Ftf.no, "det norske obligasjonsmarkedet" 2009.

[21] Source; DCM contact at Credit Agricole, Paris.

[9] Ftf.no, "det norske obligasjonsmarkedet" 2009

Norway and Norwegian bonds are ranked with the highest score for creditworthiness[23]. Every aspect of risk is calculated into the ratings of firms, including sovereign risk. With a national risk assessment at the top of the class, the ratings of Norwegian firms are therefore more affected by the industry and their own actions and business.

[23] Euromoney.com Bi-annual survey which monitors the political and economic stability of 185 sovereign countries, according to ratings agencies and market experts. 2010

4. DATA – CONSTRUCTING A DATABASE

Databases normally collect and hold only a limited array of data types. Being a small country, Norway is not noticeably represented in international databases and Norway's own databases are fairly specialized and dedicated. The main categories of data tested in this thesis are related to bond issuances - both domestically and abroad, and to firm characteristics from financial income statements, currency rates, market indices and stock market values.

This part aims to illustrate and describe the origin, criteria, characteristics, experienced problems and decisions made on the applied dataset. This part ends with a description of the literary sources for methods and empirical data with which the results in the analysis are compared.

4.1 TIME FRAME

The timeframe of the analysis is set to 1998 – 2008, and includes only bonds issued in this period. This is in line with the intention of the thesis giving an empirical analysis based on recent historical activity. In addition, there were limitations on the available data from financial statements before 1998, and most Annual Reports for 2009 were not published at the time. A ten year aspect should suffice to empirically characterize the activity and patterns of today's market. There have been both booms and busts in this period, and Norway was especially affected by the bank crisis of 2002-2003 and the recent international financial crisis of 2008.

4.2 CRITERIA FOR FIRMS

There are many firms and institutions that can issue bonds with various intentions and to cover different financing needs. Since this thesis focuses on the corporate bond market, the selection of bonds must be limited to firms that are somehow listed in the public market. This initially rules out all bonds issued by national, regional and local government and government agencies. However, there have been made some exceptions owing to the positions and structure in the corporate ownership, which was explain in section 3.3.

Investment institutions such as banks and funds, credit institutions and other real estate trusts as well as bonds that are mortgage-backed or other asset-backed were excluded from the dataset.

4.3 BOND ISSUANCE DATA

The data on bond issuance in Norway is collected from the database of Norwegian Trustee Service, and covers all issuances registered with the Norwegian Central Securities Depository, VPS. Norwegian companies are, by law, obliged to report any issuance of bonds to VPS. This law was put into action 1996, and applies therefore for the whole of the thesis' time frame. Hence, the database should hold all domestic issues.

The law obliging firms to report bond issuances does not apply for issuances in foreign markets. The data on international bond issues comes therefore from Thompson Reuters' Security Data Corporation's (SDC) New Issues Database. The database provides transaction-level information on new issues of bonds with an original maturity longer than 1 year. For these reasons the dataset does not include debt with maturities shorter than this.

The criteria for the data in SDC are Norwegian domicile, and exclusion of the macro industries Finance and Government. The search also excludes the bonds that are meant for the domestic market. There are also a fair amount of issuances listed in the domestic markets but which are denominated in foreign currencies. The bond data holds both public and private issues, convertible and non-convertible bonds, and fixed and floating rated bonds.

4.4 DIVIDING INTERNATIONAL AND DOMESTIC

Many of the domestic issues state that the target market is both Norway and Europe. Since bonds are listed in Norway and in the VPS, they are considered domestic issuances. Among the firms issuing debt abroad, a large portion also issue debt domestically. These firms are regarded as international issuing firms, and are not included in the domestic dataset, and therefore do not affect the patterns of the domestic issuers. By doing so the results will illustrate patterns for firms *only* issuing debt domestically, opposed to the firms issuing internationally. When it comes to subsidiaries and companies wholly or partially owned by Norwegian firms, they are considered independent firms. This is intuitive since the subsidiaries have separate management and accounts. Some of these are also of foreign origin. Examples are Kyvistar and Norske Skogsindustrier Canada. These are considered foreign firms, and therefore fail to meet the criteria for the Norwegian based dataset.

4.5 FINANCIAL INCOME STATEMENTS

The firm level characteristics and figures form the largest dataset in the thesis. The main source for this data was the Bourse project from NHH. Though the database is mainly concentrated on stock and bond prices and indices from Oslo Stock Exchange, OSE, it also recently added the function of serving financial income data. The Financial income data covers all companies listed on the OSE. A problem was that many of the firms issuing bonds are small or medium firms not registered on the OSE. These are mostly firms that are traded OTC, and list their bonds on the Oslo Alternative bond market, ABM. As described earlier, this marketplace is an unofficial market place, and clears both EU directives regarding IFRS requirements. The result was a large quantity of missing data on several firms. So as not to lose any valuable observations, the missing values were filled in by acquiring the data from the databases of proff.no, ravninfo.no and published reports on various firm websites. Unfortunately, there were firms that still had significantly large amounts of data missing. These few firms were along with their bond data excluded from the data set.

4.6 OUTLIERS AND CRITERIA FOR OBSERVATIONS

Some of the industries in the dataset exposed to extreme and fluctuating capital intensiveness. A normalized cash flow may prove hard to sustain, which means the financial statements and key ratios fluctuate considerably. For example, the initial investment costs of oil exploration are very high. At the same time, the income is often connected to completion of contracts and projects, meaning that the time of income may be uncertain and arrive in large batches. For the dataset this means a large case of outliers and sudden changes. Normally, outliers would be removed so that the regression would not be biased by the observations. The Norwegian market, on the other hand, is especially exposed to industries with these characteristics. Removing outliers, and with it valuable information, would give a more unbiased mean. Since this is considered a normal property of the market, it is therefore appropriate to use the median as a more representative coefficient. Hence the effect of outliers is reduced and the information is still implemented into the analysis.

4.7 EXCHANGE RATES

Some of the financial income data is stated in US dollars, USD. Also the bonds issued abroad are denominated in foreign currencies. The SDC database which holds this information also

states the principal or tranche amount of the issue in USD. To be able to compare the amounts with domestic amounts in Norwegian Kroner, NOK, the USD is converted to NOK by the historic, daily averaged exchange rate given by the Central Bank of Norway. The list is found in Appendix 8.2

4.8 CREDIT RATINGS

Credit Ratings are an important part of the everyday bond market. The ratings of Standard and Poor, Moody's and Fitch are fairly available through the SDC database used for international bond data. Historical credit ratings were, however, not easily available. The historical data used in the thesis, was found through access to a Bloomberg terminal. The choice of using Standard and Poor as the international agency was merely based on available data. The firms rated by S&P were also checked towards the ratings of Moody's and Fitch. The result showed that they had the same firms and ratings.

Unfortunately, acquiring the historical ratings from the less recognized rating agencies of Dun & Bradstreet and DnB NOR, required too much extensive work from the agencies and the data therefore became inaccessible to the thesis.

Since there were very few observations of the Norwegian firm, the analysis was based on the few observations available and conversations with the bond departments at DnB NOR in Oslo and Credit Agricolé in Paris.

4.9 SPECIFIC DECISIONS AND LIMITATIONS

With the data from different sources over a ten year period, there were certain issues that needed to be addressed and decided upon. This section will quickly describe some of the limitations and decisions made in creating the dataset.

Capex

Capital expenditure is defined as expenditures that create future benefits. It is a good and widely used coefficient to represent the level of investment in a company. This figure is usually stated in the cash flow statement. However, this was not available for the majority of the firms. So as not to discard the Capex and the information it holds, the alternative was to calculate it instead using the following equation:

Capex = Change in total assets - Change in total liability[24]

Size of issue

When issuing a bond, there is a distinction between the available size of the issue and the actual size issued. A bond contract usually has a maximum principal amount which the firm can issue. A common method is for the firm to initially issue a so called tranché, with means a slice, of this maximum amount. Later the firm may issue several tranches until the maximum amount is reached. The question is: which amount is considered to be the size of the *issue*; the first tranché, the maximum principal amount, or the total amount of tranches issued? This is an issue rarely defined or discussed in other papers. In this thesis the choice falls upon the first tranche. The reason for this is that the amount issued in the first tranche represents the firm's choice of optimal amount to issue at that specific time. The maximum principal is often not issued at all. In that sense, each tranché should be considered a separate issue. Unfortunately, data on individual tranches issued after the initial one, was not available. The size of the bond issue is therefore represented by the first tranche.

Changes and Differences in the definitions of accounting standards.

Though International financial reporting standards, IFRS, and Statement of Financial income standards, SFAS, have brought the financial world closer together, there are still some differences. Most of the differences are found in either the basic layout of the financial reports, or in the definitions of the various posts.

Using different databases, the issue of Operating Income seemed to differ. While some defined it as revenues or sales, others defined it as net operating income. In accordance with the majority of the dataset, the operating income is defined as revenue or sales. The net operating income data was therefore altered accordingly.

There also seemed to be a difference in the definition of Equity. According to IFRS, the minority interest is a part of the equity. When defining the different firms' equity, the majority of the data excluded the minority interest, while some included it. In 2007, the Financial accounting standard board, FASB, changed the status of minority interest from a liability to equity. The change therefore only applied to 2008 in the dataset. Since the majority of the

[24] Managerial Accounting by James Jiambalvo, Chapter 7: Capital Budgeting Decisions

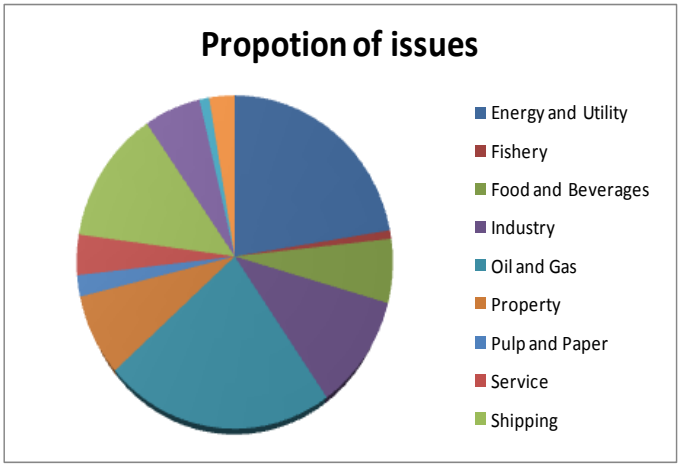
data considered minority interests as liability also for 2008, all the figures of 2008 were adjusted, defining minority interest as a liability. This was done with the intention to remove any bias in the equity figures from 2008.

Changing of names

Over a ten year period some firms changed ownership or names. This created a slight problem related to which firm issued which bonds. An example is Statoil, which has been registered with many names: "Statoil ASA" twice, before and after "StatoilHydro", as well as "det norske oljeselskap". The last name was originally used for Statoil when it was wholly owned by the government. Their new bonds also bore the name a while after they partially went public. The company is named Statoilhydro for the dataset, although the data includes both the time when it was Statoil as well as StatoilHydro. Other companies have been through similar processes, and been treated equally.

4.10 FINAL NUMBER OF OBSERVATIONS AND FIRMS

The finalized and total dataset consists of 412 domestic issuances and 73 international issuances. The total set comprises 124 firms, where 111 of them issue only domestically, and 15 firms issue internationally. The firms are divided into 12 different industries. Figure 4 illustrates how the firms are spread among the industries. The two largest industries are *Oil and Gas* and *Energy and Utility*, respectively representing 22.89% and 22.47%. The two least representative are *Transportation* and *Fishery* covering 1.03% and 0.82% , respectively. The proportion and numbers are illustrated in figure 4.



Industry	Number of issues	Propotion of issues
Energy and Utility	109	22.47%
Fishery	4	0.82%
Food and Beverages	30	6.19%
Industry	53	10.93%
Oil and Gas	111	22.89%
Property	38	7.84%
Pulp and Paper	10	2.06%
Service	19	3.92%
Shipping	64	13.20%
Telecom/IT	29	5.98%
Transportation	5	1.03%
Wholesale and Retail	13	2.68%
total	485	

Fig. 4. The proportion and number of industries represented in the dataset.

4.11 OTHER EMPIRICAL ANALYSES

As mentioned earlier, there has be conducted very little research and literature that cover international issuance of debt. However, there are some fairly recent articles that have been published. These articles play an important part in this thesis as they represent benchmarks and provide an expectation for the results from this analysis on the Norwegian market. Some of the methods used in these articles are approximated in this thesis, in order to create compatible results for comparison.

The following articles are described according to their content and in which way they are used in this thesis. Their results are compared and described sufficiently in the analysis, and will therefore not be described or illustrated in this section.

4.11.1 "Patterns of international capital raisings", by Gozzi et al (2010)

The article was recently issued in the Journal for International Economics and focuses on the patterns of both equity and debt issuance in the international market versus the domestic market. It is based on firm level characteristics from several countries worldwide. Norway is represented, but only as an accumulated group of the small European countries. It seemed therefore appropriate to do a more detailed analysis of the Norwegian firms and use these worldwide patterns as benchmarks. Their time frame covers issuances from 1991 till 2005. Though there is a 3 year gap between this time frame and the one of this thesis, the results are still highly compatible. Many of the analytical methods from this article have also served as methods in this thesis.

4.11.2 "Why do firms issue global bonds?" by Tawatnuntachai and Yaman (2008)

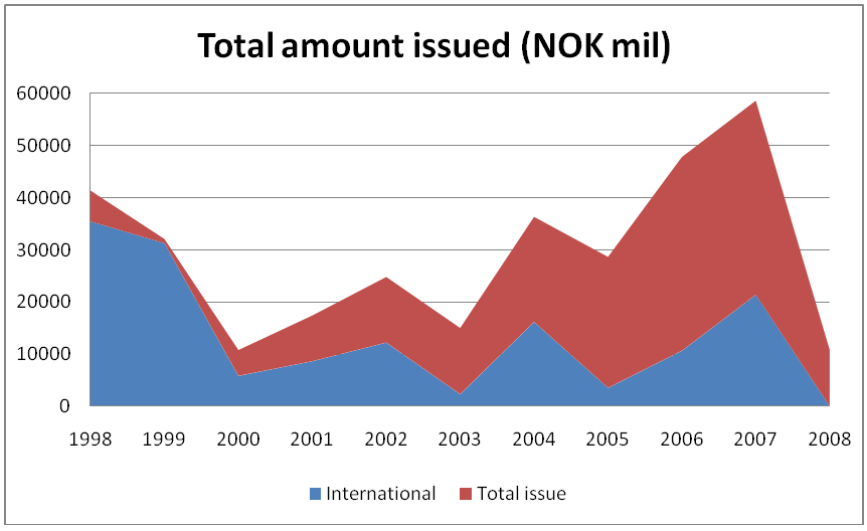
The article was published in the Journal of Managerial Finance in 2008, and focuses on motivations for firms issuing global bonds versus domestic bonds. There analysis is done on the US market alone, and covers the time frame of 1995 – 2001. Because the article's time frame is quite different from the time frame of the thesis, it does not serve as an optimal benchmark. Also the firm level characteristics are more focused on issuance characteristics rather than the firms' financial characteristics. Their results are, however, interesting in providing references and expectations. The article brings a lot of insight into this otherwise less covered topic, and several of the methods were useful as guidance.

5. THE ANALYSIS

Having described the dataset and details concerning the Norwegian bond market, the focus now turns to the analysis. This part is organized so that the first sections analyses descriptive statistics on the aggregated features of bond issuances. The second part analyses the firm level characteristics and the final part analyses surrounding elements of issuing bonds. It is important to notice that for the sections sorted by issues, the data is divided by issuing market. This applies for section 5.1, 5.3 and 5.5. The sections sorted by firms, are however divided by the firms issuing abroad and domestically. This applies for section 5.2, 5.4, 5.6 and 5.7. To avoid disrupting the flow, the more detailed calculations can be found in the appendixes. .

5.1 DESCRIPTIVE PATTERNS OF AGGREGATED BOND ISSUANCES

Starting with the basics, figure 4 provides a descriptive graph and table of the aggregated size of bonds issued per year. The blue area shows the international issuance, and the red area the total amount issued. The red part is also an illustration of the domestic issuance.

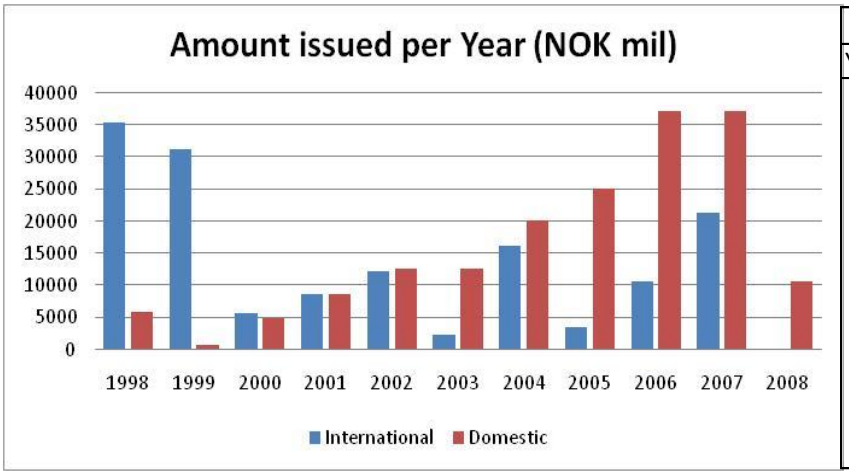


	Total amount issued	
Year	International	Domestic
1998	34347	5909
1999	14449	809
2000	7964	4949
2001	7061	8770
2002	20398	12580
2003	2631	12700
2004	17478	20153
2005	8219	25107
2006	6992	37141
2007	25017	37204
2008	0	10786

Fig. 5. Aggregate amount of bonds issued in million NOK. *This figure shows the activity in terms of aggregation of issuance per year for both the international and the domestic issues. Data are in 2008 Norwegian Kroner.*

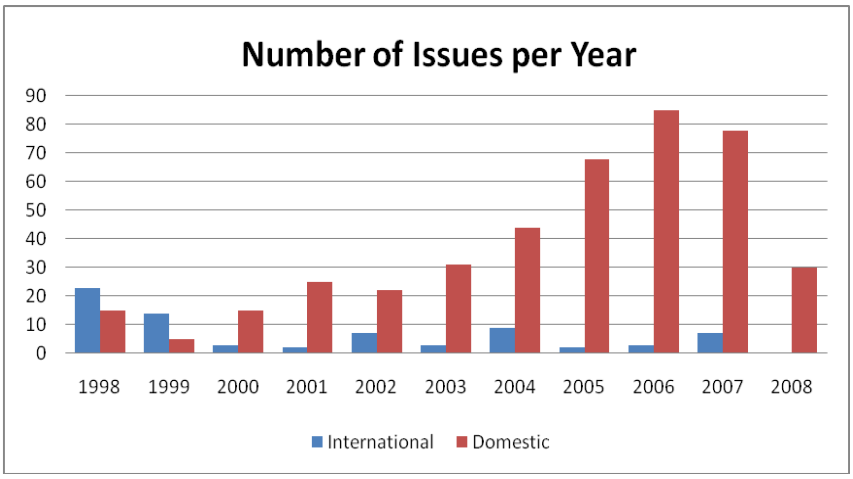
The figure shows a fairly volatile evolution of bond issuances. While the domestic proportion seems steadily to increase, the international proportion varies considerable. The total amount issued peaks at 41 000 million NOK in 1998 and 58 600 million NOK in 2007. The years 2000 and 2008 experience troughs, both with total issues only 10700 mil NOK. Figure 6 shows these figures more precisely divided into international and domestic issues. International bond issues appear to be at their highest in 1998 and 1999, accounting for 86%

and 93% of the total amount, respectively. The levels are otherwise fairly varied and low for international issues. Domestic issues have a growing trend both in proportion to total bonds issued and in absolute amount. The peak is 2006-2007 where both years are close to 37150 million NOK.



Percentage of total amount		
Year	International	Domestic
1998	86%	14%
1999	97%	3%
2000	54%	46%
2001	50%	50%
2002	49%	51%
2003	15%	85%
2004	45%	55%
2005	12%	88%
2006	22%	78%
2007	37%	63%
2008	0%	100%

Fig. 6. Amount of bonds issues 1998 – 2008 for international (blue) and domestic(red). *Data are in 2008 Norwegian Kroner.*



Percentage of number of issues		
Year	International	Domestic
1998	61%	39%
1999	74%	26%
2000	17%	83%
2001	7%	93%
2002	24%	76%
2003	9%	91%
2004	17%	83%
2005	3%	97%
2006	3%	97%
2007	8%	92%
2008	0%	100%

Fig. 7 Number of issues per year for international(blue) and domestic(red). *The absolute number is illustrated in the graph while the relative amount of issues is listed in the adjacent table. While international levels fall permanently below 10 since 2000, domestic numbers increase steadily since 1999 and peak a year before the financial crisis in late 2007.*

Figure 7 shows that the trends are similar for both the number of issuances and the total amounts. 1998 and 1999 has the highest number of issues of 23 and 14, whilst it is considerably lower for the rest of the period. As for issuances domestically, there is a steady growth in the number of issues from the lowest number of 5 in 1999 to 2006 when there are 85. Interesting for both international and domestic is the year of 2008, when the financial crisis hits the market. This year there were no international issuances at all, while the domestic market saw a sharp reduction of 61% in number of issues, and 71% in terms of total

amount. It's also remarkable to see the reduction in international markets from 1999 till 2000, where the international issuances were reduced by 78% in number of issues and 81% of total amount.

Gozzi et al (2010) found a continuous increase in international issuance worldwide. Their findings and international patterns do not coincide totally with the findings in figure 6. Looking at international issues, they found that the total amount issued steadily increased from 1998 – 2005 whereas the pattern in figure 6 seems to rise 3 times, but then fall drastically each time. Though the peaks of each rise are higher, there seem to be factors that make them collapse and the pattern therefore becomes more cyclical than continuous. This suggests that the patterns depicting worldwide activity do not fully coincide with the Norwegian activity. Intuitively, this also makes sense considering how national policies and events are limited to affect the country's firms economically, e.g the Scandinavian bank crisis of 2002-2003. Also, the low number of issues observed in this thesis, compared to the worldwide analysis, makes the Norwegian pattern more sensitive and thus more volatile to small national events. Though this may also harm the analysis, it is also important information for the patterns of international issuance in the Norwegian market.

The pattern for the domestically aggregated amount issued, illustrated figure 6, seems to coincide well with the patterns of capital raising in the developed countries Gozzi et al's (2010) paper. They also find a steadily increasing amount issued through bonds. The pattern of the amount issued in the international market seems, however, to coincide better with the patterns of capital raising in the developing countries. They both project a small amount issued with a following high volatility.

Summing up, *firstly*, despite having much fewer issuances, the international market has a generally high total amount issued. This suggests that the size of each issuance abroad is of a larger character than the domestic.

Secondly, the favoured choice of market to issue bonds in appears to change dominance over the time period. The International market is clearly dominant in the start of the period 1998 – 1999, issuing 86% and 97% of the total amount. From 2000 – 2002, however, the amount issued in both markets is fairly equal, and from 2003 – 2008 the domestic market is clearly the dominating market, with 85% of the amount issued in 2003 and 88% issued in 2005.

Finally, the radical change in issuance in 2007 and 2008, both internationally and domestically, suggests that the choice to issue bonds is very affected by macroeconomic factors. The Norwegian domestic business sector was not as strongly affected by the financial crisis as other countries like US and Euro countries. Issuance in the domestic market dropped from 78 issues to 30, and issuance in the international market dropped to from 7 to 0. Since there still were issues in the domestic market, this may suggest that the choice of international issuances is more sensitive to macroeconomic activity and conditions than the domestic market. However, it may also be a result of so few issues in the international market, in which there is no way to distinguish between the magnitude of the two markets' reaction.

5.2 FIRMS ACCESSING THE INTERNATIONAL MARKET

The aggregate figures have so far depicted the main trends of issuing bonds, and provided a first insight as to how the activity in international and domestic issuance has performed over the given time period. They do not, however, explain the movements and activity at firm level. The next two sections will illustrate this more in detail.

Descriptive statistics of the firms' issuances						
Domestic						
Year	No. of firms issuing	% of firms issuing	Number of issues	Mean number of issues per firm	Average issue size	Average issue size relative to
1998	*10*	*63%*	*15*	*1.50*	*394*	*26%*
1999	*4*	*57%*	*4*	*1.00*	*183*	*18%*
2000	*12*	*80%*	*15*	*1.25*	*330*	*12%*
2001	*18*	*90%*	*25*	*1.39*	*351*	*10%*
2002	*8*	*73%*	*22*	*2.75*	*572*	*20%*
2003	*18*	*95%*	*26*	*1.44*	*410*	*47%*
2004	*27*	*84%*	*44*	*1.63*	*458*	*24%*
2005	*34*	*94%*	*68*	*2.00*	*369*	*9%*
2006	*56*	*97%*	*85*	*1.52*	*437*	*19%*
2007	*52*	*93%*	*78*	*1.50*	*477*	*13%*
2008	*16*	*100%*	*30*	*1.88*	*360*	*0%*

Table 1. Descriptive statistics of domestic firms' representation. *"% of firms issuing" is a percentage of the total amount of firms issuing in both markets. "No. of firms" includes the set of companies issuing abroad, given domestic issuance. Since the firm would represent both sides, it cancels itself out by representing both sides. The mean issue per firm is calculated from the aggregate sizes of columns 1 and 3. Average amount issued pr firm is the total amount issued divided by a weighted sum of issues. Column 6, the relative average issue sizes, are calculated by domestic numbers divided by the same for international. This illustrates the percentage difference between them. All data is in 2008 NOK value.*

Looking at Table 1, the number of firms issuing domestically shows a steady increase throughout the whole period, peaking at 56 firms in 2006. The average number of issues per firm per year lies between 1 and 2, with one exception in 2003. The average size of a

domestic issue lies mainly in the range of 500 – 300 with only two outliers. These figures show that the average size is fairly stable which means it is unaffected by the increasing number of firms. There is therefore reason to believe that the aggregate total amount issued is mainly a result of added number of issues and not an increasing issue size.

In table 2, the number of firms issuing internationally stays at a low level, with only 6 firms at their highest in 1998, falling to 1 as their lowest in 2003, and to 0 in 2008. With this the number of firms represent 38%, 3% and 0% of the total firms issuing for the respective years. The number of issues for 1998 and 1999 is especially high relative to the rest of the period. The reason for this is that StatoilHydro ASA alone issued 14 of the bonds in 1998 and 9 of the bonds in 1999. This makes the mean issues per firm for these two years biased. The average issue size varies between 3500 mill NOK and 1000 mill NOK, with only two outliers at 4109 in 2005 to 877 in 2003.

Descriptive statistics of the firms' issuances **International**						
Year	No. of firms issuing	% of firms issuing	Number of issues	Mean number of issues per firm	Average issue size	Average issue size relative to domestic
1998	*6*	*38%*	*23*	*3.83*	*1493*	*4*
1999	*3*	*43%*	*14*	*4.67*	*1032*	*6*
2000	*3*	*20%*	*3*	*1.00*	*2655*	*8*
2001	*2*	*10%*	*2*	*1.00*	*3530*	*10*
2002	*3*	*27%*	*7*	*2.33*	*2914*	*5*
2003	*1*	*5%*	*3*	*3.00*	*877*	*2*
2004	*5*	*16%*	*9*	*1.80*	*1942*	*4*
2005	*2*	*6%*	*2*	*1.00*	*4109*	*11*
2006	*2*	*3%*	*3*	*1.50*	*2331*	*5*
2007	*4*	*7%*	*7*	*1.75*	*3574*	*7*
2008	*0*	*0%*	*0*	*0.00*	*0*	*0*

Table 2. Descriptive statistics of international firm set's representation. *Owing to few observations the "Average issue size" is manually checked for outliers which may bias the results. Average issue size is in mill NOK. Unlike the domestic figures, "the average issue size relative to domestic" is here given as the multiple, e.g. for 1998 the international size is 3 times larger. All data is in 2008 NOK value.*

Comparing these two sets of statistics reveals that there are a few different patterns between the two markets. *Firstly*, issuing domestically is a preferred choice for the majority of the firms issuing bonds. This characteristic increases as the time period elapses. The international issues represent 38% of the firms in 1998 and 1999, but fall to a lowest point of 3% in 2006. This is mostly due to the great increase in domestic issues, while the international staying stable. The results contradict the patterns of Gozzi et al (2010) and Tawatnuntachai and

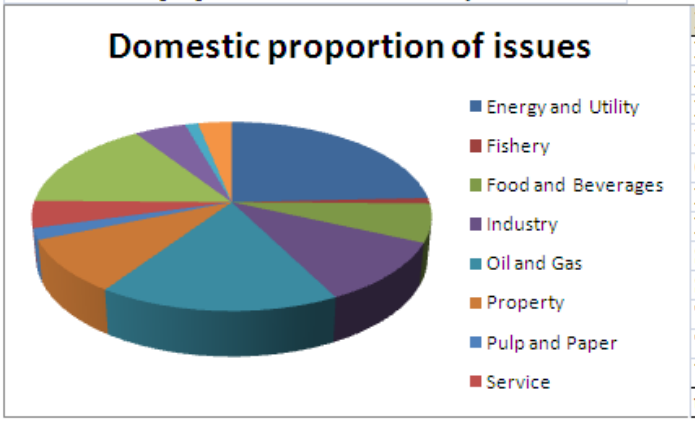
Yaman (2008), both of whom found a continuous increase in the trend of firms issuing internationally for the correlating periods.

Secondly, the average issue size is much higher for international issuances. This confirms the findings in section 5.1. Apart from the extreme event year of 2008, the average issue size is at its largest in 2005 (11 times higher international issues sizes), and at its lowest in 2003 (twice the size of the average domestic issuance). This shows that there is a clear difference in the size of the issuances in these two markets. It is also in line with the expectations projected by both Gozzi et al (2009), and Tawatnuntachai and Yaman (2008).

5.3 BOND ISSUING PATTERNS SORTED FOR INDUSTRIES

The results from the previous section showed that only a few firms are represented in the international market. Sorting the number of issues by industries, the spread is even smaller. The domestic market has all 12 industries represented, with the Energy and Utility sector most represented by 24.27%. In second and third place are Oil and gas, and Shipping, accounting for 16.99% and 15.53%, respectively. Figure 8 illustrates the proportion and number of issues for each industry.

The domestic proportion of issues sorted by industries



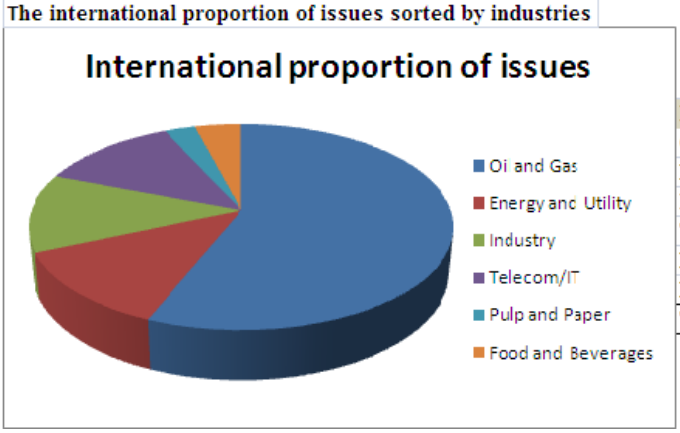
Industry	Domestic	Portion of issues
Energy and Utility	100	24.27%
Fishery	4	0.97%
Food and Beverages	27	6.55%
Industry	44	10.68%
Oil and Gas	70	16.99%
Property	38	9.22%
Pulp and Paper	8	1.94%
Service	19	4.61%
Shipping	64	15.53%
Telecom/IT	20	4.85%
Transportation	5	1.21%
Wholesale and Retail	13	3.16%
total	412	

Fig. 8 The domestic proportion of issues sorted by industries. *The column for domestic in the table states the number of issues in each industry.*

The international issues paint very different picture, however. Figure 9 illustrates the proportions of industries for internationally issuing firms. It shows that several of the industries issuing in the domestic market are not represented at all. These missing industries are Service, Shipping, Property, Wholesale and retail, and Transportation. Except for

Shipping and to some extent Service, these industries offer products or services that are more aimed at the domestic market. They are therefore not expected to do much exporting or other business in foreign markets. The industries issuing bonds internationally are, on the other hand, more prone to be doing business abroad, either by exports or production itself[25]. The only exception is the Food and Beverage, which is solemnly represented by the Orkla ASA. It must be noted, that Orkla ASA does business in many different industries beside Food and Beverage. To what purpose these bonds are issued, is not stated in the issuing documents. As described in section 3.2, the domestic demand for some resources are much lower that the supply. These industries produce goods and services that contain a larger domestic supply than demand. To demonstrate, Statoil Hydro ASA is the world's ninth largest producer of oil and gas and has installations all over the world, Telenor provides telecom solutions to Scandinavia, Eastern Europe and Asia, Norske skogsindustrier that are a world leading producer within pulp and paper products, and finally Yara International that is a world leader on fertilizer. Also, Norway and it's energy producing firms export large amounts of electricity to Europe. Unfortunately, the amount of business each firm conducted over the period was not accessible. The amount of business is therefore assessed only at industry level.

The international proportion of issues sorted by industries



Industry	International	Proportion of issues
Oil and Gas	41	56%
Energy and Utility	9	12%
Industry	9	12%
Telecom/IT	9	12%
Pulp and Paper	2	3%
Food and Beverages	3	4%
Total	73	

Fig. 9. The international proportion of issues sorted by industries. *The column international states the number of bonds issued*.

Since the number of observations in international issues was low, there were only a limited amount of patterns at the industrial level. One of the exceptions was the Oil and gas industry, which number of issues in the international and domestic market seemed to be negatively correlated. While the international issues were high in the beginning of the time period, they stayed low from the year 2000 and ended up with 0 in the three last years, 2006 – 2008. The

[25] Ssb.no/di

domestic market, however, saw the opposite, staying low from 1998 – 2005 and ending up with high levels the years of 2006 -2008. The figures are found in appendix 8.3.

It is an interest fact that the data holds no record of international issues in the shipping industry, while domestically it represents the third largest amount of issues. Even though the Norwegian shipping industry is a substantial participant in the world market, the firms seem to prefer list their bonds on the Norwegian market.

Summing up, *firstly*, the patterns show that the industries issuing bonds abroad are dominated by firms that produce or deliver products that are known to have a larger supply than domestic demand. These are products with substantial demand internationally, which suggest the industries are more likely to do larger parts of its business abroad. *Secondly*, the Norwegian shipping industry prefers to issue bonds in the Norwegian market. The Oslo Stock exchange is said to be a large marketplace for shipping, which suggests that Norway's reputation for shipping attracts foreign investors to the Norwegian market. This indicates that it is considered more advantageous for the shipping firms to issue bonds in, than issuing in foreign markets.

5.4 CHARACTERISTICS OF FIRMS - WHICH FIRMS ISSUE ABROAD

This section turns the focus towards the characteristics of firms. The aim is to identify differences and patterns of the firms issuing abroad compared to the firms issuing only in the domestic market. In order to provide a clearer result of the characteristics of the two datasets, the firms that also issue abroad have been excluded from the domestic dataset. When comparing to the benchmarks, Gozzi et al's (2010) patterns are referred to as the worldwide benchmark, while the patterns of Tawatnuntachai and Yaman (2008) are referred to as the US benchmark. The section starts by explaining some specifics and methods concerning the testing process. It continues by analyzing each characteristic as well as the results of the median regression. Finally, there is a summing up the most important results.

5.4.1 Specifics and methods

The previous section uncovered the potential problem of the differing presence of industry sectors in the different markets. A quick glance at the firm-level data shows that there is a

large spread in the size of the characteristics which are largely related to affiliated industry. Comparing international issuing firms with the domestic's may therefore create highly biased results. Using the median of the characteristics compensates for this by reducing the effect that outliers and extreme values would otherwise have on the mean. The mean was also calculated and found to be very biased when performing the tests. The data fails in many areas to fulfil the criteria for a normal distribution. Adding a fair amount of homoscedasticity due to different properties in the industries, the criteria for using Ordinary Least Squares are not met. A better solution is to use median regression, also known as quantile regression, since this is a non-parametric regression which focuses on the median rather than the mean. However, the issue of the variance in firm level characteristics still remains. To solve this, the variance, or standard errors, of the characteristics are bootstrapped with clustering at the firm level. The bootstrapping method is easier to use since the variance does not fit the classical method's assumptions of normality. Theoretically, it is more flexible, yet it gives approximately the same results as classical methods of calculating the standard error. In the regressions performed here the number of iterations used was set to 100. Similar tests were done using Least Absolute deviation regression, which also focuses on the median rather than the mean, in order to check the robustness of the results.

Throughout the quantile regressions, the international coefficient and statistics are conceived by using a dummy for all firms issuing abroad. It is important to note that the medians and coefficients representing the levels are in thousand NOK. The results from other articles that are compared are converted with the approximation to NOK described in 4.7. The results and coefficients stated in the following section are therefore in thousand NOK.

The characteristic coefficients are all displayed in table 3.

5.4.2 Characteristics

Size

To begin with, the domestic median size shows a modest 3 069 574, while the international median size is 28 000 500. Again, note that these figures are in thousand NOK. To be able to understand these sizes, it is natural to look at the benchmarks proclaimed earlier. Comparing the domestic issuing firms, Norwegian firms have a median three times smaller than worldwide estimates, but approximately the same as the US market. Also for the international dataset, there is a remarkable difference compared to the benchmarks, but slightly different

that the domestic. The Norwegian international median is 2.5 times larger than the worldwide estimate, and remarkably 8.5 times lower than the US firms issuing global bonds.

Firm characteristics			
	Firms issuing bonds domestically (A)	**Firm's with issuing abroad (B)**	
	Median (No Observations)	Median (no. Observations)	Median regression Coefficient on difference with firms that only raise capital at home (a)
Size			
Total Assets	3069574 (799)	28000500 (132)	25000000*** [51.95]
Growth			
Annual growth rate of total assets	9.92% (688)	5.67% (117)	-4.245%* [-1.51]
Investment			
Capital expediture	48838 (686)	547140 (117)	497206***[22.08]
Capital expediture/Sales	3.80% (677)	6.52% (107)	2.7215%* [1.61]
Profitability			
Return on Equity	7.25% (795)	12.43% (107)	4.094%***[2.59]
Capital Structure			
Total debt/Total Assets	64.16% (795)	61.21% (132)	-2.958%***[-2.03]
Short-term debt/Total debt	30.19% (795)	32.89% (132)	3.056% [0.62]
Servicing Debt			
Net income/Total debt	3.61% (792)	5.76% (132)	2.32%***[2.72]
Net income/Short-term debt	10.71% (789)	20.16% (132)	9.1%***[3.24]
Valuation			
Tobin's q	1.390 (528)	1.560 (91)	0.17004***[3.17]

Table 3. Firm Characteristics. *Medians (number of observations) for both international and domestic firm level characteristics, and differential coefficients. Both figures for Size and Investment are in thousand NOK. Total assets are book value total assets. Tobin's q is defined as (long-term debt + debt in current liabilities + liquidating value of preferred stock + market value of equity)/Assets, similar to Miller and Puthenpurackal (2005). Firms not listed with market value of equity are excluded from the results. The median regression presents only the results from the international perspective. The numbers in brackets represent the t-values of the quantile regression.*,** and *** illustrate significance level at 10%,5% and 1%, respectively.*

The results suggest that it is mainly the largest firms that issue abroad. This is despite the US estimations being constituted 7 years prior to this time period. The coefficient of the difference between the domestic and international firm size is 25 000 000 and significant at 1%. The result states that firms issuing bonds abroad are much larger than the domestic issuing firms. The result is a confirmation of the expectations and findings from both the worldwide and US benchmark, though this coefficient is larger than the worldwide estimates and lower than for the US market.

Annual growth rate of total assets

The results show that the domestic market has an annual growth rate of 9.92%. This is approximately 2.2% higher than the worldwide market. For the international dataset the rate is 5.52%, which is 1.5% lower compared to the worldwide estimates.

The coefficient of difference is -4.5245%, but only significant at 10%. This means that the standard error is fairly high which indicates a fair deal of variance in the annual growth rates. The results are not surprising, however, for two reasons. *Firstly*, the worldwide benchmark also shows that internationally issuing firms tend to have a lower growth rate than those issuing domestic. *Secondly*, a high annual growth rate is a characteristic often related to small firms experiencing success, whilst the growth rate of more mature firms are lower. Relating to the results found on the difference in size, it seems intuitive that the domestic firms are smaller and therefore likely to achieve higher growth rates that the more mature or large firms issuing abroad. This is, however, more of a stylized fact, and does not dictate the reality. As the coefficient does not have a stronger level of significance, it indicates that the firms issuing abroad are not only mature firms.

Summing up, the results suggest that firms issuing bonds in the domestic market seems to have a higher annual growth rates than firms issuing internationally. Though the results show signs of weakness related to its significance

Investment

Investment is represented by the features of Capital expenditure, Capex, and Capex pr unit of revenue. Starting with the first feature, the Capex for domestic firms is at 48 838. This is close to twice the size of the worldwide level. As for the international set, the result is at 547 140, which is also higher than the worldwide level by approximately 200 000. The coefficient of difference is 497 206, and is significant at 1%. This means that the firms issuing bonds abroad tend to have a much higher level of capital expenditure. This is also in line with the benchmarks for the worldwide estimates.

As for Capex pr unit sales, the median for domestic issuing firms is at 3.8%. This is exactly the same as the estimate for the worldwide ratio. For the international issuing firms, the ratio is at 6.52%, which is 1.5% higher than the world wide estimate. Whilst the difference coefficient for the worldwide benchmark was 1.3% at 1% significance, the Norwegian coefficient has a coefficient of 2.72%, but only significant at a 10% level. Since the Capex coefficient was high at a 1% significance level, this may indicate instability or high variance

in sales. As described in section 4.6, a large part of the firms operate in industries where the cash flows may come in large batches and at sporadic times. These sudden large revenues therefore become scattered and affect the ratio creating a high variance. This may be a plausible reason for why this ratio is only significant at 10%.

The results show that internationally issuing firms tend to invest more than firms issuing domestically. This is apparent both for levels and in relation to sales, though the latter shows signs of low significance. The results are also coherent with worldwide estimates.

Profitability

In order to look at the firms' profitability, the focus is turned towards the owners' profitability and thus the return on equity. The domestic set of firms has a median of 7.25% return on equity and the international set of firms 12.43%. Looking at the worldwide estimates, the domestic issuing firms have a ratio of 7.8%, whilst the international issuing firms has a ratio of 7.6%. Defining what a good return on equity is depends on the cost of capital for the given period and the industry to which it is related. Whether or not these Returns of equity are good or not will not be pursue further in this analysis.

Using the worldwide estimates as the benchmark does not give a solid answer either, since this key figure may vary a lot with time. However, since there is only a three year difference, the coefficients may function as approximations. With these assumptions, the domestic set of firms is close to the worldwide approximation, while the international set of firms is quite different. The Norwegian firms issuing internationally are 3.6% higher than the worldwide estimate. This also affects the coefficient of difference, which is 4.094%. In other words, the firms issuing internationally seem to have a median return on equity of 4.094% higher than the domestic issuing firms.

The main conclusion is that the results suggest that firms issuing internationally are more profitable than the domestic issuing firms.

Capital structure

Capital structure is based on total debt and short-term debt. The total debt is analyzed in relation to total assets, and short-term debt in relation to total debt. The total debt to total assets ratio illustrates what leverage the firms have, and also provides an indication of the long-term risk. The short-term debt to total debt ratio projects how much of the debt is

current. It gives an indication of firms' reliance on short-term financing. Though bonds are not the only solution to long-term financing, this ration shows which type of financing it prefers, and by that which risk profile they are exposed to.

The results for total debt to total assets show that the median leveraging of firms for both sets of firms is reasonably high. The domestic set of firms shows 64.16% and the international set shows 61.21%. This indicates a high leverage and following high exposure to risk. Comparing the results with the worldwide estimates, the domestic set of firms is 44 percentage points higher than the benchmark, and the international set of firms is 31 percentage points higher. While this may be interesting for a shareholder or equity investor whose stakes may get increased return from the return on debt, a potential bondholder whose large concern is the probability of default, may see this as a larger risk or threat.

Comparing the two medians, the international set of firms has a difference coefficient of –2.958% which is significant at 1%. The difference is not, however, of a size that drastically improves the overall image or level of risk projected to the investor.

With such a high level of leverage, an important feature for bond investors is whether the debt is due at short- or long-term. With long-term debt, the potential for accruing earnings from long-term projects lessens the possibility and fear of defaulting. Short-term debt has a shorter maturity than the bonds and may strain the liquidity of a firm. As short-term debt is a post in the Financial Income statement, the analysis considers the long-term debt is what is left when the short-term debt is subtracted from the total debt.

The results from the short-term debt ratio show that the domestic set has a median of 30.19% and the international set has 32.89%. Comparing them to the worldwide estimates they lie at 10% and 6% below, respectively. This means that Norwegian firms, issuing both domestically and internationally, have higher levels of long-term debt. This may be a result of the type of projects being financed and the prospects of unstable cash flows that describe a large part of the Norwegian industries' characteristics.

An interesting feature of the short-term debt ratio is that the coefficient of 3.056% is not significant at an acceptable level. In other words, there is no statistical evidence to claim that there is any difference in short-term debt ratio between the two sets of firms

Summing up, the results suggest that the debt ratio is high for both sets of firms. However, the internationally issuing firms appear to have a slightly lower ratio. For the short-term debt the results suggest no significant difference in the two sets of firms.

Servicing Debt

The two characteristics of Net income to total debt and Net income to short-term debt are both commonly used in calculating credit ratings of corporations[26] and that project the firm's ability to service its debt. The results show that domestic issuing firms have a median net income to total debt ratio of 3.61% and a net income to short-term debt ratio of 10.71%, whilst the internationally issuing firms have 5.76% and 20.16% respectively. The difference is significant for both ratios and indicates that the firms issuing internationally have better prospects of paying their debt. Though the benchmarks do not have comparable ratios, the methods used by Standard and Poor characterize an income to total debt ratio of 20% to be in line with a BB rating, or Non-investment grade, for industrial firms[27]. By this view, the firms issuing bonds abroad have their median at this level, while the domestically issuing firms are 9.1 percentage points lower. This suggests that international firms are in a better position to service their debt than the domestically issuing firms. The results of these characteristics may affect both ratings and the issuing cost of debt.

Valuation

The last ratio is the valuation of the firms. Tobin's q is an easy, but fair ratio for expressing how the market values the firm. The ratio tests the market value, or repurchasing value, relative to book value. Using the book value as the "fair" value, a ratio above 1 indicates a market overvaluation of the firm and if the ratio is beneath 1 it indicates a market undervaluation. Some of the firms did not have available data on share price for the period and have therefore been excluded from the test. However, the results reveal the domestic set of firms with a q value of 1.39 whilst the international set of firms scores 1.56. In both sets the market tends to over value the firms according to the book value. Looking at the worldwide estimates, both sets are over valued at 1.208 and 1.154, respectively. This means that both the Norwegian set of firms have a higher "q" and are more overvalued than the worldwide estimates. However, spread is bigger for the international issuing firms than for the domestic.

[26] Standardandpoor.com, 2010
[27] Standardandpoor.com, Criteria for corporate ratings

Looking again at the results in table 3, the difference coefficient for the international set is 0.17, and is significant at 1%. Being significant at such a low coefficient, shows that there is less variance in the results of the Tobin's q, i.e. a lower standard error. In other words, it is a well represented characteristic that approximates the actual median quite well.

Summing up, the results suggest that both the international and the domestic set of firms are overvalued. However the internationally issuing firms are slightly more overvalued than domestic.

5.4.3 Summing up the most central characteristics

Many of the results are close to or share the pattern of the projected worldwide and US estimates. Though the Norwegian financial market for bonds may not be as developed and large as the US, UK or Germany, they do have diverse and developed industries. The characteristics of the Norwegian firms show similar patterns, but with some distinctive features both in the firms issuing internationally and for the firms issuing only in the domestic market.

Summing up the results, *firstly*, the firms issuing internationally are much larger than the firms only issuing domestically. Though the difference is a common factor worldwide, the spread appears to be much higher for Norwegian firms. Due to the small corporate market, this might be a potential reason for the large difference in the number of firms issuing abroad.

Secondly, the profitability for investors is remarkably higher for the firms issuing internationally. There may be many reasons for this, e.g. the firms issuing internationally are more successful. Since they appear to hold more equity than the firms issuing domestically, they must have a larger net income, indicating a higher level of business and thus success. Another reason may be that larger size is an indication of maturity which, in turn, leads to a more stable income or cash flow and a higher average net income.

Finally, a large part of the risk valuation of a firm is its capital structure. Both the international and the domestic issuing firms have fairly high leverages, both from an intuitive viewpoint and related to the worldwide estimate. Though the international issuing firms have only slightly lower leverage coefficient, these factors may play a larger role in the attractiveness of their bonds. Whilst well-known firms may survive the scepticism of high

leverage, smaller, lesser-known firms will be met with high scepticism and a complementary higher issuance cost to compensate for the added risk of default.

5.5 CURRENCY EXCHANGE RISK

A large proportion of the Norwegian goods and services are exported. This means that many of the firms producing these goods and services are exposed to cash flows and income in other currencies than NOK. Because the NOK is a small currency with a floating exchange rate, it is always at risk of having a fluctuating value against other currencies. Figure 10 shows that the Norwegian Kroner has a relatively stable exchange rate against world leading currencies in the time period of 1998 – 2008. However, in having a floating rate there is always a certain degree of volatility the exchange rates. Though the majority of the NOK's volatility is relatively small, there are some exceptions. The largest fluctuation was caused by the financial crisis of 2008, where the NOK was at its strongest in the start of the year, suffering a large depreciation in July and August. The combination of expected cash flows and fluctuating exchange rate, gives room to believe that potential strategies to hedge the cash flows exist among firms.

Bond issues in the domestic market are mainly issued in NOK. There are also a smaller amount of issues denominated in USD and Euro. As figure 11 illustrates, the bonds in USD are mainly in Oil and Gas, Shipping, Service and Telecom/IT. The small number of Euro denominated issues is restricted to Energy and Utility and Industry. Table 4 shows the exact numbers. These results show the same pattern as for the industries issuing abroad in section 5.3. The industries issuing bonds in foreign currencies appear to be those with high international demand and thus do international operations.

The domestic market is in general divided into NOK and USD. The European market is the closest and for many firms the most common foreign market. The Euro should therefore stand as the most common currency in foreign cash flows. However, during this time period it was still a young currency that had not settled as a stable and trustworthy currency. The USD, on the other hand bore the position as the world leading and stabile currency. This may provide an explanation to why there are so few observations of euro denominated bonds, while the USD is preferred among the foreign currency. Table 4 shows that the foreign denominated issues are only represented by 9% of the total number of bonds issued in domestic market.

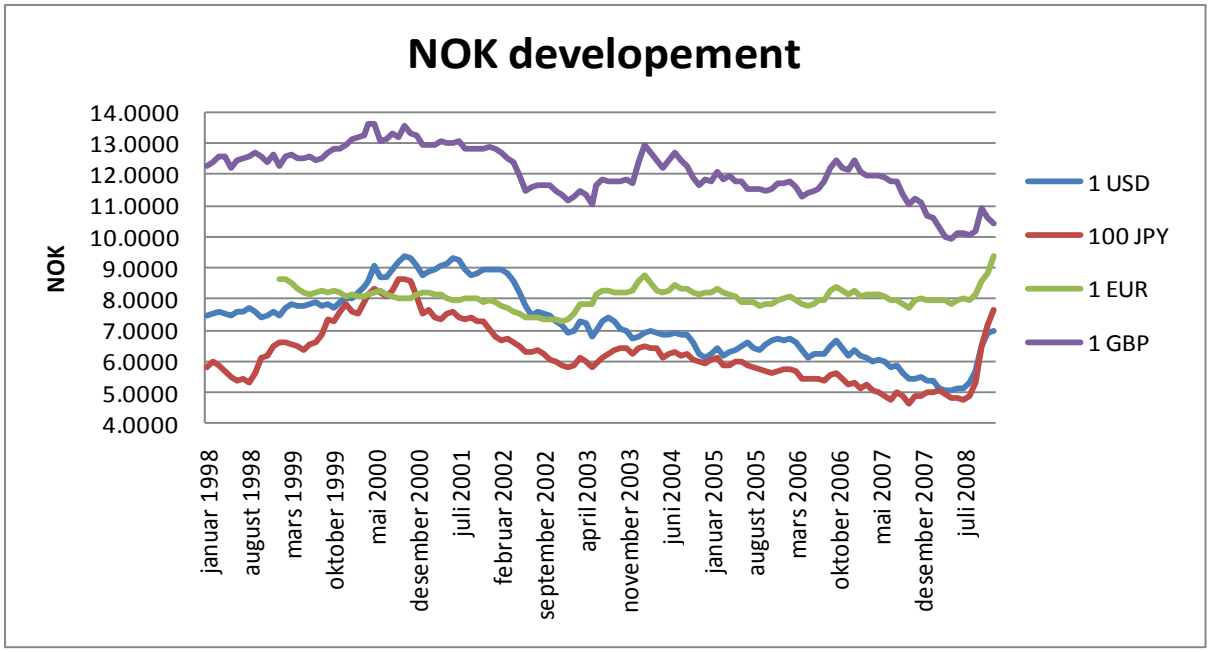


Fig. 10 The development of currency exchange rates against the NOK. *The development shows that the exchanges have a relatively small level of volatility. 2008 is however a year of large volatility in the markets and therefore also in the exchange rate. Source: Norges Bank*

The Oil and Gas sector represents the largest proportion of bonds in USD, covering 38%. Most of the Oil and Gas exported from Norway is denominated in USD, not only when aimed at the US market but also as a common currency for the product. It is therefore a natural choice as alternative currency for this sector. Also the Service and Telecom/IT industries are relatively well represented with USD denominated bonds, counting 21% and 10% respectively.

The Energy and Utility industry has, despite being the largest represented industry in the domestic market, only one issue in Euro and none in USD. Due to problems with transportation and storage of their products, the industry is limited to exporting their goods to the domestic and European market. It is therefore not naturally exposed to any USD cash flows. Adding the fact that the Euro was still considered too risky, there is no great surprise that the issues primarily were issued in NOK.

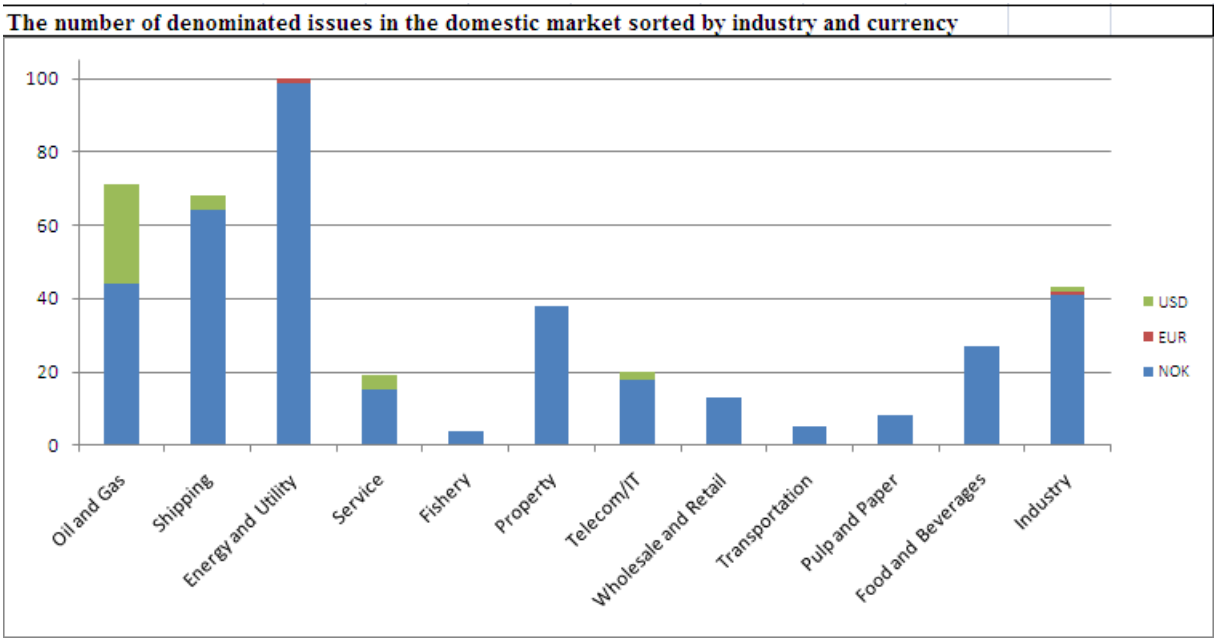


Fig. 11. The number of denominated issues in the domestic market sorted by industry and currency. *Source: Norges Bank*

Number of Denomintated Bonds in Domestic Market				
Industry	**NOK**	**EUR**	**USD**	**Proportion USD**
Oil and Gas	44	0	27	**38%**
Shipping	64	0	4	**6%**
Energy and Utility	99	1	0	**1% (EUR)**
Service	15	0	4	**21%**
Fishery	4	0	0	**0%**
Property	38	0	0	**0%**
Telecom/IT	18	0	2	**10%**
Wholesale and Retail	13	0	0	**0%**
Transportation	5	0	0	**0%**
Pulp and Paper	8	0	0	**0%**
Food and Beverages	27	0	0	**0%**
Industry	41	1	1	**2%**
Total	376	2	38	**9%**

Table 4. The number of denominated bonds issued by Norwegian firms in the domestic market sorted by industries and currencies. *The proportion sizes are USD in relation to all issues in the industry. Exception is Energy and Utilty which is only in Euro. NOK is Norwegian Kroner, EUR is Euros and USD is United States Dollars. Source: Norges Bank*

The international issues are mainly aimed at the European and US investor market. However, the range of currencies in which the bonds are denominated is slightly wider. US Dollars, Yen, Pound Sterling, Swiss Francs, Deutche Mark most likely converted to Euros, Euros and

NOK are used. Figure XX shows how the currencies are spread over the industries. Again here the USD is the most represented currency, followed by the Euro. The Oil and gas industry is most represented here as well, issued in all currencies except NOK. Telecom/IT has a larger number of bonds in Euros and Yen, Energy and Utility in USD, NOK and EUR, while the other industries are scarcely spread among the currencies.

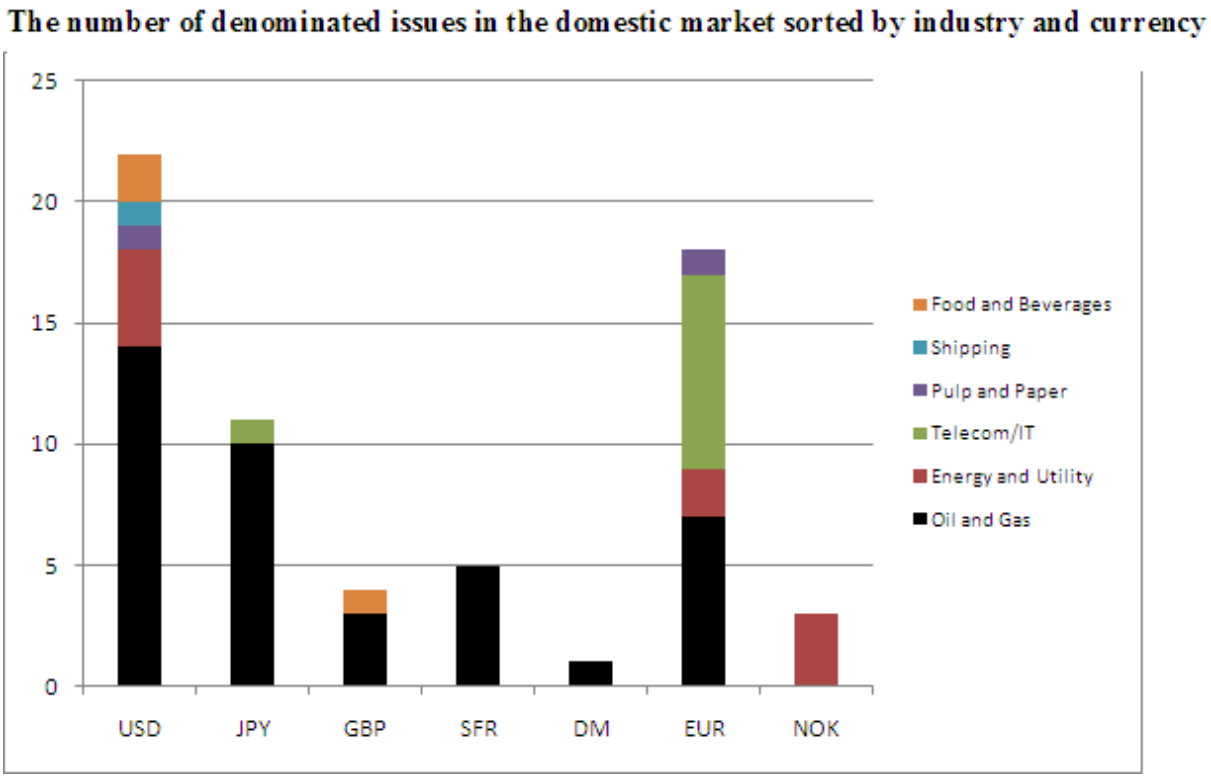


Fig. 12. The number of denominated issues in the domestic market sorted by industry and currency. *USD is United State Dollars, JPY is Japanese Yen, GBP is Pound Sterling, SFR is Swiss Franc, DM is Deutche Mark, EUR is Euro, and NOK is Norwegian Kroner. Source: Norges Bank*

There are a few difference and some similarities among the results from the two issuing markets. *Firstly*, despite the international and the domestic issues having bonds in foreign currencies, there is a larger variance of preferred currencies in the international market. Over the time period, the domestic market appears to be limited mostly to NOK and USD. The international issues use more of the central and popular currencies. *Secondly*, the Euro was a young currency in the time period, and may therefore suffer from a lack of trust in the currency's stability. It is, though, slightly surprising that only 2 domestic bonds are issued in Euros, considering the strong position it has taken as a world currency, the close geographical proximity and the number of countries that use it. In comparison, it is the second most denominated currency in the abroad issues. This suggests that the domestic market is rather limited to the USD, or its local currency, NOK.

Number of Denomintated Bonds in International Market							
Industry	**USD**	**JPY**	**GBP**	**SFR**	**DM**	**EUR**	**NOK**
Oil and Gas	14	10	3	5	1	7	0
Energy and Utility	4	0	0	0	0	2	3
Telecom/IT	0	1	0	0	0	8	0
Pulp and Paper	1	0	0	0	0	1	0
Shipping	1	0	0	0	0	0	0
Food and Beverages	2	0	1	0	0	0	0
Total	22	11	4	5	1	18	3

Table 5. Number of denominated bonds issued by Norwegian firms in the International Market, sorted by industries and currencies. *USD is United State Dollars, JPY is Japanese Yen, GBP is Pound Sterling, SFR is Swiss Franc, DM is Deutche Mark, EUR is Euro, and NOK is Norwegian Kroner. Source: Norges Bank*

Finally, there is a similarity between the patterns concerning which industries issue foreign denominated bonds in the domestic market, and industries issuing bonds in the international market, found in section 5.3. As mentioned earlier, these industries are also known to do business abroad, which suggest they are also more prone to use foreign currency, both domestically and abroad.

5.6 CREDIT RATINGS

A credit rating is an assessment of the firm's or bond's creditworthiness. In the hectic environment of trading, both for bonds and stocks, investors may not have the time to do fundamental analyses of their targets. Instead, they put a lot of their trust into the ratings done by firms such as Standard and Poor, Moody's and Fitch. Their ratings cover many aspects of the business market, assessing nations, industries, firms or singular securities. The credit ratings of international bonds are usually related directly to the bonds themselves. This applies also to the bonds issued abroad for the Norwegian firms. Despite the bondholders' main concern of the firm's capability to pay, some bonds have special properties that enhance or reduce the threat of default, and which are not reflected in the firm's rating. When rating a firm or a firm's bonds, the fundamental analysis made is based on several aspects, e.g. national risk, industry risk, and the firm-level characteristics.

As already mentioned, there are very few Norwegian firms that are rated by the most common agencies. A general consent among european banks is that if the firm or bond is not rated by

the Standard and Poor, Moody's or Fitch, it is considered non-rated[28]. The historical records of Bloomberg suggest that only 10 firms have been rated between 1998 and 2008. Table 5 shows that 8 of the firms rated belong to the internationally issuing dataset. The two remaining firms, SAS and DNO International, are also known for doing business abroad and are therefore on the radars of foreign investors. Despite the relatively small number of firms issuing bonds, this still does not count for more than 8% of all them. The list of all historical ratings and changes in the credit rating of Norwegian firm is found in appendix 8.4.

The results show that while 54% of the firms issuing internationally are rated, only 1.5% of the firms issuing domestically are rated. There are two plausible explanations for this outcome. The first is the fact that the three most recognized rating agencies do not rate firms and issues that are under a certain size, market importance or provide sufficient available information. In many cases this is the actual reason. The second reason is that there is not enough requests from investors.

Firm credit ratings - S&P		
Company Name	**Best rating**	**Worst rating**
International		
Norsk Hydro	A	BBB
Norske Skogsindustrier	BBB	BB+
Statoil	AA+	A-
Telenor	AA+	BBB+
Yara International	BBB+	BBB-
PGS	BB	NR
Ocean Rig	B+	NR
Statkraft AS	BBB+	BBB+
Domestic		
SAS	BB	B
DNO International	B	NR

Table 6. List of the Norwegian firms rated by Standard and Poor. *Note, that this is the list over industries of interest to this thesis and its time frame Source: Bloomberg*

The first concern is highly plausible. The results from section 5.4 show that the size of firms issuing domestically are generally low and very much lower than the firms issuing internationally. This means that the firms have a fairly small effect and influence on the market which again does not intrigue interest among investors. Section 5.1 shows that the issue size of the domestically issuing firms are low. A benchmark size for what is considered low in international markets lies around 500 million Euros, and issues below 100 million

[28] Source; DCM contact at Credit Agricole, Paris

Euros are not even considered.[29] Looking at the issue sizes, the results indicate that the average size of domestic firms do not come close to the 100 million Euros, whilst the international issues vary between 500 million and 100 million Euros. These features may prove to be a significant reason for the low level of credit ratings among Norwegian firms.

The differences in firm characteristics also project an interesting feature to the credit ratings. The results from section 5.4 suggest that the firms issuing abroad are larger in size, they have higher return on equity, and have a less leveraged capital structure. Despite this, a majority of the firms are rated investment grade BBB or lower. The exceptions are Norsk Hydro, Statoil and Telenor, which are considered Norway's largest and, historically, the most successful firms. This feature says that the set of firms with superior firm-level characteristics are rated Investment grades i.e. BBB or lower. This may indicate that the majority of the firms issuing in the domestic market would be subject to fairly low ratings if they were rated by the recognized rating agencies. Another indication of this is the characteristics on Servicing debt in 5.4, where the coefficients for the international set of firms are at the level considered BB with S&P, while the domestic issuing firms have much lower coefficients.

It is important to note that there are other agencies which also rate the creditworthiness of Norwegian firms more extensively than the three large agencies. DnB NOR for instance has its own ratings that follow the scale of Standard and Poor. The number of firms rated by DnB NOR is substantially larger, but still does not cover more than close to 30% of the number of firms in thesis' dataset[30]. As a response to the argument of investors being ignorant or reluctant towards non-rated firms, the proportion of foreign investors active in the Norwegian bond market is considerably high, suggesting that the absence of large agency rating does not seem to prevent investors from entering the market.

To sum up, it is notable that international issuing firms are rated by the large rating agencies and the domestic issuing firms are not. The reason for this appears is mainly due to the actual size of both issue and firm. The differences in firm characteristics may also play a part in complicating the rating, since the domestic issuing firms show worse key ratios than the internationally issuing firms. Foreign investors seem, nevertheless, to be attracted to the Norwegian domestic bond market.

[29] Source; DCM contact at Credit Agricole, Paris.
[30] Weekly ratings report from DnB NOR, May 2010.

5.7 UNDERWRITERS

The function of underwriters came from the time when bonds had to be signed or underwritten by Lloyds of London, stating that the insurer undertook some of the risk. Today the name and role has been split into various subcategories and the job is often divided amongst more than one single underwriter. The process of issuing bonds starts with an Investment bank which has primarily responsibility for the bond, is commonly known as a "book runner" or "lead manager". Other investment banks may be announced as co lead managers, but these do not participate in the issuance of the bond. This is more of a gesture, giving the co lead managers a right to a miniscule cut of the fee. It is therefore the book runner that aims to sell the bond through its connections and network of asset managers. This section of the thesis aims to investigate whether there is any difference between the underwriters used by the domestic and international issuing firms.

The underwriters managing domestic issued bonds sorted by industry

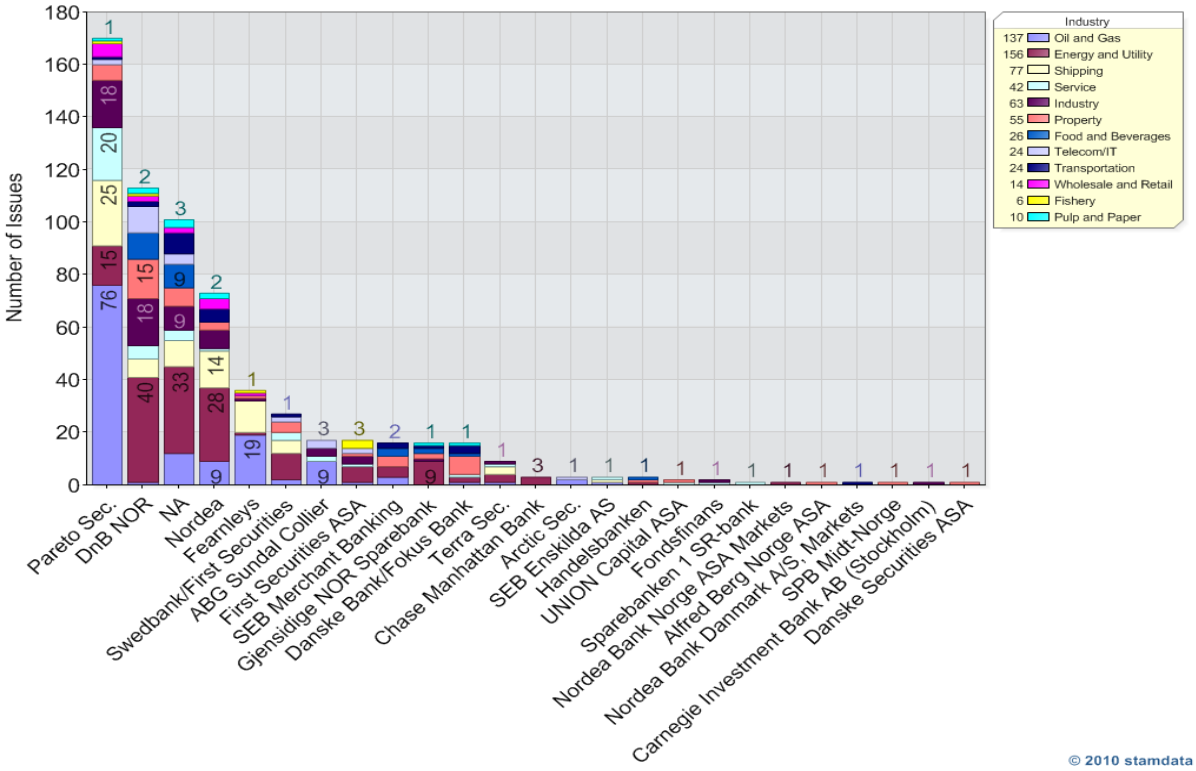


Fig. 13. The underwriters managing domestic issued bonds sorted by industry. *Source: Stamdata.no*

Figure 12 shows the underwriters of domestic bonds. The most popular are Pareto, DnB NOR and Nordea. Unfortunately, over 100 of the issues have no registered underwriter or NA. This may be related to a variety of things, for instance that the firm has issued the bonds without an

underwriter, the underwriter does not wish to be known, or simply that the available data does not state the underwriter. The original source of this data is from the VPS which means there is room for error. Excluding the NA underwriters, figure 12 shows that almost all of the firms underwriting the domestic issues are from Scandinavia. Looking at the international issues in figure 13, on the other hand, only DnB Markets and Nordea Bank Sverige is represented. The investment banks used to issue the bonds abroad are large international banks. This indicates that although the Scandinavian banks are represented in various global areas and markets, the firms still prefer the larger investment banks when issuing outside the domestic market. This is clear since there are several firms that issue both abroad and domestically.

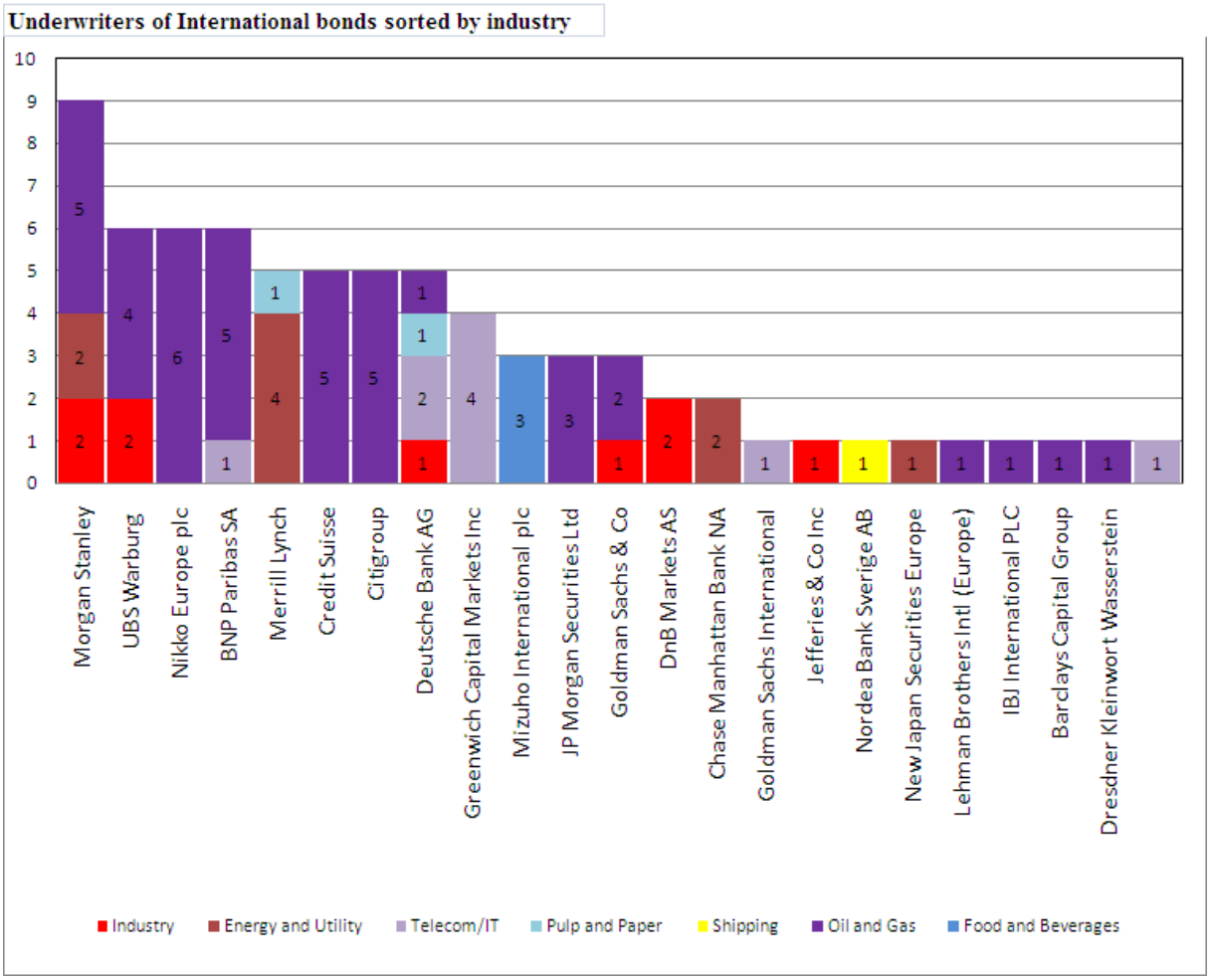


Fig. 14 Underwriters of International bonds sorted by industry. *Data Source: Thompson Reuters' SDC database for new issues*

The results provide clear evidence that firms change underwriters when issuing abroad. According to Krigman, Shaw and Womack (2001), there is evidence of firms changing underwriters based on the underwriter's reputation as well as additional and influential analyst coverage that would enhance their firm and bond's reputation in the market.

Looking at the results from the domestic bonds, both the Nordea and DnB Markets, underwriting the second and third largest number of firms, are represented abroad. The largest underwriter, Pareto Securities however, is not represented as underwriters among international bonds. This is, despite having offices in both New York and Singapore. This gives reason to believe that there may be certain individual reasons affecting their reputation. One of these plausible reasons is that investment banks, or underwriters, are either too small or specialized to cover the targeted market in which the bonds are to be issued[31]. Other reasons may be related to the management fees, or dissatisfaction with the issuing price that underwriters may achieve. These features usually decide the underwriter's skill and ability to issue the bonds, and at a price that is optimal for the issuer, hence affecting its reputation.

[31] Source; DCM contact at Credit Agricole, Paris.

6. DISCUSSION

This section aims to discuss the results found above and to relate them to the existing theories described in part 2. Most of the results are not conclusive enough to exclaim the theories as true or false for this market. They allow, however, suggestions to be made as to which theories seem more appropriate in explaining traits and patterns in the Norwegian bond issuing market. This section will therefore discuss potential links between the results from part 5 and the theories described part 2. Each theory is discussed in turn, and summarized at the end.

6.1 SEGMENTATION VIEW

The segmentation view is a theory that can be applied to many levels and structures. It is therefore very applicable to the results in this thesis, since there are aspects on both industrial and firm characteristics that differentiate between those which issue abroad and which that do not. An important factor in considering the existence of segmentation is not whether there is a difference between the two sets of firms, but that the differences acts as a barrier or direct bias when firms choose to issue bonds.

6.1.1 National level

Starting off with the national bond market, Norway does suffer from being a small country with a low level of liquidity. Though the Norwegian government bonds are top notch and considered some of the safest bonds in the world, they do not reflect the perceived view of the corporate bond market. In the international environment for bond issuing it is normal for each bond to be rated. In the Norwegian domestic market the number of ratings from international rating agencies is so low, barely covering 10 – 15 firms in total.

Oslo ABM has been a large enhancement to the activity of the domestic bond market. Many of the small firms that would not otherwise meet the criteria of the Oslo Børs, now have a place to issue. However, not following the international regulations of the EU may cause problems related to expectations and access to information which investors need in order to correctly analyze and calculate risk. The basis of this argument builds on the results of differences in firm characteristics and the purpose of the ABM. This is, however, not proven rhetoric.

Oslo Børs, on the other hand, is directed to follow the regulations and directives of the EU. This means that it incorporates the same regulations and rules that apply to other stock exchanges. Oslo Børs also cooperates with major stock exchanges by using similar trading systems. This should lessen any barriers related to method or access for trading.

All in all, there are both pros and cons for the Norwegian bond market being segmented from the larger and more developed markets in the world. An important indication of how segmented the market is lies with the number of foreign participants and amount of foreign trade there is. As a majority of the largest banks represent the members at Oslo Børs, and counts as the second largest investor group in the corporate bond market, it seems fair to say that the level of segmentation at a national level is very low. This argument should, however, be tested more with regards to macroeconomic factors, at a more extensive aggregate level, and especially in relation to the ABM's activity.

The Norwegian bond market, as a whole, seems not to be segmented in relation to other international markets. Its relatively small size and activity seems simply to be a problem that relates to the actual size of its surrounding corporate market, domestic investors and array of industries.

6.1.2 Industrial level

The first results that are of interest are the industrial patterns for issuing abroad. The industries issuing internationally are dominated by firms that, owing to origin of market demand, seem to do more business abroad. This pattern is fairly strong, suggesting a possible segmentation based on industries affiliation. In general, this alone does not give enough evidence to prove the existence of segmentation in industries, also owing to the fact that the barriers may be of natural choice. Among the industries, only the results for the shipping and fishery industries provide a strong enough indication that specialized markets exist. Shipping is a worldwide business, yet all the Norwegian shipping firms choose to issue their bonds in the Norwegian domestic market. The same goes for the fish-farming industry, which despite having most, or all, of its production based in Norway, is still the country's second largest export product. The interesting fact is that Norway and Oslo Børs is renowned as a world-leading market for both Fish farming and Shipping. It therefore would appear that these two markets are more specialized on the Oslo Børs, which create the bias that cause the Shipping and Fish-farming firms to prefer the domestic market

As for the industries issuing abroad, the few observations make it hard to find any clear patterns of preferred markets. However, a majority of the firms issuing internationally also issue bonds in the domestic market. This suggests that the international markets do not seem to impose any preferred market for the firms. The original bond data only specifies the issuing marketplace as a general, stating that the issues are mainly related to the European, US or foreign market. The results are therefore not conclusive and should be researched further.

There is a clear difference in the choice of undertaker when issuing abroad and in the domestic market. As mentioned in section 5.6, most of the large foreign investment banks undertake only a certain issue size. Section 5.2 reveal that the sizes issued in the domestic market are far from the criteria. The criterion of a certain issue size appears to stand as a structural barrier and may be a reason for why many small firms do not issue abroad. Though there are Scandinavian banks that operate with international issues, they are relatively small in coverage and reputation. This barrier may also appear to be an extension of the barrier that follows the lack of rating and investor recognition. This will however be discussed more in section 6.2.

6.1.3 Firm level

The results of the characteristics in 5.4 show a lot of differences between the two sets of firms. It is therefore intuitive to suggest that many of these characteristics dictate the markets in which the firms choose to issue their bonds. The results show that there are clear differences in most of the characteristics, e.g. size, annual growth and profitability. The question is however whether these differences act as barriers, and thus creating segmented markets.

There are legal barriers, regulations or structural barriers preventing firms from issuing abroad based on their size, profitability or other characteristic that has been tested in this thesis. Since Norway has been a part of the Schengen agreement, most of the regulations found in Europe also apply to the Norwegian system. This is an attempt to integrate markets, removing barriers and complication affairs related to cross country dealings. There are even governmental institutions, like Innovasjon Norge, that encourage and support smaller firms in expanding their business abroad and dealings abroad.

The first idea wants to suggest that the difference in firm characteristics must be some sort of segmentation. Some of them are large and significant, and have a determining affect on the

firms and where they issue. However, since there are no structural barriers, these affects seem to be of different reasons than alone being the reason to segmentation. One of the clearest examples is the differences in the size of the firms. A resulting feature of this characteristic is that it is only the largest firms that get rated. Having a rating may act as a barrier to issuing internationally. Without a rating the firm stands a lower chance of achieving high demand, with a subsequent increased in the cost of debt. Then again, there are observations that prove this wrong, e.g Orkla ASA that issued 3 bonds in the international market with were non-rated.

One could, of course, define the domestic market as a biased or more specialized market for smaller firms. This would weigh in favour of the idea of the domestic market being biased. However, this applies to most countries and its reasons lie elsewhere than structural barriers or biased markets.

6.1.4 Summing up

Neither the national market nor the firm characteristics show any clear patterns suggesting the existence of segmentation. *Firstly*, Oslo Børs' position in the European market seems to be small, but it is a respected market with many foreign members. Further research should investigate whether the ABM has the same status, or whether it is a more uninteresting market because of its structure and rules. *Secondly,* it seems natural to believe that the differences in characteristics provide evidence of segmentation alone. But though these differences are significant and divide the firms, they do not in themselves create barriers or biases preventing the firms from issuing abroad. *Finally, s*orting by industries there are patterns that indicate segmented markets which affect the firms' issuance choice. This is clearer for the industries of Shipping and Fish-farming. It shows that such markets do exist and that many firms may decide to issue in markets where the market is specialized towards the industry. This also seems natural, as the investors in this market know the industry better and thus have better knowledge and information.

6.2 INVESTOR RECOGNITION

Norway plays a strong role in many of the international industries in the world and has marked its place on the map of business. It is also known for its large wealth and oil supplies.

In comparison the Norwegian corporations are not as well known. This topic will be discussed in three parts: firm and industry specifics, credit ratings and the use of underwriters.

6.2.1 Firm and industry specifics

To be seen in the world of business there are some features that attract attention more than others. Firstly, the larger the firm, the more noticeable it is in market representation, in its resource or facility access, in its level of success or in its status among other firms and investors. Looking at the list of firms issuing internationally, they are all firms that are well-known in the domestic environment and are often related to as firms that are market leaders in the domestic market. It is therefore highly plausible that these large firms also are well-known and recognized outside the domestic market. They therefore stand a better chance of achieving a higher demand by issuing abroad with a larger pool of investors which would lower the cost of debt more than would be possible in the domestic market.

Another feature that is important in order to increase recognition abroad is the markets in which the firms do business. The results do not show individually which firms trade abroad but, based on the industries, there is a pattern indicating that the firms issuing abroad also tend to do larger parts of their business abroad. By doing business in foreign markets the firms operate as a competitor to local and other international firms. Thus, the firms appear on the radar of investors who only do business in the respective markets. Being a participant in these markets increases the awareness of the firm's existence and operations. There are, however, examples that raise doubt to this theory. For example, the shipping and fishery industries both operate internationally and attract attention and recognition, but still choose not to issue abroad. On the other hand, as discussed under section 6.1, this is most likely caused by the existence of specialized markets which create the centre of attraction rather than firms themselves. The argument that international business and trade increases awareness and recognition appears both as strongly intuitive and backed by the indications from the patterns in section 5.3.

The firm characteristics also provide another feature that may prove interesting among investors. According to basic portfolio theory, the investor is concerned with two elements – risk and return. Looking at section 5.4, the firms issuing internationally prove less risky and yield a higher return. The risk is shown in terms of credit ratings, asset size, capital structure and debt servicing ability, whilst the return is shown in terms of profitability. This, in itself,

does not increase the general awareness of the firm, but it increases the attractiveness of the firm which in turn is more likely to be recognized as a good investment.

From these patterns it may be argued that the firms issuing abroad experience a larger awareness and recognition among international investors and may, therefore, issue bonds in the international environment with the benefits described in section 2.2. The main features that indicate this are: firm size, industry affiliation and, potentially, the beneficial risk return characteristics. Though there is little doubt that investor recognition is a vital feature, there is not a theoretical acceptance to whether there actually is a lowering cost effect of issuing abroad which would confirm the theory. The effects on investor recognition needs therefore more research.

6.2.2 Credit Ratings

The majority of Norwegian firms are not rated by the large international rating agencies. Most investors and asset managers use the large rating agencies in their analysis of creditworthiness. According to Standard and Poor the status as non-rated is mostly due to the lack of available data or because there are no requests to rate the firm. It is therefore hard to point out any conclusions as to why there are so few ratings of Norwegian firms. There are, however, some features that may give some indications. One reason is that the ratings are done by independent agencies. They therefore rate the firms they feel are ratable or are most valuable and requested by asset managers and investors, i.e. the firms which are most recognized. The fact that most of the firms issuing internationally are rated suggests that this may be owing to a large number of requests which, in turn, may be an indication of awareness. However, as the number of requests is unknown it might simply be a result of the issue being directed towards an international market. The foreign markets are more developed and may have criteria of accounting standards with access to data that are more in line with the rating agencies' criteria than those provided in the Norwegian market. The results of the credit ratings are therefore considered too vague to give any indication of whether investor recognition plays a significant role in issuing internationally or not.

6.2.3 The use of underwriters

The results of underwriters show that the firms use different underwriters, or book runners, when issuing abroad. While the domestic issues are handled by Scandinavian banks, the

foreign issues are made by prominent, local or international banks. While the theories of Merton (1987) and Tawatnunchai and Yaman (2008) gain support from the firm and industry specifics in section 6.2.1, the results of the choice of underwriters suggests that the firm's reputation and recognition is also dependent on the reputation and recognition of the underwriter. As mentioned in section 5.6, this is in line with Krigman, Shaw and Womack (2001), who found evidence that firms change underwriters owing to their reputation and strategic analysis coverage. In other words, the recognition and reputation of the firm itself might get the investors interested, but in terms of issue price and selling the bond, the cost of debt is based on the ability of the underwriter. The way bonds are sold through asset managers in other banks and syndicates, it seems intuitive that the reputation and network of the book runner plays an important role in issuing the bond. This does not, however, contradict the arguments of Merton (1987) nor of Tawatnunchai and Yaman (2008), but suggests that the firm's recognition is not the only reputation needed when issuing the bonds.

6.2.4 Summing up

To sum up the three sub-sections, the results seem to indicate that investor recognition of the firms is an important feature. *Firstly*, size, profitability and risk, and type of industry seem to be important determinants in creating awareness and recognition among investors. *Secondly*, the results do not provide solid evidence as to whether the firms issuing abroad are more recognized that the firms issuing domestically. However, whilst the majority of the firms issuing abroad are known as market leaders and large participants, the majority of the firms issuing in the domestic market are young, small and are generally less recognized. *Finally*, the last subsection suggests that the reputation of the underwriter issuing the bonds is an important feature when issuing the bonds. From the results it appears that in the larger market, the more prominent, recognized and present underwriters are preferred.

6.3 BONDING VIEW

The reason why this topic is especially of interest in the Norwegian market is due to the ownership structure which exists in a large quantity of the firms. As mentioned, many of the firms were founded as government agencies, by families or by entrepreneurs. Though many firms have been listed on public exchanges, large stakes of the firms have remained or been bought up by single owners. The following sections are divided into two central topics within the bonding view; corporate control and private benefits.

6.3.1 Corporate control

From a national point of view, there are very few laws or legal restrictions directly protecting firms. However, a few issues do exist. The first relates to the domestic market competition. In some industries there are few participants who, therefore, own larger market shares or have a monopoly. When a firm is founded, accessing the specific market, it is to some extent protected by the law on competition from being swallowed up by the dominant firm. There have been several examples of this in the Telecom and Transportation industries. This protection follows the regulations given by the EU. In other words, the legislation and regulations are much the same as in other European markets, but are more often applied because of the market size.

Secondly, the involvement of and investments by the Norwegian sovereign funds is an interesting feature in the corporate bond market. As their purpose is only to invest and not control, their ownership may present a complicating obstacle for any firm interested in acquiring another firm. By obstacle the argumentation does not mean excluding the possibilities for a takeover, but rather an entity that may not sell as easily and thus complicating the transaction. In such a setting, having owners with similar purposes and guidelines as the sovereign funds, may serve as a sort of protection.

The results on firm level characteristics show that both international and domestic leverage is very high. Following the reasoning from Garvey and Hanka (1999), this may be a response to the low level of protectionism. However, there are also other characteristics which divide the two sets of firms. It can be thought that a reason for a high leverage is to make the firm less interesting as a target for corporate control and takeover. The firms issuing abroad have lower leverage than the domestic issuing firms. The results also show that firms issuing internationally are larger in size, have higher profitability and appear to operate in industries where there is a larger portion of business abroad. Following the reasoning of Bertrand and Mullainathan (2003), the characteristics support the idea that international markets are more open to corporate control, through higher level of quality in corporate governance.

The results also show that the domestic issuing firms and their bonds are seldom rated by international firms. Adding the resulting differences in the characteristics on capital structure, the reasoning and findings of Qiu and Yu (2009) suggest that bondholders in the domestic

issuing firms should be more sensitive to the risk of bad managerial governance rather than the added risk of leverage-increasing takeovers.

Unfortunately, owing to the limitations of the available data and to the extent of the thesis, there are no specific patterns in the yield levels or ratings between international and domestic bond issues. Based on what results there are, however, there are no apparent links directly between the threat of corporate control and which markets the bonds are issued in. There are, however, some factors which indicate that corporate control is an issue, and should be further researched

6.3.2 Private benefits

The discussion now turns towards the other aspect of the bonding view; the issue of private benefits, the affecting features on bondholders, and firms' choice to issue abroad in order to control it.

The Norwegian market has a reasonably sophisticated and large framework effectively enforcing debt law and monitoring the market. According to both Dyck and Zingales (2004) and Boubakri and Ghouma (2010) the presence of bondholder protection reduces the yields and increases the corporate bond ratings. The aim of this thesis is not to prove this, but rather to assess whether this is a factor that affects the firms in choosing market place.

The Norwegian market for corporations and firms is relatively small. The government is also involved in many of the firms, both passively and actively. There is a wide specter of media dedicated to covering the domestic business market. There are both governmental and independent agencies monitoring activity and transactions in the stock and bond market. EFTA's surveillance authority, ESA, also works together with the Ministry of Finance to monitor the markets. In addition, there is also a police division, "Økokrim" which specializes in economic fraud and criminality and which actively monitors several areas of the market. There is therefore little room for extensive benefits. There are, however, occasions when people and owners try to get caught, but the extraction or use of private benefits is not done openly. With no statistics or research on the matter, there is no way of telling to what extent this occurs.

When considering the Norwegian market the general opinion is that the practice of extraction of private benefits is no more prevalent than in any of the developed markets. Previous happenings and actions demonstrate that the government, and even the population of Norway, wants to stand as a law-abiding example. For example, when Norwegian firms have been involved in international dealings that have included bribes and unethical ways of business dealings, it has been publicly criticized and criminally investigated. The last decade has also seen several public campaigns attacking unethical subjects such as excessive perks for owners and clients[32], money laundering[33], and, following the recent financial crisis of 2008, all monitoring methods are being intensified.

The extraction, or exploitation, of private benefits is an act most often likely to be carried out by the ownership side of the firm. For managers of Norwegian firms the choice may be to list stocks or bonds on foreign exchanges. This would be so as to commit to more developed laws and monitoring frameworks than domestic ones thus lowering the cost of issuing the bonds. For Norwegian firms this seems not to be the case. With such a large national focus on the topics and with the surrounding institutions monitoring the market, the benefits of issuing in the international markets in order to gain more protection from exploitation of private benefits seem miniscule.

6.3.3 Summing up

Based on the results showing differences in the traits between the firms issuing internationally and domestically, the argumentation and existing theories suggest that the bonding view is doubtfully a influencing determinant for firms and managers looking to issue corporate bonds. This applies both in terms of avoiding private benefits and governance related to corporate control.

Both the topics discussed under the bonding view do, however, have properties that suggest a certain level of presence and perception of this in the domestic market. Most of the properties seem to affect the domestic market alone, and do not therefore provide potential patterns related to international issuance. It terms of analyzing the domestic market and patterns related to general issuance of bonds, these topics should be further researched

[32] Campaign on ”smøring”, 2006 – 2007

[33] Campaign against money laundering, 2004, regjeringen.no

6.4 HEDGING CURRENCY RISK

Among the domestic bond issuances 9% are issued in USD. 6% of these are within the Oil and Gas sector. The other industries are Shipping, Telecom/IT and Service. These are all industries that have demand and sell their products or service abroad. Expecting cash flows in foreign currencies, gives them therefore incentives to issue bonds in order to hedge the currency risk.

For the Oil and Gas industry the dominant currency for trade is USD. Therefore firms in this industry are more exposed to cash flows from abroad, and thus currency exchange risk. It is therefore not unexpected that both their domestic and international bonds are denominated in USD or other currencies. This strongly supports the idea of bonds used for hedging purposes.

The results show that Shipping and Service are industries that do not issue bonds in the international market. It is therefore very interesting to see that they are among the industries that issue USD bonds in the domestic market. In section 6.1, the results showed an indication of a specialized market for Shipping in the domestic market. When 6% of the bonds are denominated in USD, and the 94% left are denominated in NOK, this suggests that the market for Shipping Bonds have no problems issuing in NOK as a currency and that the reason for denominating in USD appears to be connected to currency risk. Also the Service industry issues are primarily issued in NOK, which makes the bonds in USD appear to be issued with similar intentions of hedging.

In the case of hedging strategies, issuing bonds denominated in USD bonds may well serve as direct hedges of cash flows in USD. But with the strength and status USD had in the period of 1998 and 2008, it may well be a cross hedging strategy for cash flows in currencies either pegged, strongly correlated with or affected by the USD. From the results there is no evidence suggesting whether the domestic USD issues intend for cross or direct hedging. Some of the industries such as Oil and Gas seem to have greater incentives for direct hedging of the USD, while the other industries are more ambiguous.

For the international issues, there is a larger range of currencies. The reasons for using foreign currencies in foreign markets might well be as much to attract foreign or local investors, adapt the market, or other strategic intentions as hedging the currency risk. The results are therefore ambiguous and show little evidence of whether firms issue to hedge. However, there are some

indications that suggest that hedging is a part of the strategy. Many of the bonds are issued in currencies that are different from the local one. For instance, the issues in Japanese Yen are all issued in the Euro or US market. There are also bonds in US Dollar issued in the Euro market and Vice versa. The intention seems therefore more likely to be related to hedging currency risk rather than simply attracting local investors and adapting to local currency.

6.5 SUMMARY OF THE THEORIES

Many of these theories are of a character that they overlap and explain each other. It is therefore difficult to separate one from the other. Investor recognition may for instance follow the patterns of segmented markets. Choice of currency may also be limited due to segmentations. However, the discussion on each theory has tried to single them out and relate to the results. The results and reasoning has found that there are strong indications that there the segmentation theory and investor recognition play parts in the patterns of bond issuing. The results also suggest that the hedging theory is a plausible strategy for the firms issuing. Unfortunately, the patterns related to hedging are not exclusive enough to rule out other strategies or intentions regarding the currency choice on the bonds. The theory therefore only remains plausible. The bonding view is the only theory that appears more unlikely to have an impact on which market the firms issue their bonds.

7. CONCLUSION

This thesis aims to research patterns of the international bond issuances among Norwegian firms. The main focus was set on the firm level, which was proved to be a challenging task in terms of accessible data. From various sources, the database finally consisted of 412 domestic bonds, and 73 international bonds, issued by a total of 124 firms over the time period of 1998 till 2008. 111 of the firms were categorized as only issuing in the domestic market, and the last 15 issuing internationally.

In order to get a better understanding of the firms' characteristic patterns, the bond issuances were first descriptively analyzed at aggregate level both in total and sorted for industries. The results showed that the international issues were, on average, much larger than the domestic issues. Furthermore, only half of the industries were represented among the issues abroad. One of the main features and reasoning for this outcome was the amount of business done abroad, and large intensity of exporting goods and services. Another industrial pattern that emerged was how the shipping industry consequently issued bonds in the domestic market. The reasoning behind this was related to the specialized, or segmented, market that Oslo Børs offers and presents within shipping.

The observations of the characteristics were in some areas very volatile between the industries. By using bootstrapping methods, and the non-parametric, quantile regression, the volatile data was processed and resulted in statistically accepted coefficients. The emerging results proved the characteristics of the two set of firms to be very different. In almost all of the characteristics, the international issuing firms had better features. Firms issuing internationally proved to be much larger in terms of assets that the domestic issuing firms. They had also a higher return of equity, higher capex, and they had better prospects of servicing their debt. The characteristics for capital structure showed both the set of firms were fairly high leveraged, though the firms issuing internationally showed a slightly lower debt to assets ratio. While the annual growth proved to be at a higher among the domestic issuing firms, this is believed to be a result of differences in size and development of the firm.

The analysis also resolved patterns in the credit ratings, denomination of bonds, and choice of underwriters in order to get a more surrounding image of the bond issuing patterns. The results showed that only a very few of the Norwegian firms were rated by international rating

agencies. Those rated, were mainly among the firms issuing abroad, though the majority of them were rated as BBB or lower. The reason for this was thought to be access to information and lack of requirements from clients this should, however, be more researched more qualitatively. As for the use of underwriter, there patterns show that while the domestic bonds are underwritten by Scandinavian banks and agencies, the international bonds are underwritten by larger international banks and agencies. Only three banks were represented to underwrite in both markets. This is backed by theory of investor recognition, but shows that it is not only the firm's recognition and reputation that is of important when issuing bonds internationally.

Among the theories discussed the most plausible and present explanations among the patterns are the investor recognition and currency risk hedging. The segmentation view seems also to be present, especially in relation to the Shipping and Fish farming industry. Finally, the bonding view appears to have little or no relation in the patterns from these results. However, there are aspects of the view that seems to be of significance in the Norwegian corporate market, and should be further researched.

This thesis does not aim to prove or rebut the theories discussed in the published literature. For that it is not extensive enough. However, this thesis has linked the patterns and results to some of these existing theories in order to support or oppose their presence in affecting the choices of Norwegian firms issuing bond. In doing so the thesis provides directions, and hopefully encouragement, to further research on the patterns and features associated with the bond issuing activity from Norwegian firms.

8. APPENDIX

8.1 LIST OF FIRMS

Figure 12 shows the list of all firms in the dataset used in this thesis. The firms are also divided into firms only issuing domestically and firms issuing internationally.

List of firms comprising the dataset

Domestic			International
Ability Drilling ASA	Energiselskapet Buskerud AS	PETROMENA ASA	**Aker Solutions ASA**
Actinor Shipping ASA	Entra Eiendom AS	Posten Norge AS	**E-CO Energi AS**
Agder Energi AS	Farstad Shipping ASA	Prosafe ASA	**Enitel**
Aker ASA	Felleskjøpet AGRI BA	Reservoir Exploration Technology ASA	**Norsk Hydro ASA**
Aker BioMarine ASA	Fred. Olsen Energy ASA	Revus Energy ASA	**Norske Skogindustrier ASA**
Akershus Energi	Fredrikstad Energi AS	Rieber & Søn ASA	**Northern Offshore Ltd.**
Altinex Oil Norway AS	Frontier Drilling ASA	Rocksource ASA	**Ocean Rig ASA**
American Shipping Company ASA	Hafslund ASA	Roxar ASA	**Ocean Rig Norway AS**
APL ASA	Havila Shipping ASA	Seadrill Limited	**Orkla ASA**
Austevoll Seafood ASA	Hexagon Composites ASA	Selvaag Gruppen AS	**Petroleum Geo-Services**
Avantor ASA	I.M. Skaugen SE	Sevan Marine ASA	**Statkraft AS**
Ballangen Energi AS	Ignis ASA	Siem Offshore Inc.	**StatoilHydro ASA**
Belships ASA	InterOil Exploration and Production ASA	Sinvest AS	**Telenor ASA**
Bergen Group ASA	Kenor ASA	Skanska Norge	**Telenor Communication**
Bergenshalvøens Komm. Kraftselskap AS	Kollektivtransportproduksjon AS	Software Innovation ASA	**Yara International ASA**
BIR AS	Kongsberg Gruppen ASA	Sogn og Fjordane Energi AS	
Blom ASA	Kværner ASA	Solstad Offshore ASA	
BW Gas ASA	Linstow	Songa Offshore SE	
Camillo Eitzen & Co ASA	Loki ASA	Steen & Strøm ASA	
Cecon ASA	Lyse Energi AS	StepStone ASA	
Color Group ASA	Marine Harvest ASA	STX Europe ASA	
COSL Drilling	NattoPharma ASA	Tafjord Kraft	
Crystal Production ASA	NextGenTel Holding ASA	Tandberg Data ASA	
Deep Sea Supply ASA	NorgesGruppen ASA	Telio Holding ASA	
DeepOcean ASA	Norse Energy Corp. ASA	TGS-NOPEC Geophysical Company ASA	
DNO International ASA	Northern Logistic Property ASA	Thon Holding AS	
DOF ASA	Nortura BA	Thule Drilling ASA	
DOF Subsea ASA	Norwegian Air Shuttle ASA	Tine BA	
Eastern Drilling ASA	Norwegian Energy Company ASA	Tordenskjold ASA	
EDB Business Partner ASA	Norwegian Property ASA	TTS Marine ASA	
Eidsiva Energi AS	Ocean HeavyLift ASA	Umoe AS	
Eidsiva Rederi ASA	Oceanteam ASA	Visma ASA	
Eitzen Chemical ASA	Odfjell SE	VMetro ASA	
Eitzen Maritime Services ASA	Olav Thon Eiendomsselskap ASA	Wega Mining ASA	
Electromagnetic Geoservices ASA	Oslo Bolig og Sparelag	Wilh. Wilhelmsen ASA	
Elkem ASA	Petrojack ASA		
Eltek ASA	Petrolia Drilling ASA		

Table 7. List of firms comprising the dataset.

8.2 EXCHANGE RATES

Year	USD/NOK
1998	7.5465
1999	7.8047
2000	8.8058
2001	8.9879
2002	7.9702
2003	7.0824
2004	6.7372
2005	6.445
2006	6.418
2007	5.86
2008	5.6361
2009	6.2816

The exchange rate is USD pr NOK. They are extracted from Norges Bank, the central Bank of Norway. They are calculated based on the daily average currency exchange rate per year. Throughout the thesis these are used in order to exchange USD denominated bonds, financial statements and any other statistic in order to be correctly compared with similar figures denominated in NOK.

Table 8. USD/NOK exchange rates. *Source: Norges Bank*

8.3 ISSUING PATTERNS SORTED BY INDUSTRIES

Table 9 and 10 show the number of bonds issued by each industry over the whole time period 1998 – 2008. The numbers reflect the number of issued in total, where the domestic market had a lot of issues, especially at the end of the period, while the international issues are low and spread. The Oil and Gas industry clearly represent the largest issuing industry.

Domestic - Number of issues per Year sorted by industry											
Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Industry	2	2	-	1	2	2	2	3	6	10	1
Service	1	-	-	1	-	1	1	3	5	5	1
Energy and Utility	3	1	3	4	2	7	7	5	5	6	5
Property	2	-	1	1	1	2	3	3	6	4	1
Food and Beverages	1	-	-	1	1	1	1	3	1	2	2
Transportation	1	-	-	-	-	1	-	-	-	1	1
Shipping	-	1	3	4	-	2	4	5	13	8	1
Insurance	-	1	-	-	-	-	-	-	-	0	-
Oil and Gas	-	-	3	3	1	1	5	10	12	10	3
Fishery	-	-	1	-	-	-	-	-	-	1	-
Pulp and Paper	-	-	1	1	-	-	1	-	-	1	-
Wholesale and Retail	-	-	-	1	-	1	2	2	1	4	-
Telecom/IT	-	-	-	1	1	-	1	-	7	-	1

Table 9. The number of bonds issued in the domestic market sorted by industry and year.

International - Number of issues per Year sorted by industry											
Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Industry	1	1	1	-	-	-	2	-	-	-	-
Service	-	-	-	-	-	-	-	-	-	-	-
Energy and Utility	-	-	-	-	-	-	2	-	1	1	-
Property	-	-	-	-	-	-	-	-	-	-	-
Food and Beverages	-	-	-	-	-	-	-	-	-	1	-
Transportation	-	-	-	-	-	-	-	-	-	-	-
Shipping	-	-	-	-	-	-	-	-	-	-	-
Insurance	-	-	-	-	-	-	-	-	-	-	-
Oil and Gas	5	2	1	1	1	1	1	1	-	-	-
Fishery	-	-	-	-	-	-	-	-	-	-	-
Pulp and Paper	-	-	-	1	-	-	-	-	-	1	-
Wholesale and Retail	-	-	-	-	-	-	-	-	-	-	-
Telecom/IT	-	-	1	-	2	-	-	1	1	1	-

Table 10. The number of bonds issued in the international market sorted by industry and year

8.4 HISTORICAL CHANGES IN CREDIT RATINGS OF NORWEGIAN FIRMS

Table 11 shows the ratings and their changes of all Norwegian firms rated by Standard and Poor in the period of 1998 – 2008. The figures show that the only Statoil ASA, Telenor and Norsk Hydro had ratings of A or higher. The majority of the firms are rated BBB or lower. The signs for *+/- are related to expected positive or negative change. The "NR" and blank means Non-rated.

The historical changes in Firm credit ratings 1998 - 2008					
Company Name	Date	Agency	New Rating	Last Rating	Country
Norsk Hydro	3-Aug-07	S&P	BBB	A-*-	NO
Norsk Hydro	18-Dec-06	S&P	A-*-	A-	NO
Norsk Hydro	2-Jun-06	S&P	A-	A	NO
Norske Skogsindustrier	23-Sep-08	S&P	BB-	BB-*-	NO
Norske Skogsindustrier	21-Apr-08	S&P	BB-*-	BB	NO
Norske Skogsindustrier	28-Jan-08	S&P	BB	BB+	NO
Norske Skogsindustrier	14-Nov-06	S&P	BB+	BBB-*-	NO
Norske Skogsindustrier	20-Oct-06	S&P	BBB-*-	BBB-	NO
Norske Skogsindustrier	8-Apr-04	S&P	BBB-*-	BBB*-	NO
Norske Skogsindustrier	18-Mar-04	S&P	BBB*-	BBB	NO
Norske Skogsindustrier	25-Mar-03	S&P	BBB	BBB*-	NO
Norske Skogsindustrier	5-Feb-03	S&P	BBB*-	BBB	NO
Norske Skogsindustrier	12-Oct-01	S&P	BBB		NO
SAS	6-Nov-08	S&P	B	BB-	NO
SAS	22-Jul-08	S&P	BB-	BB*-	NO
SAS	30-Apr-08	S&P	BB*-	BB	NO
SAS	4-Sep-07	S&P	BB		NO
Statoil	3-Aug-07	S&P	AA-	A+*+	NO
Statoil	18-Dec-06	S&P	A+*+	A+	NO
Statoil	8-Nov-06	S&P	A+	A	NO
Statoil	19-Jun-01	S&P	A	AA-*-	NO
Statoil	15-Nov-00	S&P	AA-*-	AA-	NO
Statoil	15-Mar-00	S&P	AA-	AA	NO
Statoil	2-Dec-98	S&P	AA	AA+	NO
Telenor	1-Aug-06	S&P	BBB+	A-	NO
Telenor	25-Sep-01	S&P	A-	A*-	NO
Telenor	26-Jul-01	S&P	A*-	A	NO
Telenor	16-Jan-01	S&P	A	AA*-	NO
Telenor	3-Apr-00	S&P	AA*-	AA+*-	NO
Telenor	20-Jan-99	S&P	AA+*-	AA+	NO
Yara International	4-Oct-07	S&P	BBB	BBB+*-	
Yara International	25-May-07	S&P	BBB+*-	BBB+	
Yara International	20-Dec-05	S&P	BBB+	BBB	
Yara International	30-Nov-04	S&P	BBB		
PGS	10-Jul-06	S&P	BB-	B+*	
PGS	31-Mar-06	S&P	B+*	B+	
PGS	6-May-05	S&P	B+		
PGS/Old	12-Nov-03	S&P	NR	D	
PGS/Old	30-Jul-03	S&P	D	CC*-	
PGS/Old	30-Dec-02	S&P	CC*-	CCC+	
PGS/Old	20-Nov-02	S&P	CCC+	B	
PGS/Old	29-Oct-02	S&P	B	BB-*	
PGS/Old	31-Jul-02	S&P	BB-	BBB-*-	
PGS/Old	3-May-02	S&P	BBB-*-	BBB-	
PGS/Old	19-Jan-01	S&P	BBB-	BBB	
Ocean Rig	19-Jun-08	S&P	NR	B	
Ocean Rig	23-May-08	S&P	B	B*+	
Ocean Rig	23-Apr-08	S&P	B*+	B	
Ocean Rig	29-Feb-08	S&P	B	B-	
Ocean Rig	15-Jun-05	S&P	B-	CCC*+	
Ocean Rig	11-May-05	S&P	CCC*+	CCC	
Ocean Rig	15-May-01	S&P	CCC*	CCC*-	
Ocean Rig	1-Mar-01	S&P	CCC*-	CCC*	
Ocean Rig	9-Jun-00	S&P	CCC*	CCC*-	
Ocean Rig	15-Jul-99	S&P	CCC*-		
Statkraft AS	3-Oct-06	S&P	BBB+		
Songa Offshore SE	27-Jan-10	S&P	B+		
DNO International	16-Jun-04	S&P	NR	B	
DNO International	31-Oct-03	S&P	B		

Table 11 Historcial changes in credit ratings of Norwegian firms. *The last three firms, Songa Offshore SE and DNO International are domestic firms. Source: Bloomberg*

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- Lov om Vannfall og bergverk, Chapter 1 §1
- Lov om undersjøiske naturforekomster

IFRS regulations set upon Norway

- http://www.estandardsforum.org/norway/standards/international-financial-reporting-standards

Oslo Stock Exchange

- Oslobors.no
- Osloabm.no

9.2 SOURCES OF ADDITIONAL DATA INPUT

Amadeus 2.0
"Børsprojektet" at Norwegian School of Economics and Business Administration, NHH

Income Statement data
- www.proff.no
- www.ravninfo.no

Norsk Tillitsmann
www.stamdata.no

WRDS Compustat (Financial Statements)
http://wrds.wharton.upenn.edu/