

# Seasoned Equity Offerings: The Choice of Method of Issue and Abnormal Returns in the Nordics

Caroline Hultman\* Kenneth Vickström\*\*

Bachelor thesis

Stockholm School of Economics, Spring 2016

## Abstract

---

This thesis aims to explain geographical differences in the choice of method of issue in seasoned equity issues (“SEOs”) and the subsequent impact on abnormal returns. We analyze two different types of SEOs - rights issues and public offers - in the Nordic region, where the rights issue method is significantly more common than in other geographies. Firstly, the thesis analyzes abnormal returns following the announcement of a SEO. We find evidence that rights issues are followed by significantly more negative abnormal returns than open offers. In an attempt to explain why public companies in the Nordic region continue to prefer rights issues over public offers despite higher indirect costs, we assess if there is a relationship between the method of issue and shareholder concentration. We use shareholder take-up (the proportion of existing shareholders subscribing to the SEO) as a proxy for ownership concentration and hypothesize if SEOs with higher shareholder take-up display less negative abnormal returns. This study provides no evidence in favor of this argument. However, the average level of shareholder take-up is very high (circa 90%) in the Nordic region, which, despite the higher indirect costs associated with rights issues, provide some proof as to why the rights issue remains popular in the region. The strong ownership tradition in the Nordic countries provides widespread incentives to large shareholders to maintain a concentrated ownership structure. As a result, large shareholders continue to prefer non-dilute methods of raising new funds, like rights issues.

---

**Keywords:** Seasoned equity offerings (“SEOs”), rights issues, public offers, abnormal returns, shareholder take-up, ownership concentration

---

\* B.Sc. in Business and Economics, 22922@student.hhs.se

\*\* B.Sc. in Business and Economics, 22814@student.hhs.se

## Table of Contents

<b>1. Introduction</b>	<b>4</b>
<b>2. Introduction to SEOs</b>	<b>5</b>
2.1 SEO offer methods	6
2.1.1 Public offers	6
2.1.2 Rights issues	6
2.2 Share of offer methods	6
2.3 Regulation of SEOs	8
2.3.1 The preemption right	8
2.3.2 Deviations from the preemption right	8
2.4 Issue costs and other indirect costs of SEOs	9
2.5 The history of corporate ownership in the Nordics	9
<b>3. Previous literature</b>	<b>10</b>
3.1 Abnormal returns following the announcement of SEOs	10
<b>4. Elaboration of hypotheses</b>	<b>12</b>
4.1 SEOs and abnormal returns following announcement	12
4.2 The relationship between shareholder take-up, method of issue and abnormal returns	12
<b>5. Data sample</b>	<b>13</b>
5.1 Sample of SEOs in the Nordics	13
5.2 Description of variables	15
5.2.2 Control variables	15
<b>6. Methodology</b>	<b>16</b>
6.1 Statistical significance	16
6.2 Definition of abnormal return and event study window	16
6.2.1 Calculating abnormal returns	16
6.2.2 Event window	16
6.3 Ordinary least square regression	18
<b>7. Results</b>	<b>18</b>
7.1 Hypothesis 1: Share price effects following announcements of SEOs	18
7.1.2 Ordinary least squares (OLS) analysis	19
7.1.3 Hypothesis 2: Shareholder take-up and the choice of issue method	19
<b>8. Discussion</b>	<b>21</b>
8.1 Share price effects around announcements of SEOs	21
<b>9. Conclusion</b>	<b>23</b>
<b>10. Limitations</b>	<b>24</b>
10.1 Suggestions for future research	24
<b>References</b>	<b>25</b>
<b>Appendix</b>	<b>26</b>

<b>List of figures</b> .....	
Figure 1 Market share of offer types in Denmark, Finland, Norway and Sweden .....	7
Figure 2 Number of offers per offer type in Denmark, Finland, Norway and Sweden.....	7
Figure 3 The event window .....	17
Figure 4 Abnormal return over the (-4,4) window around announcement date .....	19
 <b>List of tables</b> .....	
Table 1 Formation of final sample.....	14
Table 2 Key figures .....	14
Table 3 The abnormal return divided by offer type in different event windows .....	17
Table 4 The average CAR, divided by rights issues and open offers .....	19
Table 5 Ordinary Least Squares regression on CAR's around the SEO window .....	20
Table 6 Mean differences in shareholder take-up .....	21
 <b>Appendix</b> .....	
Additional table 1 The correlation between the different independent variables deployed .....	26
Additional table 2 Variance ratio test for CARs between rights issues and open offers.....	26

## 1. Introduction

This study investigates two types of seasoned equity offerings (SEO), rights issues and open offers, and aims to assess potential reasons for geographical differences in popularity and market reactions between the two. Rights issues have generally decreased in popularity, from once being the dominant method of equity issue in the US, rights issues now account for approximately 2.5% of all US equity offerings. In recent years, a similar trend towards decreased popularity of rights issues has been observed in the European markets. In contrast, rights issues continue to be a common method of issue in smaller markets like the Nordics.

Studies have consistently shown that the share price of the issuing company on average falls following the announcement of a SEO. However, share price reactions following announcements of different types of issuance methods, e.g. rights issues or a public offer, in different countries, have been less consistent. By examining a sample of US SEOs, Eckbo and Masulis (1992) show that share prices decrease more following the announcement of an open offer than upon the announcement of a rights issue. Contrastingly, Burton (1999) reports that for a sample of UK SEOs, the share price reaction following rights issues is negative, whereas there is no significant share price reaction following an open offer. Little research has been devoted to explain such cross-sectional differences in the reaction of different issuance methods. In this report, we study SEOs in Denmark, Finland, Norway and Sweden, where the share of rights issues is significantly larger than in other countries. Public companies in the Nordics, and in particular in Sweden, have high ownership concentration as a result of a strong tradition of founders retaining large stakes in the company even after it is introduced to the market. Shareholders with large stakes, in particular with controlling positions, are assumed to have large incentives to subscribe to rights issues in order to avoid dilution. Further to this, we aim to establish a relationship between the ownership concentration of the issuing firm, and the preferred method of issue in order to explain cross-sectional variations in the reactions of different methods of issue.

We aim to contribute to existing literature by assessing explanations for cross-sectional differences in share price responses to different types of security issues. The study examines a sample of SEOs conducted in countries where rights issues are significantly more common than in other regions. A recent report by Eckbo et al (2008) hypothesizes that the cost of rights issues increases as companies grow larger and ownership becomes less concentrated. The original argument, first developed by the same author in 1992, known as the “Adverse Selection and the Rights Offer Paradox” argues that there is a potentially large risk and cost associated with unsubscribed rights, in a “market for lemons”, where some investors are better informed than

other. Our research is motivated by the importance for issuers of seasoned equity, as well as advisors in relation to an offer, and aims to increase the understanding of regional underlying factors of costs in relation to different types of offers.

In this thesis we show that rights issues in the Nordic markets are associated with a significantly more negative cumulative abnormal return (“CAR”) than open offers following the announcement of a seasoned equity offer. Nevertheless, rights issues remain popular in the Nordic markets. According to Eckbo (2008) this phenomena could be explained by the relationship between the choice of method of issue and shareholder take-up. This thesis provides some results in line with Eckbo’s theory. Shareholder take-up is high on average in the Nordic region (circa 90%, compared to 65% to 90% in the US). Eckbo argues that the shareholder borne costs of a rights issue decreases as shareholder take-up increases, thus, the concentrated ownership structure and the high level of shareholder take-up in Nordic SEOs can partially explain why rights issues continues to be a preferred method of issue despite large indirect costs.

The remainder of the thesis is structured as follows. The next section outlines the SEO process, and more specifically, differences between rights issues and open offers, regulations, and costs of SEOs. Furthermore, we provide a background to the strong culture of consolidated ownership in the Nordics and in Sweden in particular. Section 3 includes the relevant literature and previous research within the field of abnormal returns with a focus on differences between rights issues and open offers. This transitions into section 4, where our research hypothesis related to cross-sectional differences to different types of offers is developed. Section 5 provides a description of the data collection process and variable definitions, followed by an explanation of the chosen methodology in section 6. Section 7 and 8 presents a discussion around the results and a comparison to previous literature. Conclusions and recognized limitations are drawn in section 9 and 10 respectively.

## **2. Introduction to SEOs**

Seasoned equity offerings (SEOs) are issuances of additional equity (securities) by a company whose shares are already traded in the secondary market. Reasons for the conduction of a SEO can be to finance new investment opportunities, to reduce the amount of debt outstanding or to improve liquidity. (Hull et al., 2009). SEOs can be primary (offer of new equity by issuing company), secondary (block sale by existing shareholder) or a combination of the two. This report focuses on primary offerings, i.e. issuances where the issuer is the seller and the proceeds from the sale provide new capital for the firm and increase the number of total shares

outstanding. A set of different offer methods used in this thesis (rights issues and open offers) and the dissimilarities between the two are described in the following part.

## **2.1. SEO offer methods**

Primary equity issuances can either be issued to existing shareholders (rights issues) or to the public (public offers). In the case of a rights issue, shares are offered to existing shareholders in proportion to their shareholding in the company. Some companies have a pre-emption right stated in their corporate charters and are therefore obliged to issue equity through the rights issue method. This study examines a sample retrieved from SDC Platinum, a database that differentiates between rights issues and open offers.

### **2.1.1 Public offers**

Public offers is an umbrella term that includes different types of offers that target the public market rather than existing shareholders. There are many alterations of public offers with different features as to structure, marketing and preferential allocation. Public offers include, but are not limited to, Fully-Marketed, Accelerated Bookbuild, Bought Deal, Cash placing and Guaranteed Preferential Allocation (public, but with priority to existing shareholders). In public offers one or multiple underwriters are selected to conduct and market the offer to investors. The SEO process varies widely among different public offer types. Fully-marketed offers are marketed most extensively, through an extensive roadshow, whereas Accelerated Bookbuilds or Bought Deals are finalized within a few days.

### **2.1.2 Rights issues**

Rights issues (non-public offers) are offers of equity to existing shareholders, by which the shareholders are offered to buy additional securities in the company in proportion to their holding of existing shares. The preemption right mitigates dilution and provides the opportunity for existing shareholders to either preserve their same share of equity as of prior to the offer, or to sell their rights in exchange of cash.

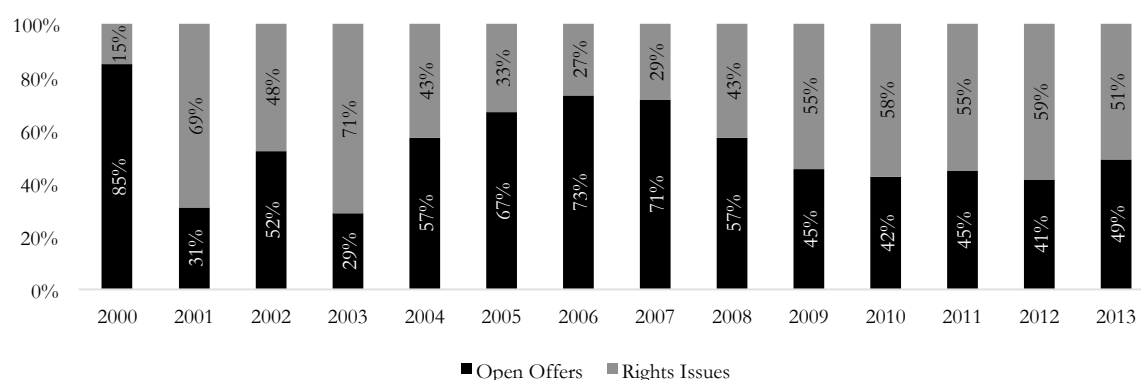
## **2.2. Share of offer methods**

Internationally, the stake of rights issues in relation to public offers has changed considerably over time. Rights issues were the most common issue method in the US between 1935 and 1955. In the late 1970s, most US industrial companies transferred to public offers and since 1980, only 2.5% of US public issuers and 0.9% of regulated utilities in the US have used the rights issue

method (Eckbo, 2008). In recent years, a similar trend has been observed in Europe (Eckbo, 2008). By contrast, rights offers have continued to be a common method of issue in smaller stock markets, like the Nordics. Figure 1 shows the share of rights issues and public offers using a recent dataset from the SDC platinum database of SEOs in Denmark, Finland, Norway and Sweden between 2000 and 2013. The weakening share of rights issues observed in the US and in Europe cannot be found in the Nordics. On the contrary, the proportion of rights issues has increased after the financial crisis in 2007-2008. Furthermore, figure 2 shows the number of rights issues and open offers per country. Rights issues are a common method of issue across all Nordic countries, but is significantly more common in Finland and Denmark and the dominant method of issue in Sweden. The relatively common usage of rights issues in the Nordic countries can partly be explained by the applications of SEO regulation outlined in the next section.

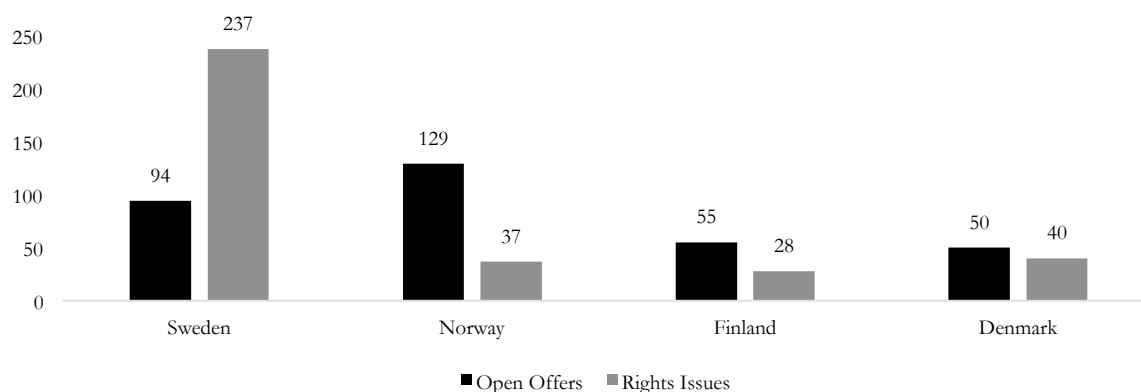
**Figure 1.**

Seasoned equity offerings by issue type (rights issues vs. open offers) in Denmark, Finland, Norway and Sweden from 2000-2013  
Source: SDC Platinum



**Figure 2.**

Number of seasoned equity offerings by type of issue in Denmark, Finland, Norway and Sweden from 2000-2013  
Source: SDC Platinum



## **2.3 Regulation of SEOs**

The regulation of SEOs and the preemption right to existing shareholders are similar across the countries investigated (Denmark, Finland, Norway and Sweden) and other countries such as the UK and US. However, the application of the regulation widely differs. The general principle in all countries is that existing shareholders have preferential rights to new shares in proportion to their stakes in the company. In the US, however, case law has often allowed companies to disregard the preemption right to existing shareholders, since that right makes it more difficult for companies to efficiently and flexibly issue new equity (Drinker, 1930). Since the US regulatory system relies heavily on case law, open offers are more commonly used in the US. Furthermore, in the countries investigated, the issuing process is initiated through a SEO proposal by the Board to the General Meeting, and the decision to conduct a SEO is taken upon simple majority at the General Meeting. A prerequisite for the validity of the SEO is that the company's Corporation Charter allows an increase in the total number of shares, as well as the total share capital.

### **2.3.1 The preemption right**

According to the general principle, existing shareholders have preferential rights to new shares in proportion to their stakes in the company, referred to as the primary preemption right. The preemption right aims to protect existing shareholders' shares from being diluted, and to retain balance between various shareholder groups. Additionally, in Sweden, a company with multiple types of shares (e.g. A and B shares) must specify the preemption right type in the Corporation Charter. Generally, it is stated in the Corporation Charter that the shareholder has an equal right to issued shares of all sort (equal preemption right), or that the shareholder only has a preferential right to the share class that they already hold (different preemption right).

### **2.3.2 Deviations from the preemption right**

Rights issues are one of the most prevalent issue methods of equity in Europe, and in the Nordics in particular. Up until the 1970s, shareholders in the Nordics had unconditioned preferential rights. In the 1970s, the absolute requirement was eased and thenceforward it is legal to issue new shares to both existing and non-existing shareholders. However, the decision to conduct a public offer requires 2/3 of the votes at the General Meeting, compared to the requirement in rights issues of a simple majority. The decision to deviate from the preemption right can only be made with respect to the individual case, and cannot be imposed in the Corporation Charter (Swedish law of Corporations, 2005:551).



## **2.4 Issue costs and other indirect costs of SEOs**

When assessing the choice of issue method, one can assume that companies choose the offer type that minimizes all costs related to the issue. Equity issues are associated with substantial issue costs specifically related to the issue, such as expenses to accountants, lawyers and underwriting and listing fees. However, previous research has shown that issues are also associated with substantial hidden costs, namely a negative share price reaction following the announcement and issue discounts. In the Nordic region, companies are not obliged to disclose direct costs related to an equity issue, therefore a complete comparison of all costs between rights issues and public offers is not possible. Furthermore, extensive research has documented differences in offer price discounts between rights issues and open offers. Research finds an average discount of approximately 3% for public offers (Mola and Loughran, 2004) whereas rights issues are normally offered at a 10-15% discount (Eckbo, 2008). Even though the discount phenomenon is vastly documented, attempts to find a complete set of factors that determine the discount and the ability to measure such has proven far less successful. Consequently, this report focuses on differences in abnormal returns between rights issues and open offers. Previous research on the topic is examined in the literature sector.

## **2.5 The history of corporate ownership in the Nordics**

Corporate ownership in the Nordics, in Sweden and Denmark in particular, is very concentrated compared to ownership in Anglo-Saxon countries (Peter Höfeldt, 2005). Dispersed ownership on the other hand, is most commonly a result of the need for firms to raise new capital through external markets, and indirectly the political environment that underlies the dependency of firms to rely on external markets for financing. In the Nordics, the political framework has been very much in support of dual-class shares, which separates votes from capital. The separation of ownership and control fuels the difference in financing costs of internal and external capital, as new external shareholders demand more compensation for the lack of control rights. This further enhances the pecking order of financing; existing owners aim to rely on retained earnings or debt funding and avoid equity issues, in particular public offers that would dilute their control. In the Nordic region, the enhancement of the pecking order has been reinforced by a political framework that supports banks to own equity. Banks that hold an equity stake in a company are more willing to provide debt financing. In summary, politicians in the Nordics have pursued three policies that have had a significant impact on corporate financing and ownership in the Nordic region for the last 100 years; i) banks have been allowed to own equity stakes ii) share structures that separate votes from capital (A and B shares) have been strongly promoted and

foreign ownership was limited for a long time iii) financing through retained earnings have been given a material tax advantage compared to equity funding (Peter Höfeldt, 2005).

### **3. Previous literature**

#### **3.1. Abnormal returns following the announcement of SEOs**

Following the announcement of SEOs, a negative stock price reaction of approximately 3% on average has been systematically found in preceding studies (Asquith and Mullins, 1986; Schipper and Smith, 1986; Masulis and Korwar, 1986; Eckbo and Masulis, 1992). Furthermore, the studies suggest that the vast majority of firms (between 70% and 80% of the sample) experience negative abnormal returns when announcing a SEO. Despite the consistent nature of these findings, attempts to explain geographical differences in share price reactions to different types of securities have proved less successful.

Widespread research has endeavored to explain the factors that influence the damaging market reaction to SEOs without distinguishing between rights issues and public offers. The leading explanation for the negative reaction is that the announcement of a SEO signals overvaluation. Majluf and Myers (1984) describe the phenomenon as an adverse selection problem. Insiders do not necessarily need to sell equity to communicate a negative signal to the market; the ordinary act of issuing equity bears a negative signal about the value of the company, since managers are assumed only to issue equity if they believe the company is overvalued.

Furthermore, Scholes (1972) and Asquith and Mullins (1986) label an alternative explanation for negative abnormal returns following SEO announcements, “the price-pressure hypothesis”. They argue that an equity issue, which increases the amount of shares outstanding, causes a decline in the stock price because the demand curve for the stock is downward sloping. Their theory implies that the issuing company’s share is unique and that there are no close substitutes.

The role of the method of issue in explaining geographical differences in market reactions to announcements of equity issue has been examined less extensively, largely because most research has investigated the US market and the vast majority of American share issues are fully underwritten public offers (Burton et al., 1999). Eckbo and Masulis (1992) were first to report abnormal returns for three different SEO methods using a US sample. They find that the market reaction is negative for all SEOs, but that the reaction is most negative for public offers (-3%) compared to rights offers with stand-by underwriting (-1%) and uninsured rights issues (-1%). The findings of Eckbo and Masulis are aligned with the Myers and Majluf theory which assumes that new equity is issued to investors, who at the time of announcement, are not shareholders in

the issuing firm. Myers and Majluf's theory does not appear to predict any significant share price movements when issues are made to current shareholders. Burton et al. (1999) attempts to establish whether UK evidence provides the same level of support for Myers and Majluf's analysis as the findings by Eckbo and Masulis in the US. They find that on average, rights issues are associated with a highly significant mean return of approximately -8%, whilst non-rights issues are accompanied by a mean return on roughly -1%. The rights issues therefore appear to account for the negative abnormal return of approximately 3% for the whole sample. This result provides evidence that the market responds both to the equity issue itself and to the particular offering method employed. Existing theoretical explanations of this phenomenon are not compatible with the finding of Burton et al and therefore further research to explain cross-sectional differences in share price reactions to SEOs may prove useful.

Lastly, Eckbo (2008) develops a flotation method decision model whose underlying factors can be used to analyze and interpret geographical differences in share price reactions to different methods of issue. Eckbo identifies several indirect costs of rights issues that are individually very small, but can add up to a point where they deter some issuers from using rights. Firstly, in a rights offer, shareholders that do not want to subscribe to the issue must sell their shares. These sales are subject to capital gains taxes, and there is thus a relative tax disadvantage to rights. Secondly, the resale of rights by current shareholders take place on exchanges entailing dealer spreads and brokerage fees that imply a transaction cost disadvantage of rights. Thirdly, investors can use the rights as warrants to hedge short positions in the issuer's stock. Thus, by conducting a rights issue, issuers indirectly encourage short selling, which creates uncertainty as to the ultimate subscription level of the offer. In sum, the indirect costs of rights issues are large when shareholder take-up by existing shareholders is low. Based on the relationship between indirect costs of rights and shareholder take-up, Eckbo develops a flotation method decision theory. Eckbo states that the attraction of the rights issue method, in addition to its low direct costs, is that the wealth transfer is zero if all current shareholders subscribe to the offer. However, in cases where current shareholder take-up is expected to be low, a rights offer potentially carries large adverse selection costs because most of the issue must be sold to outside investors (through shareholders trading their rights) without any accompanying quality certification by an investment bank. Therefore, companies are expected to switch from rights towards open offers when shareholder take-up becomes sufficiently low. The model also predicts that shareholder take-up decreases as the size of the company increases and the current shareholders become increasingly reluctant to keep funding the issuers' investments.

## **4. Elaboration of hypotheses**

### **4.1 SEOs and abnormal returns following announcement**

Many precedent studies have documented that the share price of the issuing firm on average tends to decrease following the announcement of a SEO. Nevertheless, attempts to explain differences in share price reactions to different types of SEOs across geographies have proven less successful.

As discussed in the previous section, the analysis of Myers and Majluf (1984) provides theoretical evidence in favor of the findings of Eckbo and Masulis' in the US, namely that public offers are associated with more negative abnormal returns than rights issues. However, similar studies in the UK have failed to display the same level of support for Myers and Majluf's theory. Evidence by Burton (1999) indicates that announcements of seasoned equity offers in the UK results in a significantly negative abnormal returns only when the offer is conducted as a rights issue. These contradictory results provide a compelling justification for analyzing seasoned equity offers directed to existing shareholders of the firm separately from the seasoned equity offers which are addressed to new potential investors. In the subsequent part of the thesis, the objective is to investigate the role of equity issue method in explaining the share price response to new issue announcements. We examine a sample of SEOs conducted in the Nordics (Denmark, Finland, Norway and Sweden) and investigate if the Nordics display an abnormal return pattern that corresponds to former findings in the US or UK. The geographic area used in this study is specifically appropriate for examining this topic because equity issues conducted via the rights method is a particularly common method of issue in the Nordics. Since rights issues are significantly more common in the Nordics than in other geographies, and because shareholders that face wealth constraints and demand diversification might choose not to participate in rights issues, we expect the indirect costs of the rights method, as analyzed by Eckbo (2008), to be negatively reflected in the share price reaction following the announcement of a rights issue. Therefore, we formulate our hypothesis in this thesis as follows:

*H1: Cumulative abnormal returns following the announcement of a seasoned equity issue are significantly more negative for rights issues than for open offers*

### **4.2 The relationship between shareholder take-up, method of issue and abnormal returns**

Eckbo (2008) has previously documented the relationship between indirect costs of rights issues and the amount of shareholders that subscribe to the SEO. Eckbo states that the attraction of the rights issue method, further to its low indirect costs, is that the wealth transfer is zero if all

current shareholders subscribe to the offer. On the other hand, a rights issue carries potentially large adverse selection costs if shareholder take-up is expected to be low. As a result, shareholders are expected to prefer public offers over rights issues only when the level of shareholder take-up is expected to be sufficiently low. Furthermore, corporate ownership in the Nordics, in particular in Sweden and Denmark, is very concentrated compared to other Anglo-Saxon countries (Peter Höfeldt, 2005). As discussed in the introductory section, three politics have had a widespread impact on ownership of Nordic firms; i) banks have been allowed to own equity stakes ii) share structures that separate votes from capital (A and B shares) have been strongly promoted and foreign ownership was limited for a long time iii) financing through retained earnings have been given a material tax advantage compared to equity funding (Peter Höfeldt, 2005). In an attempt to establish if the strong corporate ownership structure in the Nordics provides evidence in favor of Eckbo's theory of the relationship between abnormal returns and shareholder take-up, we would ideally have formulated a second hypothesis similar to the first one, namely "*Cumulative abnormal returns following the announcement of a seasoned equity issue are significantly more negative when shareholder take-up is low*". However, due to the very limited data on shareholder take-up; out of the 335 issues in the sample that have shareholder take-up data, 330 are rights issues and 5 are open offers. Consequently, a regression analysis would not provide any reliable evidence in favor of the hypothesis. Thus, we have instead chosen to investigate if shareholder take-up in Sweden, where rights issues are significantly more common than in other geographies, is higher. We formulate the second hypothesis as follows:

*H2: Shareholder take-up in seasoned equity offering conducted in Sweden is significantly higher than in the rest of the Nordic countries*

## **5. Data sample**

### **5.1 Sample of SEOs in the Nordics**

The data sample used in this thesis has been manually gathered from the SDC Platinum database (2015) and from Datastream (2015) by using a sample period ranging from 2000 to 2013. The sample contains seasoned equity offerings by firms in the Nordics, namely Denmark, Finland, Norway and Sweden. For the purpose of analyzing the specific hypothesis we have excluded secondary offerings due to their non-dilutive nature. As a consequence, the sample only includes primary offerings. Furthermore, offerings with an incomplete set of issue information in the SDC Platinum database, and offerings by firms that lack financial information in relation to either stock prices or control variables in Datastream have all been deleted from the final dataset. Due

to the above-mentioned exclusions, the original dataset of 2,091 offerings has been reduced to 655. Table 1 below shows the formation of the final dataset.

**Table 1.**

Formation of final sample

The table shows the manual adjustments made to the original sample retrieved from SDC Platinum and Datastream

<b>SEOs in the Nordics during 2000-2013</b>	<b>2,091</b>
Secondary offerings	-718
Observations with incomplete SDC data	-303
Observations with incomplete Datastream data	-415
<b>Final sample</b>	<b>655</b>

**Table 2.**

Key figures

The final sample consists of 655 SEOs (rights issues and open offers) conducted in Denmark, Finland, Norway or Sweden from the year 2000 until 2013. Table 1 (above) describes the manual adjustments made to the original data.

Year	All SEOs		Rights Issues		Open Offers	
	Number of issues	Average proceeds (\$mil)	Number of issues	Average proceeds (\$mil)	Number of issues	Average proceeds (\$mil)
All	655	58.10	339	62.60	316	53.27
2000	33	62.61	5	13.52	28	71.38
2001	33	15.31	27	15.6	12	16.61
2002	20	29.85	10	44.2	10	15.5
2003	7	22.84	5	29.7	2	5.7
2004	14	84.23	5	128.0	8	51.4
2005	10	253.71	4	190.8	5	295.55
2006	25	145.91	7	50.53	18	180.46
2007	20	139.0	5	321.75	14	50.57
2008	45	34.42	22	34.2	23	34.63
2009	91	132.13	47	170.45	44	91.19
2010	129	36.31	77	44.40	52	24.33
2011	115	24.76	64	31.45	51	16.37
2012	65	31.78	38	35.70	27	26.25
2013	42	30.27	21	33.49	21	27.05

Table 2 displays yearly key figures of the SEOs in the final dataset divided by method of issue. As can be seen in the table, the sample displays a broad variation both in terms of the number of issues and the average proceeds over time. Variations over time can to a large extent be explained by varying macroeconomic conditions. Firstly, companies often state new investments and financing of acquisitions as reasons for conducting an SEO and one can assume that companies make more investments in good economic times. Secondly, the appetite of new equity investments from capital markets is similarly higher in good economic times. However, more importantly for the purpose of analyzing the hypothesis, it can also be seen in the table that the popular method of issue tends to vary over time. From 2006 to 2008 public offers were the most popular issue method in the Nordic countries, but after 2008 rights have increased in popularity to become the most popular issue method, with a peak in 2010.

## **5.2. Description of variables**

In order to evaluate if there are any differences in abnormal returns between SEOs conducted as rights issues and SEOs conducted as open offers, we refer to the dummy variable “Offertype”. The “Offertype” variable has the value 1 if the firm conducted an SEO via the rights issue method, and the value 0 if the firm conducted the offer via an open offer.

### **5.2.2. Control variables**

In order to assess whether there are any other variables than offer type that affect or explain abnormal returns following the announcement of SEOs, we have included a set of control variables when performing regression analysis. The control variables included are based on what previous researchers have identified as other potential influences on abnormal returns in the context of SEOs. Control variables recognized in previous research includes (but are not limited to): (1) Market Capitalization, (2) Market-to-book Ratio, (3) Relative Offer Size, and (4) Year, Country and Industry dummy variables.

Asquith and Mullins (1986) argue that larger companies, e.g. companies with higher Market Capitalization, are more exposed in media and are more thoroughly scrutinized by equity research analysts. Thus, pricing inefficiencies caused by information asymmetry could potentially be smaller for larger issuing firms. Furthermore, Denis (1994) and Eckbo et al. (2007) includes the Market-to-book Ratio as a control variable for multiple reasons. On one hand, one could argue that the Market-to-book Ratio is a measure of a company’s growth prospects and that if the company is issuing equity to fund growth opportunities, the market reaction to the SEO announcement should be positive. On the other hand, Rhodes-Kropf et al. (2005) argue the Market-to-book Ratio could be considered a measure of mis-valuation, which instead would imply that firms with a high Market-to-book Ratio should react more negatively to SEO announcements. Additionally, Scholes (1972) argues that according to the price pressure hypothesis, an increase in the supply of stocks should reduce the price, as the stock has a downward sloping demand curve. Therefore, a larger relative offer size should imply a more negative abnormal return. Relative offer size is, for the purpose of this thesis, calculated as the amount of shares offered as a percentage of the total market value of the firm before the announcement. Lastly, we include year, country and industry dummy variables to control for time, country and industry fixed effects. The purpose of the year dummy is to control for cyclical effects such as macroeconomic conditions, whereas the country variable targets to control for country characteristics such as differences in legislation. The industry dummy is used to capture any industry-specific effect, such as differences between high and low-tech industries. In order to

capture broader industry trends, the industry dummy in our analysis is simply the first number in the SIC-code.

## 6. Methodology

### 6.1 Statistical significance

To investigate if the mean cumulative abnormal return differs significantly between the two groups with different issue method, a two-sided two-sample t-test for an unpaired sample is conducted. The student's t-test is chosen, and considered most appropriate because the two groups are independent of each other, and our sample is normally distributed. Furthermore, we have chosen to apply the Welch's adaption to the t-test, because the two groups do not have equal variances (Table III, Appendix).

### 6.2 Definition of abnormal return and event study window

#### 6.2.1 Calculating abnormal return

The abnormal return is formally the disturbance term of the market model, defined as the difference between the actual return and the expected return predicted by the market at time  $t$  (MacKinlay, 1997). However, in this thesis, no precise market model has been used because of the limitations of this thesis and our dataset. Instead we have chosen to define the abnormal return of a stock as the difference between the return of that specific stock, and the return of the market where the stock is listed.

$$AR_{it} = R_{it} - R_{mt} \quad (1)$$

In the formula above,  $AR_{it}$  is defined as the abnormal return for the stock of firm  $i$  at time  $t$ .  $R_{it}$  is defined as the return for the stock of firm  $i$  at time  $t$ , and  $R_{mt}$  is defined as the return for the market  $m$  at time  $t$ . Furthermore, the abnormal returns for each firm, are summarized over a defined event window to allow us to investigate the total effect of the offer on the stock price following the announcement. Cumulative abnormal return is calculated as follows:

$$CAR(t_1, t_2) = \sum_{t=t_1}^{t_2} (AR_t) \quad (2)$$

Where  $t_1$  is defined as the first day of the pre-defined event window, and  $t_2$  is defined as the last day of the pre-defined event window.

#### 6.2.2 Event window

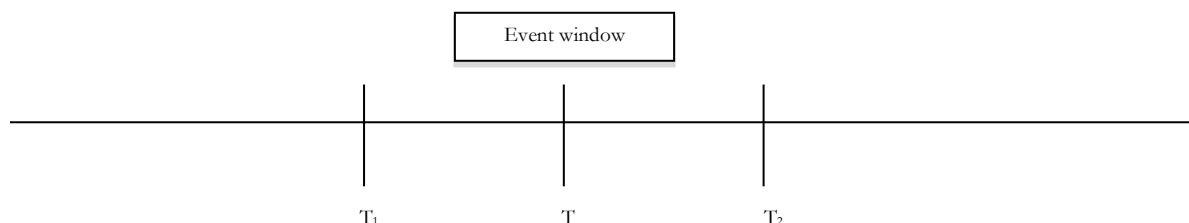
To be able to calculate the total cumulative abnormal return for each firm affected by the announcement of their SEO, this thesis uses an event study that ranges from four days before announcement of the offer, to four days after the announcement of the offer.



**Figure 3.**

The event window used in this thesis

In the event window used in this thesis, for which the CARs are computed,  $T_1$  is the first day,  $T$  is the announcement date, and  $T_2$  is the last day of the event window.



No clear standard as to the length of the event window has been established. Both longer and shorter event windows have documented advantages and drawbacks, in which a short event window may miss some of the effect from the announcement, while a long event window may contain too much disturbance from other factors than the announcement of the offer. In order to control for these drawbacks, the event study is conducted on 5 event windows in addition to the event window used in the main study. Table 3 shows the means of the cumulative abnormal returns divided by choice of issue method in all six event windows. As can be seen in the table, shorter event windows displays smaller negative returns, most definitely because the whole effect of the SEO announcement is not captured in such a short time. The fact that the whole announcement effect is not displayed in a shorter event window can be explained by two potential reasons. Firstly, one reason may be that insiders trade on non-public information before the announcement, which causes some reaction to take place prior to the event window. Secondly, it may take time before the SEO announcement is recognized by all investors and thus the full effect of the announcement is priced in, which causes some effect to take place after day

**Table 3.**

The average abnormal return in different event windows sorted by choice of issue method

The table displays the average abnormal return for different event windows, divided by offer type. The results was found using a multiple two sample t-tests with unequal variances. The Rights issues-column shows the average abnormal return for rights issues, the Open offers-column shows the average abnormal return for open offers, and the p-value-column displays the p-value of the null hypothesis that the average abnormal return for the two groups is the same.

Event window	Average abnormal return		p-value
	Rights issues	Open offers	
(-5,5)	-5.80%	0.35%	0.000
(-4,4)	-5.96%	0.09%	0.000
(-3,3)	-5.22%	-0.73%	0.000
(-2,2)	-3.89%	-1.01%	0.006
(-1,1)	-4.04%	-0.44%	0.000
(0,1)	-3.12%	-0.46%	0.005

### **6.3 Ordinary least square regression**

In this thesis, ordinary least square regressions are used to test the effect on CAR, depending on the method of issue. In all OLS-regressions run in this thesis, the control variables that has been mentioned and explained in earlier sections of the thesis, as well as the dummy variables for year, country and industry are included. The regressions are run with standard errors estimated by the Huber-White Sandwich Estimator, to correct for heteroscedasticity. These standard errors are hereafter referred to as ‘robust’ standard errors. In our hypothesis, we test if the cumulative abnormal return is more negative for rights issues than for open offers. Thus, the dependent variable in the regression is the cumulative abnormal return over the event window and the independent variable in the regression is the offer type variable, which takes on the value 1 for rights issues and 0 for public offers.

## **7. Results**

### **7.1. Hypothesis 1: Share price effects following announcements of SEOs**

This part of the thesis tests our first hypothesis, that the cumulative abnormal return following the announcement of an equity issue is more negative for rights issues than for open offers. The cumulative abnormal return is measured during an event window ranging from four days before the announcement of the issue until five days after the issue, by conducting Welch’s t-test. Welch’s t-test is considered most suitable when the subgroups in the sample (rights offers and public offers) follow a normal distribution, but have variances that differ between the subgroups. Table 4 below, shows that the average cumulative abnormal return is -5.96% for rights offers, whilst only 0.09% for the group of public offers. This result can be viewed as strong evidence in favor of our hypothesis, that the cumulative abnormal return is significantly lower for rights offers than for the public offers. Furthermore, Figure 4 also displays that the cumulative abnormal return display a similar pattern across both methods of issue, or even higher for rights issues until about 1 day before the announcement date. Following that day, the average cumulative abnormal return is significantly lower for rights issues than for open offers.

**Table 4.**

The average CAR, divided by rights issues and open offers.

Table 4 shows the results from Welch's t-test, when testing our Hypothesis 1. The cumulative abnormal return used was calculated from an event window ranging from four days prior to the announcement to four days after the announcement. The test is conducted on all the primary SEOs in the Nordic region during the period from 2000 to 2013. The dataset is gathered from SDC Platinum.

Group	Observations	Mean	Std. Err.	Std. Dev	95 % Conf. Interval
Rights issues	339	-0.0595529	0.0098983	0.1822473	-.07902 -.04008
Open offer	319	0.0008957	0.0086739	0.1549214	-.01616 .01796
Combined	658	-0.0302473	0.0067091	0.1720991	-.04342 -.01707
Difference		0.0604486	0.0131611		.03461 .08629

Difference = mean (open offer) – mean(rights issue)

t = 4.5930

df = 651.332

Ha: diff < 0

Ha: diff != 0

Ha: diff > 0

Pr(T < t) = 1.0000

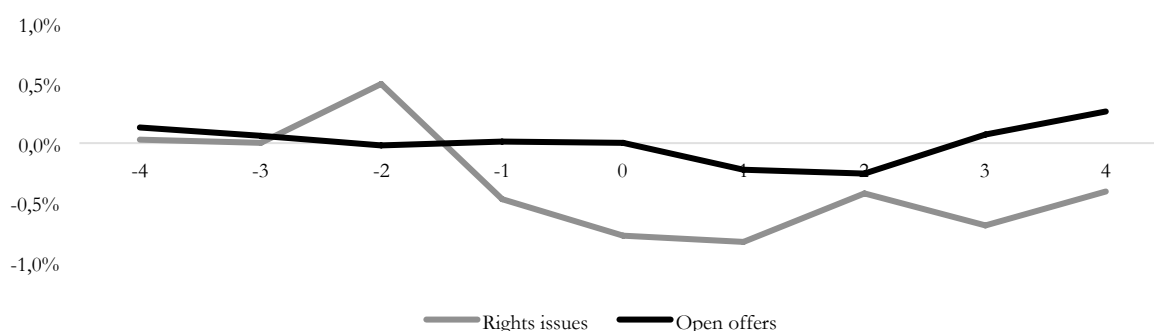
Pr(|T| > |t|) = 0.0000

Pr(T > t) = 0.0000

**Figure 4.**

Average abnormal return per day in the event window from four days prior to announcement date to 4 days after the announcement date

The figure displays the average abnormal return per day from four days before the announcement date until four days after the announcement date.



### 7.1.2. Analysis through OLS-regression

In this part of the thesis we conduct an OLS regression to analyze the impact of the type of issue method on the cumulative abnormal return, while at the same time as adjusting for the control variables explained in the previous section. The control variables applied in the OLS regression are Market Capitalization, Market-to-book Ratio, Relative offer Size as well as year, country and industry fixed effects. As hypothesized, the OLS reveals a high impact of the type of offer on cumulative abnormal returns, as the Offertype coefficient is statistically significant amounting to -0.07. In line with our hypothesis, we see that the effect on the cumulative abnormal return is significantly larger, in a negative direction, if the issue is conducted via the rights issue method, rather than if the issue is conducted via an open offer, while looking at an event window ranging from four days before the announcement to four days after the announcement. Thus, we can conclude that the results of the OLS regression provides evidence in favor of the first hypothesis. Our results are in line with Burton et al. (1999) who find that rights issues in the UK are

associated with a highly significant average return of approximately -8%, whilst non-rights issues are accompanied by a mean return of roughly -1%. It therefore seems like the negative cumulative abnormal return of the rights issues account for almost all negative abnormal returns in the sample. With regards to the control variables, we do not find evidence that either the Market Capitalization, Market-to-Book Ratio or Relative offer Size has any impact of abnormal returns following the SEO announcement in Nordic countries.

**Table 5.**

Analysis of cumulative abnormal returns following the announcement of SEOs through an OLS-regression

Table 5 shows the results from the OLS-regression testing Hypothesis 1. The cumulative abnormal return is calculated from four days prior to the announcement to four days after the announcement, and is used as the dependent variable. Log transformation has been applied on the variables firm age and market capitalization, while dummy variables have been used for the variables offertype, year, country and industry. The brackets denotes the value of the robust standard errors of the regression. The test is conducted on a sample of primary SEOs in the Nordic region during the period from 2000 to 2013. The dataset is gathered from SDC Platinum.

	(1)	(2)	(3)	(4)
<i>Dependent variable CAR (-4,+4)</i>				
Constant	<b>-0.089**</b> (0.042)	<b>-0.088**</b> (0.042)	<b>-0.088**</b> (0.042)	<b>-0.120***</b> (0.046)
Offertype	<b>-0.070***</b> (0.015)	<b>-0.070***</b> (0.015)	<b>-0.070***</b> (0.016)	<b>-0.070***</b> (0.016)
Market-to-book value		<b>0.0002</b> (0.0002)	<b>0.0002</b> (0.002)	<b>-0.0002</b> (0.0002)
Relative offer size (%)			<b>0.0002</b> (0.0003)	<b>0.0004</b> (0.0002)
Ln (Market Cap)				<b>0.004</b> (0.003)
Year Dummies	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes
Observations	658	658	657	657
R-squared	0.076	0.077	0.169	0.169

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

## 7.2. Hypothesis 2: Shareholder take-up and the choice of issue method

As has been developed in section 6.4 of this thesis, Eckbo argues that the rights issue method should be preferred when shareholder take-up is high (Eckbo, 2008), and Sweden is the investigated country in the Nordics that uses rights issues to a significantly larger extent than open offers (Figure 2). Thus, differences in shareholder take-up between Swedish issues and the issues in the other Nordic countries are investigated by conducting a T-test. As can be seen in Table 6 the shareholder take-up is very high in both subgroups, with the average take-up in Sweden (91.92%) being slightly higher than the average take-up in the other markets (89.01%). The difference between the subgroups is not statistically significant (p-value of 0.1379). In conclusion, Eckbo (2008) finds that shareholder take-up for rights issues in the US averages from 65% to 90%. Thus, the level shareholder take-up in the Nordics, around 90%, can be considered high in comparison to other geographies. We can therefore establish that there seems to be a

relationship between shareholder take-up and the choice of issue method in the Nordics and that the high subscription level of existing shareholders contributes to the continuing preference of rights issues in the region.

**Table 6.**

The mean differences in shareholder take-up, divided by Swedish and other Nordic offers

Table 6 shows the results from Welch's t-test, when testing for shareholder take-up. The variable that was tested is the average shareholder take-up of the offers, divided by two subgroups; Swedish offers and other Nordic offers. The test is conducted on primary SEOs in the Nordic region during the period from 2000 to 2013, which had data for shareholder take-up. The dataset is gathered from SDC Platinum.

Group	Observations	Mean	Std. Err.	Std. Dev	95 % Conf. Interval
Other issues	101	89.00647	2.300624	23.12099	84.442 93.571
Swedish issues	234	91.92089	1.346888	20.60342	89.267 94.575
Combined	335	91.04221	1.169235	21.40051	88.742 93.342
Difference		-2.914424	2.665892		-8.176 2.347

Difference = mean (other issues) – mean(Swedish issues)

t = -1.0932

df = 172.98

Ha: diff < 0

Ha: diff != 0

Ha: diff > 0

Pr(T < t) = 0.1379

Pr(|T| > |t|) = 0.2758

Pr(T > t) = 0.8621

## 8. Discussion

### 8.1. Share price effects around announcements of SEOs

This thesis finds that the announcement of a rights issue on average results in a negative cumulative abnormal return of the issuing company of around -6%. At the same time, we find that the announcement of a public offer does not cause any significant changes in the share price of the announcing firm. Consequently, we argue that this provides enough evidence to confirm our first hypothesis, namely that rights issues result in significantly more negative cumulative abnormal returns than public offers. Previous research have shown that the announcement of an SEO causes reactions in the share price, and our result provides evidence that the market reaction is a response both to announcement of the equity issue itself, and to the particular offering method employed.

The finding is in line with Burton et al. (1999) who report that rights issues in the UK are associated with a highly significant mean return of approximately -8%, whilst non-rights issues are accompanied by a mean return of -1%. In contrast, our result is not in line with Eckbo and Masulis's (1992) finding in the US, that the market reaction is negative for all SEO types, but that the reaction is the most negative for public offers (-3%) compared to rights offers with stand-by underwriting (-1%) and uninsured rights issues (-1%). Moreover, the leading theoretical explanation of abnormal returns around SEOs, developed by Myers and Majluf (1984) is not compatible with our result. Myers and Majluf's analysis assumes that equity is issued to investors,

who at the time of the announcement, are not shareholders in the issuing firm. Consequently, their model does not predict any significant price movements when issues are made to current shareholders (rights issues). Theoretical evidence of significantly more negative returns of rights, that could explain our findings in the Nordics, could potentially be found in Eckbo's (2008) flotation method decision theory. The model states that, in cases where current shareholder take-up is low, rights offers carries potentially large adverse selection costs because most of the issue must be sold to outside investors (through shareholders trading their rights) without any accompanying quality certification by an investment bank.

In our second hypothesis, we investigate the level of shareholder take-up in the same sample. The mean shareholder take-up in the full sample is 91.04 %, which is very high compared to average shareholder take-up in other geographies (Eckbo, 2008). The result provides a possible explanation for why rights issues continue to be a dominant method of issue in the Nordic region, despite a reverse trend internationally. However, the fact that our first hypothesis shows that the cumulative abnormal return is significantly more negative for rights issues than open offers provides evidence of the contrary, namely that shareholders in the Nordic region should prefer open offers over rights issues when assessing the costs in isolation. More qualitative aspects of the choice of issue method in the Nordics may prove to have a significant value in explaining the continuous preference for rights issues. Dialogues with corporate finance and capital market professionals in Sweden reveal that maintaining the voting and thus the implementation power is very highly valued by anchor investors in the region. Thus, higher short-term indirect costs of rights issues may be overlooked or considered less relevant in comparison to long-term goals that controlling shareholders have the opportunity to implement.

For future research we believe a further investigation of shareholder take-up is relevant. Due to the limited access of shareholder data (out of a total sample of 655 issues, shareholder take-up data is only available for 335 issues, whereof 330 are rights issues) we have not been able to conduct any more complex analysis of abnormal returns and shareholder take-up. In this context, it might be of interest to investigate how the shareholder take-up affects the announcement effect of rights issues and open offers across geographies where the relative market share of offer types differ, e.g. to extend the research to include a comparison of the Nordic region and the US, where rights issues is a disappearing phenomenon. In line with Burton et al. (1999), we conclude that attempts to identify a comprehensive set of factors which explain cross-sectional variations in share price responses to different types of offers have not yet proved successful, wherefore further work in this area may prove useful.

## 9. Conclusion

Over a longer period of time, public offers have been used more frequently, and has passed rights offers as the most popular issue method across a number of regions. This trend was first seen in the US, but has in the last couple of years also been observed in Europe and Asia. In contrast, rights issues are still a common method of issue in smaller stock markets like the Nordics, where the listed companies have more concentrated ownership (Eckbo, 2008).

In this thesis we look at Nordic rights issues and public offers in the light of previous findings in the areas of abnormal returns and shareholder take-up of SEOs. In the first hypothesis, we investigate if the cumulative abnormal returns are larger, in a negative direction, after the announcement of rights issues compared to open offers. We find that the announcement of a rights issue in the Nordic markets leads to an average cumulative abnormal return of around -6%, while the announcement of a public offer does not lead to any significant share price change. The results provide support for the fact that the Nordic markets responds both to the announcement of the SEO itself, as well as to the particular choice of issue method.

In the second hypothesis, we analyze the level of subscribing shareholders in SEOs and conclude that shareholder take-up is about 90% in the Nordic region, compared to an average shareholder take-up of 65% to 90% in the US. The high level of subscribing shareholders provides evidence in favor of the continuing popularity of rights in the Nordic region. The strong ownership tradition in the Nordic region implies that there is an incentive for controlling shareholders to maintain their voting lights and level of control by subscribing to a rights issue. Consequently, shareholders may continue to prefer rights issues over open offers despite their higher indirect costs for other reasons than pure cost-based factors.

In this thesis, we contribute to existing literature within the area of SEOs, abnormal returns and shareholder take-up by providing new evidence in a geographic area where rights issues continue to be preferred, despite decreased popularity internationally. We examine a new possible explanation for the choice of issue method, namely ownership tradition, which proves to be strong and unique within the investigated geographic area. Previous theoretical explanations for abnormal returns are not consistent with the results showed in this study, and an investigation of an extended cross-sectional sample may prove useful in future research.

## 10. Limitations

The study fulfills its purpose as an explorative study of abnormal returns of SEOs, however, a more properly constructed model of abnormal returns would predict more accurate results. The abnormal return is formally the disturbance term in the market model, defined as the difference

between the actual return and the expected return predicted by the model. In this thesis, we define abnormal return as the difference between the actual return and the return of the market.

### **10.1. Suggestions for future research**

What determines cross-sectional differences in share price reactions to different offer methods is still not established. This paper assumes that there are indirect shareholder borne costs related to rights issues. This assumption is firmly established in research, however, not verified in practice. In this context, it is of interest for future research to investigate further how the relationship between shareholder take-up and indirect costs of rights issues, as developed by Eckbo (2008) affect share price reactions to offer types of SEOs. Our thesis finds evidence of the relationship between shareholder take-up and the choice of method of issue, but is incompatible with Eckbo's theory of the relationship between shareholder take-up and abnormal returns. Future research within the area should include a larger sample of SEOs across geographies where the split between issue methods vastly differs. Furthermore, the analysis of the Nordic markets in specific would benefit from further analysis of qualitative aspects, since the rights issue pattern in the Nordics seems to be an exception rather than a rule.



## References

### *Periodicals*

- Aboody, David and Baruch Lev, 2000, Information Asymmetry, R&D, and Insider Gains, *The Journal of Finance* 55, 2747–2766.
- Asquith and Mullins, 1986, Equity issues and offering dilution, *Journal of Financial Economics* 15, 61-89.
- Burton, Loine and Power, 1999, Does the issue method influence the market reaction to seasoned equity offer announcements?, *Applied economic letters* 6, 459-462.
- Denis, David J., 1994, Investment opportunities and the market reaction to equity offerings, *Journal of Financial and Quantitative Analysis* 19, 159-177.
- Drinker, 1930, The Preemptive right of shareholders, *Harvard Law Review*, 1930, 599.
- Eckbo, Espen B., 2008, Equity Issues and the Disappearing Rights offer Phenomenon, *The Journal of Applied Corporate Finance* 20, 72-87.
- Eckbo and Masulis, 1992, Adverse selection and the rights offer paradox, *Journal of Financial Economics* 32, 293-332.
- Eckbo, B. Espen, Ronald W. Masulis and Oyvind Norli, 2007, Security Offerings, Tuck School of Business Working Paper No. 2005-28.
- Hull, Robert M., Sungkyu Kwak and Rosemary L. Walker, 2009, Signaling and proceeds usage for seasoned equity offerings, *Investment Management and Financial Innovations* 6, 50-51.
- Högfelt Peter, 2005, *The History and Politics of Corporate Ownership in Sweden*.
- Korwar Ashok N. and Ronald W. Masulis, 1986, Seasoned Equity Offerings: An Empirical Investigation, *Journal of Financial Economics* 15, 91-118.
- MacKinlay, A. Craig, 1997, Event Studies in Economics and Finance, *Journal of Economic Literature* 34, 13-39.
- Mola, Simona and Tim Loughran, 2004, Discounting and clustering in seasoned equity offering prices, *Journal of Financial and Quantitative Analysis* 39, 1-31.
- Myers and Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* 13, 187-221.
- Schipper and Smith, 1986, A Comparison of Equity Carve-outs and Seasoned Equity Offerings, *Journal of Financial Economics* 15, 153-186.
- Scholes, Myron S, 1972, The Market for Securities: Substitution Versus Price Pressure and the Effects of Information on Share Prices, *The Journal of Business* 45, 179-211.

## Databases

Datastream, 2015, Thomson Reuters Datastream, retrieved on 2015-03-26 from <http://wrds-web.wharton.upenn.edu/wrds/>

Thomson SDC Platinum, 2015, retrieved on 2015-03-28

## Other sources

Swedish law of Corporations, 2005:551

## Appendix

### Additional Table I.

The table shows the correlation between the different independent variables deployed

	Firm age	Bid-ask-spread (%)	Stock volatility	Market-to-book ratio	Relative offer size (%)	Market capitalization (\$mil)
Firm age	<b>1.000</b>					
Bid-ask-spread (%)	<b>-0.0268</b>	<b>1.000</b>				
Stock volatility	<b>-0.0412</b>	<b>0.0519</b>	<b>1.000</b>			
Market-to-book ratio	<b>-0.0240</b>	<b>0.0337</b>	<b>0.0246</b>	<b>1.000</b>		
Relative offer size (%)	<b>-0.0561</b>	<b>-0.0763</b>	<b>-0.0166</b>	<b>-0.0262</b>	<b>1.000</b>	
Market capitalization (\$mil)	<b>0.0221</b>	<b>0.0932</b>	<b>0.0406</b>	<b>0.0491</b>	<b>-0.0230</b>	<b>1.000</b>

### Additional table III.

Variance ratio test for CARs between rights issues and open offers

Test on the equality of standard deviations (variances) of Cars between rights issues and open offers. The tested variable is the standard deviation of the cumulative abnormal return starting four days prior to the announcement date and ending four days after the announcement date. The sample is derived from the SDC Platinum database and is comprised for all primary offers of equity in Denmark, Finland, Norway and Denmark during the period 2000-2013.

Group	Observations	Mean	Std. Err.	Std. Dev	95 % Conf. Interval
Rights issues	339	-0.0595529	0.0098983	0.1822473	-.07902 -.04008
Open offer	319	0.0008957	0.0086739	0.1549214	-.01616 .01796
Combined	658	-0.0302473	0.0067091	0.1720991	-.04342 -.01707

Ratio = sd(open) / sd(rights)

f = 0.7226

H0: Ratio=1

df = 318, 338

Ha: ratio < 1

Ha: Ratio != 1

Ha: Ratio > 1

Pr(F < f) = 0.0017

2\*Pr(F < f) = 0.0034

Pr(F > f) = 0.9983