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The Price Phenomenon of Equity Issues

-A Study on Initial Public Offerings and Seasoned Equity Offerings-

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Abstract

Title: The Price Phenomenon of Equity Issues –A study on Initial Public Offerings and Seasoned Equity Offerings-

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Key words: IPO, SEO, price effects, information asymmetry, underpricing, discount

Purpose: The purpose of this thesis is to investigate the price effect on the initial day of trading of IPOs and the price effect on the announcement day of SEOs on the Stockholm Stock Exchange. A second purpose is to determine which factors influence the price effects and investigate if these factors can be explained by the same fundamental ideas.

Methodology: For the purpose of this thesis a quantitative research method is used. By using the quantitative method the price effects can be measured and the explanatory variables can be examined. Further, an accurate comparison can be made with other findings. In accordance with the quantitative method, the study's results will be measured with statistical instruments to assure accurate conclusions.

Theoretical perspective: In this thesis theories regarding capital structure and the pricing of IPOs and SEOs are covered.

Empirical findings: To detect the pricing effects a regression analysis is used including numerous potentially explanatory variables. The final models are constructed after stepwise excluding variables.

Conclusion: Our results are consistent with previous studies, which imply positive initial returns for IPOs and negative announcement returns for SEOs. Factors determining the price effect in IPOs were found to be the logarithm of sales and the dummies for the IT sector, H&Q and SEB. For SEOs the factors were the discount and the percentage change in shares. Although, different variables are found to affect the pricing of IPOs and SEOs it is argued that they emanate from the same fundamental theory; information asymmetry.

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1 Introduction

The intention with this chapter is to present a background to the study's research question and purpose. The two concepts, Initial Public Offering (IPO) and Seasoned Equity Offering (SEO), will be presented and reasons to why firms choose this way of raising capital will be discussed. Further, the different price effects in IPOs or SEOs will be examined and a few well-documented studies will be introduced. Finally, previous studies will be reviewed and compared, which will lead us to this study's problem and purpose.

1.1 Background

When faced with investment possibilities or expansion opportunities companies often need to raise new capital. Depending on a firm's preferences and capital structure the firm can either issue debt or equity. Both entail various costs and benefits, expressed in different tradeoff theories. Miller and Modigliani (1963) presented the tax benefits of debt but also the cost of financial distress. Jensen and Meckling (1976) researched the agency cost of debt and equity financing and Ross (1977) discussed the different cost and benefits of signalling with capital structure. In addition to the tradeoffs theories, Myers and Majluf (1984) presented the pecking order in which financing is driven by the adverse selection that arises as a result of information asymmetry between managers and investors. The pecking order model claims that it is more expensive to issue securities than debt. Another perspective on the pecking order is given by Shyam-Sunder and Myers (1999) who argue that the relationship between profitability and leverage is negative.

The above discussed theories are taken into consideration when a firm decides to raise new capital. The choice depends on several factors such as the firm characteristics, profitability prospects, time and existing capital structure (Hovakimian et al., 2004). If the firm decides to issue equity the stock market can be used as a source. There are two ways for a firm to raise new capital on the stock market; an Initial Public Offering (IPO) or a Seasoned Equity Offering (SEO). When a company undertakes an IPO it means that it allows its shares to be sold and bought by the public on a stock exchange. Benninga et al. (2005) argue that the reasons for an IPO are not just related to the issuing of new capital. The authors suggest that another driver could be the higher valuation of the shares by diversified investors than by undiversified. Further, Bolton and Thadden (1998) imply that by going public the firm can enhance its value through the increased monitoring as it lessens the information asymmetry. They also claim that an IPO makes the firm more liquid which increases the firm value. Once a company is listed on a stock exchange it can raise additional capital through a SEO to current investors in order to meet investment possibilities ahead.

A SEO also involves the release of shares. However, the firm releases additional shares after it is already listed on the stock exchange. The reasons for conducting a SEO can be, as already mentioned, the need for capital. However, management also issues equity when the firm stock is believed to be overvalued. A SEO can be used when an external financing is necessary to meet the appearing investment opportunity. The probability that a firm will undertake a SEO depends partly on the profitability of the existing projects. The more profitable the investment the more likely it is the firm will undertake a SEO (Lee, 1997).

Irrespectively of how the firm raises capital, it is important for the company to set and receive the right price for the stock. There are several researchers (Ritter, 1984; Asquith and Mullins,

1986; Loughran and Ritter, 2004) who have conducted studies on how the market values the stocks and also on the price effect appearing when new shares are released. In the researched field of IPOs the phenomena of an abnormal positive return named underpricing, is researched among others by Tinic (1988) and Loughran and Ritter (2004). The latter study treats the IPO underpricing and argues that the price effect is related to information asymmetry and to the scare of failing to go public. A SEO announcement has by several researchers (Asquith and Mullins, 1986; Masulis and Korwar, 1986; and Sant and Ferris, 1994) been proved to cause an equity drop of two to three percent on the notice day. The explanation for the price fall is complex and is by some researchers explained with the information asymmetry theory as the investors interpret the issue as a signal of overvaluation (Harjoto and Garen, 2003; Mola and Loughran, 2004).

1.2 Problem Discussion

Within the field of finance, the valuation of stocks is of great significance. Koop and Li (2001) stress the central role valuation plays when setting the price of a company's equity for issuing purposes and the importance of valuation for the issuing firm when determining the capital structure. The authors believe that the valuation should be determined by the market's future expectations of the firm's profitability. However, studies (Ritter, 1998; Slovin et al., 2000; Homlén and Högfeldt, 2004) have shown that the market's and the companies' valuations do not correspond, which leads to mispricing. As indicated in the background this mispricing has been widely researched throughout the years both in the field of IPO and SEO.

In the IPO field well-documented studies (Ritter, 1986; Rock, 1986) stress that IPOs are underpriced. The underpricing is well documented all over the world by several researchers. Holmén and Högfeldt (2004) study the Swedish underpricing, Burrowes and Jones (2004) document the U.K. underpricing and Loughran and Ritter (2004) the U.S. market's underpricing. Other studies (Koop and Li, 2001; Loughran and Ritter, 2004) have taken the research further and attempt to measure which factors affect the mispricing of stocks. The factors used are firm specific characteristics such as net sales, net revenue, age, total asset and debt. The IPO studies also include variables beyond the company's control. Such factors are often hot and cold market, an index indicating the state of the market, industry affiliation and the underwriters ranking. There are several ways of identifying the misvaluation; some research uses the percentage change from day zero to day one (Megginson and Weiss, 1990; Loughran and Ritter, 2004) while others use pre and post book-to-market values (Ritter, 1998).

The SEO research has also charted the price effects over time and on different markets. Most of the research on seasoned equity issuance focuses on American corporations conducting firm commitment public offerings (Eckbo and Masulis, 1992). However, there are a few studies on other markets than the U.S. Slovin et al. (2000) chart the negative announcement return in the U.K, Bøhren et al. (1997) map the announcement return in Norway and Subbaro (2005) document the price effect in Germany. It should be pointed out that the studies made in Europe are rights issues while the dominating research in the U.S. is on underwritten SEOs. The general findings are a negative return. The other phenomenon researched within the SEO field is the discount. One of the first researchers within this area was Smith (1977) who reported an average discount of 0,54 percent during 1971 to 1975. This study has been followed by several others (Loderer et al., 1991; Mola and Loughran, 2004) and there is a general conviction that the average discount has increased over the years. Several studies (Eckbo and Masulis, 1992; Bøhren et al.,1997; Solvin et al.,2000) have also measured the

underlying reasons for the price effect on SEOs. As in the case of IPOs explanatory factors include firm characteristics and factors that the firm cannot control for. A few of the firm characteristics found in the literature are proceeds-to-market, book-to-market, market value of equity, size of offer and discount. A factor that the firm cannot control for could be hot or cold markets.

From the above discussion it is evidential that both the price effects of IPOs and SEOs are widely researched on various markets. However, it is found that there is lack of research on the Swedish market within the two fields. There are to our knowledge only one study (Holmén and Högfeldt, 2004) on the Swedish market which measures the underpricing of IPOs from 1979 to 1997 but no study measuring the price effect of SEOs is found. Further, no study measuring the factors affecting the price effect of IPOs and SEOs on the Swedish market has been found. Therefore, this study will contribute with evidence of price effects of SEO announcements and factors affecting this misvaluation in IPOs or SEOs. Further, a different angle on the two phenomena will be given by combining them in the same study. The reason for bringing the two research fields together in one study is that they both emanate from fundamental theories such as information asymmetry, agency cost and efficient market hypothesis. Though, the measurement of the price effect take different expressions in an IPO or a SEO both the price effects are assumed to roughly be explained by the same theories. In addition, and more importantly managers often conduct a SEO after an IPO and by combining the two research fields in one study the aim is to contribute to a better overview and understanding of the field. This will be done by finding similarities and differences in the pricing of IPOs and SEOs and by comparing various explanatory factors and their underlying meanings.

1.3 Purpose

The purpose of this thesis is to investigate the price effect on the initial day of trading of IPOs and the price effect on the announcement day of SEOs on Stockholm Stock Exchange. A second purpose it to conduct studies on which factors influencing the price effects and if these factors can be explained by the same fundamental ideas.

1.4 Delimitations

In order to create an accurate and relevant study there is a need for limitations. This study will only use companies that are listed on the Stockholm Stock Exchange, on the A- or O-listan. The IPOs used cannot have been listed at any other stock exchange such as Nya Marknaden or NGM before. Further, the study will only include clean IPOs, that is equity-carve outs and spin-offs are not taken into account. A time frame from 1997 to April 2006 is also used as demarcate. The final delimitation consists of the exclusion of firms that have been delisted as information about them cannot be found. In addition, it should be pointed out that the SEOs researched are rights issues as this is the dominating method for SEOs in Sweden.

1.5 Definitions

Initial Public Offering: The term initial public offering (IPO) refers to a company's first issuance of stock on the open market. In most cases, the IPO makes the company's stock accessible to a large group of investors for the first time.

Seasoned Equity Offering: An issue of additional shares from an established company, whose shares are already publicly traded and exhibit stable price movements, is called a seasoned equity offering (SEO).

Rights issues: An alternative flotation method that allows current shareholders to purchase shares pro rata, that is proportionate to their existing ownership position, a specified exercise price until a designated expiration date. Since issuing rights is costly, it is in the firm's interest to insure the success of the offering.

Underpricing: The stocks of a firm going public are priced lower than the market values them. It leads to a stock price increase the first day of trading. In the thesis the concept is equalized to first day return or initial return.

Announcement day return: On the announcement day of an SEO the stock prices experience either a positive return or a negative return. The negative return is the most common and is in this thesis equalized to price effect.

1.6 Outline

Chapter 2, Method: In this chapter a discussion about the choice of performing a qualitative study is presented. It is followed by a description of how the empirical data was gathered, the procedure to conduct an analysis and the variables to be used in the analysis are described in detail. Finally, the chapter ends with a discussion of the thesis reliability and validity and a critical aspect of the sources used is also presented.

Chapter 3, Theoretical framework: This chapter thoroughly discusses theories on the price effects associated with IPOs and SEOs. It begins with a review of various capital structure theories before focusing on theories explaining the pricing. The chapter ends with a reproduction of the two main reference articles.

Chapter 4, Empirical findings: The chapter present descriptive statistics about the IPO and SEO sample. Further, the results from the statistical test, both on price effects and from the regressions, are presented.

Chapter 5, Analysis: In this chapter the empirical findings are analysed, interpreted and related to the theoretical framework.

Chapter 6, Conclusions: The last chapter includes a description of the conclusions made in the analysis. It also contains suggestions on areas for further studies.

2 Methodology

In this chapter a description of the procedure to empirically accomplish this study is given. The choice of methodology, the data set and the information gathering are depicted in detail. Further, the choice of statistical method used when analysing the data is presented and the variables used in the analysis are motivated and explained. The chapter ends with a discussion of the thesis validity and reliability and also a critical aspect of the sources used are given.

2.1 Methodological Approach

To fulfil the purpose of this thesis there is a need to perform the analysis on numerical data over a significant period of time. When gathering and analysing an empirical study either a qualitative method, quantitative method or a combination of these two could be used.

By observing previous studies (Slovin et al., 2000; Loughran and Ritter, 2004) it is found that the predominate method used to measure price effects and the effects of various factors on the price setting is the quantitative method. Hence, to make accurate comparisons this study will also be conducted through a quantitative approach. The method will assist in fulfilling the purpose as the method consists of a numerical data collection with a large number of observations (Bryman, 2001). In addition, it standardises measures and fit the adjusted answers in a predicted template (Patton, 1990), which is crucial for this study to make comparisons with others findings. Further, to make reliable conclusions and generalisations, this study's result will be measured with statistical instruments, which are in the centre of the quantitative method (Holme and Solvang, 1996). The alternative to the quantitative method is the qualitative approach. This method involves an indepth analysis by using few research questions and analyse them in detail (Patton, 1990). By using this method a more balanced description could be given and questions such as why different factors affect the pricing of equity in an IPO or a SEO could be included. However, as this research area is still rather unexplored the intention with this study is to map out which factors affect the pricing and not why. Also, by using a qualitative method the study could not include the same amount of observations due to the time limitation and it would be difficult to state a pattern.

2.2 Inductive and Deductive

This study will be conducted by studying other research and, thereafter, construct an accurate model that could measure which factors influencing the price effect in an IPO or a SEO. The model will be tested against hypotheses and the result will be compared to previous research performed on other than the Swedish market. This is in accordance with the deductive method (Bryman, 2001) as the study emanate from well known theories. Further, the constructed hypothesis will be tested in an empirical study. An alternative method to use could have had the starting point in the empirical data; such method is referred to as an inductive approach. This approach claims that hypothesis and models are created from the empirical data (Bryman, 2001). Though, to be able to compare the result with other studies the thesis could not use this approach.

2.3 The Data

To be able to conduct an analysis a gathering of accurate data is of greatest importance. To assure relevant data is collected previous studies have been used as a frame work. Several different sources have been used which below will be described in detail.

2.3.1 Data Description

The data consists of 99 IPOs and 112 SEOs conducted on the Stockholm Stock Exchange on the A- or O-listan from 1997 to April 2006. There was a possibility to include more SEOs but as the IPO sample could not include more than 99 companies due to lack of information the SEO sample was randomly adjusted to roughly the same amount. The decision to only include the A- and O-listan in the study was based on the fact that they are well known and vouch for a high quality. The smaller markets such as NGM and Nya Marknaden have been excluded as the activities on smaller markets are relatively low and/or irregular (Holmén and Högfeldt, 2004). The low activity decreases the liquidity and gives less reliable data of the stock. Another reason for excluding these is that the risk of having a very volatile stock is higher compared to the A- and O-listan.

The study focus on the equity issues during approximately nine years. The time period selection is based on the data provided by the Stockholm Stock Exchange. The exchange provides information about SEOs performed between 1997 and April 2006. To have the same time frame for the IPOs the study also included firms that went public during the same years. By using the same time period for both IPO and SEO the study includes the same period specific market effects such as the IT bubble.

2.3.2 Data Collection

The data for this study is partly based on secondary data collected from prospects and annual reports of firms conducting an IPO or a SEO within the given time frame. Secondary data is information which already has been collected and processed (Holme and Solvang, 1996). Information could also be primary data which is data the researcher has gathered and processed by himself for the specific purpose. However, due to the purpose of this study it was not the optimal method to use.

The information about the IPOs was gathered primarily by contacting the Stockholm Stock Exchange that provided the official record containing the companies which had gone public between the years in question. The information acquired included the company name, underwriter, IPO date, initial stock price, offer size, and in a few cases the first day closing price. Further, the data also revealed whether the IPO was a clean IPO or not, which was essential since our study should only include clean IPOs. However, this information did not provide us with sufficient data for conducting our analysis. Therefore, we also used other means such as collecting the prospects for the different companies. The prospects were gathered through contacting Finansinspektionen who assisted with most of the IPO prospects. A few were also collected from the underwriter, the company's homepage or from the webpage rapporter.nu. The IPO sample was divided into different industries by using Affärsvärlden's nine industry affiliations. The nine industries were commodities, consumer products, finance, health, industry, IT, media, services and telecom.

In addition to the data about IPOs, a sample of SEOs from 1997 to April 2006 was needed. Information about which companies had conducted a SEO, announcement day and proceeds

were found on the Stockholm Stock Exchange's webpage. However, this information was not sufficient and therefore the prospectus of the chosen SEOs were collected from the companies' webpages. When the prospectus could not be found the annual reports were used.

From the IPO and SEO prospectus and annual reports company and issue characteristics such as age, total asset, net sales, net income, proceeds, underwriter, amount of shares issued, total amount of shares and equity were collected. Additional data required such as Affärsvärlden's Generalindex and stock quotes, were collected from the database EcoWin. The stock quotes needed were the first day closing prices for the IPOs and the stock price before and after the SEO announcement. When gathering the stock prices a problem emerged as a few of the companies had been delisted for various reasons. Because of the delisting the stock quotes were unavailable; hence the company had to be excluded from the data set. However, in accordance with Eggeby and Söderberg (1999), who claim that as long as the deterioration is random the result will not be affected to a large extent, we conclude that the falling offs will not affect the result of the analysis significantly.

2.3.3 Analysis of Empirical Data

When the quantitative data was collected two analyses needed to be conducted. The first one measures the significance of the price effects within the two different samples. This will be done by using a Chi² test as it measures the distribution of material (Holme and Solvang, 1997). The material in this thesis consists of two events; price decreases and price increases. The price effects exist in both the IPO and the SEO sample and the Chi² tests whether the price increase is significantly larger than the decrease in the IPO sample. In the SEO sample it tests if the price decrease is significantly larger than the price increase. The returns will be measured on a single day bases. In the IPO it is the offer price minus the closing price day one divided by the offer price $((P_{t+1}-OP)/OP)$. For the SEO it will be measured by taking the price after the announcement minus the price before the announcement day divided by the price before the announcement $((P_t-P_{t-1}/P_{t-1}))$.

When the analysis of the price effects is conducted the study moves on with testing what the differences in prices depend on. To be able to conduct this test multiple cross-sectional regressions were performed. In a regression analysis dependent and independent variables are needed to test against different hypotheses (Eggeby and Söderberg, 1999). These variables are identified in paragraph 2.3.4 and 2.3.5 and are tested to see whether a multi causality connection exists. The analysis will be carried through by a backward stepwise regression which will begin with, in our opinion, a saturated model. Further, insignificant variables will be excluded in an iterative process to receive an adequate model. When no more variables can be excluded without harming the model the analysis has been completed. The regressions will be performed in E-Views and the same program will be used to test the model for OLS assumptions. The aim of the study is to secure the result from the regression with a 95 percent significant level.

When choosing variables to be included several studies (Bøhren et al., 1997; Slovin et al., 2000; Koop and Li, 2001; Holmén and Högfledt, 2004; Loughran and Ritter, 2004; Mola and Loughran, 2004) were used as a framework. This study seeks to find different angles on the price effect of IPOs and SEOs, therefore, not solely one study has been followed but several. It is done to gain a new insight and to answer the purpose of the thesis.

2.3.4 Dependent variables

In the literature the way of measuring the mispricing between IPOs and SEOs differ. The reason for not being measured by the same method is rather evidential as the research is looking to capture the effect of an issuing. The effect of an IPO appears when a firm goes public and the effect of a SEO appears when the firm announces its equity offering. Hence, one difference lies in the fact that investors react on the announcement day in SEOs versus during the actual release in IPOs. This leads to the main difference in the regression, namely that when measuring the effect in IPOs the offer price is used while in SEOs the stock price is used.

In IPOs the initial return is measured by taking the closing price the first day minus the offer price divided by the offer price (Loughran and Ritter, 2004).

$$\text{Underpricing} = ((P_{t+1}-OP)/OP)*100$$

The price effect on the announcement day of the SEOs is, in accordance with Slovin et al. (2000), calculated by taking the stock price after the announcement minus the stock price before the announcement divided by the stock price before the announcement.

$$\text{Announcement return (AR)} = ((P_t-P_{t-1})/P_{t-1})*100$$

2.3.5 Independent Variable

The independent variables are divided into *pricing factors* that are expected to directly affect the value of the stock and *misvaluation factors* (Koop and Li, 2001). The misvaluation factors are beyond the company's control and are included for the sake of control. As SEOs and IPOs are valued with different factors several variables will be explained. A few of them are used for either the IPO or the SEO analysis and others are used for both. Below follows motivations why some explanatory variables are labelled as pricing factors and misvaluation factors and to which analysis they will be used.

2.3.5.1 The Misvaluation Factors

In the determination of misvaluation factors the starting point was to search for general factors that will affect all companies no matter firm characteristics. These are identified to be *underwriter's reputation*, *AFGX* and *hot or cold markets*. The first two are only used in the analysis of the IPOs while the variable for hot and cold market is used in the analysis of the IPO and the SEO. The variables are described and explained in detail below.

Underwriter's Reputation

According to Koop and Li (2001), the mispricing risk is very costly for the firm. In order to decrease the risk companies attempt to reveal low risk characteristics to the market. One way of doing so is to select an underwriter with a good reputation as it is then less likely that a large undervaluation will occur (Carter and Manaster, 1990; Loughran and Ritter, 2004). After discussions with Nordea Securities regarding how the reputation could be measured, the study used a dummy variable for the different investment banks to see whether the variable is significant or not. The alternative was to rank the underwriters according to the market share as Carter and Manaster (1990) did in their study. However, determining what the concept of market share involves is highly subjective, thus, uncertain. In addition, many deals are based on long term relationships rather than reputation. Therefore, this method is not used. The

underwriters Nordea, Morgan Stanley, Öhman, Aros, Berg and Goldman Sachs were excluded as they have underwritten few IPOs. This variable is included in the analysis for the IPOs and not the SEOs as the latter are rights issues and underwriters are not used.

Affärsväldens General Index

Several researchers (Dimovski and Brooks, 2003; Holmén and Högfeldt, 2004) within the field of IPO have conducted studies including an index which indicate the state of the market. The index chosen to represent the Swedish market is the AFGX since it is considered to be a good proxy of the aggregated Swedish stock market's economic conditions (www.ecovision.se). In addition, the use of this index is supported by Holmén and Högfeldt (2004) who have conducted a study on IPOs made on the Stockholm Stock Exchange. The AFGX is a weighted index which measures the average development of the Stockholm Stock Exchange on a daily basis. The weighting implies that each share's weight is in proportion to its stock value. The index is Sweden's oldest and use 1995-12-29 as the base year. One of the main advantages with the index is that it contains stock values from 1901 up to today and is updated every minute (www.affarsvarlden.se). The index is included in the regression analysis for IPOs.

Hot and Cold Market

In accordance with previous studies (Ritter, 1984; Bayless and Chaplinsky, 1996; Mola and Loughran, 2004) a dummy variable for hot and cold markets is included in this study. The hot market implies that a large amount of IPOs or SEOs were conducted in this year. The years that have an amount of IPOs or SEOs on or above the third percentile of all observations are named hot markets (Bayless and Chaplinsky, 1996). However, 2006 was excluded as the data from the whole year is unavailable. The variable is included in both the IPO and SEO analysis.

2.3.5.2 The Pricing Factors

Standard finance theories are used when determining the pricing factors that are expected to affect the valuation of equity. Myers and Majluf (1984) claim investors use the available information when determining the value. They also argue that the price reaction to SEOs and, therefore, the information cost will be lower for firms with characteristics that lead investors to believe the issues are motivated for reasons other than overvaluation of the issuers' shares. Consequently, the pricing factors for the IPOs and SEOs reveal information such as risks and future growth opportunities in order to determine which factor influence the price effect. As in the case of the misvaluation factors the variables differ between IPOs and SEOs. Thus, the first four, *net sales*, *net income*, *total asset*, *age* and *offer size* are only included in the IPO analysis while the *industry dummy* variable is included in both. The final six factors, *prior issue dummy*, *proceeds-to-market*, *market-to-book value*, *discount*, *market value of equity prior the issue* and *new shares/old shares ratio* are only included in the SEO analysis. Further, clarifications will be done when motivating the choice of the specific variable.

Profitability Factors

Ritter (1984) has shown that historical accounting information has a positive relationship with firm value. Based on this, Loughran and Ritter (2004) use *net sales* as a profitability factor in their study and Koop and Li (2001) use *net income* as a measure of profitability. Following them this study includes these two variables as explanatory factors in the IPO analysis to measure the price effect the first day of trading. The relationship between net sales and net income and the dependent variable is expected to be positive.

Total Asset

Holmén and Högfeldt (2004) include *total asset* as a control measure for the level of operations. Total assets are included in the analysis of the IPOs and are assumed to have a positive relationship on the dependent variable.

Age

In a research conducted by Megginson and Weiss (1991) *age* was included as a control for information asymmetry. They argue older companies experience a lower degree of information asymmetry than younger firms. A study by Loughran and Ritter (2004) also included age. However, they use the variable as a measure of firm specific risk. That is to say, an old well established firm bears less risk than a newly started company. The age is calculated from the year the firm was founded until the year it went public. The data set includes firms that have not existed for one year. Thus, one year is added to all observations. This is done because, after taking the logarithm of the year, a loss of observation on the firm which have existed for less than one year will occur. The age is expected to have a negative relationship on the dependent variable and is included in the IPO analysis.

Offer Size

The *offer size* is the number of shares multiplied with the initial price of the IPO. Offer size is used by Holmén and Högfeldt (2004) in their study about IPOs. A positive relationship is expected between offer size and the price effect in an IPO.

Industry Dummy

Loughran and Ritter (2004) documented a significant increase in number of IPOs and in underpricing between 1999 and 2000. The researchers argue the cause is the IT bubble, thus, to measure the effects with and without the IT companies an *IT dummy* is created for these companies. To see whether any other industry also has an affect on the valuation, dummies for nine different industry affiliations were included. The industries used are, as already mentioned, commodity, consumer products, finance, industry, IT, health care, media, telecom and services. This variable will be used in both the analysis of the IPO and the SEO.

Prior Issue Dummy

Another dummy variable included is *Issue dummy* which defines the companies that has conducted a SEO the year prior to the observed SEO (Mola and Loughran, 2004). The variable is supposed to decrease the price effect appearing on the announcement day of the SEO as the investors then already have information about the company and the mistrust might decrease. Evidentially, this variable can only be included in the SEO regression.

Proceeds-to-Market

To measure the issues' liquidity uncertainty Mola and Loughran (2004) include the variable *proceeds-to-market*. It is defined as the ratio of proceeds to issuer market value immediately prior to the SEO. A positive coefficient for this variable implies that a larger proceed relative to market values produce more uncertainty about the offering. The ratio is considered high when it is equal or greater than the median of the sample. The expected relationship is negative as the uncertainty increases the larger is the price effect. The ratio will be included in the SEO analysis.

Market-to-Book

To include a measure for the stock markets' evaluation of the firm's growth opportunities the market-to-book (M/B) ratio is included in the analysis. Empirical evidence from the United

States (Pilotte, 1992) show that if the market believes that the firm has good growth opportunities it assumes the firm will invest the proceeds from a SEO. Hence, the negative price effect will not be as severe. A positive relationship between M/B and the price effect of the SEO is expected.

Discount

In an SEO the management of a firm often set the offer price considerably lower than the stock price. Especially in case of rights issues as these shares need to be sold to existing share holders. To assure the success of a SEO the discount is set relatively high. However, investors can interpret the high discount as an attempt by the managers to use overvalued stocks and consequently the stock price fall. The relationship between discount and price effect is, therefore, considered to be negative (Slovin et al., 2000). The discount is calculated by taking the stock price before the announcement minus the offer price divided by the stock price before the announcement ($(P_{t-1}-OP)/P_{t-1}$).

There is also another aspect of the discount brought up by Bøhren et al. (1997). The authors claim that a positive relationship between discount and the price effect can appear due to the *dividend-based argument* developed by Hietala and Löyttyniemi's (1991). It is argued that in Finland and in Norway there is a tendency to set the dividend as a percentage of the value of the common stock. In the case of rights issues the value per share does not change which implies that a greater discount releases more shares and the dividend increase. Consequently, a positive relationship exists. However, the problem lies in the fact that managers need to keep the same level of dividend after the issue.

Based on the above presented theories the discount relationship cannot be set with certainty.

Size

Two measures of size are included in the regression, *market value of equity* and *new shares/old shares ratio*. The market value of equity measures the firm size and Bøhren et al. (1997) claim that a large firm have more disperse ownership which tend to lead a reduced propensity for shareholders to participate in the issue. Further, the authors also include a measure of the percentage change in shares as a measure of the size of the offering. Both variables are expected to have a negative effect on the price effect of a SEO.

2.3.5.3 Summary of Variables

Below follows a table that summarises the variables used in the analysis. As already highlighted during the description of the variables, the table gives a general view in which analysis the variables are included. Further, this study's expected signs of the coefficients are reported. The signs are estimated from previous studies' result. However, there are two variables where no signs are assigned. The reason to this is the belief that different underwriters and industries have various effects on the price.

Table 2.1 Summary of variables. The table gives an overview of which variables are brought up and in which regression they will be included. Also the expected effects of the variables are reported.

Variables	IPO and/or SEO	Expected sign
<i>Misvaluation</i>		
Underwriter Dummy	IPO	
AFGX	IPO	+
Hot or Cold Dummy	IPO/SEO	+
<i>Pricing factors</i>		
Net Income	IPO	+
Net Sales	IPO	+
Total Asset	IPO	+
Age	IPO	+
Offer Size	IPO	+
Industry Dummies	IPO/SEO	
Issue Dummy	SEO	+
Proceeds-to-market	SEO	-
Market-to-Book	SEO	+
Discount	SEO	+/-
Market value of equity	SEO	-
New shares/old shares	SEO	-

2.4 Reliability and Validity

To measure the quality of the study the concepts reliability and validity are critical. The reliability is a measure of how truthful, transferable and trustworthy a study is (Daymond, 2002). To improve the reliability of this study several proceedings have been taken. First to achieve a truthful research the study is in accordance with Daymond (2002) performed with well known methods, which we have good knowledge about, in order to make the existence of random errors in the data collection insignificant. The risk of random errors is evidential since the data is typed in by hand. To diminish this, the figures have been doubled checked by different persons. In the data set there are a few companies missing due to lack of complete information. This might cause distorted data. Although, these companies are random declines and should not affect the result significantly (Eggeby and Söderberg, 1999). There is also the risk of using incorrect data sources that do not reflect the reality. However, by using reliable data sources such as EcoWin and Finansinspektionen the risk should be minimized. Further, the transferability is referring to how the results can be compared to other similar studies even though the analysis is performed independently (Holme and Solvang, 1996). This is achieved by evaluating previous research approaches and from these replicate well known methods which makes the results comparable. By carefully describing the data set, how it is gathered, the sources used and what it contains the study should fulfil what Daymon (2002) names trustworthy. He claims that a study becomes trustworthy when the researcher's process can be tracked in detail.

The other vital criterion is validity and is defined as a measure instrument's ability to measure what it was intended to measure. To assure this, guidelines regarding data gathering in accordance with the purpose was created. This facilitates the information collection and makes sure that correct and complete data is gathered (Ericsson and Wiedersheim-Paul, 2001).

2.5 Criticism of the Sources

The articles used in this study are a mixture of newly written and articles written in the beginning of the 1980. The older ones are used to bring in the fundamental ideas in the thesis while the younger ones are brought in to get a new perspective. The intention is to show the wide spread of research that has been conducted within these two research areas. The critical aspect with the old articles might be that they are not very updated and their ideas can already have been rejected. However, this is taken into consideration and articles which are often referred to in the more newly written articles are used. The critical point with the more recent written papers is that they might be vague in their conclusions as not very much research has been conducted within that specific area. However, the reliability is achieved by assuring that these articles use well-documented articles as argumentation for their research.

Another critical aspect of the thesis is the choice of information source for the data collection. It might be that the sources provide false information and this would give an incorrect result. However, the information used in this thesis is dominated by accounting figures which should be reliable as it follows laws and regulations. Further, when collecting stock prices and indices the data base EcoWin was used as it is considered being a reliable source. When dividing the sample into industries Affärsvärlden's web page was used as it provides a list of all companies listed on the stock exchange and which sector the firm operates in. This system takes away the subjective interpretation of which industry the firm operate in which could cause trouble when comparing to previous studies.

3 Theoretical Framework

The chapter starts with a description of important theories regarding the optimal capital structure. Next two sections are dedicated to theories explaining the pricing of IPOs and SEOs. Thereafter, the efficient market hypothesis is presented before the chapter is rounded off with an investigation of previous studies.

3.1 Capital Structure

There are several theories on the reasons why firms go public and why they issue additional capital. The cost of capital literature, which began with Miller and Modigliani's groundbreaking article from 1958, argues that firms conduct a public offering when external equity will minimize their cost of capital and, hence, maximize the value of the firm (Scott, 1976). Based on asymmetric information and possible stock price misvaluation, Myers and Majluf (1984) further argue for a pecking order of financing: internal equity, debt financing and then external equity. The decision to issue equity does, according to Ibbotson et al. (1998), have a significant effect on the firm's capital. Because of this close connection between equity issuance and capital structure the theory chapter will begin with capital structure theories.

3.1.1 Miller's and Modigliani's theories

The two most prominent researches within the field of capital structure are Merton Miller and Franco Modigliani (henceforth, M&M). In 1958 they published their landmark paper, *The Cost of Capital, Corporate Finance and the Theory of Investment* where they try to solve the cost of capital problem. In this research paper they defined the assumptions of an ideal capital market and developed two important propositions concerning the effects of corporate financing decisions on the value and risk of a firm's debt and equity securities. Proposition I asserts that the value of a firm is independent of the firm's capital structure. From proposition I M&M derived proposition II declaring that for all firms the required rate of return on equity or cost of equity increases with financial leverage. In other words, a firm cannot lower the total cost of capital by issuing "cheaper" debt because the market will discount the firm's stock for the added leverage assumed. On the basis of their propositions with respect to cost of capital and financial structure M&M derived a rule called proposition III for optimal investment policy by the firm. The rule, which neglects taxes, claims that the type of instrument used to finance an investment is irrelevant to the question of whether or not the investment is worthwhile. Having shown that capital structure is irrelevant to the company as a whole, M&M thus extends the irrelevance to the individual investment. Equivalently, it can be said that regardless of the financing used, the marginal cost of capital to a firm is equal to the average cost of capital, which in turn equals the capitalization rate for an unlevered stream in the class to which the firm belongs. Proposition III suggests that the capital structure of a firm is a matter of indifference. Consequently, one of the core problems of corporate finance, the problem of the optimal capital structure for a firm, is not a problem at all. For the purpose of coming to grip with the cost of capital problem M&M made some drastic simplifications such as assuming atomistic competition, ease of access to market and no taxes. However, despite the simplifications in the propositions M&M at least set the foundations of a theory of the valuation of firms and shares in a world of uncertainty (Miller and Modigliani, 1958).

A couple of years after M&M first contribution to the capital structure literature they published another paper where they incorporated the effect of taxes in their research by modifying their original propositions for the deductibility of interest on corporate debt. Two

important effects of corporate taxation are that the government emerges as a stakeholder, with a claim on the firm's earnings and that management can reduce cash flow to the government by increasing the amount of debt in the firm's capital structure (Miller and Modigliani, 1963). In theory the tax advantage occurring when debt is substituted for equity will make companies finance their operations with contractual debt. However, in reality that is not the case, hence, researchers have developed theories explaining the negative effects of being highly leveraged.

3.1.2 Static Capital Structure Model

Shyam-Sunder and Myers (1999) extended M&M's model to incorporate more factors in order to explain why companies are not fully financed with debt. Two of these factors are *bankruptcy costs* and *agency costs*. By combining these two theories the authors have moved further and further away from M&M's original model and constructed a stakeholder model named the *Static Tradeoff Model*. According to the model, a number of parties are involved in the capital structure decision and they all derive some benefits from the activities of the company. To understand this model both bankruptcy cost and agency cost need to be considered and, thus, they are described in the section below. The model will be examined more closely after the next two paragraphs.

Bankruptcy Cost

A highly leveraged company with revenues that vary over time might find itself in a situation where it suddenly cannot afford to pay its fixed financial costs. Such a company would then be in financial distress, which ultimately might lead to bankruptcy. The higher the fixed costs of a company are and the more volatile the sales are the greater is the probability of running into financial distress. Bankruptcy is best described as a legal process involving a reorganization of financial claims and the transfer of corporate ownership. Bankruptcy costs will only be of interest if there is a probability that the company will go bankrupt and hence one has to consider both the probability of bankruptcy and the actual costs affecting the investors in case of bankruptcy. Even if a company can avoid bankruptcy a financial reconstruction of the firm might be costly and take time (Warner, 1977). The relevance of bankruptcy costs still remains a highly debated issue in financial theory. There is no consensus of opinion with respect to the theoretical relevancy of bankruptcy costs to firm valuation. However, if bankruptcy costs are assumed to be relatively significant then it may be argued that at some point the expected value for these costs outweighs the tax benefit derived from increasing leverage and the firm will have reached its optimum capital structure (Altman, 1984).

Agency Costs

Researchers tend to believe that there are two forms of agency cost affecting a company's capital structure, but that they do so in different ways. The two forms of costs are agency cost of debt and agency cost of equity (Hamberg, 2001).

When debt is introduced to a company's capital structure a conflict of interest arises between shareholders and managers and shareholders and debtholders. The agency cost of debt between shareholders and debtholders is primarily driven by two factors; shareholders ability to be better informed than debtholders and influence decision-making and the asset characteristics of the company. As the proportion of debt increases, so does the probability that shareholders pursue selfish strategies. Hence, if the firm has a choice of projects, a desire for rapid equity value maximization would lead the firm's shareholders to encourage a risky project. If the firm can convince lenders it has a safe project it will enjoy a lower lending rate. The longer

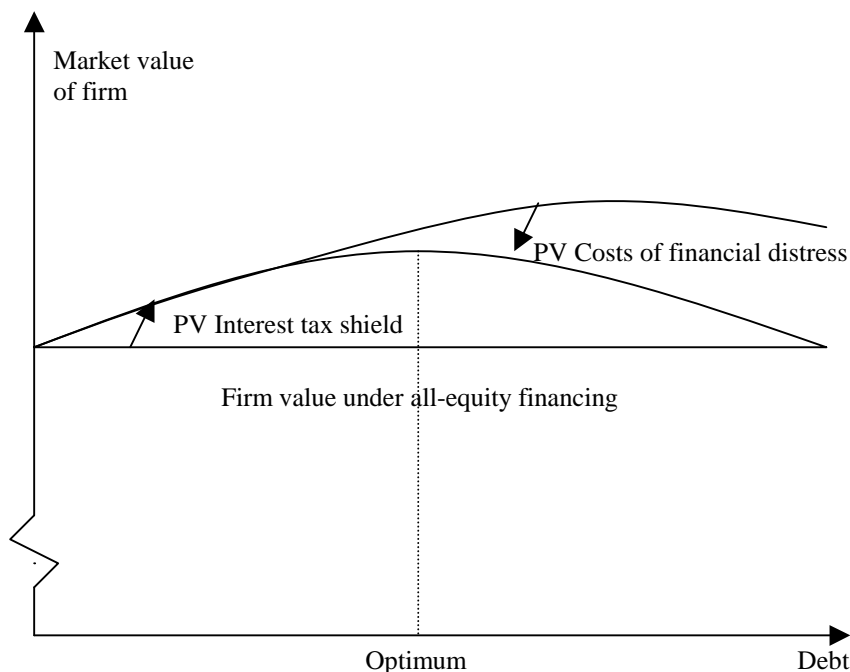
the firm's history of repaying its debt the better is its borrowing cost (Diamond, 1989). With all this said if the company is financially healthy and far from bankruptcy, the agency cost of debt is minimal and likely to have little or no impact on company value (Jou and Lee, 2004).

In Harris and Raviv (1990) the conflict between equityholders and managers occur because managers are assumed to always want to continue the firm's current operations even if liquidation of the firm is preferred by investors. In Stulz (1990) managers are assumed to always want to invest all available funds even if paying out cash is better for investors. If shareholders believe management will not act in their best interest they will automatically bid down the value of the company. In other words, the shareholders will require a higher return on their investment (Hamberg, 2001).

The Model

When the two concepts bankruptcy and agency cost are considered the model can be explained in detail. According to the model, illustrated in figure 3.1, the capital structure is optimized on a period-by-period basis, in which costs of having too much debt such as bankruptcy and agency costs are weighted against tax benefits. Management's role is then to choose an optimal capital structure maximizing company value. Random events could bump the capital structure away from optimum and management would have to work gradually back by substituting debt for equity or equity for debt, until the value of the firm is maximized. If there were no cost of adjustment and the static tradeoff theory was correct, then each firm's observed debt-to-value ratio should be its optimal ratio. However, there must be costs and therefore lags, in adjusting to the optimum. Large adjustment costs could possibly explain the observed wide variation in actual debt ratios, since firms would be forced into long excursions away from their optimal ratios (Myers, 1984).

Diagram 3.1 The Static Tradeoff Model. The main idea of the static tradeoff theory is that firms balance the marginal present values of interest tax shields against the cost of financial distress (Shyam-Sunder and Myers, 1999).



One of the basic premises of the static capital structure model is that management wants to choose a capital structure that maximizes company value. Against this static idea stand the more dynamic, and management-oriented, pecking order model which will be described hereafter (Myers, 1984). However, before describing the pecking order a step a side from the capital structure theories need to be done as the pecking order is based on another fundamental theory with the finance field, namely *information asymmetry*.

3.2 Information Asymmetry

Information asymmetry is one of the elementary underlying reasons to conflicts between different stakeholders. It can be explained by a contract between two parties. The persons have different information and often one party is more informed than the other, that is to say the information is asymmetrically distributed (Asquith and Mullins, 1986).

Akerlof (1970) was the first one to research the effect of information asymmetry on the market for an asset trading in a public market. Using the automobile market to illustrate and develop his thoughts, he divided the cars according their quality which resulted in that they varied from excellent to lemon. The problem was that the owners of the lemon cars tried to sell them as they were high quality. Akerlof (1970) argued that the market is characterized by moral hazard and adverse selection problems. In his example moral hazard exists because the sellers have more information than the buyers, which leads to good cars being driven out of the market by “lemons”. Akerlof (1970) concluded that the difficulty of distinguishing good quality from bad is inherent in the business world.

In a world of asymmetric information managers and insiders have superior information compared to investors, and management’s decision to issue equity communicates information

about a firm's intrinsic value. Emerging from empirical studies of cash flow is a view of the firm as a "black box" where unexpected equity cash flows communicate information to investors. Cash outflows such as stock repurchases and increases in dividends are viewed as positive signals accompanied by increases in stock prices. Conversely, if a firm requires cash inflows from the equity market through equity issues or a reduction in dividends, this is interpreted as a negative signal resulting in a reduction in the stock price (Asquith and Mullins, 1986).

3.2.1 Pecking Order

The pecking order emanates from information asymmetry as the investors have less information than the managers and use the information available to them to make predictions about the firm's future performance. However, as previously stated the pecking order is related to the capital structure and to refer back to the static tradeoff model it can explain some of the phenomenon which the previous model could not. According to the static capital structure model a profitable company should increase the debt-to-equity ratio because the probability of bankruptcy is lower and management can, therefore, take advantage of the tax shield. But instead management of most profitable companies seem to decrease the debt-to-equity ratio. An explanation to why this contradictory behaviour exists has been proposed using the pecking order hypothesis of capital structure. This hypothesis has its foundation in the fact that managers and investors have different goals and that management might not always want to maximize the value of the company. The pecking theory is based on the assumption that managers want control over cash flows. Outside stakeholders are both suspicious of management as well as less informed, hence management desires financial slack. Financial slack is liquid assets or reserve borrowing power which can be used to, for example, finance investment if there was a need (Myers, 1984). According to Myers, the idea behind the pecking order differs from the static theory in the following ways (1984):

1. Firms prefer internal finance.
2. They adapt their target dividend payout ratios to their investment opportunities, although dividend levels are established and not easily altered and target payout ratios are only gradually adjusted to shifts in the extent of valuable investment opportunities.
3. Established dividend policies, in addition to unpredictable fluctuations in profitability and investment opportunities imply that internally-generated cash flow may be more or less than investment spending. If it is less, the firm first draws down its cash balance or marketable securities portfolio.
4. If external finance is required, firms issue the safest security first. That is, they start with debt, then possible hybrid securities such as convertible bonds, then perhaps equity as a last resort. In the pecking order hypothesis, there is no well-defined target debt-equity mix, because there are two kinds of equity, internal and external, one at the top of the pecking order and one at the bottom. Each firm's observed debt ratio reflects its cumulative requirements for external finance.

The pecking order hypothesis of capital structure provides a more dynamic solution to the capital puzzle than the static tradeoff model previously discussed. Whereas the theories looks at the cumulative proportions between debt and equity, the dynamic pecking order model instead views the set of opportunities management have to finance their current investment projects. Since the pecking order is driven by asymmetric information the capital structure depends on the net requirement for external finance. Of course, the pecking order can quickly be rejected if it is required it to explain everything. There are plenty examples of firms issuing

stock when they could issue investment-grade debt. But overall, the heavy reliance on internal finance and debt in the market today is clear (Myers, 1984).

3.3 Theories Explaining the Pricing of IPOs

The pricing of initial public offerings is difficult both because there is no observable market price prior to the offering and because many of the firms have limited or no operating history. If the price is set too low, the issuer does not get full advantage of its ability to raise capital. If it is set too high, then issuer would receive an inferior return and, consequently, might reject the offering. Hence, the underwriter must set the price to satisfy both the issuer and the investor. However, the reputation of the underwriter is important in helping other new issuers choose their underwriters. Therefore, the underwriter has the incentive to keep the initial price relatively high (Ibbotson, Sindelar and Ritter, 1988).

A significant part of the research done on IPOs focus on three inconsistencies; (1) short-run underpricing of IPOs, (2) the “hot issue” market phenomenon and (3) the long-run underperformance of IPOs (Varshney and Robinson, 2004). As the focus is what affects pricing of IPOs the purpose of this paper elaborate on the first two inconsistencies only.

3.3.1 Short-run Underpricing

The underlying motive for the first day underpricing is a heavily researched issue; however, it still today remains unresolved. Whenever a firm issues shares for less than they are worth the original owners lose while the new shareholders win. Numerous theories on underpricing have been developed. Some of them focus on information asymmetries at the time of the IPO and others rely on the reputational capital of underwriters as a disciplinary mechanism (Varshney and Robinson, 2004).

When firms pursue an IPO they usually only have a short earnings history and no history of public valuation. Thus, both agency costs and information asymmetry problems are likely to be present for IPO firms which lead to underpricing. A well known hypothesis dealing with underpricing is the *Winner's Curse Hypothesis* developed by Rock (1986). Rock's argument depends upon the existence of a group of investors whose information is superior to that of the firm as well as that of all other investors. If the new shares are priced at their expected value, these privileged investors crowd out the others when good issues are offered and they withdraw from the market when bad issues are offered. The offering firm must price the shares at a discount in order to guarantee that the uninformed investors purchase the issue. In addition, the informed investors are rewarded by underpricing of IPOs for purchasing the securities and revealing private information.

Other fundamental hypotheses that emerge from the finance literature are the *Certification Hypothesis* and the *Signalling Hypothesis*. According to the *Certification Hypothesis* (Booth and Smith, 1986) investment bankers and auditors possess a certification role which reduces uncertainty in the IPO process. In the *Signalling Hypothesis* (Welch, 1989) underpricing is viewed as a tool used by firms to signal their quality. Welch (1989) argues that underpricing by higher quality firms enables them to receive higher returns from their subsequent security offering. Thus, the more a firm underprices, the more likely it is that it will reissue.

According to Tinic's (1988) *Law Avoidance Hypothesis*, investment bankers underprice IPOs and issuers leave a considerable amount of “money on the table” because it serves as a form

of insurance against potential legal liabilities and the related damages to the reputation of both the issuers and their agents. Although the consequences of an overpriced offering are not thoroughly researched Tinic (1988) believes there is a possibility that the gain could be overwhelmed by potential legal liabilities and/or by a higher risk premium demanded by the market on the issuer's future securities offering.

Booth and Chua (1996) believe that issuers tolerate a certain level of underpricing because they are more concerned with broad ownership dispersion and a liquid secondary market for the shares. By promoting oversubscription broad initial ownership dispersion is created which in turn leads to a liquid secondary market for the shares. Since investors also value secondary market liquidity supporting oversubscription can, although increasing underpricing, maximize issue proceeds.

Hanley (1993) found that information collected during the period before the issuing affects the pricing allocation of initial public offerings. Underpricing is positively related to modifications in the offer price from the filing of the preliminary prospectus to the offer date. In other words, the final offer price does not fully adjust to new information. The result is that issues that have positive alterations in the offer price and good information disclosed are considerably more underpriced than other IPOs. Hanley (1993) concludes that underwriters and issuing firms prefer to substitute underpricing for increased allocation.

3.3.2 Hot Issue Market Phenomenon

“Hot issue” markets are defined as periods in which the average first month performance of new issues or the aftermarket performance is unusually high (Ibbotson and Jaffe, 1975). Through the years there have been a number of periods when initial public offerings of common stock have had abnormally high returns (Ritter, 1984). In their study Ibbotson and Jaffe (1975) explored the relationship between new issue premia and aftermarket performance in a given month with the premia and aftermarket performance of other issues in the past months. They found that there is a serial correlation in the first and second month residuals which suggested that the statistical assumption of serial independence was invalid for new issue returns. Hence, these findings imply that the first month issue returns are predictable. The predictability of first month new issue premia are useful to issuers who may obtain a higher offering price relative to the efficient price when they issue in cold issue markets. Consequently, the implication is clear for issuing firms, the best time to go public is during the high-volume period following a hot issue market (Ritter, 1984). That is when they will receive large sums for comparatively little equity and they will leave little money on the table (Ritter, 1984).

3.4 IPO Hypothesis

From the theories described above it is argued that the price setting of an IPO is of greatest significance for the success of the offering and also that the price can signal a value to the investors. As the pooled belief from the theories above is that the stock needs to be underpriced, the hypothesis tested in this thesis will be:

H_{01} = The initial return is *positive*

3.5 Theories Explaining the Pricing of SEOs

SEOs cause two major changes for the issuing company: (1) a decrease in the debt ratio due to an increase in equity and (2) additional capital which allows the company to finance capital expenditures. The empirical literature shows that changes in the debt ratio and capital expenditures have a direct affect on the share price. In addition, a SEO changes the current ownership structure which also affects the price (Maulis and Korwar, 1986).

3.5.1 The Signalling Effect

When trying to explain SEO pricing researchers have focused on the signalling effect of the issuing. In other words, how the market reacts to a firm which announces it is planning to issue additional shares. Most of the studies covering signalling effects conclude that the market usually reacts negative. This area of research is rather well explored, hence, there are many theories trying to explain the negative reaction of the market. These theories cover capital structure changes, information asymmetry and changes in ownership structures (Asquith and Mullins, 1986; Masulis and Korwar, 1986; Myers and Majluf, 1984).

Although, there is a considerable amount of literature covering the signalling effect of SEOs there is still no uniform opinion in how SEOs affect or should affect the price of the stock. The existing theories are categorized by Asquith and Mullins (1986) into the following three categories:

- *Negative price effect:* There are several theories supporting a negative price effect such as (1) disclosure of information under information asymmetry, (2) various capital structure theories, and (3) large transactions costs linked with equity issues.
- *Positive price effect:* consistent with (1) a favourable information effect associated with investment, and (2) a value enhancing reduction in financial leverage due, for example, to a reduction in the expected costs of financial distress and/or agency costs.
- *No price effect:* According to the Efficient Market Hypothesis new issue price effects do not occur unless they are based on changes in a security's expected cash flows. Thus with close substitutes the price of any firm's shares should be independent of the number of shares the firm choose to sell.

The study will now proceed by discussing the negative and positive price effect in more detail. The Efficient Market Hypothesis, which leads to the no price effect theory, will be considered in the next section.

3.5.1.1 Negative Price Effect

The negative price effect is a widely researched area and its existence has several explanations and underlying theories. The ones to be brought up below is *information asymmetry*, *changes in ownership structure* and *changes in capital structure*.

Information Asymmetry

Information asymmetry has already been described earlier in this chapter but then to a more general extent. It is also present in SEOs and the literature has heavily emphasized the phenomena when explaining mispricing in SEOs.

Many researchers have speculated that equity issues serve as signals which communicate managers' superior information. Therefore, a SEO appear to be motivated by overvaluation as managers issue equity securities when they know their firm is not as valuable as what they market believes. Suppose that a potential purchaser of securities has less information than corporate managers, and corporate managers are more likely to issue securities when the market price of the firm's traded securities is higher than management's assessment of their value. This implies that the stock price effects of security issues will be greater the more the asymmetry in information between insiders and other security market participants (Myers and Majluf, 1984). The size of the asymmetry can vary over the life of the firm. Its importance increase every time the firm accesses the capital market and, thus, managers can gain substantially at the expense of the market by hiding information. Myers and Majluf (1984), and Miller and Rock (1982) introduce information asymmetry models that predict market prices responses to changes in the capital structure of the firm. In particular, the models predict that the announcement of a new equity issue releases negative information about the firm, and will create, all other things equal, a drop in the market value of the firm.

Myers and Majluf's problem is similar to the one addressed by Akerlof (1970), who showed how markets can break down when potential buyers cannot verify the quality of the product they offer. Faced with the risk of buying a lemon, the buyer will demand a discount, which in turn discourages the potential sellers who do not have lemons. However, in Myers and Majluf's paper the seller is not offering a single good, but a partial claim on two, the asset in place and the new project. Moreover, the seller gives up one of them, the new project, if the partial claim is not sold. Hence, Myers and Majluf present a more complex structure. In Myers and Majluf's (1984) adverse selection model, rational investors suppose that on average managers approve stock offerings when, based on their superior information, they believe that the stock is overvalued. This follows from the assumption that manager decisions are made on behalf of existing shareholders, who gain if additional stock is sold when it is overvalued and lose if additional stock is sold when it is undervalued relative to managers' superior information. Consequently, rational investors will lower their assessment of the stock's current value whenever a stock offering is announced. Much smaller announcement effects should be observed for offerings of straight debt.

Miller and Rock's (1985) *Cash Flow Signalling Hypotheses* assumes asymmetric information about the scale of the firm's current internal cash flow, but symmetric information about the level of planned investment and the value of the firm's assets conditional on current cash flow. SEOs can be motivated by a need to finance profitable investments, especially in the case of growth firms that have superior investment opportunities (Lee, 1997). Unanticipated announcements of new security issues then signal that the firm has inadequate internally generated funds to finance its planned investments. Both equity and debt issues used to finance new investment cause negative stock returns, and the absolute value of the percentage price decline is directly related to the size of the issue. Since new external financings are assumed to contain no information about the level of the firm's planned investment, the stock price response is unrelated to the investment's profitability. Equity issues that are used to retire existing debt are zero net external financings and do not convey information about the magnitude of the firm's current internal cash flow. Consequently, they have no impact on stock prices. Thus, Miller and Rock's model predicts that announcements of new security issues will, on average, depress stock price. However, they do not yield specific hypotheses about what kinds of securities firms choose to issue and how that choice affects the degree of the stock price change.

Changes in Ownership Structure

The Leland and Pyle (1977) signalling model predicts that changes in management stockholdings cause like changes in firm value. Investors assume correctly that management is better informed about the expected future cash flows and that from a diversification standpoint, it is costly for managers to hold a significant fraction of firm stock. Thus, managers have incentives to hold large stock positions only if they expect the future cash flows to be high relative to the firm's current value. Rational investors will consider managers' fractional stock ownership to be a credible signal of firm value. Thus, a decrease in managements' fractional shareholdings, caused by a stock offering to outside investors, is a negative signal about firm value.

Agency theory models as developed by Jensen and Meckling (1976) predict that larger percentage shareholdings by management decrease the potential conflicts of interest between managers seeking to maximize their own utility and outside shareholders seeking to have share value maximized. Thus, any increase in outstanding shares, which decreases management percentage shareholdings, is predicted to have a negative impact on firm value and stock price. The larger the proportional size of the stock offering, the larger the predicted negative effect on the firm assuming management does not subscribe to the offering, which is further worsened by management share sales.

In addition, Masulis and Korwar (1986) made a comprehensive event study analysis and cross-sectional regressions where they found support for stock price changes proportional with the changes in management's fractional shareholdings in the firm. This is consistent with both the Jensen and Meckling agency model and the Leland and Pyle signalling model.

Changes in Capital Structure

Modigliani and Miller's (1963) *Tax Advantage of Debt Hypotheses* assumes that new equity causes an unanticipated decrease in financial leverage. Because of the tax advantages of debt financing, a decrease in financial leverage make the stock price decline, and the absolute value of the percentage decline is directly related to the size of the issue. Stock issues intended to retire existing debt have an even larger negative effect than issues intended to finance new investment, since they have a greater effect on financial leverage. New debt issues reduce future tax liabilities and, consequently, have a positive effect on stock prices.

The *Redistribution Hypothesis* is based on the observation that with a fixed investment policy, an unexpected decrease in leverage makes a firm's debt less risky. If the total market value of the firm remains unchanged, bondholders experience an increase in value at the expense of the shareholders. This effect is most easily understood if the firm's common stock is viewed as a call option on the assets of the firm. The *Redistribution Hypothesis* predicts that new equity issue announcements will have a negative effect on stock prices and new debt issue announcements will have a positive effect. The scale of the effect will be directly related to the size of the issue and will be larger for issues intended for pure capital structure changes than for those intended for new investments (Barclay and Litzenberger, 1988).

The above mentioned theories all fall under the leverage-related information hypothesis which states that leverage-increasing financing announcements should be accompanied by positive stock price reactions and leverage-decreasing announcements by negative stock price reactions (Asquith and Mullins, 1984).

However, there are difficulties in associating equity issue price effects with changes in capital structure. First, most equity issues are a relatively small percentage of total capital. Even if the entire proceeds of the issue are used to repay debt, the impact on financial leverage and tax shields are not large relative to the magnitude of the reduction in equity value associated with stock issues. Secondly, changes in leverage induced by equity issues may be temporary. Finally, a leverage-related explanation of the price effects of primary equity issues cannot explain the price effects of secondary distributions which do not affect corporate capital structures (Asquith and Mullins, 1984).

3.5.1.2 Positive Price Effect

As discussed above, most of the theories concerning the effect of equity issuance indicate a negative relationship. However, there are some studies that have found support for positive price effects. Masulis and Korwar (1986) and Mikkelsen and Partch (1986) found that the negative price movements associated with an equity issuing can be reduced if the proceeds are used for investment purposes. In addition, a SEO could contribute to a value enhancing decrease of the amount of debt due, for example, to a cut of the expected costs of financial distress and/or agency costs (Asquith and Mullins, 1985).

3.6 SEO Hypothesis

From the above theories describing both the negative and positive price effect on the announcement day it can be concluded that the evidence for negative announcement return is stronger. Therefore, the following hypothesis will be tested:

H_{02} = The initial return will be *negative*

3.7 The Efficient Market Hypothesis (EMH)

The EMH is used to explain when no price effect occurs at the announcement day of the SEOs. However, as it is a widely research theory it will now be discussed from both the IPO and SEO perspective.

The empirical evidence on the pricing of IPOs and SEOs provides a puzzle to those who otherwise believe in efficient financial markets as it suggests that the market is ineffective (Loughran and Ritter, 1995; Ritter, 1991). However, the reliability of the studies on IPOs and SEOs has been questioned and, therefore, the actual reliability of the market is still an unsolved issue (Fama, 1991). As the theoretical framework is a part of the market efficiency discussion the study will proceed by exploring the theories behind the hypothesis.

3.7.1 Different Forms of Market Efficiency

The efficient-market hypothesis (EMH) claims that, at all times, a security's market price fully reflects the true, rational value of the security. In other words, the security is fairly priced. For this to occur, the security's market price must reasonably reflect all available value-relevant information. Rational investors use all available information useful in determining the security's expected future cash flows, the riskiness of these cash flows, and the appropriate discount rate to apply to the security's expected cash flow. The EMH has the following inferences for investors and for firms (Fama, 1991):

- Because information is reflected in prices immediately, investors should only expect to obtain a normal rate of return. Awareness of information when it is released does not help an investor since the price adjusts before he has time to trade on it.
- Firms should expect to receive the fair value for securities that they sell. Fair means that the price they receive for the securities they issue is the present value. Thus, valuable financing opportunities that arise from fooling investors are unavailable in efficient markets.

So far we have assumed that the market responds immediately to all available information. In actuality, certain information may affect stock prices more quickly than other information. To handle differential response rates, researchers separate information into different types: information on past prices, publicly available information, and all information. Based on the different types of information Fama (1970) specified three forms of the EMH in his 1970 paper; the weak form, the semistrong form and the strong form.

In the weak form, a security's price reflects all information that may be included in the security's historical prices. Weak-form efficiency is about the weakest type of efficiency that we would expect a financial market to display because historical price information is the easiest kind of information about a stock to acquire. If it were possible to make extraordinary profits simply by finding the patterns in the stock price movements, everyone would do it, and any profits would disappear in the scramble. In the semistrong form a security's price reflects all publicly available information. The distinction between semistrong-form efficiency and weak-form efficiency is that semistrong-form efficiency requires not only that the market be efficient with respect to historical price information, but that all of the information available to the public be reflected in price. Finally, the market is strong form efficient if a security's price reflects all information, both public information and information held privately by for example insiders and analysts. This form says that anything that is relevant to the value of the stock and that is known to at least one investor is, in fact, fully incorporated into the stock value (Fama, 1970).

3.7.2 Studies on Market Efficiency

The record on the EMH is extensive, and in large measure it is encouraging to supporters of the efficiency in markets. The studies done by academicians fall into broad categories such as evidence as to whether changes of stock prices are random, records of professionally managed investment firms and event studies.

Fama was one of the researchers who, in 1969, published a milestone paper based on the EMH (Fama et al., 1969). The study established a technique for measuring the effect of new information on the market value of a security. Researchers have since used this technique, called event-study methodology, to conduct hundreds of empirical studies. In *Efficient Capital Markets II* (1991) Fama claims that event studies constitute the cleanest evidence on market-efficiency, especially event studies on daily returns. However, there are also event studies which conclude that the market does not respond quickly to new information. One of the studies questioning the EMH is Loughran and Ritter's *The New Issue Puzzle* (1995). The authors claim that the poor performance of firms issuing stock does not necessary imply long-term return reversals, and book-to-market effects can only explain a portion of low returns. Further, they conclude that their evidence is consistent with a market where firms take advantage of temporary windows of opportunity by issuing equity when on average, they are considerably overvalued.

Still, the bulk of the results from the last 20 years of event studies show that the market does adjust stock prices to new, company specific information. The results indicate that on average stock prices adjust quickly to information about investment decisions, dividend changes, changes in capital structure, and corporate-control transactions. Fama (1998) rejects the recent anomalies, including Loughran and Ritter's (1995) study, found in the finance literature by presenting two main arguments:

- An efficient market generates categories of events that individually suggest that prices overreact to information. But in an efficient market, apparent underreaction will be about as frequent as overreaction. If anomalies split randomly between underreaction and overreaction, they are consistent with market efficiency. A roughly even split between apparent overreaction and underreaction is a good description of existing anomalies.
- If the long-term return anomalies are so large they cannot be attributed to chance, then an even split between over- and underreaction is a victory for market efficiency. Long-term return anomalies are sensitive to methodology. They tend to be marginal or disappear when exposed to different models for expected returns or when different statistical approaches are used to measure them. Thus, even viewed separately, most long-term return anomalies can be reasonable attributed to chance.

3.8 Previous Studies on IPOs and SEOs

For the purpose of the study Slovin's et al. (2000) article *Alternative Flotation Methods, Adverse Selection, and Ownership Structure: Evidence from Seasoned Equity Issuance in the U.K* and Loughran and Ritter's *Why has IPO Underpricing Changed over Time* were used as the main reference articles. Throughout this study these papers are incorporated extensively and, therefore, the last theory section will examine them in more detail.

Slovin et al. (2000) investigate valuation effects for different methods of flotation at announcements of seasoned equity issuance in the United Kingdom. The most widely used flotation method in the United Kingdom is, as in the majority of the smaller Canadian, European and most Pacific Rim capital markets, rights offerings. The authors' objective was to assess whether share price responses in the United Kingdom were consistent with current finance theory and with empirical results for seasoned equity offerings in the United States. Event study methodology and cross-sectional regressions were used to examine the impact of offering and issuing firm characteristics on shareholder wealth. Their evidence reveals that alternative flotation methods have differential effects on firm value. Further, the choice of flotation method conveys a different signal in the United Kingdom than in the United States. Their results indicate that rights offerings by British firms are a negative signal of firm value, and entail large indirect costs. One of the reasons for the large costs is that underwriters are required to price the offering without knowing the market reaction to the offering announcement.

In their research paper Loughran and Ritter (2004) try to explain the different amounts of underpricing in initial public offerings during the years 1990 to 2003. To find a clarification they examine 3 hypotheses for the change in underpricing: the *Changing Risk Composition Hypothesis*, the *Realignment of Incentives Hypothesis* and the *Changing Issuer Objective Function Hypothesis*. The *Changing Risk Composition Hypothesis* predicts that riskier IPOs will be underpriced by more than less risky IPOs. The *Realignment of Incentives* and the

Changing Issuer Objective Function Hypothesis both speculate about the changes over time in the willingness of issuing firm to accept underpricing. Both of the latter hypotheses believe that underwriters benefit from rent-seeking behaviour that takes place when there is excessive underpricing. The result of the study found that part of the increase in underpricing can be explained by the changing risk composition of the firms going public. The physical riskiness of firms going public was measured by age or asset. Further, Loughran and Ritter (2004) argue that there is only a weak relationship when testing the *Realignment of Incentives Hypothesis* implying that managerial incentives to reduce underpricing have not decreased over time. Finally, multiple regressions with underpricing as the dependent variable support the *Changing Issuer Objective Function Hypothesis*. Loughran and Ritter (2004) concluded that the reasons that IPOs are underpriced vary depending on the environment. In the 1980s it is believed that the *Winner's Curse Problem* was one of the main explanations for underpricing in the United States. During the internet bubble the authors claim that the reasons were different. Analyst coverage, side payments to CEOs and venture capitalists are named as possible explanations.

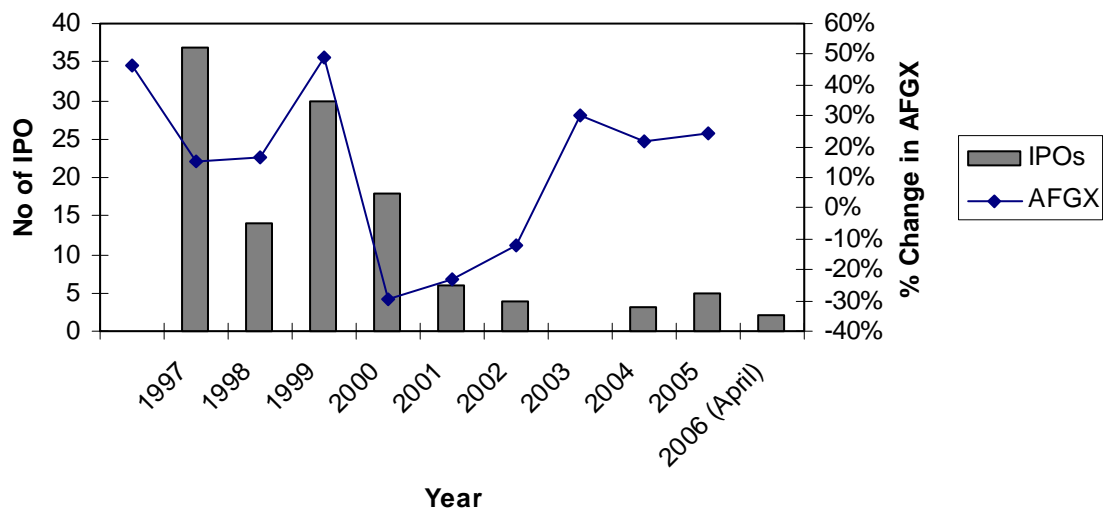
4 Empirical Findings

In this chapter the result of our empirical findings is presented. It is divided into different paragraphs in order to get a more comprehensive understanding of how the different concepts perform in practice. The chapter begins with descriptive statistics about the IPOs and the SEOs to later present the statistical result form testing the price effects and the regression analysis.

4.1 Descriptive statistics IPO

The total number of IPOs between 1997 and April 2006 was 119, out of these this study used 99. The reason for excluding the 17 firms was a lack of information about them. Many of them have been delisted and stock prices could, hence, not be found. Most of the companies that have been delisted went public in 1997 to 1999. The reasons for delisting are several, the two most common are found to be bankruptcy or takeovers. As expected there were several IPOs conducted in the years before the IT bubble, especially in 1999 when the IT-boom reached its peak. To put this in perspective with the state of the market the number of IPOs is graphically shown together with the percentage change in AFGX in diagram 4.1. The change is used to see how the IPO market reacts on increases and decreases to the stock exchange.

Diagram 4.1 Number of IPOs in relation to the change in AFGX. The diagram shows the yearly percentage change in Affärsvärldens Generalindex, 1997-2005, together with each year's total numbers of IPOs. The diagram indicates that there presumably is a connection between the state of the market and the number of IPO.



The diagram 4.1 indicates that the number of IPOs follows the market especially before the IT-bubble. After the crash it can be observed that firms are more cautious and do not rely on the state of the market as they did before year 2000 since the amount of IPOs have not increased in the same pace as the AFGX.

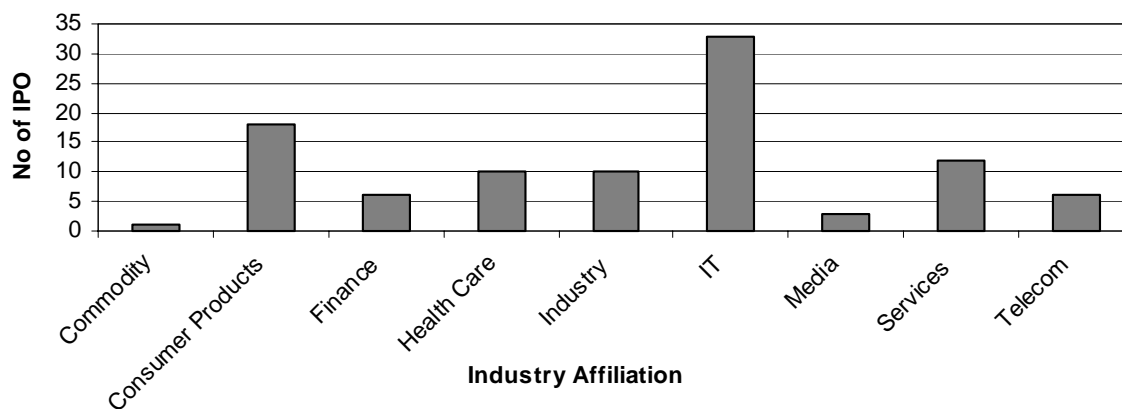
From diagram 4.1 a clear indication is given of hot and cold markets. By using the third percentile the hot markets are identified to be 1997, 1999 and 2000 by using the third percentile. During these years the underpricing was relatively high, however, 1998 with an underpricing of 25 percent is the single year with the largest underpricing. Table 4.1 reports the average underpricing during the years. It is found that in 1997 and 1998 more than 80 percent of the firms in the sample were underpriced. After 1998 the number of firms underpriced decreases. However, the underpricing never falls under 50 percent. Noticeable is year 2001, where there is an average overpricing.

Table 4.1 Average first-day-return. The table shows how many of the observations each year are underpriced. It also reports the average underpricing for each year. It can be concluded that 1998 is they year with the largest underpricing, while in 2001 the initial return was negative.

Year	Underpriced	Average
1997	83%	13%
1998	83%	25%
1999	69%	19%
2000	61%	7%
2001	50%	-5%
2002	50%	1%
2004	67%	10%
2005	60%	7%

As previously stated the sample consists of 99 firms divided into nine affiliations. The number of IPOs conducted in each sector is shown in diagram 4.2. The IPOs in the IT sector constitutes the largest part of the total number of IPOs conducted during the time period, with 1999 being the peak year for IT IPOs. This is also reflected in our sample. There is no other industry that reaches the same level of IPOs. Consumer products is the next most well represented industry. Further, there are several industries that roughly have the same numbers of IPOs carried out. The commodity affiliation with only one observation in the sample is the least represented. Therefore, this variable will be excluded in a few analyses.

Diagram 4.2 Sample of IPOs 1997-2006 (April). The diagram illustrates the industry distribution. It can be concluded that the IT sector is dominating, followed by consumer products.



When observing firm characteristics to be included in the regression analysis it is found that the IT companies are rather young with a mean age of nine years. The oldest companies operate in the consumer products and in the industry sector with an average age of 42 and 41 years respectively. The largest net sale is found in the industry affiliation. However, it is closely followed by the telecom sector. This is mainly due to two major companies (Alfa Laval and Telia) going public under the chosen time period. The average offer size is largest in the telecom sector. However, this is probably due to one great issue. Hence, the median might be a better measure. When using this, the media sector has the highest offer size and the IT sector has the lowest. The largest average total assets are found in the telecom sector due to Telia. Therefore, an analysis which removes this observation was conducted and then the finance sector encounters the largest average total assets. The health care is by far the industry with smallest average total assets. The sectors with the largest debt are the finance, industry and telecom sector. Again, this depends on a few large companies. When removing them the

consumer products has the average highest debt. Large spreads exist between the maximum values and the minimum values, to decrease the effect of these large spreads the logarithm of the variables needs to be used in the regression analysis. However, further tests will be conducted.

Table 4.2 Summary of firm characteristics included in the regression analysis of the IPOs .

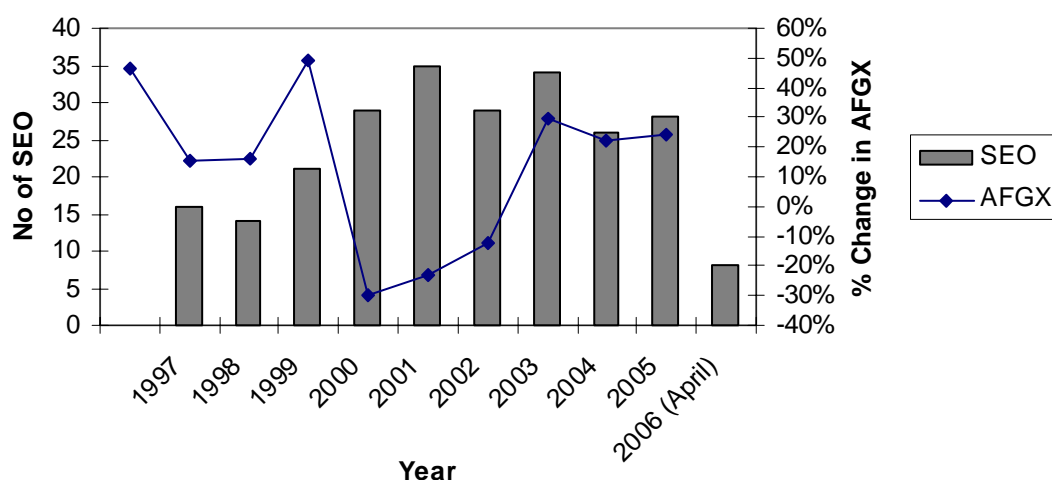
	Mean	Median	Min	Max	Standard dev
Age	23	12	1	157	28
Sales (MSEK)	957	190	1	15892	2326
Debt (MSEK)	1221	81	0,3	48118	5361
Asset (MSEK)	1782	142	3	83305	8733
Offer size (MSEK)	71	64	13	195	36

4.2 Descriptive statistics SEO

The total amount of SEOs made from 1997 to April 2006 was 240 and out of these 112 are used in the sample. The main reason for using this number of IPOs is the desire to have similar sample sizes for IPOs and SEOs. As was the case for IPOs, several companies which conducted SEOs have been delisted for various reasons, but mainly due to bankruptcy or take-overs. In the sample there are also a few companies that have conducted more than one SEO over the observed years.

The amount of SEOs carried out has been steady over the years as diagram 4.3 illustrates. It does not appear that the numbers of SEOs were affected by the IT bubble as there was no major decrease in the number of SEOs after the crash in 2000. After including the change in AFGX in the diagram it can be observed that SEOs are not affected by the general state of the market either. Several years have a rather high activity of SEOs, hence, it is not as easy as in the case of the IPOs to distinguish hot and cold market. However, by using the third percentile of the whole sample the hot markets were identified to be 2001, 2002 and 2003.

Diagram 4.3 Number of SEOs in relation to the change in AFGX. *The diagram shows the yearly percentage change in Affärsvärldens Generalindex, 1997-2005, together with each year's total numbers of SEOs. The diagram does not show any connection between the change in AFGX and the total numbers of SEOs conducted.*



To conclude whether the price decrease was larger the years identified as being hot market table 4.3 was created. The table reports, as in the case of the IPOs, how the average price effect has developed throughout the years. It can be observed that the hot markets 2001, 2002

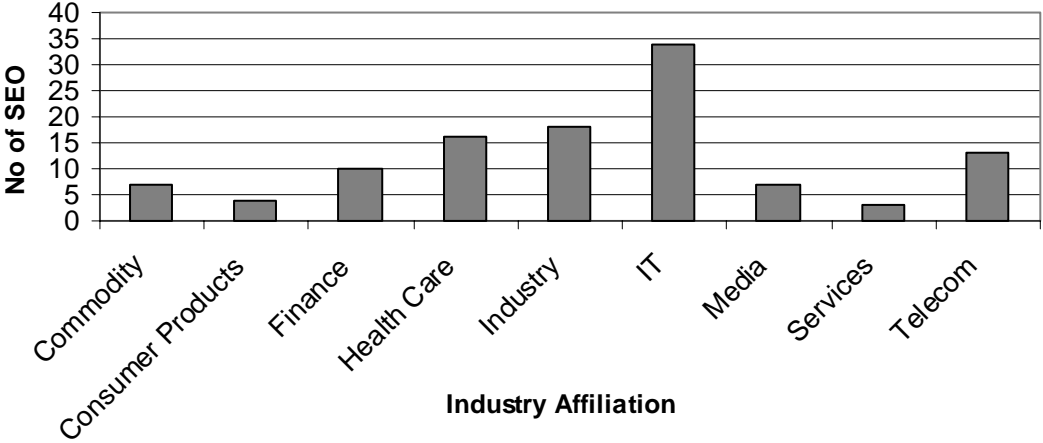
and 2003 have the highest negative price effect on the announcement day and 1997 has the smallest. Overall the negative price effect is higher than the positive among the sample.

Table 4.3 Average price effect on announcement day. *The table illustrates the mean price effect the day of the SEO announcement. It also reports how many of the observations experienced a price decrease on the announcement day. It can be concluded that the negative price effect was largest 2001, 2002 and 2003.*

Year	Percent Experiencing Negative Price Effect	Mean
1997	60%	-1%
1998	100%	-2%
1999	89%	-6%
2000	100%	-10%
2001	79%	-12%
2002	81%	-14%
2003	94%	-14%
2004	69%	-7%
2005	92%	-9%

The SEO sample is also divided into nine sectors which are reported in diagram 4.4. It is found that the IT companies are well represented. This is also the industry in which the largest amount of firms that have conducted more than one SEO exist. The health care and industry and sector have a fairly similar representation while the others have fewer observations in the sample.

Diagram 4.4 Sample of SEOs 1997-2006 (April). *The diagram shows the industry distribution. It can be concluded that the IT sector is dominating, followed by the health care an industry sector.*



When observing the firm characteristics used in the regression analysis of the SEO sample it is found that one of the most researched variables, the discount, has a mean value of 40 percent. Although, some of the discount can be attributed to the fact that rights issues are examined, when compared to other related studies (Slovin et al., 2000; Bøhren et al., 1997), the discount is still considered rather high. However, this discussion will be presented later in the analysis. The highest discount is found in the industry sector and the lowest is found in the IT sector. The average highest discount is found in the telecom sector, 54 percent, and the lowest average discount is found in the health care industry, 27 percent. In relatively many industries the discount is about 50 percent. The average offer price for the whole sample is 36,7 SEK which is not considered to be as a good measure as the prices range from 0,05 to

800 SEK. It might be better to examine the median of 7,25 SEK instead to gain an insight into how the offer differs among the sample. The industry with the average lowest offer price of 12 SEK is media while the highest average offer price is found in the service sector, 57 SEK. The market value of equity falls in a wide range with a minimum value of 17 SEK and a maximum value of 80 695 SEK. The highest value is found in the industry sector which also represents the average highest market value of equity. However, this is mainly due to one big company making a SEO. The ratio proceeds-to-market indicates the liquidity uncertainty of the offering. The average ratio in the sample is 0,45. The largest offering ratio is found in the finance industry. This is by far the largest ratio as most others have a ratio of less than one. Another variable included in the regression is the new shares/old shares ratio. This is an indication of the size of the issue and the average ratio is 0,7. The highest value of 6 is found in the telecom industry and should be considered an outlier as most of the other ratios are below one.

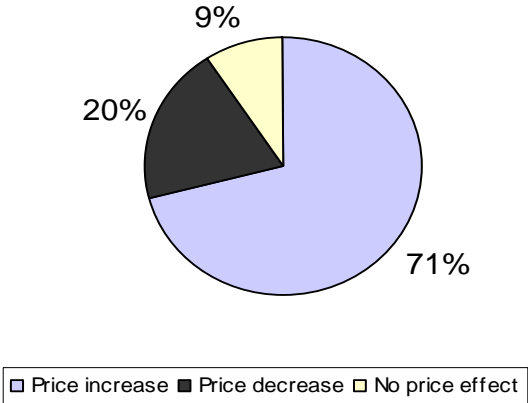
Table 4.4. Summary of firm characteristics included in the regression analysis of the SEO sample.

	Mean	Median	Min	Max	Standard dev
Discount	40	41,98	-63,93	95,33	25,74
Stock Price (SEK)	36,75	7,25	0,05	800	86,15
MV Equity (MSEK)	4031	426	17	80695	12367
Proceeds-to-market	0,45	0,26	0,003	4,63	0,67
M/B	62,8	2,42	0,08	4439	444
NS/OS ratio	0,7	0,40	0,01	6,0	0,9

4.3 Mispricing IPO and SEO

When observing the IPO sample it is found that 71 percent result in a positive initial return, 20 percent experience a negative initial return and 9 percent remain on the same price level when measuring the first day return. Further, it is found that the underpricing is significantly greater than the overpricing ($\chi^2 = 27,8$, prob = 0,000).

Diagram 4.5 Distribution of price effects of IPOs. The diagram illustrates the distribution of underpricing, overpricing and correctly priced IPOs. The underpricing is significantly larger than the overpricing.



A comparison within the different industries has also been made and the result for the IPO sample is reported in table 4.5. The industry affiliation commodity has been excluded in the IPO sample as it only consisted of one firm. For the IPO sample the underpricing is

dominating in all industries and range from 60 percent to 80 percent. The industries IT and services shows a significant difference on the five percent level between underpricing and overpricing ($\text{Chi}^2 = 13,33$, prob = 0,000 respectively $\text{Chi}^2 = 4,455$, prob = 0,035). From table 4.5 it can be found that the IT industry has the highest first day return (2,435) while media has the lowest (0,125). The highest average underpricing (0,236) is also located in the IT industry while the lowest (0,068) if found in the finance sector.

Table 4.5. Underpricing and overpricing distribution in the IPO sample. *The table reports the percent of underpriced and overpriced IPOs. The IPOs that are priced correctly are not included. Further, the table illustrates data regarding the size of the underpricing in each industry. IT and services report a significant difference between underpricing and overpricing.*

Industry	Underpriced	Overpriced	Mean	Median	Min	Max	Standard dev
Consumer Products	63%	33%	0,052	0,042	-0,229	0,372	0,052
Finance	80%	20%	0,167	0,000	0,000	1,000	0,408
Health Care	73%	18%	0,142	0,150	-0,218	0,521	0,226
Industry	60%	30%	0,114	0,035	-0,269	1,170	0,388
IT	76%	15%	0,236	0,104	-0,510	2,435	0,471
Media	67%	33%	0,076	0,079	0,0255	0,125	0,050
Services	75%	17%	0,088	0,058	-0,100	0,315	0,119
Telecom	71%	14%	0,052	0,015	-0,080	0,293	0,127
All industries	71%	20%	0,131	0,067	-0,51	2,435	0,324

For the SEOs reverse findings are found. The price effects the day after the SEO announcement are illustrated in the diagram below. 84 percent of the observations have experienced a price decrease, 12 percent a price increase and 4 percent had no price effect. The whole sample reports a significant difference between the price increase and price decrease ($\text{Chi}^2 = 62,3$, prob. = 0,000).

Diagram 4.6. Distribution of price effects of SEOs. *The diagram illustrates the distribution of underpriced, overpriced and correctly priced SEOs. The price decrease is significantly larger than the price increase.*

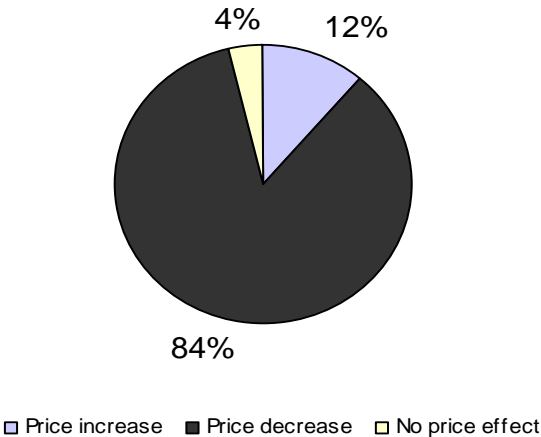


Table 4.6 report how the price effects are distributed among the different industries. The three sectors health care, IT and telecom show a significant difference between the two price effects ($\text{Chi}^2 = 12,25$, prob. = 0,000; $\text{Chi}^2 = 16,03$, prob. = 0,00 respectively $\text{Chi}^2 = 9,3$, prob. = 0,02). Further, the table illustrate two sectors, industry and media, where all companies experience a price increase. The share prices have overall decreased on announcement day. However, in

the consumer products sector it is equally divided between price increase and price decrease. The IT industry has the lowest value of -0,554 which implies a decrease in the stock price after the announcement of 55 percent. The highest increase in value is also found in the IT sector as an IPO earned an initial return of 55 percent on the first day of trading. The media sector's average is the highest with a fall in price of 17,9 percent. The industry whose average is the least affect by the price effect is the service sector with a price decrease of 1,1 percent.

Table 4.6 The price increase and price decrease distribution in the SEO sample. *The table report the percent of SEOs which experienced price increases versus price decreases. The SEOs that are priced correctly are not included. Further, the table illustrates data regarding the size of the price effect in each industry. The three industries health care, IT and telecom report significant differences between price increases and price decreases.*

Industry	Price decreases	Price increases	Mean	Median	Min	Max	Standard dev
Commodity	86%	14%	-0,114	-0,100	-0,342	0,037	0,125
Consumer Products	50%	50%	-0,098	-0,100	-0,230	0,040	0,140
Finance	80%	20%	-0,068	-0,031	-0,252	0,017	0,094
Health Care	94%	6%	-0,069	-0,043	-0,200	0,024	0,056
Industry	100%	0%	-0,104	-0,077	-0,489	0,000	0,119
IT	85%	15%	-0,101	-0,065	-0,554	0,545	0,179
Media	100%	0%	-0,179	-0,073	-0,503	-0,011	0,181
Services	67%	33%	-0,011	-0,043	-0,043	0,053	0,055
Telecom	92%	8%	-0,161	-0,152	-0,349	0,035	0,121
All industries	84%	12%	-0,102	-0,067	-0,554	0,545	0,137

4.4 Results from the IPO regression

The descriptive statistics include a wide spread within the different variables, consequently, to work with better fitted values the natural logarithm was used. The correlation matrix showed that net income and total asset were highly correlated (0,7) with several other variables. Consequently they were removed from the analysis. These adjustments let to the following multiple regression:

$$AR = \alpha + \beta_1 \ln size + \beta_2 \ln (1+age) + \beta_3 \ln afgx + \beta_4 \ln sales + \beta_5 Dservices + \beta_6 Dfinance + \beta_7 DIT + \beta_8 Dconsumer products + \beta_9 Dmedia + \beta_{10} Dtelecom + \beta_{11} Dindustry + \beta_{12} Dhealth care + \beta_{13} Dhotcold + \beta_{14} Dcarnegie + \beta_{15} DSEB + \beta_{16} DH\&Q + \beta_{17} DHandelsbanken + \beta_{18} DSwedbank + \varepsilon$$

The *AR* is the initial return the first day of trading. The *lnsize* is the logarithm of the offer size of the IPO calculated by multiply the amount of shares issued with the offer price, the *lnage* is the logarithm of the amount of years the firm has existed, *lnafgx* is the logarithm of Affärsvärlden Generalindex the day the IPO was conducted, the *lnsales* is the logarithm of net sales the 12-month period prior to the offering, *Dservices* is a dummy variable, 1 if company *i* belongs to the service industry and zero otherwise, *Dfinance* is a dummy variable, 1 if company *i* belongs to the finance industry and zero otherwise, *DIT* is a dummy variable, 1 if company *i* belongs to the IT industry and zero otherwise, *Dconsumer products* is a dummy variable, 1 if company *i* belongs to the consumer products industry and zero otherwise, *Dmedia* is a dummy variable, 1 if company *i* belongs to the media industry and zero otherwise, *Dtelecom* is a dummy variable, 1 if company *i* belongs to the telecom industry and zero otherwise, *Dindustry* is a dummy variable, 1 if company *i* belongs to the industry sector and zero otherwise, *Dhealth care* is a dummy variable, 1 if company *i* belongs to the health care industry and zero otherwise, *Dhotcold* is a dummy variable, 1 if company *i* went public in year 1997, 1999 or 2000 and zero otherwise, *Dcarnegie* is a dummy variable, 1 if company *i* used Carnegie as an underwriter in the issue and zero otherwise, *DSEB* is a dummy variable, 1 if company *i* used SEB as an underwriter in the issue and zero otherwise, *DH&Q* is a dummy variable, 1 if company *i* used H&Q as an underwriter in the issue and

zero otherwise, *Dhandelsbanken* is a dummy variable, 1 if company *i* used Handelsbanken as an underwriter in the issue and zero otherwise, *Dswedbank* is a dummy variable, 1 if company *i* used Swedbank as an underwriter in the issue and zero otherwise.

The first regression performed included all variables. However, this result was not satisfactory thus a stepwise reduction began. Finally, the best possible model was found (table 4.7). It had a adjusted R^2 of 0,103, which implies that the independent variables explain 10,3 percent of the model's accuracy. The model is significant on the 5 percent level with a p-value of 0,039. There are five significant variables; *lnsales*, dummy for health care industry, dummy for the IT industry, dummy for SEB, and dummy for H&Q. The coefficient for the *lnsales* is 6,12 which suggests that the sales of a firm affect the initial return positively. The dummy for health care does also have a positive coefficient (31,69) which implies that if the IPO is conducted by a firm in this industry the investors will positively affect the pricing. The same holds for the IT industry which has a coefficient of 25,3. The two investment banks SEB and H&Q do also report positive coefficients which mean that they affect the initial return positively. When observing the coefficients of the insignificant variables it can be concluded that all, except for *lnoffer*, have positive signs. This could indicate a positive relationship, but as they are not significant conclusions cannot be made.

Table 4.7. Cross-sectional regression with initial return as dependent variable. *The table reports five significant variables; lnsales, dummy for health care ,dummy for IT firms and dummies for the investment banks H&Q and SEB . The adjusted R² is 10% and the whole model is significant at the 5% significance level.*

$$AR = \alpha + \beta_1 \lnsize + \beta_2 \ln(1+age) + \beta_3 \lnafgx + \beta_4 \ln sales + \beta_5 Dservices + \beta_6 Dfinance + \beta_7 DIT + \beta_8 Dconsumer products + \beta_9 Dmedia + \beta_{10} Dtelecom + \beta_{11} Dindustry + \beta_{12} Dhealth care + \beta_{13} Dhotcold + \beta_{14} Dcarnegie + \beta_{15} DSEB + \beta_{16} DH\&Q + \beta_{17} DHandelsbanken + \beta_{18} DSwedbank + \varepsilon$$

The regressions are run with White-adjusted standard error

Variable	Coefficient	t-Statistic
Intercept	-54,51	-0,65
Lnage	1,81	0,43
lnsales	6,12	2,30**
lnoffer	-4,24	-1,36
lnafgx	4,99	0,31
Dummy health care	31,69	2,41**
Dummy industry	9,59	0,76
Dummy finance	13,71	0,91
Dummy IT	25,30	2,79*
Dummy telecom	0,70	0,05
Dummy Carnegie	13,36	1,46
Dummy H&Q	30,38	2,39**
Dummy SEB	18,15	2,09**
Adjusted R-squared		0,10
Durbin-Watson stat		1,96
F-statistic		1,94
Prob(F-statistic)		0,04

** Significant at the 5% level

*** Significant at the 10% level.

N=99

A model that only included significant variables was also conducted. The result is reported in table 4.8. The adjusted R^2 of 6,1 percent is noticeably lower than in the R^2 in the model in

table 4.7. The significant variables are still *lnsales* and the dummies for H&Q, IT firms and health care. However, the dummy for SEB is no longer significant. All variables do still report positively coefficients

Table 4.8. Cross-sectional regression including only significant variables. *The table reports four significant variables; ln sales, dummy for health care, dummy for IT firms and a dummy for the investment bank H&Q. The adjusted R² is 6% and the whole model is significant at the 5% significance level.*

$$AR = \alpha + \beta_1 \ln \text{ sales} + \beta_2 DIT + \beta_3 D\text{health care} + \beta_4 DH\&Q + \varepsilon$$

The regressions are run with White-adjusted standard errors

Variable	Coefficient	t-Statistic
Intercept	-26,42	-2,06
Dummy health care	23,81	1,94*
Dummy IT	21,51	2,84**
Dummy H&Q	25,34	2,19**
Lnsales	4,91	2,47**
Adjusted R-squared		0,06
Durbin-Watson stat		1,95
F-statistic		4,39
Prob(F-statistic)		0,003

* Significant at the 1% level

** Significant at the 5% level

*** Significant at the 10% level.

N=99

4.5 Results from SEO regressions

In order to decrease the scale differences the independent variables, proceeds, age, M/B, proceeds-to-market are transformed to natural logarithms. Before running the regression a correlation matrix was run to see whether an exclusion of variables was necessary to avoid multicollinearity. The matrix showed that there were no multicollinearity to be considered, therefore, all variables could be included. However, no dummy for the sector services was included in the regression as it only contained three observations. Thus, the remaining formula is:

$$AR = \alpha + \beta_1 \ln P/M + \beta_2 disc + \beta_3 \ln MVE + \beta_4 \ln M/B + \beta_5 NS/OS + \beta_6 D\text{commodities} + \beta_7 D\text{finance} + \beta_8 DIT + \beta_9 D\text{consumer products} + \beta_{10} D\text{media} + \beta_{11} D\text{telecom} + \beta_{12} D\text{industry} + \beta_{13} D\text{health care} + \beta_{14} D\text{hotcold} + \varepsilon$$

The AR is the two-day announcement abnormal stock return. The *lnP/M* is the logarithm of the proceeds-to-market ratio calculated by dividing the proceeds with the pre-announcement value of equity, the *disc* is the discount calculated by taking the stock price before the offering minus the offer price divided by the market price before the offering, *lnMVE* is the logarithm of the market value of equity before the announcement, the *NS/OS* is the ratio of new shares issued divided by the amount of shares before the issue, *Dfinance* is a dummy variable, 1 if company *i* belongs to the finance industry and zero otherwise, *DIT* is a dummy variable, 1 if company *i* belongs to the IT industry and zero otherwise, *Dconsumer products* is a dummy variable, 1 if company *i* belongs to the consumer products industry and zero otherwise, *Dmedia* is a dummy variable, 1 if company *i* belongs to the media industry and zero otherwise, *Dtelecom* is a dummy variable, 1 if company *i* belongs to the telecom industry and zero otherwise, *Dindustry* is a dummy variable, 1 if company *i* belongs to the industry sector and zero otherwise, *Dhealth care* is a dummy variable, 1 if company *i* belongs to the health care industry and zero otherwise, *Dhotcold* is a dummy variable, 1 if company *i* issued additional equity during the year 2001, 2002 or 2003 and zero otherwise.

The first regression was run with all variables; this generated a model that had a p-value of 0,000 and an adjusted R² of 0,452. This implies that the model explains 45,2 percent of the price effect accuracy and the p-value state that it is significant at almost the 1 percent level. The table below shows the result of the model.

Table 4.9 Cross-sectional regression with the first day discount as dependent variable. *The significant variables are marked with a * for significance at the 1% level, ** for significance at the 5% level and *** for significance at the 10% level. The table reports two significant variables; discount and new shares/old shares ratio . The adjusted R² is 45% and the whole model is significant at the 1% significance level.*

$$AR = \alpha + \beta_1 \ln P/M + \beta_2 \text{disc} + \beta_3 \ln MVE + \beta_4 \ln M/B + \beta_5 \text{NS/OS} + \beta_6 D_{\text{commodities}} + \beta_7 D_{\text{finance}} + \beta_8 D_{\text{IT}} + \beta_9 D_{\text{consumer products}} + \beta_{10} D_{\text{media}} + \beta_{11} D_{\text{telecom}} + \beta_{12} D_{\text{industry}} + \beta_{13} D_{\text{health care}} + \beta_{14} D_{\text{hotcold}} + \varepsilon$$

Variable	Coefficient	t-Statistic
Intercept	6,12	1,11
Lnproceeds-to-market	-2,00	-1,48
Discount	-0,32	-6,56*
Lnmarket value equity	0,55	0,79
New shares/old shares ratio	-3,48	-2,43**
LnM/B	-0,79	-1,08
Dummy telecom	-4,75	-0,93
Dummy media	-8,25	-1,34
Dummy IT	-5,28	-1,17
Dummy industry	-6,32	-1,35
Dummy health care	-6,08	-1,26
Dummy finance	-3,19	-0,60
Dummy commodities	-5,51	-0,97
Dummy hotcold	-2,29	-1,07
Dummy prior issue	-2,05	-0,61
Adjusted R-squared		0,45
Durbin-Watson stat		1,98
F-statistic		7,42
Prob(F-statistic)		0,0000

* Significant at the 1% level

** Significant at the 5% level

*** Significant at the 10% level.

N=112

The table reveals that there are two significant variables: discount and new shares/old shares ratio. The other variables are not significant at any level. The coefficient of the discount is negative (-0,32) which implies that the price effect on the announcement day is affected negatively by the discount. The ratio new shares/old shares coefficient of -3,48 also results in a negative relationship with the price effect. Since the SEO empirical evidence found in various research does not use dummies for industries, a regression that excluded these variables was performed. However, as this gave a model with lower adjusted R² it will not be illustrated in the study.

As several variables were not significant, insignificant variables were stepwise taken away from the regression to see whether a better model could be found. However, by excluding variables the adjusted R² decreased slightly. The model where all variables are significant

have a adjusted R^2 of 44,4 percent and a p-value of 0,0000 (table 4.10). The variables included are as before the discount and new shares/old shares ratio. In addition, the Lnproceeds-to-market ratio is significant. The coefficients are -0,32 for the discount variable, -3,76 for new shares/old shares ratio and -2,37 for Lnproceeds-to-market. Comparing with the first regression the coefficients still have the same signs and the model is significant at the one percent level.

Table 4.10 Cross-sectional regression including only significant variables. *The significant variables are marked with a * for significance at the 1% level, ** for significance at the 5% level and *** for significance at the 10% level. The table includes only the significant variables only. However, the adjusted R^2 of 44% is lower than in the model where insignificant variables are included. The whole model is significant at the 1% significance level.*

$$AR = \alpha + \beta_1 \ln P/M + \beta_2 \text{disc} + \beta_3 \text{NS/OS} + \varepsilon$$

Variable	Coefficient	t-Statistic
Intercept	1,97	0,95
Lnproceeds-to-market	-2,37	-2,26**
Discount	-0,32	-7,21*
New shares/old shares ratio	-3,76	-2,78*
Adjusted R-squared		0,44
Durbin-Watson stat		1,90
F-statistic		34,53
Prob(F-statistic)		0,0000

* Significant at the 1% level

** Significant at the 5% level

*** Significant at the 10% level.

$N=112$

As the model reported in table 4.10 has a lower R^2 than the model in table 4.9 the model where insignificant variables are included will be used in the analysis.

5 Analysis

In this chapter the empirical finding will be analysed based on theories and other researchers' findings. It starts with analysing the price effects of the IPO and the SEO sample separately. Further, factors affecting and not affecting this price effect are discussed with basis from theories and other empirical findings. The chapter ends with a discussion about how the pricing factors are related to the fundamental theories and which similarities and differences there are between IPOs and SEOs.

5.1 Price effects of IPO

The empirical findings of this study convey the same results as numerous well-documented research papers (Rock, 1986; Booth & Smith, 1986; Welch, 1989) have done through the years; namely that underpricing exists when firms go public. The sample used reports that a significant number of firms experience underpricing on the first day of trading, namely 71 percent of all the companies. This implies that about 70 firms have made a misvaluation of their stocks. The reasons brought up in the theory are several and, hence, it is impossible to state one underlying reason. Later a few factors affecting the underpricing will be discussed. However, for now we will briefly discuss the importance of information asymmetry (Akerlof, 1970; Myers and Majluf, 1984) and agency cost of equity (Hamberg, 2001) when explaining misvaluation. The significance of information asymmetry is best illustrated by referring to the work of Akerlof (1970). Akerlof (1970) concluded that the difficulty of conveying the true value of a distinguished good lead to uncertainty which is the underlying reason for many economic institutions such as underpricing. When firms go public management does not know how investors will react to the stock which leads to the price differences observed on the first day of trading. Hence, a proportion of the underpricing can be attributed to the gap in information between management and investors. The agency cost of equity is also assumed to affect the pricing as the IPO can be a relatively risky investment. Investors require a higher return for undertaking this risk and the managers have to set a price that assures initial success for the stock. In addition, to these factors and others that will be discussed later in this chapter the price effect might also depend on whether the firm decides to use book building, an auction, fixed price or a hybrid model when releasing the stocks. However, as this study does not investigate the different pricing methods a deeper analysis will be left for further studies.

The empirical findings, of the whole IPO sample, generate an average price increase on the first day of trading of 13 percent. When comparing this result to Loughran and Ritter's (2004) findings on the U.S. market a significant difference is noticed. Loughran and Ritter (2004) report a price increase of 30,7 percent for the a comparable time period. However, their high number is dominated by the considerable underpricing of 65 percent in the years 1999 and 2000. Before 1999 the authors report an underpricing of 15 percent and between 2001 and 2003 a underpricing of 12 percent is reported. This is more in accordance with our findings. Loughran and Ritter (2004) argue that the underpricing is considerably greater during the IT bubble, which is also supported by our findings. We find the largest overall underpricing, which is 51 percent, and the largest average underpricing, which is 23,6 percent, in the IT sector. Further, the years in which the underpricing was the largest, 1998 and 1999, are also the years in which most IT firms went public. This result was expected as it is our belief that IT firms are harder to value compared to firms operating in more established sectors. One of the reasons is that IT companies hold more intangible assets, such as human capital, which is more complicated to value than tangible assets. In addition, IT companies belonged to an industry that was relatively new, leading investors to base their investment decisions more on speculations than proper assessments about firms' future prospects.

Periods in which the average performance of new issues is unusually high, such as in 1998 on the Swedish market, are considered to be hot markets. When comparing the IPOs during these years to the performance on the AFGX (table 4.1) it seems there is a pattern as the number of public offerings follows the changes on the index. However, due to the short time period it is hard to state a connection with certainty. Therefore, an additional diagram is created to observe the effects over a longer time period. Now a lagged connection can be found, hence, the conclusion is that there appears to be a lagged connection between the state of the market and the number of IPOs. We argue that the lagged relationship depends on the prolonged process of going public. It takes several months for a firm to actually realize the IPO as it has to adopt the organisation to specific requirements such as accounting standards. It also takes time to construct a prospect and set the price. As the firm is ready to undertake the IPO the conditions on the market might have changed.

In order to analyse the lagged index effect more thoroughly a comparison of the underpricing in hot and cold markets is done. This test is in accordance with the “hot issue” market periods identified by Ibbotson and Jaffe (1975). Their study states that the first month issue returns are predictable. In 1998 the underpricing on the Swedish Stock Exchange was very high, 25 percent. In the year after, the average underpricing was still relatively high at 19 percent, and more than twice as many public offerings took place on the Swedish market. This trend can also be observed for the reverse behaviour as the amount of offerings decreased by over 33 percent after negative initial returns in 2001. Hence, it appears that issuing firms on the Swedish market attempt to go public in periods after new issues experienced unusually high returns. This is in line with studies in the field (Ibbotson & Jaffe, 1975; Ritter, 1984) stating that the best time to go public is during the high-volume period following a hot issue market.

5.2 Price effects of SEO

The effect on stock prices after the announcement of a new equity issue is significantly negative with 84 percent of the observations reporting a price decrease. Although, there are studies supporting the no price effect (Fama, 1991) or positive price effect (Masulis and Korwar, 1986; Mikkelson and Partch, 1986) theories the result of our study indicate a negative effect. Slovin et al. (2000) conducted a study on rights issues from 1986 to 1994 in the United Kingdom and reported that the price decrease was significantly larger than the price increase. Further, in accordance with our result they report that 85 percent of the observations experienced a negative announcement return. The authors compared their findings with the U.S. market, where the negative return on rights offerings was one percent. The empirical findings of our study report a considerable higher negative announcement return of 10,2 percent. By observing the price fall within different industries it is found that several (commodity, media, it, industry) have an average return around ten percent or higher. Consequently, one industry has not caused the average negative returns. One of the reasons for having a considerable larger price decrease could be the different time period used in our study. We believe our time frame is characterised by high returns and an overvaluation of companies due to the general state of the market. Hence, we argue that the reason for the negative announcement return can be found in the signalling effect of the issuing and more specifically in information asymmetry. Investors mistrust management and interpret an equity issue as a sign of overvaluation (Myers and Majluf, 1984). Later more specific factors affecting the price will be discussed.

A study with an entirely different result is the one conducted by Bøhren et al. (1997) as it reports a positive announcement return on the Oslo Stock Exchange. However, this study uses a time period of 1980-1993 which might cause the remarkable difference. The authors do not present a comprehensive explanation for their findings but mention briefly one reason could be that Norwegian investors interpret an issue announcement as a sign of a positive future.

Another interesting aspect closely connected with the negative announcement return is the discount the companies set on the stocks. In our sample it is relatively high as the average discount amounts to almost 40 percent. Mola and Loughran (2004) conducted their study on the U.S. market and they report a discount of three percent. The reasons for the difference could be many, just to mention a few; (1) Mola and Loughran's study is performed on the U.S. market ours is limited to the Swedish and (2) the SEOs in the United States studied by the authors are underwritten issues which differ from rights issues used in our study. One of the differences is that rights issues involve the firm issuing options to investors enabling them to purchase shares at a later time. Rights offering discounts can be observed in Bøhren et al. (1997), where the discount is found to be 25 percent on the Norwegian market. Slovin et al. (2000) report a discount of 28 percent on U.K rights issues used in their sample. Both studies' findings are similar to our result. Consequently, we argue that the discount on markets using rights issues is high.

When it comes to SEOs the hot issue phenomena cannot be measured as it is solely an IPO occurrence. The hot markets for SEOs are instead considered to be the years with most equity issues. The hot markets in the sample are 2001, 2002 and 2003. When comparing this with the change in AFGX in diagram 4.3 no connection is found. Thus, it does not appear as firms conducting a SEO are affected by the changes in the market. This assumption is supported further when observing the fall 2000 performance, when the IT bubble burst. The number of SEOs remains at the same level as before. By comparing the effect the state of the market has on IPOs to the effect it has on SEOs a significant difference is spotted. In 2003 no IPOs were conducted while 34 SEOs were made. The reason for the lack of cohesiveness might be that firms see equity issue as an important step in achieving a desired capital structure. The observed behaviour is in accordance with the static tradeoff model (Shyam-Sunder and Myers, 1999). The static tradeoff model states that management's role is to choose an optimal capital structure maximizing company value. Hence, although the market is unstable the firm still has to finance its operations using the most value enhancing method. Another reason could be that equity is the only available source of capital for a desired cause. After the IT bubble many companies were in need of capital to avoid bankruptcy, hence, issuing equity was a way out of difficulties. When observing the negative announcement return over time (diagram 4.3) it is found that the hot market years have a rather high negative price effect in comparison to other years. An explanation might be that investors believe management issues share when they have superior information and consider the stock to be overvalued. This is in accordance with the adverse selection model (Myers and Majluf, 1984) which is based on the assumption that managers' decisions are made on behalf of existing shareholders.

5.3 Effect of variables IPO

In measuring which factors affect the mispricing of IPOs, five variables turned out to be significant out of which one was a firm characteristics variable. The model (table 4.8) with the highest adjusted R^2 (10,3%) altogether included twelve variables. All the variables, except Inoffer, had positive coefficients. The positive coefficients were not expected in all cases, but as not all the variables are significant it is impossible to state whether these signs are true or

not. However, the significant variables are all in accordance with our expectations. The insignificant factors will still be used in later discussions as they might be useful indications.

According to our model the *lnsales* variable is significant and yields a positive sign. Another significant variable in this study is the IT dummy. Due to the choice of time period the impact of the IT sector is quite significant as investors during these years valued IT stocks higher. Bearing in mind the markets positive reaction to IT firms before 2000 the IT dummy was expected to be positive and significant which also is the result. The third significant variable was the investment bank H&Q. This variable was, just as IT, a dummy but its significance was rather puzzling. The positive coefficient implies a higher initial return when the firm has used H&Q as an underwriter. The same is true for SEB. The last significant dummy variable is the health care industry. This is at a first glance also a rather surprisingly finding as the sample is not dominated by these firms. However, the health care sector seems to be characterized by a rather high underpricing (13 percent). The reasons for this can only be speculative as no research has been conducted. We think that the initial return can be related to the rather low mean age within the health care industry. The mean age of 10 years is much lower than the whole sample's average age (19). As previously stressed, young firms are associated with a higher risk and investors require compensation for this risk.

When comparing our results to previous studies we find that Loughran and Ritter (2004) also include the net sales variable in their analysis but, in contradiction, to our result they do not find this variable significant. However, the authors suggest that higher net sales imply less underpricing. This is not in accordance with our result as the coefficient in this study would have been negative. We argue that high net sales are a signal of success; the firm has managed to create a need for a good, delivered the good and collected the proceeds. Hence, high net sales are also a good sign for the future and, therefore, investors value the stocks higher.

Several studies (Holmén and Högfeldt, 2004; Loughran and Ritter, 2004) have reported the IT variable as being significant. Loughran and Ritter (2004) claim that before the IT bubble the *Winner's Curse hypothesis* explained much of the underpricing, but during the IT bubble this shifted and the agency problem's explanatory importance increased. As this period was characterized by introductions of risky IT companies we draw the conclusion that investors required a larger compensation. Another explanation we find relevant is tied to the short history of IT companies. Due to the lack of information the short history caused, investors believed that IT companies' future opportunities were endless. Thus, investors bided up the prices of the stocks.

The result from the third significant variable, the underwriter dummy, cannot be compared to previous work as it has not been tested and documented by others as it has in our study. However, researchers (Carter and Manaster, 1990; Loughran and Ritter, 2004) claim underwriters with high-quality reputation will decrease underpricing. In addition, the *Certification Hypothesis* states that investment bankers and auditors hold a certification role which reduces uncertainty in the IPO process. This connection between high-quality underwriters and underpricing cannot be distinguished in our analysis. We believe that reputation is hard to measure adequately as it is based on subjective assumptions. The result of our study indicates that investors value stocks higher if SEB or H&Q are used as underwriters, thus, increasing the underpricing. However, another reason for the increase in underpricing could be related to the valuation made by these two investment banks. They might act in accordance with the *Winner's Curse Theory* (Rock, 1986) to a larger degree than other banks. This would imply that SEB and H&Q sell out stocks cheaper to make sure

uninformed investors participate in the offering and, as a result, assure a successful public offering.

Our results differ from several other researches as many firm specific variables are not significant. For example Holmén and Högfeldt (2004) include age in their study and argue that this variable is significant at the five percent level. However, their study did not use the same dependent variable as this study does, which can be a reason for the difference. Another study that does use the same dependent variable as this study is Loughran and Ritter's (2004) and their result also indicate that age is a significant factor. We think that the reason our study does not follow Loughran and Ritter's is that their sample included a few more young firms and, therefore, risky firms. Riskier firms increase the underpricing which could lead to a significant age variable. Another insignificant variable is the offer size. This variable is also included by Loughran and Ritter (2004) and they also received an insignificant result. The difference lies in that our models provide a negative coefficient while Loughran and Ritter (2004) report a positive. However, as the result is not significant we cannot state what the difference in signs implies. The AFGX also result in an insignificant positive coefficient which shows that the initial return does not depend on the state of the market.

5.4 Effect of variables SEO

After performing a regression analysis on the price effects of SEOs the significant variables affecting the stock price on the announcement day were established to be the discount and new shares/old shares ratio. The discount variable implies that the larger the discount the greater the negative price effect. By comparing our result with other research (Eckbo and Masulis, 1992; Bøhren et al., 1997) we saw that these studies have not found this variable significant. However, Slovin et al. (2000) also find a significant negative coefficient for the discount. By setting a high discount the offering is more likely to be successful. However, it is important to keep a good balance because investors might interpret a high discount as an attempt by managers to issue overvalued stocks and, hence, the stock value will plunge. When discussing the discount it is vital to notice that the information asymmetry is the main cause of the conflict. Even though managers set a considerably lower offer price compared to the market's stock price the investors still believe that the stock prices will fall during the issuing period. As discussed earlier, they do this as it is believed that managers have superior information compared to themselves and that the issuing of stocks is due to an overvaluation. Further, as Myers and Majluf (1984) state, the stock price effect of the issues will be greater the more the asymmetry in information between insiders and investors.

The other significant variable the new shares/old shares ratio is a measure of size (Bøhren et al., 1997), the negative coefficient implies that the larger the issue the greater price fall on the announcement day. This is in accordance with Miller and Rock's (1985) *Cash Flow Signalling Hypothesis* as it claims that the absolute value of the percentage price decline is directly related to the size of the issue. This variable could also be considered as a risk measure. A large issue reflects a relatively large investment project which has a higher risk. This will probably scare the risk-averse investors and the rights might not be fully signed. The stock price reaction to this belief is evidentially negative. Bøhren et al. (1997) also include this variable in their study; however they do not find it significant. Therefore, no accurate comparisons can be made.

The M/B ratio turned out to be insignificant with a positive coefficient. Consequently, we cannot state whether the positive connection is true or not. However, we can use it as an

indication. As the M/B is considered being a measure of future growth opportunities a high ratio would decrease the suspicion of overvalued shares, hence, decrease the price fall. If the coefficient would have been significant this would have been the case. When comparing with Ching et al. (2006) we found that they also present an insignificant positive coefficient for the M/B ratio. Proceeds-to-market is another well-used variable when measuring the price effect. It is used by Mola and Loughran (2004) as a measure of liquidity uncertainty and the more positive the ratio is the greater is the uncertainty about the whole offering. The research does not show a significant coefficient, though it is positive. The coefficient reported from our model is, on the contrary, negative. Disregarding the insignificance of the coefficient the difference in signs is probably related to the fact that Mola and Loughran (2004) measure the discount instead of the price effect.

As none of the dummy variables for the industries turned out to be significant we draw the conclusion that the price effect does not depend on the industry the firm operates in. It could be argued that a few industries reveal more information than others and that this might have a significant impact on the initial return. However, the right way to capture this effect is not to measure it by industry dummies. The dummy for hot and cold market did not turn out to be significant either, even though the years identified to be hot markets had the largest negative announcement effect. The final dummy prior issue also showed an insignificant coefficient. Mola and Loughran (2004) included this variable in their study and found that firms conducting an SEO in the prior year reported significantly lower average SEO discounts between the years 1990 and 1999 than firms with no recent offerings. However, as already stated this study measures the discount whereas we measure the price effect, hence, a comparison is not possible.

5.5 Connection to fundamental theories

The initial price effects when issuing equity are not in line with the Efficient Market Hypothesis as the true, rational value of the security is not reflected. Hence, although price effects could be seen as individual events where underreaction will be as frequent as overreaction as suggested by Fama (1998), the majority of research agrees on a consistent positive price effect in IPOs and a negative price effect in SEOs. Although, different variables are found to affect the pricing of IPOs and SEOs we believe they emanate from the same fundamental theory; information asymmetry. As has been seen throughout this study there are several other theories trying to explain the pricing as well. Most of them, however, originate from the theory of information asymmetry. Without being able to accurately assess the condition of the company, investors will not be able to price the company correctly. Therefore, without the underpricing or discount they will not buy the stock. We believe the difference in the choice of variables is attributed to the difference in the level of information asymmetry between IPOs and SEOs. SEOs are made by firms whose stocks are already trading on the market. Hence, the companies are more or less monitored and release publicly available information. The decision to purchase additional shares from these companies can thus be taken after considering a larger pool of information. IPOs involve much more uncertainty and, hence, a more thorough analysis of the company is needed.

In order to take a closer look at differences between IPO and SEO pricing we will consider the variable size. Size is a significant explanatory variable for SEOs but not for the IPOs. We believe that the reason for the significant SEO variable is that a SEO is mainly conducted with one thought in mind; to raise additional capital. The firm is in need of money for one reason or another. Because of motives such as avoiding future payments and covenants associated

with debt the firm chooses to issue equity. However, because of the difficulty associated with conveying the true value of the company investors assume management thinks the firm is overvalued. Once again, this is a matter of information asymmetry. The only fact investors know for sure is the size of the offering, in other words the money needed. Since they do not know what the money will be used for they will assume that a larger offering is a bad sign. On the other hand, when going public there are many more reasons involved than just a need for capital. The grounds range from aiming for an optimal capital structure to wanting to pursue foreign markets. Hence, investors do not find the size of the offering as significant in IPOs. Instead they consider other factors such as industry affiliation, increased liquidity, value-enhancing monitoring.

To sum up, information asymmetry seem to be the fundamental reason for the price effects in IPOs and SEOs. Because firms conduction IPOs and SEOs do not share the same amount of information with investors the price effects are found using different explanatory variables. However, we have shown that all these variables originate from fundamental theories such as information asymmetry.

6 Conclusions

Based on the analysis this chapter presents our conclusions about the pricing effect and the affecting factors in the initial return and the announcement return. Thereafter, suggestions to further studies are presented.

This study's first aim was to investigate the pricing effect appearing when firms go public and when firms decide to issue additional shares. Several well-documented studies present findings suggesting a positive initial returns in IPOs and negative announcement returns in SEOs. The results from our findings are in accordance with these outcomes as we found a significant positive return in the IPO sample and a significant negative announcement return in the SEO sample. The conclusion to be drawn is that the IPOs conducted on the Stockholm Stock Exchange on the A- or O-listan from 1997 to April 2006 are underpriced and that the SEOs conducted on the same list and over the same time period experienced negative announcement returns. It can also be observed that in periods with a high volume of IPOs or SEOs the price effect is larger. In the IPO sample the amount of issues seems to have a connection with the state of the market while in the SEO sample this connection cannot be found. Both the IPO and SEO sample are characterized by the negative and positive effects of the IT bubble. This is clearer in the IPO sample than among the SEOs. This argument is based on the fact that the IT firms experienced a significantly higher initial return compared to the other industries when they went public. The negative announcement return of an IT company is not evidentially larger than other industries return.

The second purpose of the study was to investigate which factors affected the mispricing of stocks both in the IPO sample and the SEO sample. When determining the factors having a significantly impact on the price effect of the IPO the logarithm of sales turned out to be significant together with the dummy for the health care sector, the IT sector, H&Q and SEB. As the sales are a measure of profitability it can be concluded that investors buying shares in an IPO partly base their valuation on this measure. It also appears as the choice of underwriter matter in the valuation process because when H&Q or SEB have underwritten the IPO the initial return is affected positively. Further, our findings suggest that the IT and the health care firms affect the initial return positively. The result of the IT firms was not surprising as the average price effect was largest in this industry. Also at this time there was a great overvaluation of these stocks as it was more or less believed that their future possibilities were infinite. The significance of the health care sector we argued depended on the young age of the sample which implies a larger risk and, hence, investors require a higher return.

When analysing which factors determine the price effect in the SEO the discount and the percentage change in shares was found to be significant. The discount can be seen from several angels. In a rights issue the mangers have to use a large discount to assure the issue's success. However, this is on the expense of mistrusting investors. Our result shows that the discount is important for the investors as they take this factor into consideration when depreciating the stocks. Our findings also suggest that managers should not use a too large discount as the greater it is the larger negative announcement returns. From our findings it also appears that the size of the issue is taken into consideration by the investors. Investors interpret believe that the larger the issue the less they should value the stock. Thus, mangers could decrease the negative announcement effect by not issuing a large amount of shares. The variable prior issue did not turn out to be significant which implies that making SEOs frequently does not decrease the price effect.

In conclusion, by observing the two regression analyses we find that even though the underlying factors affecting the price effect are completely different they emanate from information asymmetry. Without being given adequate information investors will not be able to price the companies correctly, thus, requiring a underpricing or a discount. Further, the explanatory variables differ because of the difference in the level of information asymmetry between IPOs and SEOs. The difference is attributed to the fact that before firms go public they do not share, for example, financial information with outsiders.

6.1 Further studies

The two research areas included in this study are both complex and extensive. Hence in order to make a valid and useful contribution several factors needed to be considered. Because of the vast amount of information further studies could focus on one area instead of both in order to gain a deeper understanding of the issues within one field. Based on previous studies we choose explanatory variables we found relevant for the purpose of this study. However, for further studies additional explanatory variables could be included in order to take the research one step further. Future studies could also be extended to include larger markets such as the whole Nordic market since the Swedish market is very small. Rights issues are still widely used in the smaller markets, however, underwritten issues are prevalent in, for example, the United States. Thus, underwritten issues could be explored and contrasted with rights issues.

Sources

Literature

Bryman, A. (2001). *Social Research Methods*. Oxford: Oxford University Press.

Daymon, C. (2002). *Qualitative Research Methods in Public Relations*. USA: Routledge.

Eriksson, L. and Wiedersheim-Paul, F. (2001) "Att utreda, forska och rapportera" (7th edition) Liber Ekonomi, Malmö

Hamberg, M. (2001) *Strategic Financial Decisions*. Liber AB

Holme, I. and Solvang, B., (1996), "Forskningsmetodik om Kvalitativa och Kvantitativa Metoder", Studentlitteratur, Lund

Patton, M. (1990). *Qualitative evaluation and research methods* (2:a uppl.). London, Sage Publications Inc.

Articles

Akerlof, G.A. (1970) The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, 84: 488-500

Altman, E.I. (1984) A Further Empirical Investigation of the Bankruptcy Cost Question. *American Finance Association*, 39: 1067-1089

Asquith, P. and Mullins, D. (1986) Equity Issues and Offering Dilution. *Journal of Financial Economics*, 15: 61-90

Barclay, M.J. and Litzenberger, R.H. (1988) Announcement Effects of New Equity Issues and the Use of Intraday Price Data. *Journal of Financial Economics*, 21: 71-100

Bayless, M. and Chaplinsky S. (1996) Is there a window of opportunity for seasoned equity issuance? *Journal of Finance*, 51: 253-278

Beatty, R. P. and Ritter, J. (1986) Investment banking, Reputation and the underpricing of initial public offerings *Journal of Financial economics* vol 15, 213-232

Benninga S., Helmantel M and Sarig O, (2005) The Timing of Initial Public Offering, *Journal of financial economics*, 75:115-132

Bolton, P., von Thadden, E.-L., 1998. Blocks, Liquidity and corporate control. *Journal of Finance* 53, 1–26.

Booth, J.R. and Chua, L. (1996) Ownership dispersion, costly information, and IPO underpricing. *Journal of Financial Economics*, 41: 291-311

Booth, J.R. and Smith, R.L. (1986) Capital Raising, Underwriting and the Certification Hypothesis. *Journal of Financial Economics*, 15: 261-282

- Brau, J. and Fawcett, S. (2006) Initial Public Offerings: An Analysis of Theory and Practice, *The Journal of Finance*, 61:399-436
- Bøhren, O., Eckbo, E. and Michalsen (1997) Why underwrite rights offerings? Some new evidence *Journal of Financial Economics*, 46, 223-261
- Burrowes, A. and Jones, K. (2004) Initial public offerings: evidence from the UK. *Managerial Finance*, 30:46-62
- Carter, R., Manaster, S., 1990. Initial public offerings and underwriter reputation. *Journal of Finance*, 45: 1045–1067.
- Ching, K., Firth, M. and Rui, O. (1996) The information content of insider trading around seasoned equity offerings *Pacific-Basin Finance Journal*, 14: 91– 117
- Diamond, D.W. (1989) Reputation Acquisition in Debt Markets. *Journal of Political Economy*, vol. 97: 828-862
- Dimovski, W. and Brooks, R. (2004) Do you really want to ask an underwriter how much money you should leave on the table? *Journal of International Financial Markets* vol 14
- Eckbo, E. and Masulis, R. (1992) Adverse selection and the rights offer paradox. *Journal of Financial Economics*, 32: 293-333
- Fama, E.F., Fisher, L., Jensen M.C. and Roll, R. (1969) The Adjustment of Stock Prices to New Information. *International Economic Review*, 10: 1-21
- Fama, E.F. (1970) Efficient Capital Markets. A Review of Theory and Empirical Work. *Journal of Finance*, 25: 383-417
- Fama, E.F. (1991) Efficient Capital Markets: II. *Journal of Finance*, 46: 1575-1617
- Fama, E.F. (1998) Market Efficiency, Long-term Returns, and Behavioural Finance. *Journal of Financial Economics*, 49: 283-306
- Hanley, K.W. (1993) The Underpricing of initial Public Offerings and the Partial Adjustment phenomenon. *Journal of Financial Economics*, 34: 231-250
- Harjoto, M. and Garen, J. (2003) Why do IPO Firms Conduct Primary Seasoned Equity Offerings, *The Financial Review*, 38:103-125
- Harris, M. and Raviv, A. (1990) Capital Structure and the Informational Role of Debt. *Journal of Finance*, 45:321-349
- Holmén, M. and Högfledt P. (2004) A Law and finance analysis of initial public offerings *Journal of Financial Intermediation*, 13: 324–358

- Hovakimian, A., Hovakimian, G and Tehranian, H. (2004) Determinants of Target Capital Structure: The Case of Dual Debt and Equity Issues. *Journal of Financial Economics*, 71: 517-540
- Ibbotson, R.G. and Jaffe, J.F. (1975) "Hot Issue" Markets. *Journal of Finance*, 30: 1027-1042
- Ibbotson, R.G., Sindelar, J.L. and Ritter, J.R. (1988) Initial Public Offering. *Journal of Applied Corporate Finance*, 1.2: 37-45
- Jensen, M.O. and Meckling, W.H. (1976) Theory of the Firm: managerial behaviour, agency cost, and capital structure. *Journal of Financial Economics*, 3, 305-360
- Jou, J-B. and Lee, T. (2004) Debt Overhang, Costly Expandability and Reversibility, and optimal Financial structure. *Journal of Business & Accounting*, 31:1191-1222
- Klein Schmid, L., O'Brien, T.J. and Peters, S.R. (2002) Debt vs. Equity and Asymmetric Information: A Review. *Financial Review*, 37: 317-350
- Koop, G. and Li, K (2001) The Valuation of IPO and SEO Firms. *Journal of Empirical Finance*, 8: 375-401
- Lee, H.W. (1997) Post Offering Earnings Performance of Firms that Issue Seasoned Equity: The Role of Growth Opportunities. *The Quarterly Review of Economics and Finance*, 37: 97-114
- Leland, H.E. and Pyle, D.H. (1977) Information Asymmetries, Financial Structure, and Financial Intermediation. *Journal of Finance*, 32: 371-387
- Loderer, C., Sheehan, D. and Kadlec (1991) The pricing of equity offerings. *Journal of Financial Economics*, 29: 35-58
- Loughran, T. and Ritter, J. (1995) The New Issue Puzzle. *Journal of Finance*, 50: 23-51
- Loughran, T. and Ritter, J. (2004) Why has IPO Underpricing Changed Over Time? *Financial Management*, 33: 5-37
- Masulis, R. and Korwar, A. (1986) Seasoned Equity Offerings: An Empirical Investigation. *Journal of Financial Economics*, 15, 91-119
- McGuinness, P. (2003) Investor- and issuer- related perspectives of IPO underpricing *Omega International Journal of Management Science* vol 21, 377-392
- Meggison, W. and Weiss, K. (1991) Venture Capitalist Certification in Initial Public Offerings *Journal of Finance*, 46:879-903
- Mola, S. and Loughran, T. (2004) Discounting and Clustering in Seasoned Equity Offering Prices *Journal of Financial and quantitative analysis*, 39: 1-23
- Modigliani, F. and Miller, M.H. (1958) Corporate Finance and the Theory of Investment. *American Economic Review*, 48: 261-297

Modigliani, F. and Miller, M.H. (1963) Corporate Income Taxes and the Cost of Capital: A Correction. *American Economic Review*, 53: 433-443

Mola, S. and Loughran, T. (2004) Discounting and Clustering in Seasoned Equity Offering Prices. *Journal of Financial Quantitative Analysis*, 39: 1-23

Mikkelson, W.H. and Partch, M.M. (1986) Valuation Effects of Security Offerings and the Issuance Process. *Journal of Financial Economics*, 15: 31-61

Miller, M.H. and Rock, K. (1985) Dividend Policy under Asymmetric Information. *The Journal of Finance*, 40: 1031-1052

Myers, S.C. (1984) The Capital Structure Puzzle. *Journal of Finance*, 39: 575-592

Myers, S.C. and Majluf, N.S. (1984) Corporate Financing and Investment Decisions when Firms have Information that Investors do not have. *Journal of Financial Economics*, 13: 187-221

Pilotte, E. (1992) Growth opportunities and the stock price response to new financing. *Journal of Business*, 65:371–394

Sant, R. and Ferris, S.P., (1994). Seasoned equity offerings: the case of all-equity firms. *Journal of Business Finance and Accounting* 21: 429–444.

Scott, J.H. (1976) A Theory of Optimal Capital Structure. *Bell Journal of Economics*, 7: 33-54

Shyam-Sunder, L. and Myers, S.C. (1999) Testing Static Tradeoff Against Pecking Order Models of Capital Structure. *Journal of Financial Economics*, 51:219-244

Smith Jr., C.W. (1977) Alternative Methods for Raising Capital. *Journal of Financial Economics*, 5: 273-307

Solvin, M., Sushka M. and Lai K. (2000) Alternative flotation methods, adverse selection, and ownership structure: evidence from seasoned equity issuance in the U.K. *Journal of Financial Economics*, 57: 190

Stulz, R. (1988) Managerial Control of Voting Rights: Financing Policies and the Market for Corporate Control. *Journal of Financial Economics*, 20: 25-54

Subbarao, V.J. (2005) The Valuation Effects of Announcements of Rights Offerings by British and German banks, *Finance India*, 3:887-900

Tinic, S.M. (1988) Anatomy of Initial Public Offerings of Common Stock. *Journal of Finance*, 43: 789-822

Titman, S. (1984) The Effect of Capital Structure on a Firm's Liquidation Decision. *Journal of Financial Economics*. 13: 137-152

Ritter, J.R. (1984). The “Hot Issue” Market of 1980. *Journal of Business*, 57: 215-241

Ritter, J.R. (1991). The Long-Run Performance of Initial Public Offerings. *Journal of Finance*, 46: 3-27

Ross, S. (1977). The Determination of Financial Structure: the Incentive-Signalling Approach. *Bell Journal of Economics*, 8: 23-40

Varshney, S. and Robinson, R. (2004) IPO Research Symposium Review. *Journal of Economics and Finance*, 28: 56-67

Welch, I. (1989) Seasoned Offerings, Imitation Costs, and the Underpricing of Initial Public Offerings. *American Finance Association*, 44: 421-449

Warner, J.B. (1977) Bankruptcy Cost: some Evidence. *American Finance Association*, 32:337-347

Internet sources

www.ecovision.se/documents/Produktblad%20Index.pdf

www.sec.gov/answers/ipo.htm (2006-05-02)

www.rapporter.nu

Appendix 1 IPO sample

Company	Date	Initial Return	Underwriter	Industry
Biora	1997-02-10	0,239	Carnegie	Health Care
Entra	1997-02-14	0,158	Enskilda	Services
Sigma	1997-02-21	0,623	Carnegie	IT
Alfaskop	1997-02-24	0,214	Swedbank	IT
Gotic	1997-03-25	0,183	H&Q	Finance
MTV	1997-04-14	0,026	Handelsbanken	Media
Ticket	1997-04-25	0,100	Carnegie	Services
Semcon	1997-05-26	0,030	Enskilda	Services
Karlshamn	1997-06-05	-0,269	Berg	Industry
Arkivator	1997-06-05	1,170	Enskilda	Industry
Nibe	1997-06-16	0,021	Swedbank	Industry
Prosolvía	1997-06-18	0,104	Carnegie	IT
Profilgruppen	1997-06-19	0,092	Handelsbanken	Industry
Information Highway	1997-06-19	0,074	Öhman	IT
Padox	1997-06-23	0,022	Nordbanken	Finance
North Atlantic Natural	1997-06-24	-0,324	Enskilda	Commodity
Wedins	1997-07-01	0,009	Berg	Consumer Products
Svedbergs	1997-10-03	0,189	Swedbank	Consumer Products
Munters	1997-10-21	0,000	Morgan Stanely	Industry
Artimplant	1997-11-05	0,260	SHB	Health Care
ConNova	1997-12-09	0,067	Enskilda	Telecom
New Wave Group	1997-12-11	-0,017	Handelsbanken	Consumer Products
Gandalf	1997-12-18	0,071	Nordiska	IT
Karo Bio	1998-04-03	0,397	Handelsbanken	Health Care
Karolin Machine Tool	1998-04-03	-0,044	SHB	Industry
Nilörngruppen	1998-04-06	0,087	Enskilda	Consumer Products
MSC Konsult	1998-05-19	0,529	Enskilda	IT
Guide Konsult	1998-05-27	0,463	Handelsbanken	IT
BioGaia Biologies	1998-05-28	0,521	Aragon	Health Care
Prevas	1998-05-29	0,553	Carnegie	IT
Broström	1998-06-17	-0,086	Swedbank	Industry
Affärsstrategerna	1998-06-26	0,144	SHB	Finance
City Mail	1998-07-01	0,051	SEB	Services
Softronic	1998-12-03	0,359	H&Q	IT
Opcon	1998-12-30	0,036	Aros	Consumer Products
NoCom	1999-01-04	-0,023	H&Q	IT
Sectra	1999-03-03	0,200	Nordiska	Healthcare
Telelogic	1999-03-08	0,260	Carnegie	IT
Malmbergs	1999-03-12	0,049	Swedbank	Industry
Hiq International	1999-04-12	-0,061	Aros	IT
Teligent	1999-04-12	0,000	Carnegie	Telecom
Kungsleden	1999-04-14	0,000	Swedbank	Finance
Naturkompaniet	1999-04-21	0,000	Aros	Consumer Products
Jeeves	1999-04-21	0,000	Handelsbanken	IT
Frango	1999-04-23	0,081	Enskilda	Consumer Products
Digital Vision	1999-04-28	0,088	Berg/H&Q	IT
RKS	1999-05-17	0,063	Nordea	IT
Adera	1999-06-10	0,006	H&Q	IT
ReadSoft	1999-06-22	0,240	H&Q	IT
Framfab	1999-06-23	0,248	SEB	IT
Poolia	1999-06-23	0,133	SEB	Services
Boss Media	1999-06-24	0,231	Öhman	IT
Novotek	1999-06-30	0,262	Carnegie	IT
Connecta	1999-09-20	-0,081	Handelsbanken	IT
Clas Ohlson	1999-10-05	0,208	Handelsbanken	Consumer Products
Proffice	1999-10-11	0,315	Carnegie	Services
Enlight	1999-10-12	-0,010	SHB	Services

Appendix 1 cont'd.

Company	Date	Initial Return	Underwriter	Industry
A-com	1999-11-04	0,079	SEB	Media
Cybercom Group Europé	1999-12-01	2,435	H&Q	IT
Q-med	1999-12-06	0,017	Aros	Health Care
M2S Sverige	1999-12-06	0,164	Carnegie	IT
Micronic Laser Systems	2000-03-09	0,957	Carnegie	IT
JC	2000-04-19	-0,117	Handelsbanken	Consumer Products
Fingerprint Cards AB	2000-04-19	-0,510		IT
Mekonomen	2000-05-29	0,027	Handelsbanken	Consumer Products
Viking Telecom	2000-05-30	0,293	Carnegie	Telecom
Mind	2000-06-13	-0,018	Berg	IT
Telia	2000-06-13	0,018	Morgan Stanely	Telecom
AU-Systems	2000-06-21	0,158	Morgan Stanely	IT
Axis	2000-06-27	0,013	Enskilda	Telecom
Scandinavia Online	2000-07-07	0,074	Goldman	IT
Tripep	2000-07-14	0,100	Berg	Health Care
Jobline International	2000-09-15	-0,100	Carnegie	Services
AudioDev	2000-09-21	0,048	Carnegie	IT
Netwise	2000-09-28	0,000	H&G	IT
Eniro	2000-10-10	0,000	Carnegie	Services
Orc Software	2000-10-19	0,208	Carnegie	IT
Neonet	2000-10-20	-0,100	Aros	Finance
DayDream	2000-12-19	0,125	Carnegie	Media
Dimension	2001-02-20	0,056	Handelsbanken	IT
Carnegie & Co	2001-06-01	0,157	Carnegie	Finance
BTS Group	2001-06-06	0,035	Carnegie	Services
Biolnvent International	2001-06-12	-0,218	Carnegie	Health Care
Rnb Retail and Brands	2001-06-26	-0,229	Nordea	Consumer Products
Vitrolife	2001-06-28	-0,098	Enskilda	Health Care
Alfa Laval	2002-05-17	0,077	Enskilda	Industry
Intrum Justitia	2002-06-07	0,064	Enskilda	Services
Nobia	2002-06-19	-0,090	Enskilda	Consumer Products
Ballingslöv International	2002-06-19	-0,008	Berg	Consumer Products
Oriflame Sdb	2004-03-24	0,097	Carnegie	Consumer Products
Unibet Group Plc	2004-06-08	0,278	H&Q	Services
Note AB	2004-06-23	-0,080	H&Q	Telecom
Indutrade AB	2005-10-05	0,127	Handelsbanken	Industry
Hemtex	2005-10-06	0,188	Enskilda	Consumer Products
Tradedoubler AB	2005-11-08	0,000	Carnegie	IT
Orexo AB	2005-11-09	0,000	Carnegie	Health Care
Hakon Invest	2005-12-08	0,058	Handelsbanken	Consumer Products
KappAhl	2006-02-23	0,049	Carnegie	Consumer Products
Gant	2006-03-28	0,372	Enskilda	Consumer Products