

Founder CEOs and IPO Underpricing

Adrian Gehrig^a

B.Sc. Business and Economics
Stockholm School of Economics

Mårten Strömberg^b

B.Sc. Business and Economics
Stockholm School of Economics

ABSTRACT

The purpose of this thesis is to analyze the impact on underpricing from having a founder as CEO when doing an Initial Public Offering. We also perform a descriptive analysis on the Swedish IPO market, examining the differences between founder-led firms and companies with professional managers. Our sample includes 82 Swedish companies going public 1999 - 2008. We find few significant differences in characteristics between these groups, except for the amount of retained equity by CEOs and the venue of listing. When testing four our full sample we find that having a founder as CEO has no significant impact on underpricing from having a founder as CEO. For large firms, founder CEOs also seem to have no significant impact on underpricing. However, for small firms, companies with founder CEOs experienced increased underpricing at a 5 percent significance level. Our findings suggest that having a founder as CEO does not work as a signal to reduce ex-ante uncertainty among investors, either because they pay no attention to founder status or because they perceive founder CEOs as increasing uncertainty of a firm's intrinsic value.

^a 20953@student.hhs.se ^b 20451@student.hhs.se

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Tutor: Henrik Andersson

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1. INTRODUCTION

A common definition of an entrepreneur is a founder who manages her own company. There are numerous examples of successful entrepreneurs who have managed their firms to reach great company performance and growth without leaving the executive branch or board. Successful Swedish company founders like Ingvar Kamprad (IKEA), Erling Persson (H&M) and Jan Stenbeck (Kinnevik) have left a good reputation for entrepreneurship and founder-led companies in the Swedish market.

The impact of founder management has been given some attention in international academic literature, especially in management related research on entrepreneurship, since the role of the organizational leader is proved especially important in entrepreneurial firms (Daily et al. 2001). The previous research on what impact the founder actually might have on firm performance shows ambiguous results (e.g. Certo et.al. 2001, Begley 1995, Willard et al. 1992, Daily and Dalton 1992). Previous research on Swedish data shows that over a ten year period, one third of the companies doing an initial public offering (IPO) have a founder as Chief Executive Officer (CEO) (Lakkonen and Åkesson 2007). This makes founders a significant and identifiable group in the stock market which motivates further research. Despite the occasional Swedish success stories, theory often regards founders and entrepreneurs to have lacking experience and organizational skills and be overoptimistic in their perceptions of company performance, when compared to professional managers. With a starting-point in this two-folded view of how the founder is valued, we state the following research question:

How are companies with founder CEOs perceived by the market at the time of an Initial Public Offering?

An analysis of the relevance of a founder's status in an organization is motivated by the foundations of entrepreneurial research. Defining the founder as an entrepreneur sets her in a framework of theories which regards this category of people as being more or less appropriate as managers in different types of organizations. These imply that a founder, whose characteristics may be crucial for the start-up firm, might not be as well suited for a top management role in an organization that has grown beyond the boundaries of direct supervision (Casson 1982).

Research defines the entrepreneurial setting as the venue where governance structures and strategic leadership are of most importance, which implies that officers are likely to be more influential in smaller firms (Finkelstein and Hambrick 1996). The IPO is an organizational transition of the firm, and on few other occasions will it receive so much concentrated attention. Managers will have to adapt from being an entrepreneurs to being a professional manager. As management studies point out that most entrepreneurial founders seldom make this adaption, this seems as an interesting setting to observe how the founder is appreciated and perceived by the new investors and stakeholders of an IPO. This thesis will therefore test the impact of having a founder as CEO instead of a professional manager, when doing an initial public offering. For Swedish data, the relationship between founder status and underpricing has not yet been tested.

1.1 PURPOSE AND CONTRIBUTION

The purpose of this thesis is twofold. First we will perform a descriptive analysis comparing Swedish IPO firms with a founder as CEO compared to companies led by professional managers. Second, we examine how having a founder as CEO may affect underpricing at the Initial Public Offering, controlling for certain firm and management characteristics. By constructing hypotheses based on both research on the entrepreneurs' role in the firm as well as the foundation of underpricing, we want to see if this can help explaining some of the inconsistencies that have been found in earlier research on founder CEO impact on underpricing.

Our contribution with this study is to extend the use of founder data into the tests of underpricing on Swedish IPO firms. Certo et al. (2001) and Arcand et al. (2004) provide evidence of a linkage between founder managers and underpricing on U.S. IPO firms. To be able to make further conclusions about this linkage it has in previous research been proposed to test this relationship on other datasets. Although Lakkonen and Åkesson (2007) proved that for Swedish data, founder CEOs have a positive impact on performance in the long-run, there is no study for the Swedish market that focuses on the founder's effect on underpricing. Consequently, we expect our results to provide some increased knowledge about the impact of the role of company founders in IPOs, to market participants and other stakeholders on the Swedish market. We will also divide our sample into large and small firms to test for differences. To our knowledge, this has not been tested earlier.

1.2 DEFINITIONS AND DELIMITATIONS

The phenomenon known in finance literature as initial public offering underpricing occurs when the end price of the first day of trade is higher than the initial offer price. Research conducted on the performance of the IPO firm stock on the initial day of trading, predominately uses underpricing as a measure of IPO-performance (Daily et al. 2003). Underpricing is defined as the difference between the price at which the share is initially offered and the stocks' closing price at the first day of trading (Ritter 1998).

The most common definition of an entrepreneur is a company founder (Begley and Boyd 1987), and that entrepreneurs are often identified as founding or running new or young businesses (Daily et al. 2001). Low and MacMillan (1988) define the concept of independent entrepreneurship as the process whereby an individual or group, acting independently of any existing organization, creates a new organization. This thesis bases its definition of the founder as an entrepreneur who alone or with founding partners started up a business.

To capture the effects of founders in an entrepreneurial setting, we have in accordance with Daily and Dalton (1992) reduced the scope of IPO companies to a certain interval of age. We choose only to study firms where there is a reasonable possibility of a founder being active. Therefore companies with an age of 30 years or above are dropped from our sample. We will study IPOs on the regulated markets, *OMX* and *NGM Equity*, and the Multilateral trading facilities¹ (MTF), *First North* and *Aktietorget*.

¹ A multilateral system, operated by an investment firm or a market operator, which brings together multiple third-party buying and selling interests in financial instruments. There are fewer requirements for listing at an MTF compared to a regulated market (Swedish Financial Supervisory Authority)

² The shares listed on OMX will be adjusted using OMX Benchmark index. The First North companies were adjusted using

1.3 OUTLINE

The first part of the study will address previous research conducted within the areas of founder management and underpricing. These will form the theoretical framework on which we will form our hypotheses. Then we will present the data sample and the methodology used to perform our model. We then proceed to present the results and test the robustness of the findings. Our results are then analyzed. In the last part of the thesis we will attend the concluding solutions, present a discussion about our study and further research.

2. CENTRAL THEORIES AND PREVIOUS RESEARCH

The research conducted in the areas relevant for this study can be divided into two sections; founder impact on performance and IPO underpricing.. We can subdivide the research on underpricing into the theoretical explanation of underpricing and how underpricing affects the different IPO stakeholders. Research involving founders is in this thesis split up into founder managements' impact on performance, IPO performance and firm size implication on management. *Exhibit 2.1* provides a summary of some of the previous research available on founder impact on financial and IPO performance.

Exhibit 2.1

Previous research on Founder CEO performance

*Our thesis tests the effect that founders in the position of CEO may have on IPO performance in terms of underpricing. We group relevant studies on founder CEO effects into those measuring long-term firm performance and short-term IPO performance. Stock return refers to 3-year holding period stock return. Offer size equals number of share sold * offering price. Percent (Share price - Book value per share)/Share price.*

| Authors | Region of study | Metrics | Founder CEO |
|-----------------------------|-----------------|-----------------------|-------------|
| Firm Performance | | | |
| Adams et al. (2007) | US | ROA | + |
| He (2007) | US | ROA | + |
| Rova and Averstad (2007) | Sweden | ROA, ROE, ROIC | Neutral |
| Barontini and Caprio (2006) | Europe | ROA | + |
| Arcand et al. (2004) | US | Time to delisting | + |
| Andersson & Reeb (2003) | US | ROA | + |
| Jayaraman et al. (2000) | US | Stock return | Neutral |
| Begley (1995) | US | ROA | + |
| Daily and Dalton (1992) | US | ROA, ROE | Neutral |
| Willard et al. (1992) | US | ROE | Neutral |
| Begley and Boyd (1987) | US | ROI | + |
| IPO-performance | | | |
| Martens et al. (2004) | US | Offer size | - |
| Arcand et al. (2004) | US | Underpricing | Neutral |
| Certo et al. (2001) | US | Underpricing | + |
| Nelson (2003) | US | Percent Price premium | + |

Previous researchers point towards that having a founder as CEO is positive, with a tendency towards increased financial performance in listed companies. The research on IPO-performance in this area is relatively scarce and the outcomes vary. Only two previous studies are found testing the relationship between founder CEOs and IPO underpricing.

2.1 RATIONALE BEHIND GOING PUBLIC

Most start-up companies initially raise equity through a small set of private investors. As the company grows and equity is needed to finance new investments, they often turn to the equity market to sell their stock to a larger number of investors: they “go public”. Another rationale might be to diversify the holdings of the initial shareholders. The procedure for doing this is the Initial Public Offering (IPO), and this is accompanied with certain costs. Apart from direct costs in terms of legal procedures and underwriter fees, there are indirect costs mainly consisting of the dilution of selling stock to an offering price, that on average is lower than the market price after the open trading has commenced the result of underpricing. Since an IPO infer that shares of private firms begin to be traded publicly, to evaluate the firm entering the stock market, the investors are reliant on the information disclosed by the firm. The market will therefore take this relationship of asymmetric information between investors and issuers into consideration. Underpricing of the publicly sold stock is a mechanism to compensate investors for this asymmetry (Ritter 1998).

2.2 THE FOUNDER CEO AND FIRM PERFORMANCE

2.2.1 FOUNDERS’ IMPACT ON COMPANY PERFORMANCE

Chief Executive Officers (CEOs), top management teams and the directors of the board can be seen as positions which are directly responsible for firm performance (Finkelstein and Hambrick 1996). Literature appears to sustain that the most influential executive position is that of CEO which has a unique influence over processes and outcomes (Daily and Johnson 1997).

There is a substantial body of research on the relationship between founder- and non-founder managers’ effect on firm performance. Some of the studies are summarized in *Exhibit 2.1*. Begley (1995) provide evidence that small, younger firms with founder managers obtain a higher ROA than its non-founder counterparts. Willard et al. (1992) on the other hand found no differences in performance between these groups across 11 different accounting and market-based measures. Jayaraman et al. (2000) tested whether founder status had an effect on stock return data but found no significant effects for US IPO firms. Martens et al. (2004) found that replacing a founder-manager with a professional CEO would increase performance at that time and the possibility to raise capital at floatation, but did not find any differences in long-term performance between founder and non-founder CEOs. Arcand et al. (2004) find that replacing the founder CEO for a professional CEO increase long-term performance as measured by time to delisting. Although some contradictory findings, there seems to be some congruence in previous literature that founder CEO management has a positive effect on financial performance in listed firms.

There are numerous reasons why founder management would differ in impact on performance from that of the non-founder. One of the most common arguments is the relatively larger equity stakes that founders have in their start-ups, compared to the compensations of professional managers (Willard et al. 1992). Even though this is a common condition for founders it reflects a matter of financial incentives, and when controlled for, other effects might be associated with founder managers that indicate that they would outperform professional managers. Founders are said to highly value their reputational stake in the firm and therefore put forth a greater effort than professional managers to ensure high company performance (Jayaraman et al. 2000). Willingness to undertake risk and need for achievement are characteristics connected to high performance and Chandler and Jansen (1992) indicate that these would be more common amongst business entrepreneurs and thus founders, compared to professional managers. Furthermore, Duchesneau and Gartner (1990) claim that

entrepreneurs initiate ventures within areas where they have industry experience, which would give founder-managed firms a performance advantage.

2.2.2 FIRM SIZE AND IPO PERFORMANCE

As reasoned earlier, it is perceivable that founder CEOs have an effect on company performance. Entrepreneurial theory and empirical findings point out that the effect of founders on performance would differ, depending on the attributes and life-cycle of the organization.

Hambrick and Croizer (1985) point out that the entrepreneurial skills of the driven, independent and rebellious founder are not well suited for the successful high-growth firms. Rubenson and Gupta (1992) claim that founders, due to lack of managerial skills, leave high-growth firms earlier than they do in low-growth firms and Wasserman (2003) observe that companies seeking external capital are more likely to shift from founder-led to professional management, implying an institutional pressure from capital providers demanding this shift.

Daily and Dalton (1992) state that an entrepreneurial setting is the venue where governance structures and strategic leadership are likely to be of most importance. This implies, as noted by Finkelstein and Hambrick (1996), that officers are likely to have more influence on performance in smaller firms. Previous research has observed that the characteristics of a manager which are positive for company performance in an entrepreneurial phase are not the same as those appropriate in a large corporation. Flamholtz (1986) states that firms pass through four stages of growth: new venture, expansion, professionalization, and consolidation. Stages one and two, make up the entrepreneurial phase of organizational improvement, and stages three and four compose the professional management phase.) In the transition stage, moving from entrepreneurship to professionalism, the founder must start to delegate control to middle managers and subordinates (Daily and Dalton 1992). Casson (1982) defines organizational- and delegation skills as essential characteristics for entrepreneurs in growing companies and if these are not possessed, it will be critical points at which growth may falter, and the firm even fail. Management studies have found that most entrepreneurial owner-founders never make the transition to a professional management style (Tashakori 1980).

Research on the effects of organizational management makes a difference between small and large firms. For larger firms, Dalton and Kesner (1983) claim that the complexity of the organization limits the managers capability to pursue reforms of processes and Norburn and Birley (1988) suggest that CEOs may have modest effects on organizational development and outcomes. Whisler (1988) point out that small firms have a more straightforward model of organization and is typified by concentrated leadership and direct control. Jayaraman (2000) proved that there was a positive relationship for founder managers on stock returns over a holding period of three years for small firms in contrast to larger.

Past theory has in general addressed the founder's role in the founding and growth process as well as in the established big firms. Relatively little attention has been directed towards the founder's possibility to add wealth in the IPO process (Daily et al. 2002). The testing of the effect of founder status as CEO on underpricing is fairly unexplored. Certo et al. (2001) observed that US founder-managed IPO firms experienced higher underpricing compared to the control group of professional managers. They suggest that the underwriter who set the offer price discount the firm and price founder-led issuers lower than their non-founder-led counterparts. Arcand et al. (2004) tested the same linkage, also on US firms, but found no significant evidence for such a discount.

2.3 IPO UNDERPRICING

This phenomenon has been given a lot of attention in past research and a broad variation of underpricing levels have been proved for a wide variety of data sets (Ritter and Welch 2002). There is historical evidence that U.S. IPO stock 1960-1991 rises with an average of 15.8 percent on the first day of trading (Ritter 1998). In the US, the average underpricing was at its highest during the IT-boom in 1999 with 73 percent compared to 17 percent in 1996 (Ljungqvist and Wilhelm 2003). For the Swedish market, Loughran et al. (1994) presents that the average underpricing in Sweden between 1970 and 1991 was 39 percent.

Exhibit 2.2

Theoretical models for underpricing

Previous research present numerous explanatory models for the phenomenon of underpricing. This exhibit summarizes the more common hypotheses proposed throughout literature as theoretical explanations for IPO underpricing.

| | |
|--|---|
| Monopsony power hypothesis (Baron 1982) | Investment banks take advantage of their bargaining power and superior knowledge relative the issuer and underprice to meet investors demands. |
| Speculative bubble hypothesis (Ritter 1984) | Excess demand at the subscription would make investors who could not get any allocations to speculate the stock price in the initial period |
| Asymmetric information hypothesis (Beatty and Ritter 1986) | Issuers are more informed of the IPO-firms intrinsic value than investors. Underpricing is a result of investor uncertainty about issuing firms' true value which biases offering prices below this value. |
| Winners curse hypothesis (Rock 1986) | Informed investors will buy underpriced stock, driving up demand. Uninformed investors will only be allocated the least desirable issues; the winners curse. Thus, uninformed investors will only purchase shares if they on average are underpriced. |
| Implicit insurance hypothesis (Tinic 1988) | Underpricing is used as an insurance against law suits violating terms of information disclosure requirements. |
| Risk-averse underwriter hypothesis (Neuberger and La Chapelle 1983) | Underwriters underprice to prevent losses and ending up with an unsuccessful IPO. |
| Market feedback hypothesis (Benveniste and Spindt 1989) | Underwriters' underpricing during the pre-sale period will stimulate these investors to reveal their evaluation of the stock, which will be used when pricing the issue |
| Ownership dispersion hypothesis (Booth and Chua 1996) | Issuing firms underprice to increase demand and attract many small investors which increase liquidity of the stock and secure management |
| Leaving money on the table hypothesis (Loughran and Ritter 2002) | Issuers are pleasantly surprised by the amount raised in the IPO and thus disregard underpricing, and the "money left on the table" to first day investors. |

2.3.1 THE ROLE OF FIRST-DAY INVESTORS

Although IPO shares on average have positive initial returns, a significant portion experience price drops. This uncertainty about the return of the stocks' post IPO trading is referred to as ex ante risk. First day investors are assumed to be rational when evaluating their investments and thus make their selections of IPO investments based on how to yield maximum returns (Bodie et al. 2008). How they do this selection is suggested to be based on the amount of firm information available, the cost of collecting this information and the perceived ex-ante risk of the IPO firm (Rasheed et al. 1997).

Rock (1986) has developed one of the more common hypotheses offering an explanation for underpricing and claim investors can be separated into two groups, informed and uninformed. Informed investors know what firms are worth when the shares are offered and therefore only invest when they expect underpricing, whereas the investments of uninformed investors are divided among all IPO issues. This will lead to an excess demand for underpriced issues and uninformed investors will be allocated fewer shares in the positively performing IPOs and more shares in the negative performing IPOs. This implicates that uninformed investors will persistently lose money. This is referred to as *the winners' curse*. Faced with the uncertainty

about future returns, uninformed investors will only invest if the share is underpriced. Beatty and Ritter (1986) therefore state that to attract uninformed investors, a certain amount of underpricing is needed. The underpricing compensates them for uncertainty perceived and the lack of available information that may be due to a short financial history.

For first-day investors, underpricing has a quite straight outcome. In the presence of underpricing, when the first-day market closing price exceeds the price of the initial offer, the investors trading the stock that day will experience an increase in wealth. The underpricing causes a transfer of wealth from the initial owners to the first-day investors, commonly called *leaving money on the table*. The underpricing gap can thus be seen as the market value of the equity that the issuing company's initial shareholders do not receive when selling it to the market.

2.3.3 ASYMMETRIC INFORMATION AND SIGNALING

There are numerous theories for explaining IPO underpricing, see *Exhibit 2.2*. However, the in previous research dominant theoretical perspective of underpricing is the concept of signaling, first introduced by Spence (1974). The uncertainty associated with the issuing firm's true value is a result of the asymmetric information between issuers, underwriters and investors (Michaely and Shaw 1994). Signaling is based on the premises that these asymmetries can be resolved by the communication of certain variables that may reflect to investors the future value of the firm (Spence 1974). The issuing firm wants the offering price and the closing price of the first day to be as close as possible if not the same and to reduce the transfer of wealth to first day investors. However, information asymmetries lead potential key investors to be reluctant to specify to those setting the price, the issuer and the investment bank, that they are prepared to pay the higher, more accurate price as they cannot comprehend the true value of the firm. Hence, if the IPO-firm can send appropriate signals so that investors understand the value of the company, these will then communicate to the underwriter and others coordinating the listing of the stock that they are willing to pay a higher offer price (Sanders and Boivie 2004).

There are two criteria for signals to be valid. They must be intended, known and observable in advance to the IPO and they must be costly or difficult to imitate (Deeds et al. 1997). A primary mechanism for managers to send signals of firm quality is through the prospectus which provides information of the firms' operations and management. These send signals to the potential investors who will take them into consideration when determining the price they are willing to pay at the first day of trade and earlier studies have proved the effect of prospectus information on first day underpricing (Certo et al. 2001).

Ritter and Welch (2002) present that the information asymmetry between investors and issuers induces a lemons problem for rational investors, a problem of asymmetric information originally formulated by Akerlof (1970). High-quality issuers will want to signal their superiority among lower-quality issuers. They do so by deliberately selling their shares at a price below what the market expects, which discourages lower-quality issuers to imitate. High-quality issuers will regain this up-front sacrifice after the IPO. All theories of underpricing based on asymmetric information predict a positive relationship between underpricing and the degree of asymmetric information i.e. when the information asymmetry approaches zero, underpricing disappears. Thus, reducing the ex-ante uncertainty associated with the IPO will lower the gap between the issuers set price and the price the market is prepared to offer, in other words reducing underpricing.

Investors' evaluation of the issuing firms' future value will affect the price they are ready to pay at the day of the IPO (Deeds et al. 1997). Signaling is a result of adverse selection, that

issuers are more informed than the investors. The issuing firm has private information about the firms' quality, which is unavailable to the public and first day investors have relatively little access to information held by the IPO firm insiders (Marshall 1998). To mitigate risk of adverse selection, first day investors use available indicators that are associated with the performance of an IPO. Issuers may use the signaling mechanism by indicating firm quality, reduce ex-ante uncertainty and reduce the need to discount the shares in order to attract investors (Carter and Manaster 1990). The attributes of a firm contain information that reduces uncertainty among investors about the firm's intrinsic value. Particular attributes and characteristics may substitute for other unavailable objective financial or operating data (Sanders and Boivie 2004). Organizational and governance characteristics are proved to be useable as criteria for lowering valuation uncertainty when explicit indicators (e.g. historical accounting data) are deficient or unobservable (Florin and Simsek 2007). Cohen and Dean (2005) suggest that the composition of top management teams could be such an indicator.

2.3.2 THE ROLE OF THE UNDERWRITER

The underwriter acts as an intermediary between the firm and the investors. Underwriters market the IPO shares and actively participate in determining the offering price, which is either set through a competitive offer between investment banks but is most commonly negotiated between the issuer and underwriter. At first, a price range is determined by the issuer and investment bank, and then the road show and book-building period will indicate the demand of investors and what price they are willing to pay. In the procedure of marketing the stock the investment bank stands the risk of ending up with an unsubscribed issue, which would incur economic or reputational losses for the underwriter (Ross et al. 2008). In setting the final price it is also suggested that investors will disclose information about market demand to the underwriter, who will therefore be able to assess market demand (Benveniste and Spindt 1989). However, if the underwriter is unsure of market demand and the aftermarket price of the issued stock as a result of lacking market response from investors, it will underprice the stock to avoid the risk of ending up with an unsuccessful issue. This is referred to as the risk-averse-underwriter hypothesis (Neuberger and La Chapelle 1983).

Since an IPO is associated with the ex-ante uncertainty of the firm value, investors will demand compensation for taking on this risk, and thus demanding a lower price, which results in underpricing. On the other hand, the initial shareholders of the issuing firm will lose wealth the more underpriced the equity is, and thereby demanding a high price. Underpricing could therefore be considered to hurt the underwriter's reputation among issuing companies. The underwriter is also most commonly paid a percentage (spread) of the IPO firm's offer price, as a compensation for brokering the stock. This gives the firm a financial incentive to set a high price, the opposite of underpricing. However, the present value from future cash flows generated by the underwriter's reputation is supposed to exceed the short term profits from behaving opportunistically. The choice between losing issuers or losing investors forces the underwriters to set a price that is accepted by all parties, the underpricing equilibrium, a price that compensate the ex-ante risk perceived by the investors.

2.4 TAKEOUTS OF PREVIOUS RESEARCH

- There seems to be a relationship between founder CEO management and firm financial performance
- Entrepreneurial research seem to point to that founders are less appropriate than professional managers as CEOs in larger companies, compared to small companies
- There seems to be a positive relationship between the level of underpricing and the uncertainty perceived of issuing companies future value

3. HYPOTHESES

The impact on performance of business entrepreneurs differ depending on the stage of a business' life-cycle. Different skills are required to lead companies in its entrepreneurial phase compared to those needed to run an established firm (Casson 1982), and the IPO is commonly considered to constitute the transition from an entrepreneurially driven stage, to a professional environment where focus is shifted to organizational competence and managerial skills (Daily and Dalton 1992). A common perception is that founders are considered not being able to adapt to a professional management style (Tashakori 1983). First day investors use the information in the prospectus of the composition of top management teams as an indicator associated with performance of the IPO (Cohen and Dean 2005). The underpricing of IPO firms is driven by the ex-ante uncertainty of the true value of the firm perceived by investors. Hence, if investors consider founders as unsuitable as CEOs in firms committing an IPO, a firm signaling founder CEO presence would increase the perceived level of uncertainty and consequently the level of underpricing. Research on this linkage show mixed outcomes, but Certo et al. (2001) has previously proved this linkage for US data. As a consequence of the previous discussion, we state the following hypothesis:

Hypothesis 1: The presence of founder CEOs increases IPO underpricing

The IPO is suggested to be a transition into a professional stage of the organization. Even though this might be the case for most firms, we argue that this must not be the case for smaller firms. Whisler (1988) points out that small firms have a more straightforward model of organization and are typified by concentrated leadership and direct control. Previous research continually suggests that that management and governance structures are likely to have the most impact in an entrepreneurial setting (Meyer and Dean 1990), and that this organizational environment is where managers have the best capability to affect and change performance (Dalton and Kesner 1983). As founders are commonly perceived to be positive in an entrepreneurial context but less well suited in large organizations, small firms signaling the CEO as a founder through the IPO prospectus could be perceived positively by investors, and thus to decrease the level of ex-ante uncertainty perceived by investors and thus reducing underpricing. In contrast to this, founders operating CEOs in large firms, a venue commonly considered unsuitable for entrepreneurs, would be supposed to increase the uncertainty of investors on future firm performance. This reasoning indicates that in larger firms, founder CEOs impact on underpricing should be the opposite of that in small companies. This leads us to forming the following hypotheses:

Hypothesis 2a: The presence of founder CEOs increases IPO underpricing in large firms

Hypothesis 2b: The presence of founder CEOs decreases IPO underpricing in small firms

4. METHODOLOGY AND DATA DESCRIPTION

Our methodology is structured as follows. First, we define an event and which event window to use. Secondly, we set up selection criteria on which observations to include and present our sample. Third, we define the abnormal return used to appraise the impact of the event. Fourth, we formulate the econometric model used for testing the event and describe the variables used. Finally we test our model and data before proceeding to the results.

4.1 THE EVENT

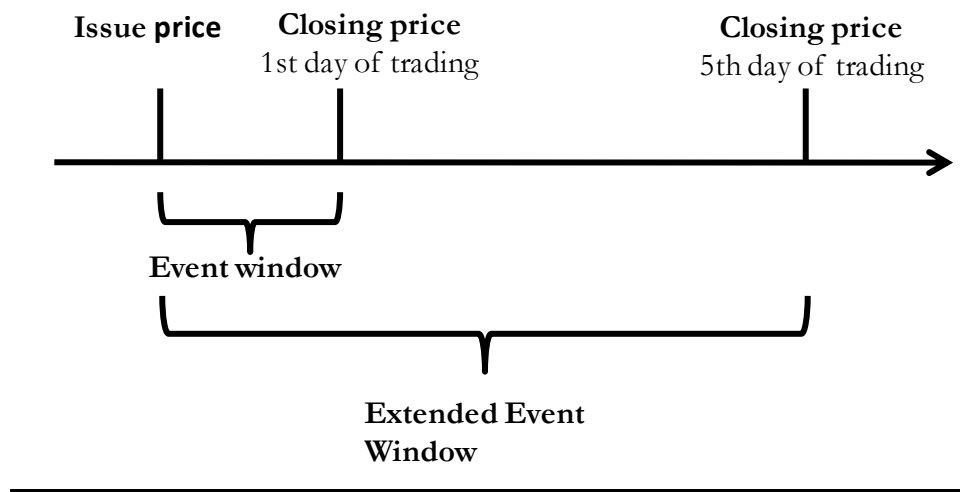
The event in this study is the initial public offering of a firm. The event window extends from the opening on the day of listing to the closing of that day, see *Exhibit 4.1*. In event studies it

is common to extend the event window to be larger than the actual period of interest, to capture effects from information leakages and also give the market time to react to the event of interest (MacKinlay 1997). However, previous research on IPOs only uses one day of trading as the event window (Ritter 1998). To make our findings comparable to others on IPOs, we also define the first day of trading as our event window. In *Section 6.3* we test the robustness of our results by extending our event window to 5 days.

Exhibit 4.1

Event window

We primarily use one day of trading as the event window in this study. This is consistent with previous studies on underpricing. The Extended event window refers to the event window used in section 6.3 when the robustness of the regression results are tested. The extended event window covers five days of trading.



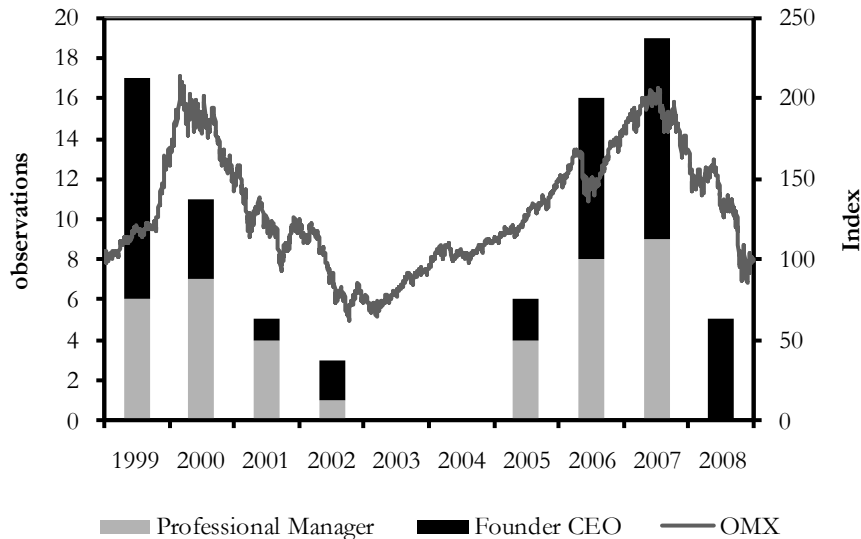
4.2 DATABASE DESCRIPTION AND SELECTION CRITERIAS

Our final dataset includes 82 IPOs made on the regulated markets *OMX*, *NGM Equity* and the MTFs *First North*, *NGM* and *Aktietorget* during the period 1999-2008. *Appendix 1* provides a list of all companies included in the sample.

From *Exhibit 4.2* we see that the IPO activity varies with time and market movements. The increased IPO activity in times with positive market return could be attributable to that stocks are selling at higher market-to-book values during this periods and companies see the potential to raise more capital (Ritter 1998). Therefore, to include observations from both upturns and downturns in the economy provides a better view of the conditions facing companies who want to go public over an economic cycle. Our sample includes listing made during the IT bubble, which can be viewed as both positive and negative. We consider it to be positive in the sense that several of the companies listed during this period were led by founders, thus, increasing the size of our sample. However, including these effects perhaps decreases the possibility to generalize our findings to future time periods, as the market conditions from the IT bubble might not be representative. To take this into consideration in our model, we include a year specific variable for the IT-boom of 1999.

Exhibit 4.2**Sample distribution over time and market return**

Total sample consists of 82 observations over the period 1999-2008. Columns display number of IPOs per year in our sample and the distribution of founders CEOs versus professional managers. The OMX benchmark index is plotted on the right axis to display the market returns. Index is rebased to 1999-01-01=100.



Our sample consists of observations from the regulated markets *OMX* and *NGM*, as well as the MTFs, *First North* and *Aktietorget*. We believe it adds value and depth to our analysis to include companies from the smaller marketplaces. These lists are often were companies first list before transferring to the larger regulated markets. There has also been greater IPO activity on these smaller lists in recent years with presumed larger presence of founders.

First North was opened in 2006 and was formerly known as *Nya Marknaden*. We were unable to find data from listings made on *Nya Marknaden*, hence our data from *First North* only contains listings in the period 2006-2008. *NGM* was also opened in 2006 and was formerly known as *SBI-listan*. We were able to find data on listings made on *SBI-listan* going back to 2000. For *Aktietorget* we have observations going back to year 2000.

By data provided by *OMX*, *NGM*, *First North* and *Aktietorget*, we put together a sample of listings made for the period 1999-2008 consisting of 429 observations. From this list we excluded spin-offs, list changes, equity carve outs and secondary listings. After exclusion, 259 companies remained. These 259 potential observations are referred to as the initial sample.

Our main source of data was the prospectuses provided by companies before going public. These were provided to us by the *Swedish Financial Supervisory Authority*, *National Library of Sweden* and the *Swedish shareholders' organization*. The *National Library of Sweden*, who under law is obliged, to keep copies of all printed material in Sweden, did not have all IPO prospectuses. This is because they rely on companies to send their prospectuses to them, and do not actively collect the prospectuses themselves. The *Swedish Supervisory Authority* is since 2006 obliged under law to keep the IPO prospectuses. Their archive was therefore limited to IPO information published 2006-2008. In our final sample, 164 observations had to be excluded as we were unable to access the prospectus, leaving us with 98 observations.

The focus of this thesis is the role of the founder and companies in an entrepreneurial setting. We therefore exclude companies that are older than 30 years, as it is unlikely that founders are still active in these companies. After dropping firms older than 30 years, we ended up with a final sample containing 82 observations.

The prospectuses primarily provided us with the information on founder status, company characteristics, issue price, firm age and ownership. All accounting data used in our data refers to last full year prior to listing. We mainly obtained accounting data from *Datastream* and *Compustat*. Not all companies were included in these databases or did not have accounting data on the year prior to listing, especially companies listed on the MTFs. Accounting information not available through the databases were instead collected directly from the prospectuses. In cases where we could not find information on issue price from prospectuses this was collected from press releases by the companies obtained either from company web sites or through *AffärsData*.

Information on first day closing price was collected mainly from *Datastream* and the websites of the stock exchanges. If not available from any of these sources, data was found using the database *AffärsData*. It is not uncommon that Swedish business papers (e. g. *Dagens Industri*, *Affärsvärlden*, *Privata Affärer*) comment on the development of a share on its first day of trading. These articles are stored in *AffärsData* which was used as an alternative way for finding the closing price on the first day of trading, when not available on any of the other sources. This was mainly the case for delisted companies that had been excluded from databases. Information on index returns could be obtained for *OMX* and *First North* from the lists websites. The data on index returns for *NGM* and *Aktietorget* was sent to us after an inquiry.

Exhibit 4.3

Sample selection criterias

The Exhibit displays the selection criterias used and how many observations that had to be excluded at each selection criterion. Data on listings and type of listing was provided by the exchanges upon request. Prospectuses were collected from Swedish shareholders' organisations, The National Library of Sweden and The Swedish Financial Supervisory Authority. Data on stock prices downloaded from Datastream, exchanges websites and Affärsdata.

| <i>Criteria</i> | Firms | Excluded |
|---|--------------|-----------------|
| 1. Listed on OMX, First North, Aktietorget or NGM 1999-2008 | 429 | |
| 2. Pure IPOs: No carve outs, secondary listings, list changes or spin-off | 259 | -170 |
| 3. Complete prospectus must be available | 98 | -164 |
| 4. Firm not older than 30 years | 82 | -16 |
| 5. Data on stock prices found | 82 | 0 |
| Final sample | 82 | |

4.3 LARGE AND SMALL FIRMS

When testing hypothesis 2a and 2b the sample is divided into subsamples based on size. Size is measured as the natural logarithm of one plus total assets of the year before listing. The use of the natural logarithm is to reduce the effects of heterogeneity in the data as suggested by Kim et al. (1995) when dealing with monetary values. An observation with total assets greater than the mean is placed in subsample 1, which will be referred to as large firms, and those with less assets than average is categorized into subsample 2, later referred to as small firms. This approach is similar to the approach used by Barontini and Caprio (2006), though they classify firms as small and large compared to a predetermined value of total assets, instead of the sample mean. Our observations are evenly distributed between the subsamples with large firms containing 41 observations and small firms containing 41 observations.

4.4 DEPENDENT VARIABLE

The dependant variable in this study is IPO underpricing. The variable will operationalized in line with previous research as the first day closing price relative to issue price (Beatty and Ritter 1986).

$$\frac{P_{t_1,i} - P_{t_0,i}}{P_{t_0,i}}$$

Where

$P_{t_1,i}$: Closing price of share i after first day of trading.

$P_{t_0,i}$: Issue price of share i

When assessing the impact of an event, the return should be adjusted for the return of the firm given that the event did not take place (MacKinlay 1997). As our event window is the first day of trading of a firm it is difficult to assess what the normal return would be for that particular firm. Beatty and Ritter (1986) found a 0.1 percent difference in average underpricing after having index adjusted their underpricing; hence arguing that including such an adjustment would only lead to minor changes. Similar to this, in our sample the average underpricing differs by 0.1 percent after having adjusted underpricing by corresponding index². Again, to make our study more comparable to other studies on underpricing, we chose not to adjust underpricing for market changes. In *Section 6.2* we test the results from our model when adjusting underpricing for market returns.

4.5 KEY INDEPENDENT VARIABLE

4.5.1 FOUNDER CEO

This thesis aims to assess the impact of founder CEOs on IPO underpricing. *Section 2.2* provides a thorough discussion on founders.

In our analysis a founder was defined as a person who has been with the firms since its incorporation and was explicitly stated as a founder in the prospectus. Using this definition, the variable *Founder CEO* was constructed to take on the value 1 if the CEO is also the founder of the firm and 0 otherwise.

² The shares listed on OMX will be adjusted using OMX Benchmark index. The First North companies were adjusted using the First North All share SEK. Companies listed on NGM Equity were adjusted by the NGM Equity index. Companies listed on Aktietorget was adjusted by AT Index.

4.6 CONTROL VARIABLES

Previous research suggests numerous factors as explanatory for underpricing. As we seek to identify effects on underpricing stemming from founder CEOs, we need to control our analysis for effects on underpricing coming from these factors. The starting point for selecting factors to control for was Daily et al. (2003), a meta-analysis on factors that have been found to affect underpricing. This was complimented with the two previous articles testing founder impact on underpricing: Certo et al. (2001) and Arcand et al. (2004). The variables are presented below, with description on how and why they impact underpricing and also how they are operationalized in our model.

4.6.1 PREVIOUS POSITION EXPERIENCE

The composition and characteristics of the management team can influence investors. Cohen and Dean (2005) argue that more qualified and experienced managers would be perceived as more legitimate in the eyes of investors, since such managers are less likely to be associated with lower quality firm. A CEO with previous position experience is therefore likely to send a signal of quality to investors, and hence reduce underpricing.

The dummy variable *Previous Position Experience* is created to take on the value 1 if the current CEO has held the position as CEO previously in another company. A person is defined as having previous position experience if this it is explicitly mentioned in the prospectus in the section *Board of Directors and Top Management Team*³ that he earlier has been CEO in another firm.

$$H_0: \beta_2 \geq 0$$

$$H_1: \beta_2 < 0$$

4.6.2. RETAINED EQUITY

The amount of retained equity by the CEO sends a signal to potential investors on the willingness to invest in the business and thereby a signal of how confident they are in the success of the business (Leland and Pyle 1977). Jensen and Meckling (1976) predict a positive relationship between retained equity and firm value, as the equity serves as a method of aligning the goals of the managers to those of the firm. Stulz (1988) agrees that management ownership can have a positive impact on firm value and serve as an indication of belief in the firm, however this relationship is non-linear. Should the managers cash-flow ownership increase to much it may give rise to entrenchment. McConnell and Servaes (1990) find a curvilinear relationship for valuation when looking at the percentage of shares held by insiders. They find a positive impact on valuation for low amounts of retained equity. If ownership becomes large problems with entrenchment arise which will have a negative impact on valuation.

Under the section *Share and Ownership structure*⁴ in the prospectus, firms provide a list of shareholders and their ownership before and after the IPO. The number of shareholders listed varies among firms, but in general all influential shareholders can be assumed to be mentioned in this list. From these lists we collected information on CEO ownership. However, it is possible that a CEO is not included in this list, but still owns shares in the company. If this is the case, the ownership is most likely small, and hence we do not take this into consideration. Data on ownership after IPO are pro forma and may not be entirely consistent with the actual ownership after the IPO, as it often assumes full subscription.

³ Styrelse och ledande befattningshavare

⁴ Aktiekapital och ägarförhållanden

Where dual share systems exist, we have chosen to use the percentage of voting rights as opposed to cash flow rights. After having collected information on ownership we divide the observations into three dichotomous variables: *High ownership*, *Low ownership* and *No ownership*. *High ownership* includes observations where the CEO controls more than 20 percent of the voting rights. *Low ownership*, includes observations where the CEO owns between 0.1-20 percent. *No ownership*, includes observations where CEOs own 0 percent of the voting rights in the company. The operationalization with three variables is done to capture the curve linear relationship described by Stulz (1988). In the regression model the *High ownership* and *Low ownership* variables are included.

Low ownership

$$H_0: \beta_3 \geq 0$$

$$H_1: \beta_3 < 0$$

High ownership

$$H_0: \beta_4 \leq 0$$

$$H_1: \beta_4 > 0$$

4.6.3 FIRM AGE

Ritter (1998) found that younger firms are more fragile, older firm tends to perform better both before and after the IPO. Daily et al. (2001b) find that older firms are associated with less underpricing. There is less historical financial information available on younger companies and they are less likely to have been followed by analysts, thereby increasing uncertainty about the company (Rasheed et al. 1997).

We operationalize the variable *Firm Age* by taking the logarithm of one plus the firm's age. The age of a firm is calculated by subtracting the year of founding from the year of listing as done by Certo et al. (2001).

$$H_0: \beta_5 \geq 0$$

$$H_1: \beta_5 < 0$$

4.6.4 UNDERWRITER REPUTATION

Carter and Manaster (1990) claim that underwriters with a good reputation decreases underpricing. They argue that that low dispersion firms will try to signal their low risk to the market by choosing an underwriter with a high reputation capital at stake. These underwriters have an incentive to only choose low dispersion IPOs, thereby reducing the ex ante risk for investors. These findings are confirmed by Carter et al. (1998), who also found that this relationship is true for long run performance. Nueberger and de Chapelle (1983) found that underpricing is negatively related to issues with underwriters within the most prestigious tier. Hence, the use of a reputable underwriter should reduce underpricing.

Carter and Manaster (1990) developed a measure for ranking underwriters, based on tombstone announcements after IPOs. Megginson and Weiss (1991) use market share as method for ranking underwriters and found that their ranking were similar to that of Carter & Manaster (1990). We will use the method developed by Megginson and Weiss (1991) as our measure for underwriter ranking. Data for the 25 largest underwriters for the period 1999-2009 was downloaded from *Thomson Financial*. We construct the variable *Underwriter Ranking* that contains the percentage market share held by the underwriter used at the IPO.

Underwriters that are not among the largest 25 underwriters are assigned 0 as percentage of market share.

$$H_0: \beta_6 \geq 0$$

$$H_1: \beta_6 < 0$$

4.6.5 AUDITOR REPUTATION

Auditor reputation has been found to decrease underpricing (Beatty 1989, Feltham et al. 1991). When in possession of favorable inside information, an issuer will want to send a credible signal. A big auditor firm is less likely to be pressured by the issuer. They are more likely to have experience in IPOs and hence will be more likely to uncover negative information. If they do, they are obliged to reveal this information to investors, otherwise facing legal actions and losing reputation capital (Titman and Trueman 1986). These things being associated with big auditor firms, the use of a reputable auditor should send a signal to investors about the quality of the firm. The use of a big 4 auditor should decrease underpricing compared to companies using a non-big 4 auditor.

Previous research has grouped auditors into big 8 versus non-big 8⁵ accounting firms (Megginson and Weiss 1991), and later big 6 versus non-big 6⁶ accounting firms (Hogan 1997). In our study we use big 4⁷ versus non-big 4 as a measure for auditor reputation since this group of auditing companies is more appropriate for the Swedish auditing market. The dummy variable *Big 4* is constructed to take on the value one if the auditor used is among of the big 4 accounting firms and zero if the company uses another auditor.

$$H_0: \beta_7 \geq 0$$

$$H_1: \beta_7 < 0$$

4.6.6 VENUE OF LISTING

There are less regulations and requirements to list a company on an MTF compared to a regulated market (Swedish Financial Supervisory Authority). With this simplification of regulation there is a risk that lower quality firms go public and the responsibility to obtain needed information is given to the investor (Jansson 2007). This should increase the uncertainty. Smaller market places also suffer from adverse selection problems, where successful firms tend to migrate to larger market places as soon as possible leaving the unsuccessful firms behind (Aggarwal and Angel 1999). If listed on a regulated market this should decrease underpricing.

We create the dummy variable *Regulated Market* to take on the value one if a company is listed a regulated exchange (*OMX* or *NGM*) and zero if listed on a MTF (*First North* and *Aktietorget*).

$$H_0: \beta_8 \geq 0$$

$$H_1: \beta_8 < 0$$

⁵ Big 8 accounting firms include Arthur Andersen, Arthur Young & Co, Coopers & Lybrand, Ernst & Whinney, Deloitte Haskins & Sells, Peat Marwick Mitchell, Price Waterhouse and Touche Ross.

⁶ Big 6 accounting firms include Arthur Andersen, Ernst & Young, Coopers & Lybrand, Deloitte & Touche, Peat Marwick Mitchell and Price Waterhouse.

⁷ Big 4 accounting firms include Ernst & Young, Deloitte, KPMG and PWC

4.6.7 TIME ADJUSTMENT

To get unbiased results we need to adjust the data for time specific effects. Ritter (1998) found that in “hot IPO periods” there are greater initial returns of IPO and that the quality of the firms who go public during these period tend to be of lower quality than in other periods. For American data average underpricing was in its highest in 1999 with 73 percent compared to 17 percent in 1996 (Ljungqvist and Wilhelm 2003). *Exhibit 4.2* displays the IPO activity over time.

To take hot IPO periods into account, we include the variable *Year 1999* to capture effects from the IT boom.

$$H_0: \beta_9 \leq 0$$

$$H_1: \beta_9 > 0$$

4.6.8 INDUSTRY ADJUSTMENT

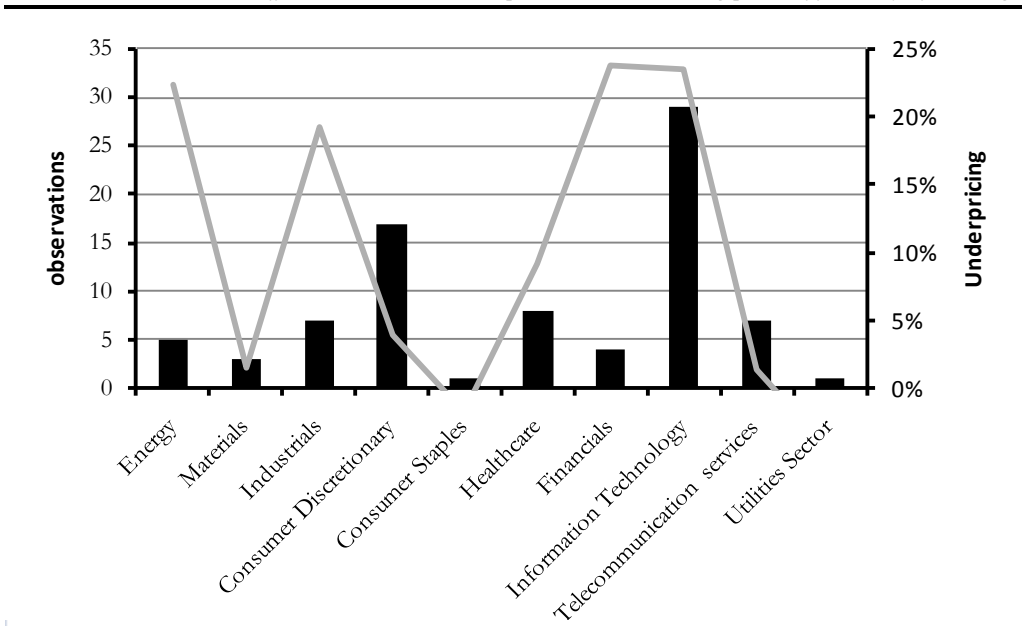
There is also evidence of differences in underpricing between sectors, with higher underpricing being associated with high-tech and information technology firms (Loughran and Ritter 2004).

To control for this we add dummy variables indicating in which sector the company is active. The companies listed on *OMX*, *First North* and *Aktietorget* are divided into 10 sectors by GICS⁸. As *NGM* does not classify their companies into sectors we have, after having read the prospectus, divided the companies using the sectors provided by GICS.

Exhibit 4.4

Sector distribution and average underpricing

Sample distribution among GICS sectors and average underpricing per sector. Number of observations per sector is displayed on left axis. Average underpricing per sector is displayed on right hand axis. Data on GICS classifications was found on the websites of OMX, First North and Aktietorget. As NGM does not provide such classification, this was done by us after having reviewed the prospectuses. Underpricing was calculated mainly using data from prospectuses and Datastream as the difference between issue price and the closing price of first day of trading.



⁸ Global Industry Classification Standard

From *Exhibit 4.4* we can see that underpricing differs substantially between sectors. This supports the findings by Loughran and Ritter (2004) and indicates that an industry adjustment is necessary. Further, we can see that the sample is unevenly distributed among industries, with some industries, such as utilities, containing only one observation. Instead we divide our sample into tech and internet-related firms' versus non-technology firms as made by Loughran and Ritter (2004). The tech and internet related sector is constructed from the GICS sectors: Health care, Information Technology and Telecommunication services. When classifying the NGM observations there is a possibility that companies were placed in the wrong sector. However, we further divide the GICS classification into two broader groups. Potential classification mistakes previously made would most likely involve sectors that were later grouped together in the new classification. This would for example cancel out effects from an information technology firm being classified as a telecommunication service firm. Hence, we deem the risk of the final sector classification to be incorrect as low.

We construct the variable *High Tech* to take on the value one if a company is categorized as a tech or internet-related firm and zero if classified as a non-technology firm.

$$H_0: \beta_{10} \leq 0$$

$$H_1: \beta_{10} > 0$$

4.6.9 SUMMARY OF VARIABLES

Exhibit 4.5
Summary of variables and hypothesized impact on underpricing

| Variables | Explanation | Expected impact |
|---------------------------------|---|-----------------|
| Key Independent Variable | | |
| Founder CEO | A variable taking on 1 if a the CEO of a firm is also the founder and 0 otherwise. | |
| Control Variables | | |
| Previous position experience | A dummy variable taking on 1 if the CEO has worked as CEO previously and this is explicitly stated in the prospectus and 0 otherwise. | – |
| Low ownership | A dummy variable taking on 1 if the person owns between 0.1%-20% of the controlling rights in the company and 0 otherwise. | – |
| High ownership | A dummy variable taking on 1 if the person owns more than 20% of the controlling rights in the company and 0 otherwise | + |
| Firmage | The natural logarithm of one plus firmage | – |
| Underwriter ranking | Variable indicating percentage market share held by underwriter used by company at IPO. | – |
| Big 4 | A dummy variable taking on 1 if the firm used a big 4 accounting firm at the time of IPO and 0 otherwise | – |
| Regulated Market | A dummy variable taking on 1 if the company was listed on a regulated market and 0 if listed on a MTF. | – |
| Year 1999 | Dummy variable taking on 1 if the IPO took place in 1999 and 0 otherwise | + |
| High tech | Dummy variables taking on 1 if company belongs in The tech and internet related sector and 0 otherwise | + |

4.7 METHODS OF ANALYSIS

To test for differences between companies with founder CEOs compared to a professional manager led companies, we use analysis of variance (ANOVA). ANOVA is used to uncover effects of a categorical variable, in our case *Founder CEO*, on an interval dependant variable, *underpricing*. The key statistic in ANOVA is the F-test of difference of group means, to see if the difference is large enough to not have occurred by chance. If the group means do not differ significantly, then it is inferred that the independent variable did not have an effect on the dependent variable (Garson 2009a).

When testing our hypotheses we use Ordinary Least Square regression (OLS). From the variable explained in *Section 4.3* we construct the following regression model.

$$\begin{aligned} \text{Underpricing} = & \alpha + \beta_1 \text{ Founder CEO} + \beta_2 \text{ Previous Position Experience} \\ & + \beta_3 \text{ Low Ownership} + \beta_4 \text{ High Ownership} + \beta_5 \text{ Firmage} \\ & + \beta_6 \text{ Underwriter Ranking} + \beta_7 \text{ Big 4} + \beta_8 \text{ Regulated Market} \\ & + \beta_9 \text{ Year 1999} + \beta_{10} \text{ High Tech} + \varepsilon \end{aligned}$$

Where $\alpha = \text{constant}$

$\beta_i = \text{coefficient of variable } i$

$\varepsilon = \text{error term}$

Before testing the hypotheses with the OLS regression we look at the assumption of normality, heteroscedasticity in our sample, multicollinearity between independent variables and presence of outliers and influential observations.

4.7.1 NORMALITY

Newbold et al. (2007) suggests that sample sizes greater than 25 are well approximated by a normal distribution if the sample follows a symmetric distribution. As stock prices never can be worth less than 0 but have no such limitation on the upside it our sample might be bit skewed. Even in presence of skewness Newbold et al. (2007) argue that samples with 25 observations often follow a normal distribution closely, though more observations might be preferable. Our sample contains 82 observations, with 41 observations per subsample, which is well above the decision rule provided, hence we assume our sample to be normally distributed.

4.7.2 HETEROSCEDASTICITY

Heteroscedasticity means that the error term is conditional on one or more of the independent variables. This is the opposite of homoscedasticity which is an assumption underlying OLS, in which the error term is independent from the independent variables (Wooldridge 2006).

$$\text{var}(\varepsilon|x_i) = \sigma^2$$

Presence of heteroscedasticity may bias the estimated standard errors which could lead to invalid inference. Heteroscedasticity is especially common in cross sectional data (Long and Ervin 2000). We test for heteroscedasticity in our regression using the Breusch – Pagan test (Breusch and Pagan 1979).

H_0 : Error term is homoscedastic

H_1 : Error term is heteroscedastic

To use the Breusch-Pagans test for heteroscedasticity we do the following:

1. Estimate regression and obtain the squared residuals.
2. Run regression replacing the dependant variable with the squared residual obtained from above
3. Form a Lagrange Multiplier statistic that follows a chi-square distribution and compute the p-value. Compare this to a chosen significance level.

Exhibit 4.6

Breusch-Pagan test for Heteroscedasticity

*The sample and the two sub samples are tested for heteroscedasticity using the Breusch-Pagan test. The null hypothesis is that the data is homoscedastic. The significance level is denoted by asterics at the ***(1%), **(5%) and *(10%) level. Firms are classified as large if total assets exceeds the sample mean. Firms with less total assets than mean are classified as small firms.*

| | <u>Sample</u> | <u>Large Firms</u> | <u>Small Firms</u> |
|-------------------|---------------|--------------------|--------------------|
| Chi-Square | 80.71*** | 19.27*** | 36.89*** |

Exhibit 4.6 displays the Chi square value and significance level calculated according to the procedure stated above. All tests are significant and hence can we reject the null hypothesis that our sample is homoscedastic. We employ heteroscedastic consistent standard errors as proposed by White (1980). Thus, our t-statistics will be consistent even in the presence of heteroscedasticity of an unknown form.

4.7.3 MULTICOLLINEARITY

Another issue when employing multiple regressions is multicollinearity. Multicollinearity is defined as high correlation between two or more independent variables (Wooldridge 2006). Multicollinearity does not violate any assumptions underlying OLS, but presence of multicollinearity increases the standard errors. In presence of high multicollinearity, confidence intervals for coefficients can be very wide and t-statistics very small. It will then be more difficult to reject the null hypothesis as coefficients will have to be larger in order to be statistically significant (Garson 2009b).

Appendix 2 presents the pairwise correlations between variables used in our regressions. If pairwise correlation exceeds |0.8| this is a clear sign of multicollinearity. Further, if there are many pairwise correlations exceeding |0.5| this could be an indication of multicollinearity (Edlund 1997). No correlation exceeds |0.8| in either the sample or the subsamples. Among small firms there is one correlation that exceeds |0.5| and in large firms and the full sample there are no correlation exceeding |0.5|. We also test our data for presence of multicollinearity using variance inflation (VIF). VIF is an index that measures by how much the variation of a coefficient is increased due to collinearity. A VIF greater than 10 indicates a strong presence of multicollinearity (Edlund 1997). The calculated VIF can be seen in *Exhibit 4.7*. None of the VIF exceeds 10. Hence, after testing for multicollinearity using both pairwise correlation and VIF, we can conclude that there is no strong presence of multicollinearity.

Exhibit 4.7**Variance in Inflation, VIF**

Variance in Inflation (VIF) is an index that measure by how much the variation of a coefficient is increased due to collinearity. The variables are sorted after value of VIF. We use values above 10 as indicator of strong presence of multicollinearity as suggested by Edlund(1997). The subsamples are constructed using the mean of total assets. Companies with assets exceeding the mean are defined as large firms. Firms with less total assets than mean are defined as small. Founder CEO indicates whether the founder of the firm is also its CEO. Previous position experience indicates whether the CEO of a firm has been CEO previously. Low ownership includes ownership between 0.1-20%. High ownership includes ownership greater than 20%. Underwriter ranking is measured as percentage market share held by underwriter 1999-2008. Big 4 indicate whether a big 4 accounting firm was hired by the firm. Regulated market indicates that the firm is listed on a regulated market instead of an MTF. High tech includes companies with the GICS classifications Health care, Information Technology and Telecommunication services.

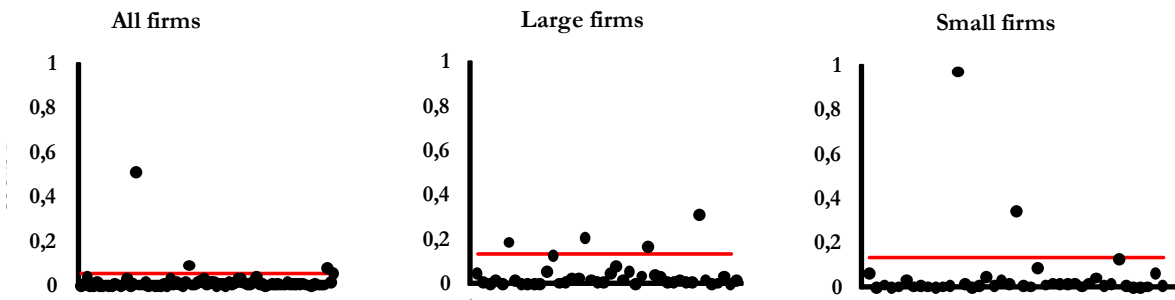
| Variable | Sample | Variable | Large firms | Variable | Small firms |
|------------------------------|--------|------------------------------|-------------|------------------------------|-------------|
| High Ownership | 2.54 | Year 1999 | 4.68 | High Ownership | 6.04 |
| Low Ownership | 2.14 | Regulated Market | 4.08 | FounderCEO | 5.50 |
| FounderCEO | 2.05 | High Tech | 2.51 | Low Ownership | 3.07 |
| Year 1999 | 1.86 | Low Ownership | 2.19 | Year 1999 | 2.41 |
| Regulated Market | 1.68 | High Ownership | 1.89 | High Tech | 1.98 |
| High Tech | 1.47 | FounderCEO | 1.75 | Regulated Market | 1.60 |
| Big 4 | 1.31 | Big 4 | 1.61 | Firm Age | 1.43 |
| Underwriter Ranking | 1.24 | Firm Age | 1.39 | Underwriter Ranking | 1.41 |
| Firm Age | 1.22 | Previous Position Experience | 1.33 | Big 4 | 1.39 |
| Previous Position Experience | 1.20 | Underwriter Ranking | 1.26 | Previous Position Experience | 1.28 |
| Mean | 1.67 | Mean | 2.27 | Mean | 2.61 |

4.7.3 INFLUENTIAL OBSERVATIONS AND OUTLIERS

In small sample sizes, findings can be heavily influenced by one or a few observations (MacKinlay 1997). We use Cooks D to identify potential influential observations. Cooks D measures the effect on the residuals for all other observations deleting observation i (Edlund 1997). By plotting the Cooks D measure per company we can spot potential influential observations. Fox (1991) suggest a Cooks D greater than $\frac{4}{(n-k-1)}$ to be used as a cut off point for detecting influential observations and outliers.

Exhibit 4.8**Cooks Distance**

The exhibit displays the Cooks D measure for our observations. Cooks D measures by how much the residual would change from removing observation i (Edlund 1997). The Cooks D is on the y-axis and firms on the x-axis. The red line indicates the decision rule provided by Fox (1991) for finding influential observations and potential outliers. Firms with a Cooks D greater than the decision rule value are listed below and will be investigated further. The subsamples are constructed using the mean of total assets. Firms with total assets exceeding the mean are defined as large firms. Companies with less total assets than mean are defined as small firms.



Firms with Cooks D above cut off point

| Firm | Cooks D | Firm | Cooks D | Firm | Cooks D |
|----------------------|-------------|----------------|-------------|-----------|-------------|
| Cyber Com | 0.51 | Connecta | 0.19 | CyberCom | 1.16 |
| IAR Systems | 0.09 | IAR Systems AB | 0.21 | Jeeves | 0.34 |
| Wiking Mineral | 0.08 | ReadSoft | 0.16 | Swede | 0.23 |
| | | Traction | 0.31 | Resources | |
| Cut off Point | 0.06 | | 0.13 | | 0.13 |

From *Exhibit 4.8* we can see that there are a number of observations that have a Cooks D value above the decision rule provided by Fox (1991) and could therefore be classified as influential observations and potential outliers. All data for these observations have been double checked and deemed correct. We therefore decide to keep them in our regression. Removing these could change the estimated coefficients to be misleading. In *Section 6.1*, we test how sensitive our estimated coefficients are to these influential observations.

5. MAIN RESULTS

5.1 DESCRIPTIVE STATISTICS

Exhibit 5.1 provides descriptive statistics for our sample and also the result from the ANOVA test between founder led firms and professionally managed firms.

Exhibit 5.1

Sample characteristics and ANOVA test

The total sample consists of 82 observations over the period 1999-2008. The data is collected from Datastream, Compustat, AffärsData and company prospectuses. ANOVA tests the difference in mean between founder CEOs and non-founder CEOs. F-values are reported in the column ANOVA and the significance level is denoted by asterisk at the ***(1%), *(5%) and *(10%) level. Adj. Underpricing is the underpricing adjusted for market returns. Regulated market is the percentage of companies listed on a regulated market. Big 4 is the percentage of companies that use the big 4 accounting firms. Underwriter ranking is the average market share held by underwriters used by firms. Equity to Asset uses the book value of equity. All accounting numbers are last full year report prior to listing.

| Variable | Founder CEO | | Professional Managers | | Total Sample | | ANOVA |
|--------------------------|-------------|--------|-----------------------|--------|--------------|--------|----------|
| | Mean | Median | Mean | Median | Mean | Median | F-stat |
| N | 43 | 52% | 39 | 48% | 82 | 100% | |
| Underpricing | 16.4% | 4.8% | 9.9% | 7.4% | 13.3% | 6.2% | 0.63 |
| Adj. Underpricing | 16.4% | 3.8% | 10.2% | 8.1% | 13.4% | 5.8% | 0.59 |
| Total Assets | 184 | 61 | 172 | 56 | 178 | 59 | 0.02 |
| Firmage | 10 | 8 | 10 | 8 | 10 | 8 | 0.01 |
| Total Sales | 123 | 69 | 241 | 58 | 179 | 61 | 1.47 |
| Net Income | 56 | 2 | 34 | 1 | 45 | 1 | 0.18 |
| Employees | 189 | 64 | 120 | 42 | 156 | 49 | 0.76 |
| Equity to Assets | 40.9% | 32.5% | 45.4% | 44.6% | 43.0% | 43.0% | 0.46 |
| Retained Equity | 24.1% | 16.4% | 3.7% | 0.0% | 14.5% | 7.0% | 23.98*** |
| Regulated Market % | 27.9% | 0.0% | 48.7% | 0.0% | 37.8% | 0.0% | 3.85* |
| Big 4% | 55.8% | 100.0% | 69.2% | 100.0% | 62.2% | 100.0% | 1.56 |
| Market Share Underwriter | 5.5% | 0.1% | 4.0% | 0.1% | 4.8% | 0.1% | 0.65 |

Looking at the F-statistics from *Exhibit 5.1* we see that there are few significant differences in mean between these two groups. There is a significant difference in retained equity at a 1 percent significance level. Other than that, the percentage of companies listed on a regulated market is the only variable in which there is a significant difference in mean. *Exhibit 5.2* displays summary statistics for the subsamples large firms and small firms.

Exhibit 5.2

Summary statistics of large and small firms

The classification into large and small firms was done by calculating a sample mean of the natural logarithm of total assets. Observations with less assets than sample mean were classified as a small firm and the others as large firms.

| Variable | Large firms | Small firms |
|-------------------|-------------|-------------|
| | Mean | Mean |
| N | 41 | 41 |
| Underpricing | 13.2% | 13.3% |
| Total assets | 332 | 24 |
| Sales | 325 | 34 |
| Age | 12 | 8 |
| Regulated Market | 54% | 22% |
| Retained Equity % | 14.3% | 14.7% |

5.2 REGRESSION RESULTS

In *Exhibit 5.3* we display the results from testing hypotheses 1-2b using the regression model specified in *Section 4.7*.

Exhibit 5.3

Regression results

*Dependant variable is underpricing operationalized as the difference between closing price of first day of trading and issue price. T-statistics are reported in parentheses under each coefficient and the significance level is denoted by asterisk at the ***(1%), **(5%) and *(10%) level. The variance estimated are found using robust standard errors as suggested by White(1980), as we have rejected that our data is homoscedastic. The subsamples are constructed suing the mean of total assets. Companies with assets exceeding the mean are defined as large companies and used in regression specification. Companies with less total assets than mean are defined as small. Previous position experience indicates whether the CEO of a firm has been CEO previously. Low ownership includes ownership between 0.1-20 %. High ownership includes ownership greater than 20%. Underwriter ranking is measured as percentage market share held by underwriter 1999-2008. Big 4 indicate whether a big 4 accounting firm was hired by the firm. Regulated market indicates that the firm is listed on a regulated market instead of an MTF. High tech includes companies with the GICS classifications Health care, Information Technology and Telecommunication services.*

| Regression specification | | Sample | Large firms | Small firms |
|---------------------------------|-------------------|-------------------|---------------------|---------------------|
| Key Independent Variable | | | | |
| Founder CEO | 0.065 (0.42) | -0.047 (-0.58) | -0.059 (-0.91) | 0.658** (2.46) |
| Control Variables | | | | |
| Previous position experience | -0.077 (-1.2) | -0.080 (-1.26) | 0.017 (0.31) | -0.053 (-0.55) |
| Low ownership | -0.131 (-1.94) | -0.104 (-1.19) | -0.053 (-0.77) | -0.471** (-2.51) |
| High owernship | 0.358** (2.32) | 0.399** (2.39) | 0.517*** (3.36) | -0.323 (-1.23) |
| Firm age | -0.071 (-1.12) | -0.072 (-1.12) | 0.085* (2.00) | -0.265** (-2.18) |
| Underwriter ranking | 0.076 (0.21) | 0.113 (0.3) | 0.341 (1.18) | -2.573* (-1.82) |
| Big 4 | 0.167* (1.76) | 0.163* (1.71) | -0.089 (-1.04) | 0.205 (1.81) |
| Regulated Market | 0.068 (0.95) | 0.058 (0.77) | -0.283** (-3.39) | 0.387*** (3.14) |
| Year 1999 | 0.223* (1.77) | 0.216 (1.66) | -0.194* (-2.03) | 1.049* (2.05) |
| High Tech | 0.020 (0.31) | 0.025 (0.38) | 0.187** (2.33) | -0.207* (-1.77) |
| Intercept | 0.099 (0.03) | 0.126 (0.92) | 0.135 (0.99) | 0.470** (2.3) |
| Adjusted R-square | -0.005 | 0.266 | 0.258 | 0.538 |
| F- statistic | 0.66 | 1.89 | 1.77 | 2.78 |
| N | 82 | 82 | 82 | 41 |

Hypothesis 1: The presence of founder CEOs increases IPO underpricing.

The impact of *Founder CEO* on underpricing is not significant when testing for the entire sample. We therefore cannot reject that the impact of the *Founder CEO* on underpricing is equal to zero.

Hypothesis 2a: The presence of founder CEOs increases IPO underpricing in large firms

Looking at large firms we see that the coefficient for *Founder CEO* is not significant. We therefore cannot reject that increased IPO underpricing from having a founder as CEO is equal to zero.

Hypothesis 2b: The presence of founder CEOs decreases IPO underpricing in small firms

For small firms we see that the coefficient is significantly positive at a 5 percent significance level. Though instead of the hypothesized negative coefficient, *Founder CEO* has a positive impact on underpricing in small firms.

6. ROBUSTNESS TESTS

Our findings are dependent on the assumptions made and how variables and tests were designed and operationalized. Before any conclusion can be drawn or generalizations for other samples or populations can be made, we need to test the robustness of our findings. Below we discuss the impact on our findings from consideration and assumptions made. We especially discuss presence of outliers, operationalization of underpricing and the length of the event window.

6.1 INFLUENTIAL OBSERVATIONS

By using Cooks D in *Section 4.7.3*, we concluded that there were a number of influential observations in our data set. When decided not to drop the observations as they were checked and deemed correct. Therefore we test whether our results from our hypothesis testing would have been different if we would have removed these observations. The results for *Founder CEO* from *Section 5.2* remain unchanged after having removed the influential observations. Regressions can be found in *Appendix 3*.

6.2 OPERATIONALISATION OF ABNORMAL RETURN

In line with previous research on underpricing, we did not adjust our measurement for normal return. In this section we test if our findings would be the same if such an adjustment had been made. The normal return can be estimated using a period prior to the event (MacKinlay 1997). However, as our events represent the first day of trading for our companies it is difficult to estimate a normal return. We have therefore chosen to define the normal return as the market return on the first day of trading and also assume that all companies have a beta of one. Hence, the underpricing of all firms is adjusted by the market return on the first day of trading. Market return is operationalized as the change in the broadest index⁹ for the lists on which the companies are listed.

⁹ The shares listed on OMX will be adjusted using OMX Benchmark index. The First North companies were adjusted using the First North All share SEK. Companies listed on NGM Equity were adjusted by the NGM Equity index. Companies listed on Aktietorget were adjusted by AT Index.

$$\frac{P_{t_1,i} - P_{t_0,i}}{P_{t_0,i}} - \frac{I_{t_1,j} - I_{t_0,j}}{I_{t_0,j}}$$

Where:

$P_{t_1,i}$: Closing price of company i after first day of trading.

$P_{t_0,i}$: Issue price of company i

$I_{t_1,j}$: Closing level of index j after first day of trading

$I_{t_0,j}$: Opening level of index j after first day of trading

The results for *Founder CEO* remain unchanged from *Section 5.2* when running the regressions with index adjusted underpricing as dependant variable. Regressions can be found in *Appendix 3*.

6.3 EVENT WINDOW

We have chosen to look at the first day of trading as our event window. As mentioned by MacKinlay (1997) it is common to extend the event window beyond the actual event of interest. In this section we extend our event window to five trading days, comparing the results with those using only one day as event windows. We were unable to find five day stock returns for six companies in our sample¹⁰. These observations were excluded from this test.

$$\frac{P_{t_5,i} - P_{t_0,i}}{P_{t_0,i}}$$

Where:

$P_{t_5,i}$: Closing price of company i after fifth day of trading.

$P_{t_0,i}$: Issue price of company i

Having extended the event window, our results from *Section 5.2* remains unchanged. Regressions can be found in *Appendix 3*.

6.4 SUMMARY OF ROBUSTNESS RESULTS

- The outcome from our hypotheses testing is unchanged after having adjusted for influential observations.
- The outcome from testing hypotheses testing is unchanged after having adjusted underpricing for market return.
- The outcome from the hypotheses testing is unchanged after having extended the event window to five days.

7. ANALYSIS

7.1 ANALYSIS OF DESCRIPTIVES

The first purpose of this study was to perform a descriptive analysis on companies with founder CEOs compared to companies led by professional managers. When comparing the two groups, we find only few differences. As can be seen in Exhibit 5.1, we find no significant difference in assets, sector, sales, employees or age. One exception was the

¹⁰ The companies excluded were NoCom, Viking Telecom, Framtidsfabriken AB, Adera, Enlight Interactive and Pyrosequencing

difference with regard to market place listing. We found a statistically significant result that founders are more common on MTFs compared to regulated markets. One purpose of the MTF is to allow growing and entrepreneur-led firms, which do not have the resources or do not fulfill all requirements needed to list on a regulated exchange, to enter the equity market. Firms listed on the MTFs are usually smaller and younger than those listed on regulated markets such as OMX. Thus, when considering the findings of previous research, that founders are more common in small and young firms, the fact that founders are more common in MTF listed firms is not entirely unexpected. Another statistically significant difference between the groups is the percentage of retained equity by the CEOs. These findings are in line with earlier studies such as Willard et al. (1992), who claim that founder managers retain a larger percentage of equity compared to professional managers. This higher equity stake is one of the most documented characteristics of founders and is, due to aspects of agency and goal alignment, presumed to have a significant impact on the evaluations of external investors (Leeland and Pyle 1977).

It is noteworthy that our sample shows so few significant differences between the founder led and professional firms, as this is not the case for a majority of previous studies. For example, Jayaraman (2000) found that founders are more common among small firms, and Begley and Boyd (1987) found that founders are more common among young firms. One interpretation of our findings could be that among Swedish IPO firms less than 30 year of age, founder CEOs cannot be associated with a particular type of firms. Instead they manage both small and large firms, young and old firms and high-tech and non-high tech firms.

7.2 ANALYSIS OF REGRESSION RESULTS

The second purpose of our study was to examine if company founders in the position as CEO would have an impact on the first day underpricing of IPO firms, and try to explain this relationship by looking at this linkage in small and large companies respectively. Our starting point for this analysis was to test this impact for our whole sample, to be able to test whether results on Swedish data would show any similarities to prior studies. When testing hypothesis 1, no significant relationship could be found between underpricing and a firm having a founder as CEO. Examining the scarce amount of previous research on this relationship, this is in line with Arcand et al. (2004) who found that founder CEO status did not influence underpricing for a sample of 439 US IPO firms, indicating that those founders would not have an impact on the ex-ante uncertainty. We cannot reject that founder CEOs have no impact on underpricing for our whole sample of Swedish IPOs.

In hypothesis 2a and 2b we test for different impacts in small compared to large firms. For large firms, our results showed that the variable *Founder CEO* did not have a significant impact on underpricing, hence hypothesis 2a is rejected. When testing hypothesis 2b, we found that founder CEOs in small firms increase underpricing on a 5 percent significance level. These findings show the opposite effect of what was stated in the hypothesis, where founder CEO presence was expected to decrease underpricing for small firms.

7.2.1 AVAILABILITY OF INFORMATION

When selecting which firms to invest in, investors evaluate the available information to reduce ex-ante risk of the IPO firm (Rasheed et al. 1997). For larger firms there is more information about firm quality and characteristics available, such as historical financial information, growth prospects, risk factors, upcoming deals and competitors. This information could be used to evaluate the firm and decrease information asymmetries. This could be one explanation for the non-significant impact of founder CEOs in large firms. If a lot of information is available to investors, the strength of the signal that the CEO is a founder

diminishes in comparison to other signals such as those mentioned above, and might not be taken into account by investors.

For small firms the availability of information is probably scarcer. Founders were significantly more present in companies listed on MTFs and the descriptive data show that 78 percent of the small firms are listed on an MTF. The listing requirements for these markets are lower and the prospectuses do not contain the same quantity and quality of information. Therefore it is most likely less information available about firms in which founders are common to be CEOs. When little objective financial information is available, investors are likely to put more emphasis to governance and organizational characteristics, as suggested by Florin and Simsek (2007). Cohen and Dean (2005) propose that composition of top management teams and CEO is likely to be an example of such characteristics. This suggests that when less information is available, investors take the presence of founder CEO into consideration.

7.1.3 RELATIVE IMPORTANCE OF MANAGEMENT

The availability of information helps us answer the question *if* investors take the signal of a founder being CEO into consideration or not. The next step would be to analyze *how* this signal would be interpreted. Hence, we seek to explain why small companies with founder CEOs experience increased underpricing by considering the relative importance of management in large and small firms.

When investors are evaluating larger companies they may pay less attention to the characteristics of the management team, since the size and complexity of larger organizations fuel the perception that managers and CEOs have a modest impact on performance in large firms (Dalton and Kesner 1983, Norburn and Birley 1988). If this perception is shared by the investors, this indicates that management characteristics would not be taken into account to the same extent as other information, when assessing the intrinsic value of a larger IPO company. This could help explain the insignificant impact of founder CEO presence in large firms.

The significantly increased underpricing in small firms implies that founder CEOs in companies of this size, increase the perceived ex-ante uncertainty compared to those with a professional manager. This is somewhat contradictory, not only to our hypothesis 2b but also as a major part of research and studies have found that founders as CEOs have a positive impact on financial performance (e.g. Adams et al. 2007, Anderson and Reeb 2003, Begley 1995). Consequently, a rational investor should take this information about higher performance into consideration. The increased underpricing from having a founder as CEO in a small firm suggest that, instead of considering the founder as contributing to superior financial performance, founders are considered to be a risk factor when assessing the company's future as a listed company. Hence, the presence of a founder CEO could increase ex ante uncertainty among investors due to the riskiness of the founder's organizational qualities.

Hypothesis 2b was built on the assumption that small firms would not yet be considered to have entered this transition, and thus the attributes of the entrepreneur and her presence as CEO would be considered to add value in this environment. As CEOs are found to have a greater impact on performance in small firms (Dalton and Kesner 1983), investors may take the CEO and his characteristics more into consideration when evaluating companies of this size (Daily and Dalton 1992). This could be one possible explanation to the significant impact of founder presence in small firms. One explanation to why the history of positive performance of founder CEOs does not contribute to reduce uncertainty among investors,

could be that the proved positive effect of founders on financial performance is applicable to listed firms i.e. founders who have managed to adapt to the professional phase of a firms life-cycle. This life-cycle of a firm is commonly split into an entrepreneurial and a professional phase, where the transition between these two is considered to expose the manager to the demands of a new organizational environment and one common perception is that few founders are able to make this transition (Casson 1980, Tashakori 1980). However, at the time of an IPO, investors cannot know whether the founder CEO is one of the few who manages to adapt to leading a listed company or one of the founders who will become unsuccessful. The results of our regression show that the market in fact discount the founder CEO in small firms, hence consider them to increase the uncertainty of future performance, which serve as an explanation to the increased underpricing when founders remain as CEOs. As a consequence, we must reason that even for small firms, investors consider the Initial Public Offering and the transition into a publicly held entity, as a process where experience, managerial skills and organizational knowledge outweigh the driven, independent and innovative characteristics of the entrepreneur. Hence, the market does not consider founders as suitable for leading a firm through an IPO, even when the size of the firm would talk in favor of her entrepreneurial skills.

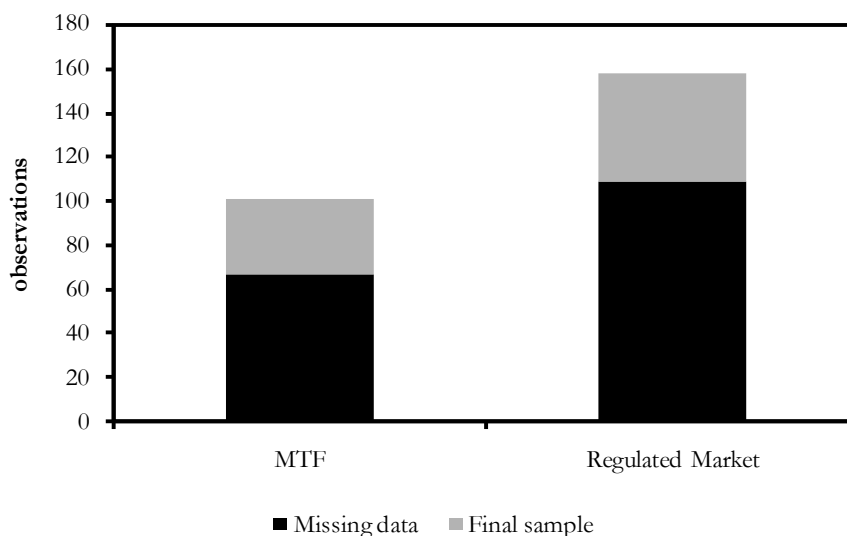
7.3 INFERENCE

Before generalizing our findings it is important to discuss whether our sample is representative for the population. A large percentage of the initial sample had to be dropped due to missing data. This could cause a bias in our data if the companies that were excluded were not evenly distributed over the sample. In *Exhibit 7.1* we show the ratio of missing data comparing MTFs with regulated market. Observations in our final sample include 31 percent of the initial population, compared to 33 percent for companies listed on MTF. Hence, the missing data seems evenly distributed among market places.

Exhibit 7.1

Distribution of missing data per type of exchange

The final sample consists of 82 observations over the time period 1999-2008. The graph displays how our final data sample and missing data is distributed over time. The initial sample consisted of 259 observations. Though percentage of missing data differs from year to year, a comparison of the first half of our time period compared to the other half, both include around 30 percent of the observations.

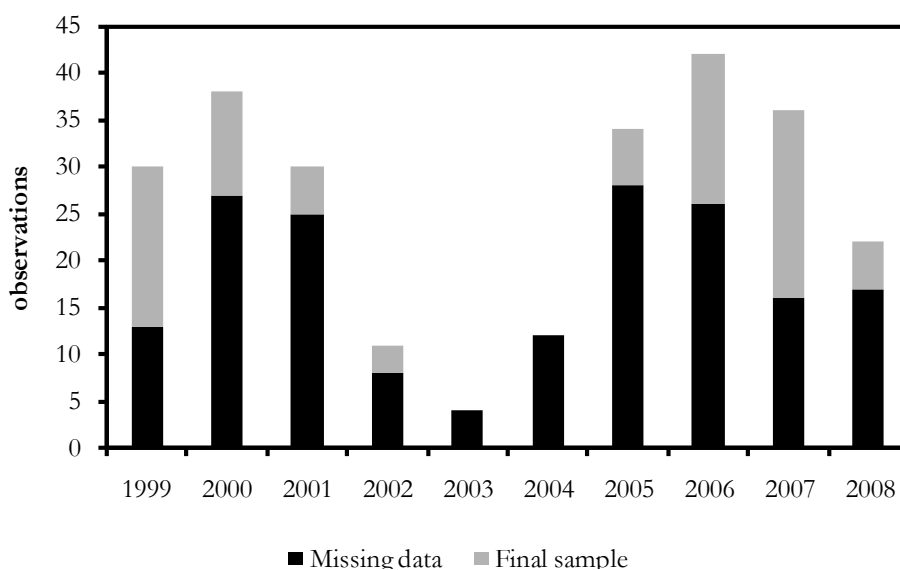


We also compare our final sample with missing data over time. There are some differences in percentage of missing data from year to year. It can be discussed how biased the sample would be if there are severe differences in our dataset between each year. We compare the amount of available data for the first half of our time period compare to the second half, and the percentage gathered of available data is 31 percent and 32 percent respectively. Hence we can conclude that there is no serious bias towards certain time periods as a result of the missing data.

Exhibit 7.2

Distribution of missing data of over time

The final sample consists of 82 observations over the time period 1999-2008. The graph displays how our final data sample and missing data is distributed over time. The initial sample consisted of 259 observations. Though percentage of missing data differs from year to year, a comparison of the first half of our time period compared to the other half, both include around 30 percent of the observations.



One could also discuss whether information on companies that delist is disposed and not stored anymore. This could cause a bias to successful companies in our sample. *Swedish Financial Supervisory Authority* are obliged under law to store all prospectuses from companies listing at regulated markets since 2006. *The National Library of Sweden's* assignment is to keep copies of all printed material in Sweden. There is therefore a small risk that they dispose data on delisted companies. *The Swedish Shareholder's Association* keeps archives on all shares in which they possess stock holdings. Overall, there is some risk, though we do not deem it very high, as our sample includes a number of delisted companies and our sources do not have a policy of disposing data on delisted companies.

7.4 RELIABILITY

The possibility to repeat this study with the same result is considered to be high. We have carefully provided explanations regarding assumptions made and considerations taken when building our model. Definitions and explanations of variables are available in *Section 4.3-4.6*. *Section 4.2* provides a thorough discussion the procedures of our data collection what sources we used. The statistical method and models used are stated in *Section 4.7*. Treatment of extreme values has been thoroughly explained in *Section 4.7.3*.

7.5 VALIDITY

Our model is to a large extent built on previous research of underpricing. Our contribution, assessing the founder CEO's impact on underpricing, has been operationalized similarly in the limited research conducted in the field (Certo et al. 2001, Arcand et al. 2004). This has been complemented with studies of previous research on founder impact on performance and valuation.

Previous research mentions numerous variables that have been shown to influence underpricing. The research on underpricing is a broad field and there seems to be little consensus regarding what causes underpricing or how to explain it. Our restricted number of variables is therefore a limitation to our test. We cannot include all variables affecting underpricing, hence a selection had to be made. The procedure for selecting these variables is explained in *section 4.6*. The control variables chosen and the way our model was operationalized will have an impact on our findings. For our specific topic it might also have been to control for gross proceeds, dual-class share structure, number of risk factors as specified in the prospectus and venture capital equity. The reason for not choosing to include more variables is the limited size of our sample. Thus, we choose to concentrate our number of variables to those most commonly used in our area of research.

Our final sample consists of 82 observations with 41 observations in each subsample. These small sample sizes could make our regression model sensitive for multicollinearity or influential observations. Multicollinearity was tested using two different tests and no strong presence between the variables was detected. Using Cooks D we identified influential observations. We tested our regression with these observations excluded and these results for founder CEOs were unaffected. We therefore believe that our findings are not severely affected by the small sample size.

As our dataset contains information from multiple sources and a lot of manual entering of data, especially from prospectuses, there is a risk of mistakes being made. To secure the correctness of our sample the dataset has been checked by both authors independently. We therefore feel confident that the data in our sample is reliable.

We defined our event window as the first day of return in line with previous studies on underpricing. When using only one day as event window there is a risk that we do not capture all effects from the event as the market might need time to react to the event. To test for this we therefore extended our event window with still a significant impact of founder CEOs in small firms and no impact in large firms. However, extending the event window also increases the risk of capturing other abnormal returns than those stemming from the defined event. Our findings of impact from founder CEOs are consistent in both event windows used. We therefore feel confident that the event window used is able to capture the effects from the IPO.

In line with earlier studies we defined our measure of abnormal return as underpricing, the difference between closing price at the first day of trading and the issue price. However, this operationalization does not take the normal return of the share into account. As it is difficult to know what the normal return for an IPO firm is, we used the market return as operationalization for normal return. Having adjusted the underpricing with the market return our findings are still the same.

7.6 GENERALISABILITY

The applicability of the findings of our study to other populations or time periods is limited. Our findings cannot be applied to companies older than 30 years of age. Furthermore, the results cannot be generalized for other time periods than 1999-2008, as the effects and market conditions during 1999 might not be representative to other time periods. As our sample only consists of Swedish IPO data, the outcomes of the study cannot be assumed to be the applicable to other countries.

8 CONCLUSIONS AND FUTURE RESEARCH

The purpose of this thesis was twofold: to perform a comparison between founder managed and professionally managed IPO firms and to see whether having a founder as CEO works as a signal to investors that reduce ex ante uncertainty.

The comparison of founder managed versus professionally managed companies showed small differences. On average, they are of the same age, they do not differ substantially in size and there are no differences with respect to industries. The exceptions were that founder-led companies were more often listed at MTFs and that founder CEOs retained more equity. The similarities between the groups, prove to some extent that founder CEOs in Swedish IPO firms are not more common in any specific type of company, but have a tendency to lead firms going public on unregulated markets and to retain more equity than professional managers.

The information of the presence of a founder as CEO signaled to investors through the road show, the prospectus or otherwise. Our results show that the effect of this signaling does not have the intended outcome. Small firms providing the information to investors of founder status as CEO, experience significantly higher levels of underpricing compared to small firms with professional managers. This might be an indication that investors consider the characteristics of the founder CEO as increasing the uncertainty of future performance for companies of this size. For larger firms, the signal of a CEO's founder characteristic is ineffective and not valued as important by investors, and will therefore not reduce the perceived ex-ante uncertainty. This implies that, in larger firms, the transition of initial shareholder wealth during the first day of trade is not affected by such a signal, whereas initial shareholders in smaller firms would see their wealth transferred to the first-day investors.

Our analysis cast some light on how investors in the Swedish market react when an IPO company is led by a founder. To our knowledge there are few published research papers testing this relationship and the little research that is available focuses on US data. Certo et al. (2001) proved founder CEOs to increase underpricing whereas Martens et al. (2004) found no significance of this relationship. To our knowledge, our method of measuring this linkage for large and small firms separately is an approach relatively untested in previous research. Hence, with our contribution to this small body of IPO underpricing research, further examination of these results are needed on other populations to assess the impact of founder presence on underpricing. This could be done by either a more thorough analysis of Swedish data or testing another population. Since our sample was limited to 1999-2008 and did not include the full population over these years, enhancing this data and include a longer time

period could contribute to further knowledge for Swedish IPOs in this area. Furthermore, extending these tests to other Nordic and European data would present valuable input for markets with an institutional setting similar to the Swedish.

Since the signaling of CEOs as founders is found to increase the uncertainty of investors, it might be interesting to see how different demographics of the founder CEO might affect the market's perception of her riskiness. It is put forward by earlier studies that the signaling of certain characteristics of a CEO may affect her perceived quality. Examples of these are age, previous industry experience, outside board directorships and CEO duality.¹¹

Furthermore, it would be interesting to examine possible implications of other managerial variables on IPO underpricing. The positions of particular relevance to test for company founders would be involvement in Top Management Teams, Board of Directors or Chairman of the Board. The characteristics, experience and reputation of managers in these positions have been proved to have an impact on IPO underpricing. Thus, studying the effect of founders in these positions on Swedish data, would be a valuable contribution to this area of research.

Finally, though our findings showed results differing from our initial hypotheses, this thesis has provided some new information on the effects of founder management in the area of underpricing research.

¹¹ When Chief Executive Officer also serves as Chairman of the board

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10. APPENDIX

Appendix 1

List of companies included in sample

Summary of observations included in sample. The sample consists of 82 observations evenly distributed between large and small firms, for the time period 1999-2008. The firms were divided into small firms using the sample mean of the natural logarithm of total assets. Firms with total assets less than the mean were classified as small firms and the rest as large firms.

| Large Firms | | | Small Firms | | |
|-----------------------------|-----------------|-------------|---------------------------------|-----------------|-------------|
| Firm | Year of listing | Founder CEO | Firm | Year of listing | Founder CEO |
| A-Com | 1999 | 1 | Accelerator | 2002 | 1 |
| Adera | 1999 | 1 | Aerocrine AB | 2007 | 0 |
| AU-System AB | 2000 | 0 | Agellis Group | 2007 | 0 |
| Benchmark Oil & Gas | 2006 | 0 | Alltele Allmanna Svenska Tele A | 2007 | 1 |
| Black Earth Farming Ltd | 2007 | 1 | Alphahelix Molecular Diagnostic | 2006 | 1 |
| Connecta | 1999 | 1 | Ancora Energispar AB | 2007 | 1 |
| DGC One AB | 2008 | 1 | Arena Personal AB | 2006 | 1 |
| Digital Vision Sweden | 1999 | 1 | Arete | 1999 | 0 |
| Dimension AB | 2001 | 0 | Avega AB | 2007 | 1 |
| Endomines AB | 2007 | 1 | Chemel | 2005 | 0 |
| Enlight Interactive | 1999 | 1 | Cryptzone AB | 2008 | 1 |
| Framtidsfabriken AB | 1999 | 1 | Cybaero AB | 2007 | 0 |
| Gant Co AB | 2006 | 0 | Cyber Com | 1999 | 1 |
| Generic Sweden AB | 2006 | 1 | Dannemora Mineral AB | 2007 | 0 |
| Gymgrossisten Nordic AB | 2006 | 0 | Diamyd Medical AB | 2002 | 1 |
| HiQ | 1999 | 0 | Dibs Payment Services AB | 2007 | 0 |
| HMS Networks AB | 2007 | 1 | Done Management & Systems A | 2007 | 1 |
| IAR Systems AB | 2000 | 0 | Guideline Technology | 2005 | 0 |
| Indutrade AB | 2005 | 0 | ICM Logistik AB | 2001 | 0 |
| Jobline International | 2000 | 0 | Insplanet AB | 2006 | 1 |
| Kontakt East Holding AB | 2006 | 0 | Jeeves | 1999 | 0 |
| NeoNet AB | 2000 | 1 | Mediaprovider Scandinavia AB | 2006 | 1 |
| NoCom | 1999 | 1 | Netwise AB | 2000 | 0 |
| ORC Software AB | 2000 | 1 | Nobia AB | 2002 | 0 |
| Panaxia Security AB | 2006 | 1 | Nordic Mines AB | 2006 | 0 |
| PyroSequencing AB | 2000 | 0 | Novotek | 1999 | 1 |
| Q-Med | 1999 | 0 | Odd Molly AB | 2007 | 0 |
| ReadSoft | 1999 | 1 | Polyplank | 2005 | 1 |
| Retail And Brands AB | 2001 | 0 | Precise Biometrics AB | 2000 | 0 |
| Scandinavia Online AB | 2000 | 0 | PSI Spelinvest AB | 2007 | 0 |
| Sectra | 1999 | 0 | Relation & Brand | 2006 | 1 |
| Sensys Traffic AB | 2001 | 0 | SeaNet Maritime Communicator | 2007 | 1 |
| Svenskt Bostadsrättscentrum | 2007 | 0 | Swede Resources | 2005 | 1 |
| Telelogic | 1999 | 0 | Svensk Internetrekrytering AB | 2006 | 0 |
| Teligent | 1999 | 1 | Svenska Capital Oil AB | 2007 | 0 |
| Traction AB | 2000 | 1 | Travel Partner AB | 2006 | 1 |
| TradeDoubler AB | 2005 | 0 | Trygga Hem | 2008 | 1 |
| Viking Telecom AB | 2000 | 1 | Unlimited Travel Group UTG A | 2006 | 0 |
| Vinovo AB | 2007 | 1 | West International AB | 2007 | 1 |
| Vitrolife AB | 2001 | 1 | Wiking Mineral AB | 2006 | 0 |
| WeSC | 2008 | 1 | World Class | 2008 | 1 |

Appendix 2
Pairwise correlation of independent variables used in regression

| Sample | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------|------------------------------|--------|--------|--------|--------|-------|-------|-------|--------|-------|-------|
| 1 | Founder CEO | 1.000 | | | | | | | | | |
| 2 | Previous Position Experience | -0.174 | 1.000 | | | | | | | | |
| 3 | Low Ownership | 0.246 | 0.148 | 1.000 | | | | | | | |
| 4 | High Ownership | 0.427 | -0.296 | -0.499 | 1.000 | | | | | | |
| 5 | Firm Age | 0.065 | -0.166 | 0.007 | 0.128 | 1.000 | | | | | |
| 6 | Underwriter Ranking | 0.090 | -0.076 | 0.062 | -0.038 | 0.210 | 1.000 | | | | |
| 7 | Big 4 | -0.138 | 0.164 | 0.308 | -0.346 | 0.035 | 0.137 | 1.000 | | | |
| 8 | Regulated Market | -0.214 | -0.013 | -0.107 | -0.027 | 0.252 | 0.212 | 0.037 | 1.000 | | |
| 9 | Year 1999 | 0.126 | -0.236 | 0.043 | 0.110 | 0.142 | 0.205 | 0.151 | -0.399 | 1.000 | |
| 10 | High Tech | 0.094 | -0.102 | 0.173 | -0.068 | 0.258 | 0.257 | 0.284 | 0.069 | 0.415 | 1.000 |

| Large Firms | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|------------------------------|--------|--------|--------|--------|-------|-------|--------|--------|-------|-------|
| 1 | Founder CEO | 1.000 | | | | | | | | | |
| 2 | Previous Position Experience | -0.124 | 1.000 | | | | | | | | |
| 3 | Low Ownership | 0.310 | 0.070 | 1.000 | | | | | | | |
| 4 | High Ownership | 0.246 | -0.286 | -0.492 | 1.000 | | | | | | |
| 5 | Firm Age | -0.217 | -0.168 | -0.022 | 0.001 | 1.000 | | | | | |
| 6 | Underwriter Ranking | 0.122 | -0.029 | 0.036 | 0.020 | 0.204 | 1.000 | | | | |
| 7 | Big 4 | 0.100 | 0.180 | 0.384 | -0.217 | 0.173 | 0.128 | 1.000 | | | |
| 8 | Regulated Market | -0.275 | 0.072 | -0.187 | -0.030 | 0.194 | 0.137 | -0.121 | 1.000 | | |
| 9 | Year 1999 | 0.213 | -0.279 | 0.042 | 0.163 | 0.046 | 0.058 | 0.058 | -0.733 | 1.000 | |
| 10 | High Tech | 0.005 | -0.235 | 0.183 | 0.028 | 0.168 | 0.343 | 0.340 | 0.005 | 0.409 | 1.000 |

| Small Firms | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|------------------------------|--------|--------|--------|--------|--------|--------|-------|--------|-------|-------|
| 1 | Founder CEO | 1.000 | | | | | | | | | |
| 2 | Previous Position Experience | -0.222 | 1.000 | | | | | | | | |
| 3 | Low Ownership | 0.181 | 0.242 | 1.000 | | | | | | | |
| 4 | High Ownership | 0.591 | -0.320 | -0.484 | 1.000 | | | | | | |
| 5 | Firm Age | 0.369 | -0.162 | -0.054 | 0.318 | 1.000 | | | | | |
| 6 | Underwriter Ranking | 0.030 | -0.167 | -0.085 | 0.010 | 0.044 | 1.000 | | | | |
| 7 | Big 4 | -0.367 | 0.170 | 0.181 | -0.400 | -0.201 | -0.031 | 1.000 | | | |
| 8 | Regulated Market | -0.190 | -0.098 | -0.183 | 0.078 | 0.199 | 0.064 | 0.046 | 1.000 | | |
| 9 | Year 1999 | -0.008 | -0.189 | -0.095 | 0.172 | 0.166 | 0.331 | 0.156 | -0.174 | 1.000 | |
| 10 | High Tech | 0.175 | 0.034 | 0.098 | -0.092 | 0.288 | -0.017 | 0.175 | 0.006 | 0.372 | 1.000 |

Appendix 3
Robustness tests

Dependant variable is underpricing operationalized as the difference between closing price of first day of trading and issue price. T-values are reported in parentheses under each coefficient and the significance level is denoted by asterisk at the ***(1%), **(5%) and *(10%) level. The variance estimated are found using robust standard errors as suggested by White(1980), as we cannot reject that our data is heteroscedastic. The influential observations were identified in section 4.7.4 as having a Cooks D above the decision rule provided by Fox (1991). Adjusted for index return means that the underpricing was adjusted for the change in market index on the first day of trading. The extended event window is extended to 5 day of trading. Previous position experience indicates whether the CEO of a firm has been CEO previously. Low ownership includes ownership between 0.1-20%. High ownership includes ownership greater than 20%. Underwriter ranking is measured as percentage market share held by underwriter 1999-2008. Big 4 indicate whether a big 4 accounting firm was hired by the firm. Regulated market indicates that the firm is listed on a regulated market instead of an MTF. High tech includes companies with the GICS classifications Health care, Information Technology and Telecommunication services. When testing with an extended event window 5 observations had to be dropped as we are unable to find data.

| Regression specification Key Independent Variable | Excluding influential observations | | | Adjusted for index return | | | Extended event window | | |
|--|------------------------------------|----------------------|----------------------|---------------------------|----------------------|---------------------|-----------------------|--------------------|---------------------|
| | Sample | Large firms | Small firms | Sample | Large firms | Small firms | Sample | Large firms | Small firms |
| Founder CEO | 0.002 (0.03) | 0.008 (0.16) | **1212 (2.6) | -0.046 (-0.58) | -0.060 (-0.92) | 0.649** (2.46) | 0.128 (0.87) | 0.066 (0.45) | 0.763** (2.04) |
| Control Variables | | | | | | | | | |
| Previous position experience | -0.042 (-0.99) | -0.025 (-0.51) | -0.036 (-0.43) | -0.074 (-1.16) | 0.025 (0.46) | -0.050 (-0.52) | -0.194 (-1.38) | -0.001 (-0.02) | -0.228 (-1.29) |
| Low ownership | -0.075 (-1.07) | -0.076 (-1.18) | -0.452*** (-3.06) | -0.106 (-1.24) | -0.052 (-0.74) | -0.469** (-2.52) | -0.201 (-1.45) | -0.270* (-1.76) | -0.355 (-1.33) |
| High ownership | 0.193* (1.71) | 0.517** (2.65) | -0.353* (-1.76) | 0.397** (2.40) | 0.519*** (3.4) | -0.313 (-1.19) | 0.094 (0.39) | 0.304 (1.14) | -0.529 (-1.4) |
| Firm Age | -0.001 (-0.02) | 0.110*** (3.21) | -0.135* (-2.05) | -0.068 (-1.07) | 0.088* (2.1) | -0.256** (-2.15) | -0.134 (-1.66) | 0.036 (0.55) | -0.347** (-2.13) |
| Underwriter ranking | 0.109 (0.41) | 0.041 (0.19) | -2.319*** (-3.79) | 0.085 (0.23) | 0.307 (1.13) | -2.531* (-1.84) | 1.029 (0.82) | 0.177 (0.41) | 2.156 (0.5) |
| Big 4 | 0.038 (0.63) | -0.062 (-1.22) | 0.152 (1.62) | 0.164* (1.72) | -0.088 (-1.06) | 0.208* (1.85) | 0.116 (0.76) | 0.013 (0.09) | 0.109 (0.55) |
| Regulated Market | 0.068 (1.07) | -0.230*** (-2.96) | 0.315*** (3.33) | 0.062 (0.84) | -0.273*** (-3.16) | 0.385*** (3.14) | 0.020 (0.14) | -0.089 (-0.46) | 0.189 (1.04) |
| High Tech | -0.009 (-0.15) | 0.130* (1.83) | -0.180* (-1.77) | 0.021 (0.32) | 0.177** (2.22) | -0.203* (-1.76) | -0.086 (-0.71) | 0.051 (0.42) | -0.240 (-1.17) |
| Year 1999 | 0.172** (2.3) | -0.153* (-1.78) | 0.765*** (4.14) | 0.219* (1.7) | -0.182* (-1.91) | 1.033* (2.03) | 0.191 (0.8) | -0.086 (-0.45) | 0.871 (1.39) |
| Intercept | 0.024 (0.26) | -0.004 (-0.05) | 0.331* (1.73) | 0.128 (0.92) | 0.039 (0.4) | 0.459** (2.21) | 0.450* (1.67) | 0.154 (1.12) | 0.766 (2.55) |
| Adjusted R-square | 0.197 | 0.489 | 0.259 | 0.219 | 0.553 | 0.391 | 0.086 | 0.298 | 0.214 |
| F- statistic | 1.59 | 3.31 | 3.21 | 1.8 | 2.77 | 2.37 | 1.79 | 3.00 | 1.25 |
| N | 79 | 37 | 38 | 82 | 41 | 41 | 76 | 35 | 41 |