



LUND UNIVERSITY
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Long-Run IPO Performance for Family Firms

A study on the Swedish market

by

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May 2015

Master's Programme in Corporate and Financial Management

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Abstract

This thesis studies the long-run performance of IPOs. In addition, it differentiates between family firms and non-family firms. The long-run performance is tested on listings on Nasdaq OMX Stockholm over a period from 1997 to 2011. The sample consists of 100 firms, whereas 39 firms are classified as family firms. To test the long-run IPO performance, buy-and-hold abnormal return over a three year period is used as a measure. The benchmark used for calculating the buy-and-hold abnormal return is the OMX Stockholm index.

The results show that, on average, the firms in the sample underperform the benchmark with 8.37 percent, which means that after a firm conducts an IPO, the performance the following three years will be weak. The family firms perform insignificantly better than the non-family firms, with a buy-and-hold abnormal return of negative 7.18 percent, compared to negative 9.14 percent. The regressions show that family firms with low market values, as an approximation for long-run correction, have weak long-run performance post IPO. Family firms with low market values tend to perform worse than the family firms with higher market values.

Keywords: *IPO, Long-Run Performance, Family Firm, Nasdaq OMX Stockholm, Buy-and-hold abnormal return*

Acknowledgements

We would like to thank our supervisor Naciye Sekerci, who followed us throughout the process and has given us invaluable tips and insights. We also would like to thank Jens Forssbaeck, for bringing us clarity when we needed it the most.

Thank You!

Lund University, May 27th 2015

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1 Introduction

1.1 Background

When picturing a family firm, it is easy to think of a small sized company active on a local market. It is also easy to focus on the obvious shortcomings of family firms, such as succession problems and family conflicts, which can give the image of family firms performing worse than their non-family counterparties. However, according to Kachaner, Stalk and Bloch (2012), this is far from the truth. Many companies do fit this description, but there are plenty of large family owned corporations performing extremely well, and furthermore it does not reflect the huge role family firms play in the global economy today.

Gigantic firms like Walmart and Samsung are actually family firms, not to mention the Swedish firms IKEA and H&M. Families and their heirs in fact control the majority of firms around the world, and Sweden in turn has one of the highest percentages of family firms in the world (La Porta, Lopez-De-Silanes & Shleifer, 1999). In 2006, Swedish family firms represented 75 percent of the companies and contributed to one fifth of the Swedish GDP. Of the listed companies on the Stockholm Stock Exchange, more than half were classified as family firms. (Bjuggren, Sjögren & Johansson, 2011)

Many family firms choose to take the firm public. Current rumors (as of May 2015) say that Siba, a Swedish family owned firm in the consumer electronics industry, is planning an IPO on the Swedish Stock Exchange. There are several reasons for firms in general to go public. Pagano, Panetta and Zingales (1998), and Bancel and Mittoo (2009), show that firms go public in order to improve the firm's financial leverage. Furthermore, Brau and Fawcett (2006) argue that a determinant for taking a firm public is achieving better reputation and credibility.

Besides the general reasons for going public, it has been shown that family firms in particular have special motives for going public. Zingales (1995) for instance, states that founders of family firms choose to take the firm to the stock market in order to cash out and leave the firm. Mazzola and Marchasio (2002) further argue that family firms go public to resolve

problems with weak competence in the next generation of the family. By doing so, they have a larger possibility to hire outside competence for leading positions in the firm.

1.2 Problem Discussion

Several studies have investigated and identified that companies conducting an initial public offering (IPO), underperform the market in the long-run. One of the most referenced sources studying the long-run underperformance phenomenon is an article by Ritter (1991). This study was the starting point for several other studies on long-run IPO performance, for example Loughran and Ritter (1995), Brown (1995), Ljungqvist (1997), Jakobsen and Sorensen (2001), and Ritter and Welch (2002), which all show evidence of long-run underperformance.

However, Loughran, Ritter and Rydqvist (1994), Gompers and Lerner (2003) and Carter et al. (2011) found that newly issued shares, do not always underperform the market. Loughran, Ritter and Rydqvist (1994) for instance, found that Swedish IPOs between 1980 and 1990 outperformed the Swedish market by 1.2 percent. The reason for the differences in performance between the studies on long-run underperformance could be due to the fact that small differences in methodology can have large impact on the results. (Barber and Lyon, 1997)

Family firms and non-family firms are assumed to perform differently, and family firms receive another perception in the market. This is due to differences mostly regarding management, ownership structure, and strategy. (Lee, 2004) The scarce amount of research that has been done on long-run performance for family firms show somewhat of a conflicting result. Some long-run performance studies have shown that family firms that are already listed perform better than non-family firms. (Anderson & Reeb, 2003; Villalonga & Amit, 2006) However, family IPO performance has been shown to be worse in the long-run compared to non-family firms. (Ehrhardt & Nowak, 2003; Jaskiewicz et al. 2005).

A lot of research has been done on long-run IPO performance, but only a scarce amount of research is conducted on long-run IPO performance for family firms, and not much at all on the Swedish market. To conduct any study on family firms, regardless of subject, Sweden is a

unique country to study because it has one of the highest percentages of family firms in the world. Since previous studies has shown conflicting results on long-run IPO performance for family firms, with evidence of both underperformance and the opposite, investigating long-run underperformance for Swedish family firms will bring new insight to this subject.

1.3 Purpose of Study

The aim of this thesis is to study the long-run IPO performance of Swedish family firms compared to non-family firms. Furthermore this thesis aims to explain some of the differences between the groups, and how these different characteristics affect the long-run IPO performance.

The research question is as follows:

How does long-run IPO performance differ between Swedish family firms compared to non-family firms?

To answer this research question, the buy-and-hold abnormal return for the firms conducting IPOs will be calculated using the Nasdaq OMX Stockholm index as a benchmark. The timeframe of interest is the fifteen year period from 1997 to 2011. In addition to that, a range of variables will be tested in order to determine what affects the buy-and-hold abnormal return, and to investigate if the special characteristics of family firms are determinants for long-run IPO performance.

Investigating this topic on the Swedish market will contribute with new knowledge that will help investors and issuing firms, active on the Swedish stock market, to gain a better understanding about the IPO performance. The thesis will also provide further insights on the characteristics affecting long-run IPO performance.

1.4 Research Limitations

This study focus only on listings on Nasdaq OMX Stockholm conducted during the fifteen year period between 1997 and 2011. Listings within this time frame on markets other than Nasdaq OMX Stockholm will be excluded from the sample. By excluding firms listed on other markets, the findings from this study can only be applied to listings on Nasdaq OMX Stockholm.

Only what is classified as pure IPOs will be part of the sample. Listings due to mergers or demergers, list transfers, as well as financial firms are thereby excluded from the sample. Excluding non-pure IPOs will result in a loss of observations, but since pure IPOs and non-pure IPOs differ in characteristics, this exclusion will not have a negative impact of this study.

Since the dataset consists of cross-sectional data, no comparison between different time periods could be made, with exception for if the market was a hot issue market or not.

The use of buy-and-hold abnormal return as a measure of long-run performance limits the comparability with other studies in the field. Another factor influencing the comparability of this study is the holding period of three years when measuring buy-and-hold abnormal returns, since some studies are using different holding periods. A final factor which lowers the comparability with a number of other studies is the definition of family firm used in this study, since many of the other studies use different definitions.

1.5 Thesis Outline

Chapter 2 Literature and Theoretical Review: In this chapter, relevant theory and previous research will be presented and evaluated. The chapter starts with outlining general research on IPOs, followed by a deeper insight in long-run performance, and thereafter special characteristics for family firms will be distinguished. Finally, previous studies connecting family firms and long-run performance will be presented.

Chapter 3 Hypotheses: In chapter three, the tested hypotheses are presented and connected to relevant theory and previous research.

Chapter 4 Methodology: Chapter number four presents the methodology used for conducting this thesis. First, the theoretical method will be described including a discussion regarding the quality criteria of the research. Thereafter, the used variables are discussed. This is followed by an explanation of the data collection. The chapter ends with outlining the variables and regressions.

Chapter 5 Descriptive Statistics: In this chapter the sample is described. Characteristics of the firms in the sample, as well as differences between the two subsamples, family firms and non-family firms are outlined.

Chapter 6 Results: In chapter number six, the results from the conducted research will be presented in an objective manner, without any further discussion or analysis of the outcome.

Chapter 7 Analysis: In this chapter, the results stated in the previous section will be analyzed. First the BHAR for the sample as a whole will be analyzed and thereafter the hypotheses will be gone through, one by one. Furthermore, the results will be compared to previous research in order to find similarities and differences.

Chapter 8 Conclusion: In chapter number eight, conclusions will be drawn from the findings and the research question will be answered. Finally, suggestions for further research on the subject will be discussed.

2 Literature and Theoretical Review

In this section relevant theory and previous research will be presented and evaluated. First general research about IPOs will be outlined, followed by a deeper insight in long-run performance. Thereafter special characteristics for family firms will be distinguished. Finally, previous studies connecting family firms and long-run performance will be presented.

2.1 Reasons for Going Public

To go public is not something all firms do. There are plenty of large firms held private, for instance IKEA. There are several reasons for firms to go public. Pagano, Panetta and Zingales (1998) find that firms with high market-to-book ratios are more likely to go public, which they interpret as firms in industries with high growth, such as the biotech industry, are more likely to go public since the capital requirement in high growth industries is higher. Pagano, Panetta and Zingales (1998) also find evidence in accordance to the market timing hypothesis, that firms choose to go public because the market is hot and the possibility to raise capital is higher, and not due to any firm-specific reason, such as capital requirement. However, Brau and Fawcett (2006) find evidence of the opposite, that market timing is not a determinant of why firms choose to go public. Instead, they prove that firms choose to go public when the industry and the overall stock market performs well, and not the IPO market in particular.

Pagano, Panetta and Zingales (1998) and Bancel and Mittoo (2009) both find that financial flexibility and leverage are determinants for going public. When Pagano, Panetta and Zingales (1998) only find evidence of a straight financial nature, Bancel and Mittoo (2009) also find that firms choose to go public for reasons such as achieving better reputation and credibility. This view is also supported by Brau and Fawcett (2006).

Another reason for going public is, according to Celikyurt, Sevilir and Shivdasani (2010), to pursue an M&A. An IPO would help pursuing an M&A by either provide cash, or give the possibility to pay with traded stock. A view that Celikyurt, Sevilir and Shivdasani (2010), Pagano, Panetta and Zingales (1998), Bancel and Mittoo (2009), and Brau & Fawcett (2006)

all agree on is that the need of capital for supporting growth highly influence the choice of going public.

2.2 Efficient Market Hypothesis

Market efficiency is an important subject when studying anomalies on the stock market, since they are closely tied together. Market efficiency has been a subject for studies for a long time. Over a century ago, Bachelier (1900) studied the subject, but it was first when Fama (1970) developed the efficient market hypothesis the subject became common theory within finance.

According to the efficient market hypothesis, a market is efficient if the market price of a security, at any given time, fully reflects the information available to all investors. For a market to fully reflect all information, three conditions must be fulfilled. First, there should be no transaction costs on trading. Second, all available information should be available to all investors. Lastly, all should agree on the implications of current information and price, and distributions of future prices on the securities. When these criteria are fulfilled, a market is seen as efficient. (Fama, 1970)

Fama (1970) divides the market efficiency into three different levels, weak-form efficiency, semi-strong efficiency, and strong-form efficiency. In the weak-form, stock prices reflect all historical information, while under semi-strong efficiency prices are adjusted to all information that is publicly available. To obtain strong-form efficiency, the stock prices should reflect all existing information, not only the information available publicly, but also insider information. Therefore, under strong-form efficiency, generating abnormal return is impossible since all investors have access to the exact information. Under efficient market conditions, a stock can not generate return higher or lower than the expected return, hence not generate any abnormal return.

2.3 IPO Anomalies

Lots of research has been made regarding the performance of companies after they have gone public. The literature has distinguished three anomalies regarding IPOs where the assumption of efficient markets seems to not be in place.

The first phenomenon is *underpricing*. Underpricing occurs when a newly issued share, on the first day of trading, generates a return higher than the expected return. The level of underpricing is given by the first day's closing price, less the offered price. The difference is in practice a transfer of wealth from the issuing firm to the investor. The finding that IPOs generate positive initial returns was first shown by Ibbotson (1975), which found that the average initial return was 11.4 percent. Loughran, Ritter and Rydqvist (1994) summarized previous research on underpricing in more than 25 countries in order to show that it is a consistent phenomenon, which they proved it was. According to Ritter and Welch (2002) the most important explanations of underpricing are asymmetric information, agency conflicts and other behavioral reasons.

The second phenomenon is the *hot issue market* phenomenon. It has been shown that there exists hot and cold periods in the IPO market, and that the number of issues as well as the first day returns have been highly cyclical. Ibbotson and Jaffe (1975) and Ritter (1984) showed that the variation in the IPO market and that hot issue markets are characterized by a high volume of offerings, high levels of underpricing and oversubscription of offerings. Ritter (1991) provides an explanation for this and concludes that when the level of opportunism is high in the market, the price that investors are willing to pay for a stock in an IPO is higher. For a firm conducting an IPO, this means that it can receive more equity for the same percentage of ownership. This leads to a large stream of companies going public under these market conditions. Furthermore, Loughran, Ritter and Rydqvist (1994) find evidence that periods of high IPO volume coincide with stock market peaks.

The third phenomenon is *long-run underperformance*. Long-run underperformance occurs when newly issued stock creates returns lower than the expected return measured over a long period of time. This anomaly will be described more thoroughly in the next section.

2.4 Long-Run Underperformance

One of the most referenced sources regarding the long-run underperformance problem is the article by Ritter (1991). In that article it was found that IPOs tend to underperform the market in the long-run. 1526 IPOs on the US market during a period from 1975 to 1984 were studied. The result shows that the IPOs generated an average total return of 34.47 percent, while the benchmark of control firms, which shared the same characteristics in terms of industry and market value, generated an average return of 61.88 percent during the same period. The long-run timeframe in this case was set to three years. This article was the start to several other studies on the long-run performance phenomenon of IPOs.

Loughran and Ritter (1995), in the article *The New Issues Puzzle*, reported that US IPOs conducted between 1975 and 1992 showed an average stock performance of minus 30 percent compared to the market return, with a five year holding period. Ritter and Welch (2002) studied the US market from 1980 to 2000, with a sample size of 6169 observations. They found that there was a negative abnormal return of 23.4 percent in comparison to the market return when using a holding period of three years.

Loughran, Ritter and Rydqvist (1994) argue that long-run underperformance is a global phenomenon. Several studies have been made in different countries which supports the theory about long-run IPO underperformance. Jakobsen and Sorensen (2001) found that Denmark's IPOs underperformed by 30.4 percent between the years 1984 and 1992, with a buy-and-hold period of five years after the IPO. Brown (1995) showed that IPOs in the UK during a six year time period between 1990 and 1995, and with a holding period of three years, underperformed the market by 20.1 percent. Ljungqvist (1997) found that in the period between 1970 and 1993, German IPOs underperformed with 12.1 percent, using a holding period of three years.

However, the conclusion that long-run underperformance exists on the market has been criticized in a number of studies, and it has been shown that long-run underperformance is not always the case. Loughran, Ritter and Rydqvist (1994) found that Swedish IPOs between 1980 and 1990 outperformed the Swedish market by 1.2 percent. In agreement to this, Carter et al. (2011) found that IPOs did not underperform in the long-run, when risk adjusted and compared to a matching sample. Gompers and Lerner (2003) examined US IPOs from 1935

to 1972, with a five year holding period. With a total of 3661 listings, they found signs of long-run underperformance when using event-time buy-and-hold abnormal returns. However, these signs of underperformance disappear when instead cumulative abnormal returns are used.

Different approaches to the method of calculating the abnormal return can significantly influence the outcome of the research. This is studied by Barber and Lyon (1997), which conclude that the long-run performance is highly influenced by the way it is calculated. Ritter and Welch (2002) further argue that many of the IPO related phenomenon are closely dependent on what time period is examined. This makes the comparability between studies difficult. The different methods used for this kind of research are discussed more thoroughly in the methodology chapter (see 4.6.1 Dependent Variable: Buy-and-hold Abnormal Return).

2.4.1 Explaining Variables for Long-Run Underperformance

According to Ritter (1991) there are three possible explanations for the occurrence of long-run underperformance. The first explanation is risk mismeasurement, the second is bad luck, and the third is fads and overoptimism. The last two are, according to Ritter (1991), the ones with the greatest impact on underperformance. When discussing the long-run underperformance problem, both Ritter (1991) and Loughran and Ritter (1995), argue that investors may systematically be too optimistic about the prospects of the firms, which issue equity for the first time.

A theory that explains part of the long-run IPO underperformance is the phenomenon that companies choose to conduct an IPO when equity is highly valued. This is called *the window of opportunity*. Ritter (1991) and Loughran and Ritter (1994) show that such periods with high IPO activity, so called *hot issue markets*, tend to coincide with stock market peaks. In such a period, investors are overly optimistic and equity is highly valued, and these are factors that companies take advantage of. This in turn leads to a lot of “bad companies” issue stock, and are being valued higher than their fair value, and therefore allowed to raise more and cheaper equity than what would otherwise have been plausible. This means that companies conducting IPOs in periods of high volume of IPOs will have, on average, worse long-run performance. This is mostly noticed in younger firms with high growth. (Ritter, 1991)

Another explanation to the long-run underperformance phenomenon is the theory of market overreaction. This has been shown by De Bondt and Thaler (1985) and was further proven by Ritter (1991). The explanation of long-run underperformance in the market overreaction theory is that the long-run underperformance occurs as a reaction to the often high first day returns in new issues. The greater the first day return, the stronger the long-run underperformance. The correction has mostly been noticed for companies with low market capitalization.

Brav and Gompers (1997) suggest in their study that long-run underperformance should be discussed in terms of size and book-to-market values, rather than comparing newly issued shares to a benchmark. The argument for this is that they find that smaller sized listed companies with low book-to-market values, tend to perform almost the same as the market index, regardless if they are recently listed or not. Brav, Geczy and Gompers (2000) later also find the indication that companies with lower market capitalization perform worse, than their larger counterparties. In both these studies it is shown that size is positively correlated with the abnormal return and that the abnormal returns can be explained to a large extent by the underperformance of smaller size stocks. These smaller firms are often characterized by low market values and low book-to-market ratios.

2.5 Characteristics of Family Firms

Family firms differ from non-family firms regarding management, ownership structure and strategy. Due to these differences, family firms are assumed to perform differently from non-family firms and receive another perception in the market compared to non-family firms. (Lee, 2004)

2.5.1 Ownership Structure

For a typical listed firm the owners are separated from the control of the firm, and therefore managers rather than the shareholders make the business decisions. This leads to the thoroughly researched principal-agent problem, where the shareholders (principals) and the

managers (agents), act in different interests. Furthermore the ownership by diverse shareholders may create problems in monitoring the managers' performance. (Lee, 2004)

The most striking difference between family firms and non-family firms is that in family firms, the owners and the management are often closely tied together. The case is usually that the family members own a high stake in the company, and at the same time they are present in the top management. (Lee, 2004) This leads to a centralization of interests, which mitigates the principal-agent problem. The argument is built from the study by Jensen and Meckling (1976), which shows that higher ownership concentration leads to better alignment of interests and therefore lowered agency costs, according to the interest alignment theory. The explanation for the interest alignment theory is simply, that if the agent and principal share interests, they will work together towards the same goal and therefore there will be lower costs associated in terms of overseeing that the agent work in the best interest of the principal. Anderson and Reeb (2003) find in line with this theory that family firms outperformed non-family firms.

However, Ehrhardt and Nowak (2003), find that family firms with 25 to 50 percent ownership outperform with an abnormal return of 24 percent. With higher ownership levels than 50 percent, the abnormal return becomes lower as ownership increases. These findings are in line with the results that Morck, Shleifer and Vishny (1988) present in their study, that higher ownership increases the risk of management entrenchment. When managers are entrenched, they have a lot of power in form of both ownership and management, which makes it hard to control and oversee the managers so that they do not act opportunistic and in their own interest and exploiting the other shareholders. In their study they show that managers are entrenched when the voting stake is higher than 25 percent. They further argue that the negative effects of increasing the entrenchment is higher valued than what the positive effects of the alignment of interests is.

In closing, the question lies in which of the two agency problems minority shareholders are most exposed to, and in turn which of these are most damaging for firm value. If it is the interest alignment theory, where there is a conflict between small shareholders and large controlling shareholders, or if it is the entrenchment theory, where there is a conflict between small shareholders and the management.

2.5.2 Benefits of Family Ownership

As mentioned earlier, there are benefits with concentrated ownership due to decreased agency costs. Furthermore, founding families in general are a unique kind of investors in the sense that they are very interested in the survival of the firm, as they have invested a lot of their private wealth in the firm and are not a diversified owner. A founding family might also have an advantage over other investors in terms of monitoring, since their long term presence in the firm have given them valuable firm related knowledge. (Andres, 2008)

The long term presence of the family also makes the firm invest more efficiently, since family owners view the firm as an asset which they aim to pass on to future generations. The family owners base their investment decisions on long term profit maximizing rather than earnings only taken advantage of during one lifetime. (James, 1999)

Anderson, Mansi and Reeb (2003) show that family firms have lower cost of debt financing compared to non-family firms. The argument for this is that the family firm's long-run commitment suggest that bondholders sees founding family firms as a company structure that decrease conflicts between shareholders, and protects the bondholders' interests better.

2.5.3 Drawbacks of Family Ownership

As mentioned earlier there is a problem with concentrated ownership combined with management in the sense that the large owners instead of maximize value for every shareholder, act in their own private interest which is value damaging for the smaller shareholders.

McConaughy (1998) finds that a strong drawback for family firms is the problem that the competence in the family firm is closely tied to a small number of persons in the family, often the founder of the firm. This could cause problems when a founder is retiring and leaving the management to the next generation, its descendants. Morck, Shleifer and Vishny (1988) confirm this and mean that a family descendant that takes over the management is negatively correlated with firm performance. They also argue that the family rather keep and employ family members in key position, instead of hiring more suitable non-family persons for main positions.

Shleifer and Vishny (1997) argues that the performance of family firms gets worse with increasing firm age, since the founders of the family firm stay active in the firm when they are no longer competent. This phenomenon is also studied by Anderson and Reeb (2003), which state that the older the firm gets, the less of the knowledge is left in the company, and therefore leads to the firm's performance getting worse.

Another argument is the fact that because the family is undiversified and has invested a lot of their wealth in the company, they might choose investments with low risk. By doing this they miss out on opportunities that might be value creating for the firm. (Sraer & Thesmar, 2007)

2.5.4 Special Reasons for Going Public

Besides the general reasons outlined earlier for all firms, such as strategic reasons, acquiring capital and market timing (see 2.1 Reasons for Going Public), there are special motives for family firms to go public. One special motive for family firms to go public is presented by Zingales (1995) that argues that founders take firms public in order to eventually sell the firm, and thereby either taking a more passive role in the firm or leaving the firm to the market. In contradistinction to the view of Zingales (1995), Holmén and Högfeldt (2004) argue that the founding family keeps control over the firm for decades after the IPO.

Mazzola and Marchasio (2002) argue that there are particular difficulties for family firms to obtain growth in the firm. For example they outline the problem with limited capital available for private family firms, as well as the problem with weak competence in the next generation of the family. These problems put pressure on the family firm, and one solution to the problems is to go public. By going public the family firm gets access to more capital as well as larger possibility to hire outside competence for leading positions in the firm.

2.5.5 Family Firms and Performance

Long-run IPO performance for family firms is not a subject that has been researched thoroughly. Most of the studies that have been conducted, have had company performance for family firms in mind, regardless if they are newly listed or not. The results have varied

between the different studies, and one of the main reasons for this can be the difference in the definitions used.

Anderson and Reeb (2003) study the performance of family and non-family firms in the US. They find that families are present in one third of the firms in the S&P 500. Their study includes 403 companies and they analyze the companies with different market measurements such as return on assets and Tobin's Q. The study was conducted between 1993 and 1999. The authors are able to show that family firms perform better than non-family firms. They also find that the firm performs better when a family member is the CEO than if there is an outside CEO.

Villalonga and Amit (2006) study a sample of US firms that are included in the Fortune 500 during a period from 1994 to 2000. They find that overall, family firms perform better than non-family firms. By examining the impact of family ownership, control and management on firm value, they come up with that family ownership only creates value when it is combined with a certain form of control and management. They find that family management creates value when the founder serves as CEO or as chairman, and destroys value when descendants possess these positions.

Ehrhardt and Nowak (2003) study how a company is affected by different ownership structures. They study 105 IPOs of family firms from 1970 to 1990 in Germany. They conclude that in general, founding family owners continue to have corporate control even 10 years after the IPO. They also find that family firms generate negative abnormal returns of 8.1 percent compared to a size-matched benchmark portfolio. Furthermore they find some evidence for the nonlinear relation of the concentration of voting rights and the stock performance of a firm. High concentration of voting rights tends to be value destroying.

Jaskiewicz et al. (2005) studied the long-run stock performance of German and Spanish IPOs between 1990 and 2000. They found that using the buy-and-hold abnormal return, an investor got an abnormal return of negative 32.8 percent for German IPOs and negative 36.7 percent for Spanish IPOs. Since they want to compare these countries they use the S&P 500 index, together with the index for respective country, as well as a portfolio of matching firms, as benchmarks. Jaskiewicz et al. (2005) also found that non-family firms in both countries performed insignificantly better than family firms. They also tried to explain some of these

results and noted that there is a positive correlation between company size and performance. They also show that strong family involvement has a positive impact on the long-run IPO stock performance, while age of the firm has a negative impact.

3 Hypotheses

In this section the hypotheses that are going to be tested in this study are introduced and connected to relevant theory and previous research.

Based on theory and previous studies on long-run performance and the theories about family firms, the following section will go through the outlined hypotheses. Hypotheses one to five is general for all firms in the sample, while hypothesis six accounts for family firms only.

Hypothesis 1

As outlined in the theory chapter, family firms' IPO performance has been shown to underperform both compared to the market and to non-family firms. (Ehrhardt & Nowak, 2003; Jaskiewicz et al. 2005) From this evidence the following hypothesis is derived:

H₁: Family firms have weaker long-run IPO performance than non-family firms.

Hypothesis 2

Ritter (1991) and Loughran and Ritter (1994) find that companies take advantage of the window of opportunity, and issue stock in times when equity is higher valued. This in turn leads to a hot issue market, where the volume of IPOs is unusually high. IPOs in hot issue markets tend to show weaker long-run performance, than IPOs conducted during cold issue markets. Therefore the following hypothesis is concluded:

H₂: The long-run IPO performance is weaker for companies going public during "hot issue" periods.

Hypothesis 3

Connected to the literature about the phenomenon of market overreaction, where long-run underperformance is the correction of the underpricing, De Bondt and Thaler (1985) and Ritter (1991) has shown that the long-run correction is mostly prevalent among stocks with low market capitalization. The following hypothesis is therefore being tested:

H₃: The long-run IPO performance is weaker for IPOs with low market capitalization.

Hypothesis 4

Size has been shown important when explaining long-run underperformance. It has been shown that smaller firms have weaker long-run performance. (Brav & Gompers, 1997; Brav, Geczy & Gompers, 2000) This is extra relevant for this study, since family firms often are smaller in size than non-family firms. The following hypothesis is therefore being tested:

H₄: The long-run IPO performance is weaker for smaller firms.

Hypothesis 5

According to the literature, it is expected to be found that age of a family firm will be negatively correlated with performance, due to the fact that there are generation problems, with increasing family conflicts and loss of core knowledge as a consequence. (Shleifer & Vishny 1997; Anderson, Mansi & Reeb 2003) Therefore the following hypothesis is derived:

H₅: The long-run IPO performance of family firms is negatively affected by age to a higher degree than non-family firms.

Hypothesis 6

There are two conflicting theories regarding ownership concentration connected to performance of family firms. On one hand family firms with higher concentration of ownership is expected to have less underperformance than family firms with lower concentration of ownership, due to the interest alignment theory. (Jensen & Meckling, 1976) In contrast to this, the entrenchment theory says the opposite. (Morck, Shleifer & Vishny, 1988) Which one of these theories is dominating, is not really distinguished in the literature. However, Ehrhardt and Nowak (2003) show that the entrenchment theory is stronger than the interest alignment theory for family firms when the voting stake is over 50 percent. Thereby, the following hypothesis is tested:

H₆: The long-run IPO performance is weaker for family firms with high ownership concentration.

4 Methodology

In this section the methodology used for conducting this study is outlined. First, the theoretical method will be described including a discussion regarding the quality criteria of the research. Thereafter, the variables used are discussed. This is followed by an explanation of the data collection. This chapter ends with outlining the variables and regressions.

4.1 Theoretical Method

4.1.1 Research Design

In a deductive process, the authors formulate hypotheses based on existing theory. With the theoretical base and the hypotheses at hand, the authors collect data which is used to test the hypotheses. (Bryman & Bell, 2007)

This study takes the form of a deductive study since it aims to investigate long-run performance and answer hypotheses based on existing theory. Secondary quantitative data is collected in order to test the hypotheses.

4.1.2 Reliability

Reliability is the question of whether or not a study is possible to repeat. If a study contains a particular measure, such as the definition of family firm in this case, this measure should be constant over time. If the study is repeated in the future, it should provide the same results, since the same measure is used. (Bryman & Bell, 2007)

In this study, a particular definition of a family firm is used and there is a risk that the definition might change over time. As of today, there are plenty of definitions to choose from in order to conduct a study similar to this, and the outcome of a repeated study would depend on the definition used. Reliability issues would arise if there in a future point of time would

come a definite definition of family firm, that is different from the one used in this study. The definition of family firm thereby has an impact on the reliability.

Since the definition used in this study is presented for a potential person that aims to repeat this study, and since there is no definite definition of the concept at this point, the reliability is still high.

4.1.3 Replicability

The concept of replicability is similar to reliability; it measures the possibility for a study to be replicated. To make a study possible to replicate, the process in the study has to be outlined in detail, which would facilitate replication. (Bryman & Bell, 2007)

The methodology chapter in this study will provide a detailed explanation of how this study was conducted, and thereby make it possible to replicate. The sources used in this study is common sources in financial studies, which all are reliable sources and will facilitate a replication.

4.1.4 Validity

Validity has to do with whether or not a study measures what it was supposed to measure. There are four concepts of validity; measurement validity, internal validity, external validity, and ecological validity. The latter concept only refers to qualitative studies and is therefore not interesting in this case. Measurement validity is whether or not the study succeeds to measure what it was supposed to measure. Internal validity is the case if a study shows that one independent variable affect the dependent variable, the concern is whether or not any other variable is creating that relationship. The third concept, external validity, refers to the question whether or not the result of a study can be said to be general or if the result only is applicable on the particular research sample. (Bryman & Bell, 2007)

Both the hypotheses and the variables used to test the hypotheses are derived from relevant theory closely tied to the subject. The hypotheses and the variables are highly relevant in order to investigate long-run performance. Therefore, the validity of this study is assumed to be high.

4.1.5 Survivorship Bias

The requirements for being part of the sample are rather strict, but since there are theoretical reasons for excluding particular firms from the sample, these requirements would not lead to survivorship bias. In this study, only a few observations were excluded from the sample due to lack of data. Since only a low number of observations were excluded for this reason, the study does not suffer from survivorship bias.

4.2 Classification of IPOs

The long-run performance is measured for firms with IPOs between 1997 and 2011, a fifteen year period. The reasoning behind observing fifteen years is to be able to include the effect of different market conditions. In this case, measuring the effect of hot and cold markets is of great interest. In order to do so, the time frame must be large enough to include both market conditions.

The buy-and-hold abnormal return is measured over a three year holding period. This is in line with the holding period of Ritter (1991), Ehrardt and Nowak (2003), Jaskiewicz et al. (2005), which also uses three years as a holding period.

The research sample consists of Swedish IPOs conducted between 1997 and 2011 on Nasdaq OMX Stockholm. In Sweden, a distinction is made between firms listed on Nasdaq OMX Stockholm (the main market) and firms listed on other marketplaces such as Aktietorget and First North (alternative markets). Companies trading on alternative markets are not considered listed companies in a theoretical sense, even though they are bought and sold on a market.

The characteristics differ a lot between the firms on the main market and the firms on the alternative markets. One difference lies in the regulations between the main market and the alternative markets. The alternative markets are less regulated than the main market, and the requirement for being listed are lower on the alternative markets. The authors believe that leaving out these firms, the research will be more correct and yield more reliable results.

Another reason that these firms are not part of the sample is that some financial data and information about ownership structure is difficult to find. Moreover, firms on the alternative market places are often small and young high-tech firms with low or no revenues, and these are factors the authors believe might skew the results of the research.

Furthermore, only what the authors choose to call “pure IPOs” are part of the sample. An IPO is considered pure if it fulfills the following criteria:

- The listing is the firm’s first and only listing.
- The listing is not a list transfer from another market.
- The listing is not due to a merger/demerger, such as a carve-out or spin-off from an already listed firm.

The impact that non-pure IPOs would have had on the research is that for non-pure IPOs, the market already has valued the firms and it is already trading, either on a different market or in another shape. When the firm already is exposed to the market, theories regarding initial public offering and long-run underperformance can not be applied on the firm, and thereby the authors feel confident leaving these firms out of the sample. Pagano, Panetta, and Zingales (1998) shows differences in both characteristics and reasons for going public between pure IPOs and carve-out listings, which also supports the decision for leaving out these kinds of listings from the sample.

4.3 Classification of Family Firms

To define what actually specifies as a family firm is quite difficult. There are several definitions existing in the literature, which in turn makes comparisons between studies problematic. The lack of a definite definition has contributed to an uncertainty about previous studies on family firms, and the question arises whether all firm aspects have been taken into account or not.

Dyer (2006) argues that an explanation to the many mixed conclusions drawn about family performance in past research is due to the many different ways to define a family firm. Some studies use a subjective definition which let the firm itself classify whether it is a family firm

or not. Others use objective criteria for the classification, but these often differ between studies and therefore lead to differences. One study can define a firm as a family firm while another study could define the same firm as a non-family firm.

Andres (2008) defines a family firm as a firm where the founder and/or family member hold more than 25 percent of the voting shares, or if the founding family holds less than 25 percent of the voting shares, they are required to be represented either on the executive or the supervisory board. Andres (2008) also mentions that if there are several founders, these are treated as one family, since they are assumed to act coordinated and in most occasions vote together.

Other studies use less restrictive definitions. Anderson and Reeb (2003), Villalonga and Amit (2006), and Gonzalez et al. (2013) require a family to hold a stake larger than zero percent, to be defined as a family firm, as long as the family is the largest shareholder. Sraer and Thesmar (2007) and La Porta et al. (1999) on the other hand, uses a definition of family firms where they require the family to hold more than 20 percent of the voting shares.

In order to bring clarity to the subject and to arrive at a definite definition for family firms, the European Commission put in a group of experts who went through more than 90 different definitions of family firms in an attempt to create a framework that defines a family firm. This definition was finalized in 2009, and the suggestion they came up with is as follows:

“A firm, of any size, is a family business, if:

(1) The majority of decision-making rights is in the possession of the natural person(s) who established the firm, or in the possession of the natural person(s) who has/have acquired the share capital of the firm, or in the possession of their spouses, parents, child or children’s direct heirs.

(2) The majority of decision-making rights are indirect or direct.

(3) At least one representative of the family or kin is formally involved in the governance of the firm.

(4) Listed companies meet the definition of family enterprise if the person who established or acquired the firm (share capital) or their families or descendants possess 25 per cent”

(European Commission, 2009)

The definition used in this study follows the definition from the European Commission. In line with that definition, the family firm definition used in this thesis includes two aspects. Firstly, the family that founded or acquired the firm has to hold more than 25 percent of the voting shares in the firm. If the firm has multiple founders, which are not related, they are still considered a family. Secondly, the family is required to be represented on either the executive or supervisory board. If the firm fulfills these two requirements, it is considered a family firm. This rather strict definition is used since the purpose is to include active family owners that actually are involved in the ongoing business.

4.4 Data Collection

4.4.1 Sample of Firms

In order to collect the sample of firms conducting their IPO within the timeframe 1997 to 2011, the two databases Zephyr and Thomson Reuters Datastream (Datastream) were used. Two sources were used to collect the observations, due to the fact that one source alone could not provide a sufficient sample. By using multiple sources, the risk of losing valuable observations was mitigated. The two datasets were cross-checked and firms appearing twice were removed from the sample.

Neither Zephyr, nor Datastream made a distinction between IPOs on the main market, which were the IPOs of interest, and listings on alternative markets. In order to determine if it was an IPO of interest for this study, the web page of the Swedish tax authority (Skatteverket) was used in order to determine where the listings were made. Listings on a market other than Nasdaq OMX Stockholm, and its predecessor Stockholmsbörsen, were removed from the sample. The web page of the Swedish tax authority was also used in order to determine

whether the IPOs were pure, i.e. not a secondary listing, not a list transfer, and not a listing due to a merger or demerger. Listings due to these reasons were removed from the sample.

With this dataset at hand, Nasdaq OMX Nordic's web page was used to determine which industry the firms in the sample belonged to. All firms in the financial industry, such as banks and other financial firms were removed from the sample. The reasoning behind removing financial firms in a study like this is that financial firms might invest in other firms trading on the stock market, and are thereby affected by the performance of other firms. Such relationship is not preferable for the outcome of this study.

Some firms were delisted during the three years following the IPO. These firms were kept in the sample, and the closing price for the last day of trading was used throughout the observation period. Keeping these firms in the sample help mitigate the problem of survivorship bias.

Lastly, a handful of observations were removed from the sample due to lack of financial data, such as stock price. After sorting the sample and deleting observations that did not fulfill the criteria, the final sample consisted of 100 firms.

4.4.2 Collecting Variable Data

The next step in the process was to classify the firms either as a family firm or a non-family firm. Information about the firm's ownership structure was collected in the year-end of the year when the firm conducted its IPO. In order to make this classification, the book *Owners and Power in Sweden's Listed Companies* is used. This book provides a presentation of Swedish listed firms with detailed information about the largest shareholders of the firms. To determine if a firm is a family firm or not could sometimes be problematic since it is not always clear who is included in a particular family. Nevertheless, since the book also provides information on different family constellations and family pyramids, this problem was mitigated.

The book provides information on the firms' CEO and Chairman, and sometimes this was enough to determine whether the family was represented on the executive and/or supervisory board. In some cases, further insight was needed in this question and then the firm's annual

report was used. With the book, annual reports, and the definition of a family firm at hand, the firms in the sample were classified as either a family firm or a non-family firm.

Owners and Power in Sweden's Listed Companies did not cover all years in the sample. For the eight IPOs from 2010 and 2011 not covered by the books, an alternative source was used. In order to collect this information, the firms' annual reports were used as a supplementary source. Using different sources in this case would not lead to biased results since the data in the books and the data in the annual reports are based on the same data at the same point of time, i.e. year-end the year the firm was listed.

Financial data, such as stock price, market value, and revenue, was obtained from Datastream. In a few cases, information about revenue was not possible to obtain from Datastream, and then the firms' annual reports were used as a source. Information about the firms' age at the listing was found either in the firms' annual reports, or from their respective web pages.

4.5 OLS Regression

In order to test what affects the long-run performance, i.e. the dependent variable BHAR, an *Ordinary Least Squares* (OLS) regression is used. The OLS regression explains the relationship between the dependent variable and independent variables. There are requirements that have to be fulfilled in order to conduct an OLS regression. To be able to use OLS in this study, *homoscedasticity*, *multicollinearity*, and *non-linearity* have to be considered. (Brooks, 2008)

4.5.1 Homoscedasticity

The first requirement to consider is homoscedasticity. If the errors in a regression are constant, they are said to be homoscedastic. Otherwise they are heteroscedastic. Using OLS without correcting for eventual heteroscedasticity would lead to wrong standard errors and wrong inference. (Brooks, 2008)

In this study, a White's test is used in order to detect heteroscedasticity. The test is conducted on different formations of the variables in order to ensure that there is no heteroscedasticity. The White's test showed that there was no problem with heteroscedasticity in the dataset.

4.5.2 Multicollinearity

Multicollinearity occurs when two or more of the independent variables are correlated to each other and thereby explain each other rather than explaining the dependent variable. Small correlations between the independent variables are usually found, and problems with multicollinearity only occur if the correlation is too large. As a rule of thumb, it is said that a correlation below 0.8 is reasonable to have and would not cause problems. A high correlation between two independent variables would yield high R-squared, but the variables would have high standard errors, and since the independent variables are correlated to each other, it would be difficult to observe what the variables alone can explain. (Brooks, 2008)

The test for multicollinearity showed that there were no problems with multicollinearity in the dataset, since no variables showed correlation over 0.8.

4.5.3 Non-normality

The last requirement for OLS, tested for in this study is the assumption that the disturbances are normally distributed. A perfect normal distribution has zero skewness and a kurtosis of three. Non-normality is not always a problem. If the sample is large enough, non-normality does not cause problems. To test if the disturbances are normally distributed, a Jarque Bera test could be used. (Brooks, 2008)

In this study, the Jarque Bera test showed non-normality in both the dependent and all the independent variables. For the dependent variables that are measured as dummy variables, non-normality is not considered an issue. To detect what caused the non-normality, histograms were used which showed that there were a few extreme values (outliers) in the sample causing the non-normality in the variables.

The variables *Age*, *Size*, and the dependent variable *BHAR*, showed sign of non-normality. There are several techniques for correcting for non-normality. For the variable *Age*, using the

natural logarithm of the variable was enough to correct for non-normality. The natural logarithm for *Size* made the distribution closer to normal, but it was still skewed. Brooks (2008) argues that for large samples, a violation of the non-normality assumption would not cause any major problems for the regression. Therefore, the natural logarithm of *Size* is used as a variable even though the variable is not normally distributed.

A histogram of the dependent variable *BHAR* showed that the variable contained a few extremely high values with the largest observation of 850 percent. Since *BHAR* is what this study aims to explain, this variable is of great importance. With extreme values like these, the whole study bears the risk of providing skewed results.

One way to handle the outliers in *BHAR* is to simply remove them from the sample. By doing so, the observations in the variable would be normally distributed, but at the same time, valuable information would get lost. Another method is winsorizing. By winsorizing, the extreme value instead takes the value of the closest non-extreme value. The outliers are adjusted, but they still represent a high (low) observation, but without being extreme and cause skewness to the sample.

By adjusting the dependent variable *BHAR* using winsorizing, the average *BHAR* for the population changed from positive 7.47 percent to negative 8.37 percent. This shows that the outliers in the dependent variable had large impact on the outcome. The initial unadjusted *BHAR* shows that the firms in the sample, on average outperform the market. The adjusted *BHAR*, on the other hand, shows that the firms in the sample underperformed the market.

Since the outliers affect the independent variable to such a high extent, the authors have reason to believe that the outliers depart from what should be considered a normal *BHAR*, and see it as inappropriate to include the outliers in the sample. Therefore, the adjusted *BHAR* where the outliers are winsorized, will be presented as the actual *BHAR* from now on.

4.6 Variables

4.6.1 Dependent Variable: Buy-and-hold Abnormal Return

This study aims to investigate the long-run abnormal return for newly listed firms. There are multiple ways to measure stock performance, and the two most common techniques are *Buy-and-hold abnormal return* (BHAR) and *Cumulative abnormal return* (CAR). Barber and Lyon (1997) study the two techniques and find that there is a difference between the two techniques and the fact is that they yield slightly different results in the calculation of abnormal returns. CAR usually yields a higher abnormal return than BHAR when the techniques are used on the same sample.

BHAR calculates the abnormal return as if it was an actual investor buying and holding the security for a given time period, the return is then realized. The realized return is then compared to a particular benchmark, e.g. an index, and the abnormal return is obtained. CAR on the other hand, is calculated by summarizing multiple returns.

Barber and Lyon (1997) prove that BHAR is the most appropriate measure of abnormal returns when investigating long-run stock performance. Ritter (1991) among others use this technique for measuring long-run performance. In this study, the buy-and-hold abnormal return (BHAR) therefore will be used as a measure of the long-run stock performance of the observations in the sample.

The buy-and-hold abnormal return is given by taking the buy-and-hold return for the stock less the buy-and-hold return for the given benchmark. The following formula gives the buy-and-hold return (BHR), where P_0 is the price of the stock or benchmark at the first day of trading, and P_1 is the price after three years:

$$BHR = \frac{(P_1 - P_0)}{P_0}$$

The adjusted closing price is used for the stock, both on the first day and for the price after three years. The reasoning behind using adjusted closing price rather than the actual price, is that the adjusted closing price is adjusted for factors that have influence on the stock price,

such as stock split and dividends. These factors change the stock price without a change in the actual market capitalization, and to be able to compare stock performance over time, the adjusted closing price has to be used.

The buy-and-hold abnormal return is given by the following formula, where BHR_{Stock} is the actual return of the stock, and $BHR_{\text{Benchmark}}$ is the return of the benchmark. The BHR of the stock less the BHR of the benchmark gives the buy-and-hold abnormal return, BHAR.

$$BHAR = BHR_{\text{Stock}} - BHR_{\text{Benchmark}}$$

A positive BHAR value is interpreted as the stock outperformed the benchmark during the given period of time, i.e. the stock generated a return larger than the benchmark. A negative BHAR tells that the stock underperformed the benchmark. All shares in the sample are considered equally weighted in this study and thereby no distinction is made due to firm value. To arrive at a BHAR value for the whole sample, the average of the stocks' BHAR is taken.

Benchmark

Barber and Lyon (1997) argue that using an index as a benchmark when measuring BHAR will lead to negatively biased buy-and-hold abnormal returns. Instead matching firms would provide a more accurate result. Using matching firms on OMX Stockholm is problematic since it is a small market with few firms in comparison to larger foreign markets, where finding matching firms would not be considered a problem. For that reason, using an index would still be considered a good benchmark when calculating BHAR on firms listed on Nasdaq OMX Stockholm.

Using an all-share index over an index representing only the largest listed firms, such as OMX Stockholm 30 index, is preferable since an all-share index includes all firms on the market, regardless of firm size. Since the sample in this study contains firms of all different sizes, an all-share index is more similar to the sample. (Sapusek, 2000) Therefore, the OMX Stockholm all-share index is used as a benchmark in this study.

4.6.2 Independent Variables

Market timing

Market timing is divided into two groups; *hot issue markets* and *cold issue markets*. A year is a hot issue market if the number of IPOs during that year is higher than the average number of IPOs per year in the sample as a whole. A year is a cold issue market if the number of IPOs is lower than the average for the whole sample. Market timing is tested using a dummy variable. An observation is given a dummy of 1 if it was listed during a hot issue market, and 0 otherwise.

Market overreaction

Long-run underperformance is to some extent the correction of the initial underpricing. This phenomenon is mostly noticed in firms with low market capitalization. Therefore, market value on the firms' first trading day is used as an approximation to measure for long-run correction. A dummy variable is used to make a distinction between small and large firms. Small firms are those that have a market value in the lowest third of the sample. Those firms are given a dummy of 1. The firms with market values above the lowest third are given a 0. This approximation is in line with how Jaskiewicz et al. (2005) treat market overreaction.

Size

To measure size of the firm, the sales in the year-end the firm was listed is used. Due to non-normality, the natural logarithm of sales is used. Since a few firms have sales of zero, 1 is added to the sales in order to use the natural logarithm. The size variable takes the form: $\ln(1 + \text{Sales})$

Age

Age is defined as the number of years between the founding year of the firm and the year of the firm's IPO. The natural logarithm of age is used as a variable. In order to take the natural logarithm of age, 1 has to be added to the age since some of the observations have the value of zero. This is also in line with how Ritter (1991) treats the age variable. The age variable therefore takes the following form: $\ln(1 + \text{Age})$

Family firm

Family firm is measured using a dummy variable. Family firms are given a dummy of 1, and non-family firms a dummy of 0. For further definition of family firms, see 4.3 Classification of Family Firms.

Ownership

The ownership variable measures how strong a firm's family ownership is, i.e. how much voting power the family owner has. This variable measures voting power for family firms only. Ownership is measured using a dummy variable where families with voting power of 50 percent or more are given a dummy of 1, and 0 otherwise.

4.7 Regressions

Five regressions are used in this study. The first three regressions test only the subsample family firms. Regression number four and five test the sample as a whole, where both family firms and non-family firms are included.

1. The first regression tests all independent on the dependent variable *BHAR*. This regression includes only the subsample family firms.

$$BHAR_{FF} = \beta_0 + \beta_1(\text{Market timing}) + \beta_2(\text{Market value}) + \beta_3(\text{Size}) \\ + \beta_4(\text{Age}) + \beta_5(\text{Ownership}) + \varepsilon$$

2. The second regression is similar to the first one, but the variable *Ownership* is excluded in order to make the comparability better with regression four and five, that does not include the *Ownership* variable.

$$BHAR_{FF} = \beta_0 + \beta_1(\text{Market timing}) + \beta_2(\text{Market value}) + \beta_3(\text{Size}) + \beta_4(\text{Age}) + \varepsilon$$

3. In regression number three, only the significant variable *Market value* from regression one is included.

$$BHAR_{FF} = \beta_0 + \beta_1(\text{Market value}) + \varepsilon$$

4. Regression number four tests all variables except *Ownership*. The variables are tested for all firms in the sample, both family firms and non-family firms.

$$\begin{aligned} BHAR_{Tot} = & \beta_0 + \beta_1(\text{Market timing}) + \beta_2(\text{Market value}) + \beta_3(\text{Size}) + \beta_4(\text{Age}) \\ & + \beta_5(\text{Family Firm}) + \beta_6(\text{Family Firm} * \text{Market timing}) \\ & + \beta_7(\text{Family Firm} * \text{Market value}) \\ & + \beta_8(\text{Family Firm} * \text{Size}) + \beta_9(\text{Family Firm} * \text{Age}) + \varepsilon \end{aligned}$$

5. The fifth regression tests only the significant variable from regression number four, both for family firms and non-family firms.

$$\begin{aligned} BHAR_{Tot} = & \beta_0 + \beta_1(\text{Market value}) + \beta_2(\text{Family Firm}) \\ & + \beta_3(\text{Family Firm} * \text{Market value}) + \varepsilon \end{aligned}$$

5 Descriptive Statistics

In this section, descriptive statistics will be presented in order to provide a picture of the firms in the sample. The characteristics of the firms in the sample, as well as differences between the two subsamples, family firms and non-family firms are outlined.

Table 5.1 IPOs per year by subsample

Year	Family firm	Non-family firm	Total sample
1997	9	10	19
1998	7	3	10
1999	13	7	20
2000	4	10	14
2001	1	6	7
2002	0	3	3
2003	0	0	0
2004	1	1	2
2005	1	4	5
2006	1	5	6
2007	1	4	5
2008	1	0	1
2009	0	0	0
2010	0	3	3
2011	0	5	5
Total	39	61	100

Table 5.1 shows that the highest IPO activity is in the early years of the sample period. This shows support for the theory by Ritter (1991) about hot issue markets and that the IPO activity is cyclical. The average number of IPOs per year is 6.67, which shows that the years from 1997 to 2001 were hot issue markets. The trend eventually turned down and a cold issue market started in 2002, with only three IPOs that year. The cold issue market lasted throughout the whole sample period. It can be seen that in 2010, after the financial crisis, the total number of IPOs accelerates, from zero IPOs in 2009 to three in 2010 and five in 2011, but it is still considered a cold issue market since the number of IPOs are less than the average.

Out of the total number of IPOs in the sample, 39 percent of the firms were categorized as family firms. In the four years between 1997 and 2000, a total of 33 family firms were listed, which represent almost the entire number of family firm IPOs in the sample. The years after 2000, only six family firms were listed. A similar trend could be seen among the non-family firms, where a large amount of the listings are made in the first years of the sample period.

Table 5.2 Number of family firms with strong ownership

Family firm	Strong ownership
39	53.85%

In table 5.2 it is shown that out of the total number of the 39 family firms in the sample, 53.85 percent, or 21 firms, are considered having a strong family ownership. A family is considered having a strong ownership if they have a voting power of 50 percent or more. This shows that a large amount of the family firms going public choose to keep a substantial amount of the voting rights within the family firm.

Table 5.3 Market value statistics

Market value (MSEK)	Family firm	Non-family firm	Total sample
Mean	988.89	6747.43	4501.60
Median	455.34	1158.91	775.17
Min	85.32	181.02	85.32
Max	8400.42	265606.00	265606.00
Std.	1486.18	33991.55	26628.45

Table 5.3 shows a description of the market value of the firms in the sample, as well as the difference in market value between family firms and non-family firms. The non-family firms are the ones with the highest market values. The non-family firm mean market value is almost seven times larger. There is a wide spread between the market values in the sample as a whole, reaching from a smallest notation of SEK 85.32 million to the largest market value of SEK 265,606 million.

Table 5.4 Sales statistics

Sales (MSEK)	Family firm	Non-family firm	Total sample
Mean	975.36	2326.44	1799.52
Median	340.29	611.00	461.93
Min	28.03	0	0
Max	8248.00	54064.00	54064.00
Std.	1624.41	7179.51	5717.62

When it comes to sales, the non-family firms once again show higher figures than the family firms, as seen in table 5.4. The mean sales figure for non-family firms is more than double the size of the family firm mean. The sales figures in the sample vary from zero to as high as SEK 54,064 million.

Jaskiewicz et al. (2005) show similar results when comparing market value and sales between family firms and non-family firms. The family firms' mean market value is much lower than the mean for non-family firms. The same accounts for sales.

Table 5.5 Age statistics

Age	Family firm	Non-family firm	Total sample
Mean	21.85	29.26	26.37
Median	14	11	13
Min	3	0	0
Max	108	198	198
Std.	22.82	41.43	35.40

As can be seen in the table 5.5, the mean age at IPO is 21.85 years for family firms, which is lower than the age for non-family firms with a mean of 29.26 years. The youngest firm was zero years old at the date of the IPO, whereas the oldest was 198 years old, showing that there is a wide spread in age between the firms in the sample. The reason why a company can be zero years old at the date of the IPO is because a demerger from a non-listed company was conducted right before the IPO.

6 Results

In this section the results from the conducted research will be presented. The findings will be presented in an objective manner without any further discussion or analysis of the outcome.

Table 6.1 Buy-and-hold abnormal returns 3 years after IPO

BHAR	Family firm	Non-family firm	Total sample
Mean	-7.18%	-9.14%	-8.37%
Median	-22.18%	-17.90%	-18.73%
Std.	93.54%	64.75%	76.81%

Table 6.1 shows the mean and median BHAR for family firms, non-family firms, and for the sample as a whole. The mean BHAR for the sample is -8.37 percent which means that the firms in the sample, on average, underperform the benchmark in the long-run. IPO long-run performance has thereby been shown on Swedish IPOs on Nasdaq OMX Stockholm between 1997 and 2011.

On average the family firms in the sample, with a mean BHAR of -7.18 percent, tend to perform better than the non-family firms with a mean BHAR of -9.14 percent. For both family firms and non-family firms the median BHAR is a lot higher than the corresponding mean. This displays that there are high BHAR values raising the mean to a higher level than the median.

Table 6.2 Wilcoxon signed rank-sum test

Method	Value	Probability
Wilcoxon/Mann-Whitney	0.593625	0.5528

Variable	Count	Median	> Overall Median	Mean Rank
BHAR Family firms	39	-0.221845	19	48.33333
BHAR Non-family firms	61	-0.179016	31	51.88525
Total	100	-0.187271	50	50.50000

As seen in table 6.1 there is a difference in long-run performance between family firms and non-family firms. However, table 6.2 shows that this difference is not statistically significant.

Therefore, no general conclusions about the difference in long-run performance between the two groups can be drawn from the empirical results in this study, more than that there is a difference in this particular sample.

Table 6.3 Regression results

Variable	Family firm			Total sample	
	1	2	3	4	5
Constant	-0.038246 (1.987056)	0.080226 (1.968877)	0.290133 (0.200983)	-0.527724 (0.550231)	-0.103749 (0.107768)
Market timing	-0.427613 (0.478655)	-0.360252 (0.467599)		-0.058412 (0.215362)	
Market value	-0.641623* (0.336741)	-0.605826* (0.331430)	-0.705803** (0.280658)	0.114474 (0.253765)	0.058123 (0.233445)
Size	0.031891 (0.151555)	0.022302 (0.150110)		0.014849 (0.042051)	
Age	0.046063 (0.223457)	0.065804 (0.220602)		0.094923 (0.088579)	
Ownership	0.236268 (0.308948)				
Family firm				0.607950 (1.742260)	0.393881* (0.202372)
Family firm*Market timing				-0.301840 (0.447791)	
Family firm*Market value				-0.720300* (0.376606)	-0.763926** (0.334231)
Family firm*Size				0.007453 (0.132864)	
Family firm*Age				-0.029119 (0.205311)	
R-squared	0.183165	0.168688	0.145976	0.116986	0.083840
F-statistic	1.479963	1.724803	6.324290**	1.324843	2.928393**

***, **, * statistical significance at 1, 5, and 10 percent, respectively.

Std. Errors is shown within brackets below each coefficient.

See appendix A for the regressions in more detail.

There are five regression outputs in table 6.4. The first three regression outputs show only the subsample family firms. Regression four and five show regression outputs for the sample as a whole. The last four variables in regression four and five are the interaction terms that are used to distinguish any differences between family firms and non-family firms, where the interaction terms represent the family firms. For example; *Market timing* enters regression number four as a negative coefficient both for the *Market timing* variable and for the interaction term (*Family firm*Market timing*). This states that the dependent variable is

negatively affected by market timing, both for family firms and non-family firms, and that there are no differences between the two groups in that sense.

The first regression includes all variables and is tested for family firms only. In this regression, *Market value* is significant at the ten percent level and shows that firms with low market values perform worse in the long-run compared to firms with high market values.

The next regression is similar to the first one, but the *Ownership* variable is excluded in order to make this regression comparable to regression number four that includes the same variables but is tested for all firms in the sample. Once again, *Market value* is the only significant variable in the regression.

In the third regression, only the significant variable *Market value* is tested. When testing market value only, the significance level is five percent.

Regression number four includes all variables except *Ownership* and all firms in the sample are tested. The reason the *Ownership* variable is excluded is because that variable only measures the voting power in family firms, and are thereby not observed for non-family firms. The only significant variable is, once again, *Market value* for family firms only, at a ten percent level.

The last regression, just as regression number four, includes only the significant variable *Market value*. Market value is significant at a five percent level in this regression. Also the *Family firm* variable is significant in this regression. The reason family firm is significant is because only market value is tested and that market value for family firms is significant.

The R-squared measures how much the independent variables together explain the dependent variable *BHAR*. The R-squared values are overall low, reaching from 8.82 percent to 18.32 percent. Other studies on long-run performance show R-squared values in line with this. Ritter (1991) has an adjusted R-squared of seven percent, and Jaskiewicz et al. (2005) show an R-squared between ten and 16.3 percent on the different regressions.

7 Analysis

In this section the results stated in the previous section will be analyzed. First the BHAR for the sample as a whole will be analyzed and thereafter the hypotheses will be gone through, one by one. Furthermore, the results will be compared to previous research in order to find similarities and differences.

The overall performance shows a negative mean buy-and-hold abnormal return of 8.37 percent. The fact that the performance is negative is in line with the theory of long-run underperformance which has been proved in the following studies; Ritter (1991), Loughran and Ritter (1995), Brown (1995), Ljungqvist (1997), Jakobsen and Sorensen (2001), Ritter and Welch (2002), and Jaskiewicz et al. (2005), that found similar results on their respective markets.

The first hypothesis aims to investigate if there is a difference in the buy-and-hold abnormal return between the two subsamples, family firms and non-family firms. The hypothesis was formulated as follows:

H₁: Family firms have weaker long-run IPO performance than non-family firms.

By simply looking at the mean buy-and-hold abnormal return for the sample, the family firms show less underperformance than the non-family firms. With a negative mean BHAR of 7.18 percent for the family firms, they show better performance in the long-run after conducting an IPO in comparison to their counterparty non-family firms, which has a negative mean BHAR of 9.14 percent. This result is opposite to the hypothesis, derived from the findings of Ehrhardt and Nowak (2003) and Jaskiewicz et al. (2005). These findings state that family firms should perform worse than non-family firms in the long-run.

However, since the theory is divided into two different views of long-run performance for family firms, the findings could still, to some extent, be explained by the results found by Anderson and Reeb (2003) and Villalonga and Amit (2006), although they studied already

listed firms. Their results showed that family firms performed better than non-family firms in the long-run.

As seen in the Wilcoxon test in table 6.2, the difference in buy-and-hold abnormal return between the two groups is not statistically significant. With insignificant findings, general conclusions can not be drawn from the findings, but it is possible to see a trend that shows the opposite from the hypothesis.

The second hypothesis tests if IPOs conducted in a hot issue market have weaker performance than firms that issue stock during years with less IPO activity. The hypothesis was stated as follows:

H₂: The long-run IPO performance is weaker for companies going public during “hot issue” periods.

According to the results, the relationship between market timing and buy-and-hold abnormal return is insignificant. The result, even though it is insignificant, shows signs of being in line with the theory by Ritter (1991) and Loughran and Ritter (1994). The theory states that firms which choose to go public in a hot issue market, where equity is highly valued and investors overly optimistic, tend to underperform firms having their IPO in a cold issue market. But since the result is insignificant, the conclusion can not be drawn that market timing should be a determinant for buy-and-hold abnormal return. For both family firms and non-family firms, the coefficient is negative, saying that the trend is in the same direction for both groups, even though the coefficient is insignificant.

The third hypothesis aims to test if the long-run performance is weaker for firms with low market capitalization. Low market capitalization is used as an approximation for long-run correction of underpricing.

H₃: The long-run IPO performance is weaker for IPOs with low market capitalization.

De Bondt and Thaler (1985) and Ritter (1991) prove that the long-run correction, i.e. the long-run underperformance, is mostly prevalent among firms with low market capitalization. The results in this study show significant evidence of the presence of long-run correction, which

confirms the theory. The result is significant for family firms only, and shows that small family firms, measured in terms of market capitalization, tend to perform worse than those family firms with higher market capitalization. Non-family firms show a trend in the opposite direction, that firms with lower market value should provide a better buy-and-hold return for the investor, this result is on the other hand insignificant.

The fourth hypothesis investigates the relationship between firm size and long-run performance and states that small firms should have weaker long-run performance. The hypothesis is as follows:

H₄: The long-run IPO performance is weaker for smaller firms.

The results show an insignificantly positive relationship between size and the performance measure, buy-and-hold abnormal return, meaning that smaller firms tend to perform worse than their larger counterparties. This result is in line with Brav and Gompers (1997) and Brav, Geczy and Gompers (2000) that find evidence of the same nature. Both family and non-family firms show a positive coefficient, which shows that there is no difference between the two groups in terms of the importance of the size variable. Since there is no significance in the results, no general conclusions can be drawn about the size variable's impact on the buy-and-hold abnormal return.

The fifth hypothesis aims to test the impact of age on buy-and-hold abnormal return. The hypothesis is that family firms are more negatively affected by the age of the firm than non-family firms are. The hypothesis is as follows:

H₅: The long-run IPO performance of family firms is negatively affected by age to a higher degree than non-family firms.

The results in this case are highly insignificant, and thereby no conclusions could be drawn about this hypothesis. Shleifer and Vishny (1997) and Anderson, Mansi and Reeb (2003) show that old family firms perform worse than younger family firms. The reasoning behind this is that old family firms have generation problems where the firm loses core knowledge, and the fact that there is a possibility of increasing family conflicts. Such a relationship could not be shown in this study.

The sixth hypothesis applies only for family firms, since it investigates the relationship between family control and long-run performance. This hypothesis aims to test if the entrenchment theory is stronger than the interest alignment theory for family firms when the voting stake is over 50 percent. The hypothesis is as follows below:

H₆: The long-run IPO performance is weaker for family firms with high ownership concentration.

The results from this test are insignificant which makes further conclusions difficult to draw. Even though the coefficient is insignificant in this regression, it gives an indication of support for the opposite to the hypothesis, i.e. the interest alignment theory. That would mean that a larger ownership would have positive impact on the family firm performance.

8 Conclusion

In this section conclusions will be drawn from the findings and the research question will be answered. Finally, suggestions for further research on the subject will be discussed.

The aim of this study is to test the long-run IPO performance of Swedish family firms listed on Nasdaq OMX Stockholm, and make a comparison to their non-family firm counterparties. The long-run performance is measured as a three year buy-and-hold period, where the stock return is compared to the buy-and-hold return during the same time period for Nasdaq OMX Stockholm index. Furthermore, this thesis aims to investigate the determinants for long-run IPO performance, as well as study if the different characteristics between family firms and non-family firms lead to a difference in the long-run performance between the two groups.

The results from measuring buy-and-hold abnormal returns shows that, on average, the firms conducting its IPO on Nasdaq OMX Stockholm between 1997 and 2011 did underperform the benchmark and thereby performed worse than the OMX Stockholm index on a three year horizon. This is important evidence to consider, both for investors and the issuing firms, since new issues tend to underperform the market in the long-run. From an investors point of view it would be reasonable to consider whether an IPO is a good investment if the investment horizon has a similar length as the holding period of three years as used in this study. In comparison to investing in newly issued stock, a more profitable investment strategy would be to invest in the OMX Stockholm index, as has been shown in this study.

The research question that this study aims to answer is outlined as follows:

How does long-run IPO performance differ between Swedish family firms compared to non-family firms?

When testing whether the two groups, family firms and non-family firms performed differently in the long-run, no statistically significant results could be found, even though the family firms in this study performed slightly better than the non-family firms. Therefore, no

conclusions can be drawn whether being a family firm or not would impact the long-run performance post IPO, when only taking the family firm variable into account.

What has been shown to be a significant determinant for long-run IPO performance is that family firms with low market capitalization, measured on the first trading day, do perform worse than firms with larger market capitalization. Market capitalization is, as said, used as an approximation for the long-run correction of underpricing, in accordance with the evidence that small firms tend to be more corrected for underpricing through long-run underperformance. The findings shows that, for family firms, a correction of the underpricing exists and that underpricing and a high first day return will lead to a poor performance in the long-run post the IPO. Even though this accounts for family firms only, it is an important piece of evidence that should be considered both by investors and the firms issuing underpriced stock, since both the investor and the issuing firm should expect a poor performance the upcoming years.

The study does not succeed to provide statistically significant evidence for the impact of size, age, market timing, and ownership on the long-run IPO performance, neither for family firms nor for non-family firms. The statistically insignificance of these variables makes it difficult to draw any conclusion about their impact on the long-run performance.

The research question was partly answered by the findings of the market values' impact on the buy-and-hold abnormal return for family firms. This shows that, for family firms, the market value is a determinant for the future performance of the newly issued stock. Furthermore, this study showed that Swedish IPOs on Nasdaq OMX Stockholm tend to underperform the index on a three year horizon from the issuing date. However, the findings did not provide evidence of a difference in long-run performance between family firms and non-family firms.

8.1 Further Research

Decisions of straight technical nature have been made in this thesis, which in turn resulted in a particular outcome. To measure the abnormal return, the buy-and-hold abnormal return (BHAR) was chosen as a measure. For calculating buy-and-hold abnormal return, the OMX

Stockholm index was used as a benchmark. There is a possibility to use other methods to conduct the same study. Instead of BHAR, cumulative abnormal returns could be calculated to measure performance, and as a benchmark, matching portfolios or a different index could be used. By changing the tools for measuring the abnormal return, this study could be conducted with a different methodology, and the two outcomes could be compared.

Another factor that could be considered is to calculate the abnormal return for different points in time. For instance 1, 2 and 3 years after the IPO, in order to see how the abnormal return develops over time. In this study, the aim was to measure three years only, even though it could be interesting to observe the development of the abnormal return. Another thing that could be tested in the future is using a buy-and-hold period of more than three years. This in combination with using abnormal returns for different points of time could tell if or when the performance becomes positive after years of negative abnormal returns.

Since this study has high replicability, it could be used as a framework for conducting the same test on another market, either on another Swedish market place or abroad. The two studies could then be used to compare and to find possible differences between the two markets.

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Thomson Reuters Datastream

Zephyr

Appendix A: Regressions

Regression 1

Dependent Variable: BHAR

Number of observations: 39

Variable	Coefficient	Standard Error	t-Statistic	Probability
Market timing	-0.427613	0.478655	-0.893365	0.3781
Market value	-0.641623	0.336741	-1.905391	0.0655
Size	0.031891	0.151555	0.210423	0.8346
Age	0.046063	0.223457	0.206136	0.8380
Ownership	0.236268	0.308948	0.764751	0.4499
C	-0.038246	1.987056	-0.019248	0.9848

R-squared	0.183165	Mean dependent var	-0.071818
Adjusted R-squared	0.059402	S.D. dependent var	0.935429
S.E. of regression	0.907221		
Sum squared resid	27.16065		
Log likelihood	-48.28365		
F-statistic	1.479963		
Prob(F-statistic)	0.222903		

Regression 2

Dependent Variable: BHAR

Number of observations: 39

Variable	Coefficient	Standard Error	t-Statistic	Probability
Market timing	-0.360252	0.467599	-0.770429	0.4464
Market value	-0.605826	0.331430	-1.827919	0.0763
Size	0.022302	0.150110	0.148573	0.8828
Age	0.065804	0.220602	0.298294	0.7673
C	0.080226	1.968877	0.040747	0.9677

R-squared	0.168688	Mean dependent var	-0.071818
Adjusted R-squared	0.070887	S.D. dependent var	0.935429
S.E. of regression	0.901665		
Sum squared resid	27.64200		
Log likelihood	-48.62621		
F-statistic	1.724803		
Prob(F-statistic)	0.167278		

Regression 3

Dependent Variable: BHAR

Number of observations: 39

Variable	Coefficient	Standard Error	t-Statistic	Probability
MARKETVALUEDUMMY	-0.705803	0.280658	-2.514814	0.0164
C	0.290133	0.200983	1.443564	0.1573
R-squared	0.145976	Mean dependent var		-0.071818
Adjusted R-squared	0.122894	S.D. dependent var		0.935429
S.E. of regression	0.876066			
Sum squared resid	28.39722			
Log likelihood	-49.15183			
F-statistic	6.324290			
Prob(F-statistic)	0.016385			

Regression 4

Dependent Variable: BHAR

Number of observations: 100

Variable	Coefficient	Standard Error	t-Statistic	Probability
Market timing	-0.058412	0.215362	-0.271227	0.7868
Market value	0.114474	0.253765	0.451101	0.6530
Size	0.014849	0.042051	0.353122	0.7248
Age	0.094923	0.088579	1.071617	0.2868
Family firm	0.607950	1.742260	0.348943	0.7279
Family firm*Market timing	-0.301840	0.447791	-0.674064	0.5020
Family firm*Market value	-0.720300	0.376606	-1.912609	0.0590
Family firm*Size	0.007453	0.132864	0.056097	0.9554
Family firm*Age	-0.029119	0.205311	-0.141829	0.8875
C	-0.527724	0.550231	-0.959096	0.3401
R-squared	0.116986	Mean dependent var		-0.083740
Adjusted R-squared	0.028684	S.D. dependent var		0.768146
S.E. of regression	0.757049			
Sum squared resid	51.58109			
Log likelihood	-108.7931			
F-statistic	1.324843			
Prob(F-statistic)	0.235352			

Regression 5

Dependent Variable: BHAR

Number of observations: 100

Variable	Coefficient	Standard Error	t-Statistic	Probability
Market value	0.058123	0.233445	0.248979	0.8039
Family firm	0.393881	0.202372	1.946319	0.0545
Family firm*Market value	-0.763926	0.334231	-2.285619	0.0245
C	-0.103749	0.107768	-0.962703	0.3381
R-squared	0.083840	Mean dependent var		-0.083740
Adjusted R-squared	0.055210	S.D. dependent var		0.768146
S.E. of regression	0.746640			
Sum squared resid	53.51729			
Log likelihood	-110.6356			
F-statistic	2.928393			
Prob(F-statistic)	0.037581			