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Master's Degree Programme in Strategic Finance and Business Analytics

Minna Laakso

**IPO UNDERPRICING AND ITS EFFECT ON COMPANY PERFORMANCE IN  
FINLAND 1999–2017**

Master's Thesis

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1<sup>st</sup> Supervisor: Mikael Collan

2<sup>nd</sup> Supervisor: Sheraz Ahmed

## ABSTRACT

Author:	Minna Laakso
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Initial public offerings have been in a center of research papers in a field of finance over the past few decades. Commonly used topics have been IPO underpricing and the short- and the long-run performance of IPOs. Several former studies give evidence that IPOs are generally underpriced and initial excess returns are achieved from the aftermarket.

In Finland, the number of IPO related studies have been limited, and hence, this thesis focuses on Finnish IPOs. This thesis examines IPO underpricing, the short- and the long-run performance of IPOs and how underpricing affects company performance. In addition, one research topic focuses to explore do underpriced IPOs perform better than other IPOs. IPOs are categorized based on pricing: underpriced, overpriced and accurately priced.

The theoretical section of this thesis focuses on the research topic from the theoretical and practical point of view. Further knowledge and understanding are gathered from former studies in the literature review section. The empirical section describes the used methodology and presents received results. Conclusions are presented in the final part of this thesis.

The main findings of this thesis are as follows: the majority of IPOs executed in Finland in 1999–2017 are underpriced and achieve initial excess returns from the aftermarket. IPOs are underperforming against the market, however, underpriced IPOs perform better than other IPOs as underpriced IPOs achieved higher returns. In addition, based on the results it seems that underpricing is affecting positively to the company's performance in both short- and long-run.

## TIIVISTELMÄ

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Yhtiöiden listautumisannit ("IPO") ovat olleet merkittävä tutkimusaihe rahoitusalaalla useamman vuosikymmenen ajan. Yleisimpinä aiheina ovat olleet listautumisantien alihinnoittelu sekä niin kutsutun IPO-osakkeen suoriutuminen sekä lyhyellä että pitkällä aikavälillä. Aiempien tutkimusten mukaan suurin osa listautumisanneista on alihinnoiteltu, mikä johtaa ylituottoihin kaupankäynnin alkaessa julkisilla arvopaperimarkkinoilla.

Tämä tutkielma keskittyy Suomessa toteutettuihin listautumisanteihin, sillä listautumisanteja ei ole tutkittu Suomessa kovinkaan laajalti. Tutkielmassa tarkastellaan erityisesti listautumisantien alihinnoittelua sekä alihinnoittelun vaikutusta yhtiöiden taloudelliseen suoriutumiseen sekä lyhyellä että pitkällä aikavälillä. Lisäksi tutkielmassa selvitetään, poikkeako eri tavalla hinnoiteltujen listautumisantien suoriutuminen toisiinsa nähden. Listautumisantien hinnoittelu on jaettu kolmeen kategoriaan: alihinnoiteltu, ylihinnoiteltu, täsmällisesti hinnoiteltu.

Tutkielman teoriaosuudessa listautumisanteja tarkastellaan sekä teoriaan että käytäntöön perustuvasta näkökulmasta. Lisäksi syvennytään listautumisanneista aiemmin tehtyihin tutkimuksiin. Tutkielman empiirinen osuus koostuu tutkimusmenetelmän sekä saatujen tulosten esittelystä. Lopuksi esitetään tulosten perusteella tehdyt johtopäätökset.

Tutkielman keskeisimmät johtopäätökset ovat seuraavat: suurin osa Suomessa vuosina 1999–2017 toteutetuista listautumisanneista oli alihinnoiteltuja ja näin ollen myös merkittävä osa listautumisanneista johti ylituottoihin. Kun listautumisanteja verrattiin verrokkiryhmänä toimivaan yleiseen tuottoindeksiin, listautumisantien suoriutuminen oli merkittävästi verrokkiryhmää heikompi. Alihinnoitellut listautumisannit suoriutuivat kuitenkin muita listautumisanteja paremmin, joten alihinnoitellulla listautumisannilla on tutkielman mukaan positiivinen vaikutus yhtiön suoriutumiseen sekä lyhyellä että pitkällä aikavälillä.

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*“All good things come to an end”*

The quote does not necessarily mean that something bad will happen after the good ends. Even though I am very grateful for my time in LUT, I am extremely happy that the time as a university student has come to an end, finally. During my time in LUT I have had the privilege to experience so many wonderful adventures, meet amazing people and gain lifetime friendships.

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In Helsinki, May 24<sup>th</sup>, 2019

Minna Laakso

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## ABBREVIATIONS

IPO	Initial Public Offering
IER	Initial Excess Return

# 1 INTRODUCTION

Over the past decade investing has become a part of our everyday lives. Digitalization has made investing extremely easy as everyone can acquire shares while sitting at home, just one click and it is done. There is no that many persons, friends or colleagues, in their twenties or thirties and up that do not own any shares, either direct shares or through treasuries. Nowadays many even count investing as a hobby of theirs. In addition to specialist magazines, tabloids, the internet in general and especially social media are full of information about investing. Moreover, a lot of investing courses and lectures are offered, and various selection of trader's clubs and societies exist.

While the number of investors increases the number of uninformed investors increases at the same time. Novice investors do not understand all anomalies that are present in the equity market. Due to incompetence and unawareness many investors end up to rash decisions, invest into unfavorable targets and in a worst-case scenario an investor can lose life savings.

In order to survive and succeed in the equity market, it is crucial to understand how the market works and how different matters potentially impact the share value even if the value movement could not be forecasted. One good example is the share price in a company's first share issue, IPO price. Novice investors may not know that IPOs are underpriced in generally and higher aftermarket value in the first trading day is a consequence from underpricing, or they might think that all IPOs are underpriced without a question. Novice investors might also make their decisions based on emotions or for example the publicity of the issuing company. Due to unawareness investors might do wrong conclusions and make investment decisions based on false assumptions. Everyone might remember what happened when Facebook went public; investors were disappointed that Facebook's IPO was just slightly underpriced and when these investors realized they were not able to achieve initial excess returns, the demand dropped and soon after IPO and the share value decreased significantly while investors were trying to sell their shares.

IPOs have been broadly studied research topic for many decades and especially IPO underpricing has been widely used subject in former research papers. Several former studies give evidence that IPOs are generally underpriced, meaning that the price per share offered in initial public offering is lower than the price for the same share in the first trading day in a public market. As said, IPOs have been the quite popular research topic globally, however, in Finland, the number of studies related to IPOs is rather limited. Furthermore, the majority of these studies are focusing on underpricing and short-term or up to three-year holding period returns. Attributable to these facts, it is deeply interesting to explore, in addition to underpricing and the short-run performance, how IPO underpricing affects company performance on the long-run in Finland. The research topic is interesting also an individual investor's point of view, especially when considering novice investors as this study aims to give relevant information and empirical evidence relating to the equity market from IPOs' point of view but also from the point of view of evaluating long-term investment opportunities or if the goal is just reaching instant profit.

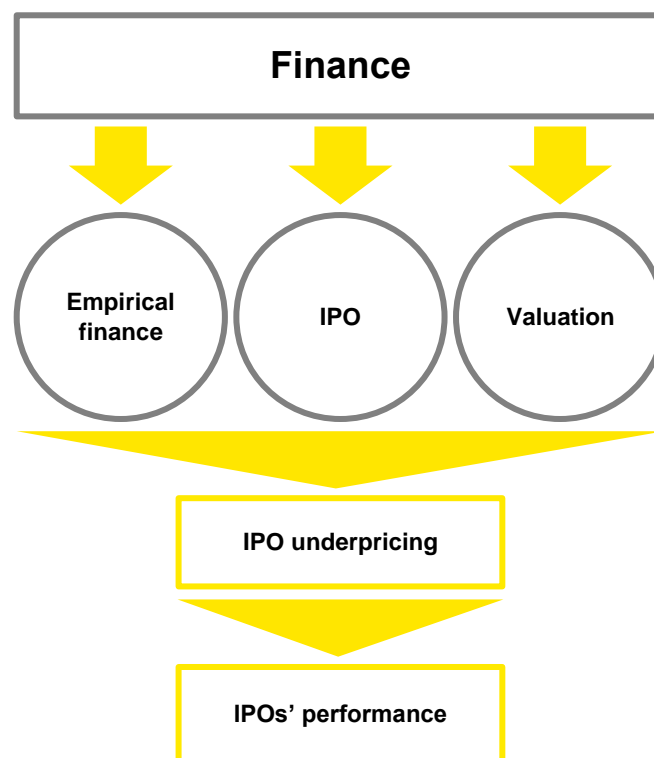
### **1.1 Focus of the study and research questions**

Every single company needs to figure out how they are funding their business operations. There are many funding options available; a debt which can be a loan from financial institutions or from other sources, venture capital funds, business angels, selling account receivables, collect payments in advance, i.e. using clients' money for funding the business, owners' own funds, for instance. One option for funding a business is placing a company's shares as a target of public trading. To sell shares in a public equity market a private company must turn into a public company. Initial public offering (IPO) is executed as a part of a listing process. For a private company IPO is the first step to sell shares in a public equity market (Carter & Manaster, 1990) as IPO is the first issue wherein the company's shares are targets of public trading. IPOs are usually executed by young and small companies with great growth opportunities (Kim & Ritter, 1999), but of course, also large and older companies can issue IPOs as long as they are privately owned.



This thesis focuses on IPO underpricing and how underpricing is affecting company performance on the short- and on the long-run. The main limitation is that only IPOs executed in Finland in 1999–2017 are studied. Other limitations include that only first-time listings are observed (i.e. no secondary listing or transitions) and a listing share issue (IPO) is offered to the institutional and private investors (i.e. no directed issues).

The main framework of this thesis is linked to finance and research topics are in a field of IPO, empirical finance and valuation.



**Figure 1 – Focus of the study**

IPOs are in the center in this thesis and all research topics are linked to underpriced IPOs. Valuation is linked to the procedures on how the IPO price is determined. Empirical finance refers to e.g. corporate finance, asset pricing, banking and behavioral finance, and overall empirical analysis and evidence. For example, empirical finance is present in used research methods and also in presented theories; capital asset pricing model is one of the used methods for examining the

performance of IPOs, and investors' behavior and potential bias are discussed as matters that are reflecting the market price.

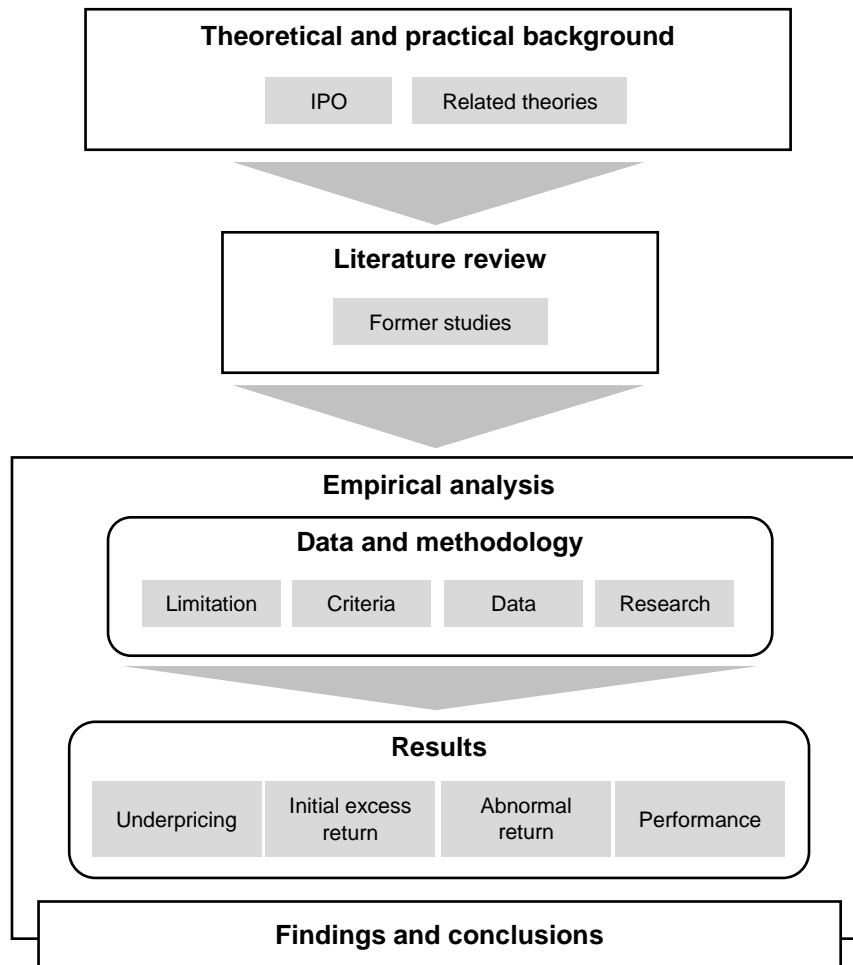
The purpose of this study is to find out are Finnish IPOs underpriced as their global siblings, and how underpricing affects the company's performance. Research objectives form three research questions:

- i. Are Finnish IPOs underpriced*
- ii. Do underpriced IPOs achieve higher returns than other IPOs?*
- iii. How underpricing affects company performance on the short- and on the long-run?*

By answering these questions, it is possible to understand the reasons why companies are generally underpricing their IPOs in general and what are the goals behind underpricing. The aim of these questions is also to give perception are IPOs reasonable investment targets and does the IPO pricing impact on the returns.

## 1.2 Structure of the thesis

The thesis is structured in a way that the theory and practical background of the topic are familiarized first and after that, the focus is on empirical analysis. Figure 2 illustrates the structure.



**Figure 2 – Structure of the study**

The aim of the structure of this thesis is first to acquaint the IPO framework and IPO process in Finland, and introduce universal theories that are constantly present when observing IPOs. Next, this thesis concentrates to former studies in order to develop understanding and knowledge relating to the objectives of this research. After the research topic is familiar, the data and used methodology are presented. Finally, received results are explored and the thesis ends up to conclusions reflecting the appointed research questions.

## 2 THEORETICAL AND PRACTICAL BACKGROUND

This section focuses on the research topic from the theoretical and practical point of view. The section describes the reasons why do companies decide to go public, listing requirements that a company needs to fulfill in order to go public, and what different matters and parties are related to the listing process in Finland.

### 2.1 Why do companies go public?

The primary motivations for going public are financial, liquidity, and risks diversification reasons. However, the benefits of going public are company specific, and hence, when considering listing it should be observed from the company's and its owners' point of view (Pörssisäätiö, 2016).

In today's digitalized and consumer-driven market, it is truly important that the company's shares are publicly traded. (Pörssisäätiö, 2016) One of the most important roles of the public equity market is covering companies' financing needs. (Pörssisäätiö, 2016) Companies want to have access to the public equity market in order to raise capital (Ritter & Welch, 2002). Public equity market offers an efficient source of funding for a fast-growing and capital intensive company (Pörssisäätiö, 2016), and it improves the liquidity of the company's equity which gives to the company's insiders an opportunity to diversify their portfolios (Chemmanur & Fulghieri, 1999) and convert their capital into a cash in future (Ritter & Welch, 2002).

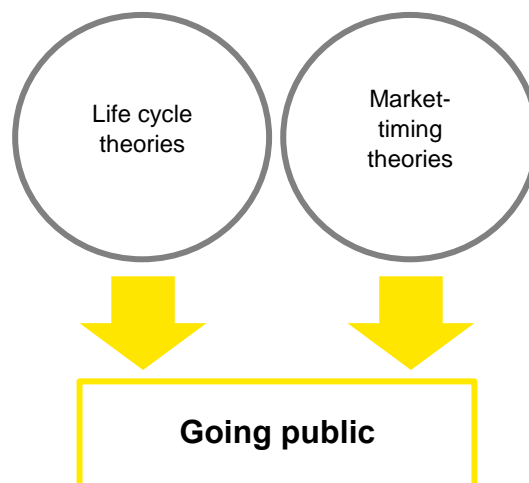
If an entrepreneur wants to sell an entire company or one of its business functions, going public gives a better possibility for these actions (Pörssisäätiö, 2016). An entrepreneur may also want to spread the risk by selling a portion of owned shares since the more owners the more diversified risk. The public market and its enabling liquidity and transparency may also be more attractive to the investors which makes funding the business much easier.

Sometimes going public is the only alternative for generating growth since it gives better qualifications to reach global business opportunities. By going public a

company can effectively and internationally inform the public for its business, values, and products. (Pörssisäätiö, 2016) If a company is in a public equity market this may induce an increase in investors', creditors', customers', and suppliers' confidence against the company, and hence, public trading itself can raise the company value (Ritter & Welch, 2002).

Company might also have nonfinancial reasons, for example, increasing publicity, (Ritter & Welch, 2002), transparency, and reliability (Pörssisäätiö, 2016). Increased publicity helps a company to obtain international growth and to make strategic acquisitions. Also, marketing becomes easier, especially for companies that operate in a consumer product industry. To sum up, listing intentions are a simple and easy way to achieve visibility in the media which usually emphasizes a company's business development. (Pörssisäätiö, 2016)

Ritter and Welch (2002) categorize reasons for going public gathered from former studies under two theories: *life cycle theories* and *market-timing theories* (Figure 3).



**Figure 3 – Theories behind the reasons for going public**

In the next two sub-sections, these two theories are presented in more detail.

### 2.1.1 Life cycle theories

When a company grows it usually faces a situation where there are several owners even before going public, but the owners' funding capability is not sufficient for expanding the business (Pörssisäätiö, 2016). According to Zingales (1995) companies are going public with the intention to sell the company eventually, and maximize the company value before selling it. The owner can optimize the ownership structure through IPO and change the control of cash flow rights and control rights. These actions support the owner to achieve the maximum return when selling the company. (Zingales, 1995)

Black and Gilson (1998) argue that a stock market and a venture capital market are linked to each other. They present evidence of the correlation between investors' willingness to invest in venture capital funds and an exit opportunity through IPO. This means that a venture capitalist might demand the company to go public in order to exit from the company, and hence, acquire new investors to invest in a venture capital fund. Equally the company might want to go public in order to get the control back from venture capitalists. Possible IPO exit is highly important to a high-growth company that desires to get venture capitalists out of the company at the stage of their life cycle when they are still consuming the capital instead of creating it. Exit through IPO is preferred by successful entrepreneurs when IPO maximizes the value of the company compared with other selling possibilities, but also when the value of the control is more important to the entrepreneur than the loss in share value. Black and Gilson (1998) add that for a mature company in addition to IPO another exit strategy is to buy the stake from the venture capital fund in order to preserve the control and the ownership. They state that IPO is an exit alternative for a company that still consumes more capital than accumulates it.

Chemmanur and Fulghieri (1999) observed some differences between industries at the average age of companies going public. Companies are going public earlier in more capital-intensive industry and, if the capital intensity is similar, in industries where projects are easier to evaluate, and hence, have a smaller evaluation costs. Maksimovic and Pichler (2001) add that companies are going public earlier in well-

doing industries with low development costs and low probability of replacements. Chemmanur and Fulghieri (1999) continue that the timing of IPO varies also between countries as a consequence of different evaluation cost levels. They claim that the evaluation costs are lower in the U.S. than in European countries, and therefore, the average age of company going public is much lower in the U.S. than in Europe.

The timing of the IPO is strategically very important. Companies are going public early in order to receive a market share in industries which nature allows only a couple of companies to survive in each market niche (Schultz & Zaman, 2001). So-called early birds can achieve first-mover advantages in the market, but there is a risk that other companies replace these early birds with better technologies, products or services. It is also possible that competitors have an opportunity to imitate and copy the first-mover since when a company is going public it has to reveal a lot of valuable information. (Maksimovic & Pichler, 2001) In order to avoid displacements, for example, internet companies desire fast growth; they are going public at the early stage and they are executing an aggressive acquisition strategy for achieving market share and preventing competition. (Schultz & Zaman, 2001)

### **2.1.2 Market-timing theories**

The volume of IPOs varies in relation to market upturn and downturn. Companies are issuing more frequently in expansionary periods of the economic cycle (Choe, et al., 1993). If a specific market is hot or if the public economy is an upturn, several IPOs are following this market rise (Lucas & McDonald, 1990), but companies are avoiding issuing simultaneously with other good-quality companies (Choe, et al., 1993). According to Ritter and Welch (2002) after valuation has increased in the public equity market, companies are more willing to sell their shares. Lucas and McDonald (1990) add if the company knows it is undervalued, it will delay its IPO until the undervaluation disappears and the value rises. And vice versa, if the company knows it is overvalued, it will issue instantly to take advantage of the overvaluation.

## 2.2 Underwriting agreements

Risks are always present when companies are making business decisions, the listing process is not an exception. However, the issuing company is not the only party that carries a risk in the listing process, also the underwriter's assignment involves risks and hence underwriter agreements are used.

Mandelker and Raviv (1977) have observed several forms of underwriting agreements in practice and suggest that the main agreements are i) firm commitment, ii) best effort, and iii) stand-by. After exploring latter studies, firm commitment and best effort agreements are the most commonly used underwriting agreements. Risk borne by the underwriter varies depending on the agreement; the risk is the highest in a firm commitment agreement and lowest in the best effort agreement.

*Firm commitment:* The underwriter agrees on a price and a number of shares with the issuing company (Rock, 1986) but bears the whole risk since the underwriter purchases the entire issue and guarantee to deliver the net proceeds to the company whether the IPO is fully subscribed or not (Ibbotson & Ritter, 1995). The underwriter works as a reseller and sells the shares to the public (Smith, 1986).

*Best effort:* In a best effort agreement the underwriter and the issuing company are setting a price and a minimum number of shares to be sold. The underwriter does not purchase the issue for itself, but it makes its "best effort" to sell the shares to the public, i.e., the underwriter's role is to manage the distribution. If the number of sold shares does not reach the minimum amount within the agreed period, the IPO is canceled and neither the issuing company nor the underwriter receives any return. (Ibbotson & Ritter, 1995; Smith, 1986)

*Stand-by:* Instead of purchasing the entire issue and reselling it to the public, in a stand-by agreement the underwriter has an obligation to purchase all the remaining shares that the investors did not subscribe. (Mandelker & Raviv, 1977)



## 2.3 The listing process in Finland

Going public is a more complex process than just a company's decision. There are several regulations and requirements that a company needs to fulfill for being able to go public. These regulations and requirements, and the whole IPO process are country and stock exchange specific, therefore, these matters are discussed from Finland's perspective. In addition, it should be remembered that IPO is only one part of the whole listing process, the actual share issue part.

In Finland a company has two alternatives for listing; *The Nordic Main Market* (the main market) or *The Nasdaq First North* (First North). The listing process is executed through Nasdaq OMX Helsinki in both markets, but listing requirements are slightly different. (Nasdaq OMX Nordic, 2016b) In Finland public companies' operations are regulated through general corporation law, security markets act, current stock exchange's rules and regulations, and the financial supervisory authority's (Finanssivalvonta in Finnish) regulations. Three main regulations are, roughly speaking, disclosure obligation, regulations of financial statements, and control of insider trading. (Fondia Oy, 2016) Disclosure obligation requires continuously to announce matters that have a substantial influence to share value (Financial Supervisory Authority, 2013), and to publish IFRS financial statement, management report, and half-yearly reports (Financial Supervisory Authority, 2015) in order to ensure that a company provides comparable and adequate financial information. Control of insider trading means that a company must keep both public and private insider registers of its insiders (Financial Supervisory Authority, 2009).

*The main market* is regulated and it follows EU directives. It is intended for larger companies that are capable to follow strict standards for accountability, reporting and transparency. The main market comprises three segments; large, mid, and small. Companies are divided into each segment in accordance with their market capitalization. (Nasdaq OMX Nordic, 2016b)

*The First North* operates parallel to the main market and it uses the same distribution network and infrastructure as the main market, but it is less regulated. It is

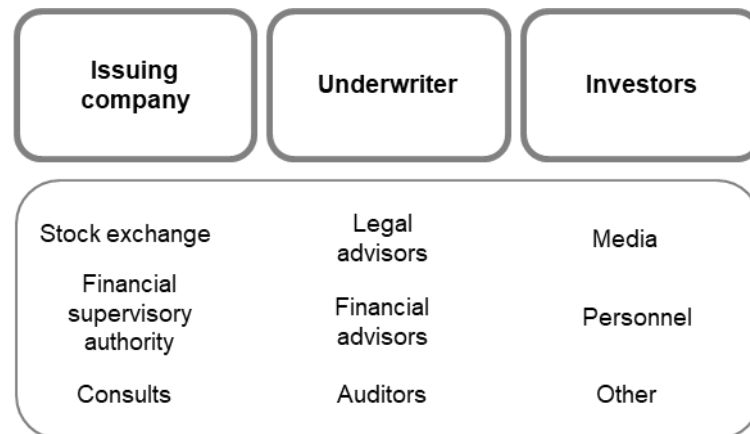
considered as a practice market place for small and growing companies that are interested in financial markets but are not currently ready for the main market's requirements, yet wants to benefit from being a listed company. First North offers all the advantages of a public equity market, but less extensive listing requirements enable a company to focus on its business and development while growing and gaining experience of a public equity market. (Nasdaq OMX Nordic, 2016a)

**Table 1 – Listing requirements** (adapted from Nasdaq Inc., 2016b, Nasdaq Inc., 2016c, Pörssisäätiö, 2016)

Main market	First North
Operation history from three years	Sufficient number of shareholders
Financial statements from three years	Min. 10% of the company's shares in public hands or acquire the service of Liquidity Provider <sup>1</sup>
IFRS financial statement	
Sufficient capacity for profitability and/or 12 months' working capital	Must have a continuous agreement with an advisor certified by Nasdaq First North
Min. 25% of the shares owned by the public and decent number of shareholders	Acceptance of the general terms and conditions of First North
Sufficient supply and demand	
Min. €1m market value	Sufficient organization and personnel in order to accomplish the requirements of information disclosures
Listing prospectus	
Corporate governance	Publication of a prospectus or a company description
Sufficient management and administration	

Every executed IPO includes three main parties (figure 4); the issuing company, the underwriter and investors. Also, several other interest groups of the issuing company are related to the whole listing process, for example, stock exchange, financial supervisory authority, personnel of the issuing company, media, advisors, and auditors. (Pörssisäätiö, 2016)

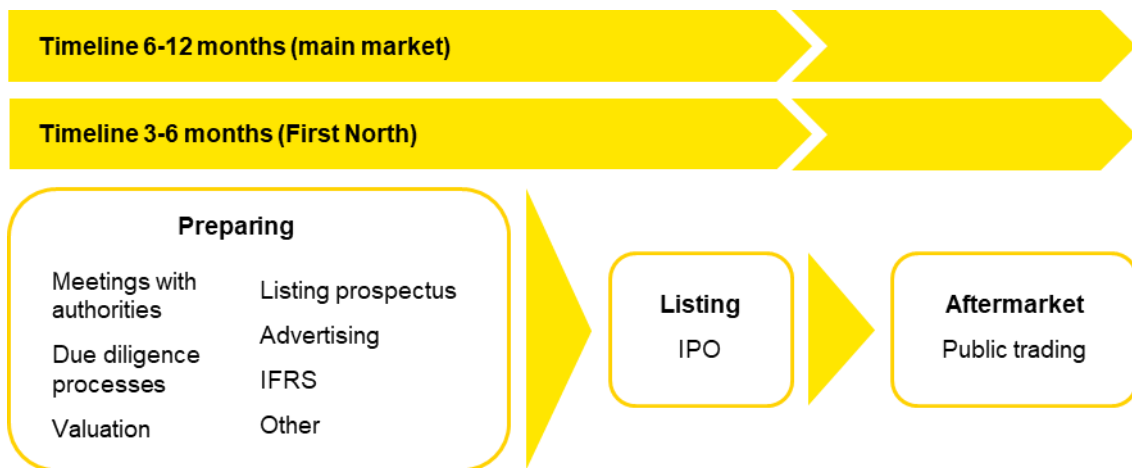
<sup>1</sup>The Liquidity Provider is a service, produced by the Nordic Exchange, which improves the quality and increases the volume of trading. Furthermore, the service involves an agreement for ensuring liquidity of the company's shares. (Nasdaq Inc., 2016a)



**Figure 4 – IPO parties**

Duration of the whole listing process depends on how well a company is prepared in advance, but usually the process last 6–12 months when listing to the main market, and 3–6 months when listing to the First North (Pörssisäätiö, 2016). Key factors that affect the duration of the process are the strength of the board of directors and organization, how much management is able to dedicate time to the process, and accounting practices (Nasdaq Inc., 2016c), for example, if a company is well prepared for transition into IFRS accounting, or already using it, it saves time from actual listing process.

The listing process (figure 5) can be divided into three phases; preparing, IPO (i.e., actual listing), aftermarket. Aftermarket phase is basically everything after a successful listing, in other words operating as a public company. (Pörssisäätiö, 2016)



**Figure 5 – The listing process in Finland**

Preparing phase includes many operations, for example, meetings with advisors, stock exchange and financial supervisory authority, due diligence process, finishing and publishing a listing prospectus, inform the public about upcoming IPO and advertising it. (Pörssisäätiö, 2016)

IPO phase is the actual listing phase where shares are sold to the public. In IPO the shares can be offered to institutional investors or private investors or both. Before IPO the issuing company must decide a number and an allocation of the shares to be issued. According to Keloharju (1993) allocation rules are fair in Finland; an allocation is based on the size of the order, and the issuing company usually publish the rules in its news release and also most of the rationing principles are published in newspapers. When receiving orders issuing companies can decide, without restrictions, which orders they approve and which extent they are fulfilling. However, companies are using this authority only when they are assuming that one person has submitted several orders.

### **3 LITERATURE REVIEW**

IPOs are widely examined topic and the most commonly used point of view in these studies is IPO underpricing. This section explores former studies and focuses on IPO underpricing and the reasons behind underpricing, and also long-run performance of IPOs.

These former studies are gathered from Elsevier's ScienceDirect database by using keywords such as "IPO", "initial public offering", "underpricing", "performance", "underperformance", "long-run performance", "short-run performance", "initial excess return", "abnormal return", "IPO valuing", "IPO pricing" etc. and combinations of these. Only studies that are published in high-quality journals are used in this literature review. The quality of the journal is evaluated by using the impact factor. For example, the majority of used studies are published in the Journal of Finance or Journal of Financial Economics, and their impact factors are 8 and 25, respectively.

#### **3.1 Valuing IPOs and underpricing**

Valuing IPO is problematic as most of the issuing companies are young growth companies, therefore, forecasting future cash flows are difficult and imprecise (Kim & Ritter, 1999), and furthermore, these companies are valued by using their growth opportunities, not their historical performance (Ritter & Welch, 2002). The uncertainty of the market-clearing price for the issuing company is significantly higher than for a public company that is currently trading in the public equity market (Smith, 1986) because the private company that is executing IPO has not been the target of public trading (Kim & Ritter, 1999). In other words, the private company does not have previously traded shares, and hence, examining the market's reactions is impossible (Smith, 1986). Due to these matters, the value of the issuing private company must be determined without referring to the market value (Kim & Ritter, 1999).

To valuing IPO, the issuing company and the underwriter are comparing the company's financial and operational performance to the public companies in the

same industry (Kim & Ritter, 1999), and the most popular method is to use comparable companies' multiples (Ritter & Welch, 2002). Hence, pricing decision is based on an analysis of the market price ratios with a company specific adjustments and recent information from the IPO market (Kim & Ritter, 1999). However, there is much evidence that issuing companies and underwriters are underpricing IPOs and several former studies have documented the regularity of underpricing (e.g. Ritter, 1991, Schenone, 2004, Rock, 1986).

The implication for underpricing is that the aftermarket price for shares is significantly higher than the price in IPO (Smith, 1986). According to Carter and Manaster (1990) the difference between the first secondary market price and the IPO subscription price is greater than a reasonable risk premium would require. Fundamentally underpricing means that the share price is set under the real value. Although, Ritter (1991) claims that the IPOs are not underpriced, but the first aftermarket price is too high.

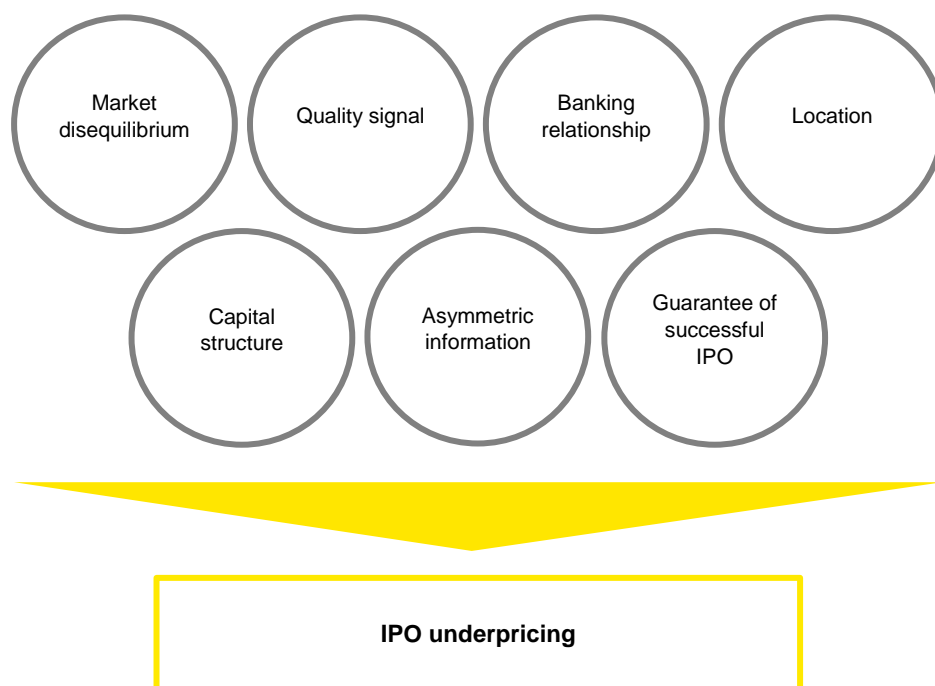
Underpricing seems to appear in every country that has a stock market (Ibbotson & Ritter, 1995; Ritter & Welch, 2002). Underpricing correlates positively with asymmetric information (Ritter & Welch, 2002), and hence, the level of underpricing is higher when the uncertainty of price is high (Smith, 1986). Average underpricing exceeds 15% (Smith, 1986) regardless of the underpricing level fluctuates between countries (Ibbotson & Ritter, 1995) and time. Furthermore, more recent studies argue that the average underpricing level is even higher, ca. 19% (Ritter & Welch, 2002).

### **3.2 Reasons for IPO underpricing**

Although valuing IPOs is problematic but the question is why IPOs are underpriced instead of overpriced? To accumulate the same amount of capital the company must sell more shares if they are underpriced (Ritter & Welch, 2002), hence, would not the issuing company benefit more if the price corresponds the actual value? Or does the issuing company benefit more when IPO is underpriced since the price rise more in aftermarket? But if the investors realize that the IPO was underpriced and the

high price increase does not actually reflect the actual value of the company or does not guarantee high profits and good performance in the future, would not that be bad for the company's reputation and its share value? Furthermore, if first-day investors require a premium as a compensation for bearing risk, does not second-day investors who purchased the shares from first-day investors in aftermarket demand this same compensation since the risks are still highly relevant on the day after IPO (Ritter & Welch, 2002).

Different resources give different reasons for underpricing and every researcher seems to have their own preferences. Ritter and Welch (2002) wisely argue that there is no single predominant reason for underpricing. Figure 6 presents the reasons for underpricing that are discussed in this sub-section.



**Figure 6 – Reasons for IPO underpricing**

One simple cause for underpricing is if the market for the IPO is not in equilibrium, supply exceeds demand, it is easier to sell the shares with a lower price (Rock, 1986). Other common reasons for underpricing can be for example quality signal, banking relationship with the underwriter, location of the company, capital structure

of the company, asymmetric information and that the issuing company wants to ensure that the investors will buy issued shares. These aspects are discussed in more detail in the following pages.

According to Ritter and Welch (2002) it is common that high-quality companies are trying to indicate their quality by spending money and one way to do that is underpricing their IPOs. Only issuers with worse than average quality are willing to sell their shares at the average price, hence, high-quality companies are trying to distinguish from low-quality issuers by underpricing their IPOs which prevents low-quality issuers to imitate them (Ritter & Welch, 2002).

Banking relationship between the issuing company and the underwriter is influencing to underpricing. If the issuing company has a relationship with the underwriter prior contemplated IPO, the level of underpricing decreases since asymmetric information between these parties is lower compared to new relationships. When this historical relationship exists, underpricing is ca. 17% lower than in IPOs without this connection. Furthermore, also the type of the banking relationship impacts the level of underpricing. For example, if the underwriter is also in a financing role in the issuing company (i.e. creditor) the level of underpricing decreases compared to a different type of relationship with the underwriter. This is a consequence of the companies are sharing more information with the banks to whom they have a financing relationship as the banks are not willing to finance companies without relevant and sufficient amount of information. Therefore, these banks have better possibilities, resources, and motivation to monitor the different aspects of the company, e.g. management, investments, and performance. Hence, the asymmetric information between these parties has decreased even more than in other pre-IPO banking relationships. Another reason for differences in the underpricing level between different types of banking relationships is that the underwriter with pre-IPO relationship might achieve some benefits when selling underpriced shares, thus, underpricing is higher. (Schenone, 2004)

Nielsson and Wójcik (2016) show evidence of the company's location influence to the underpricing. If the headquarter of the company is in a rural area the IPO is less



underpriced compared with companies located in urban areas. The reason for this is that investors who live in rural areas and are investing to local companies have stronger local bias than urban investors. They receive more superior local information that reduces uncertainty, hence, they have stronger incentives to take advantage of this information and invest to IPO. Since the uncertainty of the value is decreased, the issuing company does not need to compensate the price as much. (Nielsson & Wójcik, 2016) Grinblatt and Keloharju (2001) present supporting evidence from Finland. According to their findings investors in Finland favor local companies headquartered in a short distance. They also claim that the culture and language of the company have an influence on investors; investors prefer companies with the same culture and language as their own.

According to Lee and Wahal (2004) venture capital backed IPOs are more underpriced than non-venture capital backed IPOs. There is no one main reason or simple way to explain why venture capital has this effect on underpricing. However, one of Lee's and Wahal's (2004) argument is that due to nature of venture capital companies they need to acquire reputation that they are capable to take companies public, and hence, venture capital backed IPOs are more underpriced. To be precise, venture capital funds have fixed expirations, in order to stay in business venture capital companies are forced to raise additional money in overlapping funds, and hence, venture capitalists are willing to take as many companies public as they can. Being able to do that, IPOs are more underpriced as they are easier to sell with a lower price. Even though the underpricing is a cost for venture capitalists, because shares change owner from them to the new shareholders, they are willing to take that cost as an exchange of reputation being a high-quality venture capital company. This reputation is important due to future funding purposes. (Lee & Wahal, 2004)

Asymmetric information is the most common matter that arises when discussing the reasons for underpricing. As a matter of fact, if you think all the other reasons that have described earlier, almost every one of them are consequences of asymmetric information in a way or another. Asymmetric information can appear between different IPO related parties, e.g., issuing company and underwriter, issuing

company and investors, informed and uninformed investors, issuing company and market.

Rock (1986) claims that companies have to underprice their shares in order that uninformed investors would purchase their shares. This is a consequence from asymmetric information between investors. Unlike private investors, professional investors, e.g., institutional investors, usually have more accurate information about the real value of the IPO since they have more resources to acquire information to support their investment decisions. Professional investors are well informed and they know if the IPO is worth for investment or not, and they will not purchase any shares if they think it is not worth it even if the IPO is underpriced. Private investors do not have these resources to acquire same information, hence, they do not know all the facts behind the price. They cannot be sure does the high offering price reflects profitable investment opportunity or is the IPO just overvalued. Since informed and uninformed investors compete against each other the issuing company has to give compensation for uninformed investors because they have to be sure that if the informed investors do not purchase the shares at least the uninformed investors will. (Rock, 1986) Uninformed investors would realize negative returns and they might withdraw from the IPO market if IPOs are not underpriced on average. With underpriced IPOs they can achieve normal returns or at least break even. (Keloharju, 1993) Therefore, the issuing company has to underprice its IPO. IPOs are always difficult to evaluate but the greater the uncertainty, the greater the advantage for the informed investors, and hence, the greater the discount of the price. (Rock, 1986)

### **3.3 Underperformance of IPOs in the long-run**

According to Ritter (1991) issuing companies underperform the first three years after going public compared to a non-issuing peer group from the same industry and the same size. An average total return for a three-year holding period totaled to ca. 34.5 % for the companies that went public in U.S. during 1975–1984. Corresponding return for a peer group of non-issuing companies with similar size and industry was ca. 61.9 %. Hence, IPOs underperformed by 16.9 % compared to the non-issuing

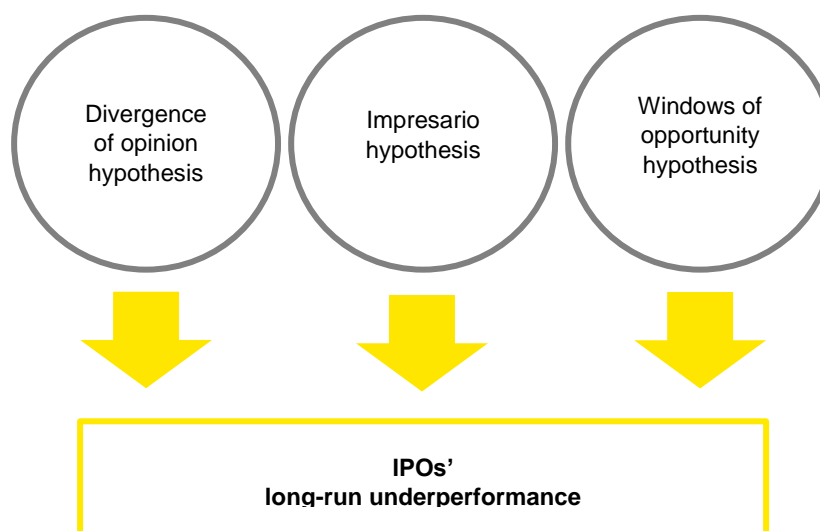
companies. The total return is measured by using the closing price from the first trading day and the closing price in three-year anniversary. Ritter and Welch (2002) claim that the average return from IPOs after the three-year holding period is ca. 22.6% in U.S. during 1980–2001, however, the average underperformance was still ca. 23.4% compared to the CRSP<sup>2</sup> value-weighted market index. Keloharju (1993) reports that the underperformance of Finnish IPOs in 1984–1989 was ca. 21.1 % after the three-year holding period since the total return from the IPOs totaled to ca. -22.4 % while the return from the market was -1.6 %.

Loughran and Ritter (1995) argue that the underperformance is greater for companies that have executed their IPOs during high-volume years, and IPOs that were issued during low-volume years do not underperform much at all. This might vary between countries since according to Keloharju (1993), for instance, the long-run performance was relatively similar for Finnish IPOs issued in different years. However, he notes that it can be argued that the whole sample period of his study has been relatively high-volume years.

### **3.3.1 Explaining long-run underperformance of IPOs**

Three theories have presented to explain the phenomenon of the long-run underperformance of IPOs; *the divergence of opinion hypothesis*, *the impresario hypothesis* and, *the windows of opportunity hypothesis* (Figure 7).

<sup>2</sup>CRSP = Center for Research in Security Prices



**Figure 7 – Theories of IPOs' long-run underperformance**

Miller (1977) proposes the theory of *divergence of opinion hypothesis*. Generally, it is assumed that all investors have same estimations of expected returns, risks and valuation of securities. However, in consequence of uncertain future, asymmetric information and difficultness of forecasting the performance of IPOs, it is more accurate to assume that investors' estimations are not consistent. Investors who have the most optimistic estimations and expectations cause the demand for particular securities. Risk and uncertainty indicate divergence of opinion, and as IPOs are difficult to estimate and evaluate the divergence of opinion appears greater in connection to IPOs. However, uncertainty and risk reduces over the time which simplifies forecasting. As forecasting becomes easier the divergence of opinion will narrow, with the consequence the market price decreases, i.e., the share becomes less risky, the value decreases. Thus, IPOs are underperforming on the long-run.

The second theory, *the impresario hypothesis*, developed by Shiller (1990) argues that underpricing IPOs will produce high initial returns. High initial returns will make an illusion that the IPO is a great investment opportunity, and hence, the trend will rise when investors follow each other producing publicity and greater demand for IPO. (Shiller, 1990) Ibbotson and Ritter (1995) interpret this hypothesis in a way that companies with the highest initial returns will have the poorest performance in the future.

*The windows of opportunity hypothesis* is the third theory proposed to explain the phenomenon of long-run underperformance of IPOs. According to Loughran and Ritter (1995) companies issuing during low season of IPO activity are not underperforming contrary to companies that are issuing during high-volume will underperform on the long-run. High-volume arise when investors are overoptimistic and make high valuations and hence, are willing to overpay of equity. IPO activity grows due to the fact that companies are willing to go public when their equity is significantly overvalued. Loughran and Ritter (1995) call this as taking advantage of temporary windows of opportunity which causes low returns in the long-run. According to their study, the underperformance does not appear directly after IPO as there is no evidence of underperforming in the first six months, but as the IPO shares have been overvalued, it could be said that the market is catching them in the long-run.

Brav and Gompers (1997) argue that the long-run performance of IPOs is not related to theories presented above. Instead, they claim that the long-run performance is depending on capital structure. They show evidence, as many other researchers, of IPOs' underperformance in the long-run compared to the market, but they claim that venture capital backed IPOs are performing better than non-venture capital backed IPOs in a five-year period. The better performance of venture capital backed IPOs is observed already in a first trading day's higher returns (Lee & Wahal, 2004). However, this could be a result from underpricing since underpricing produce high initial returns (Shiller, 1990) and according to Lee and Wahal (2004) venture capital-backed IPOs are more underpriced than non-venture capital-backed IPOs. Therefore, it could be said that presented evidence of venture capital-backed IPOs' better performance and greater underpricing supports Brav's and Gompers's (1997) conclusions of the capital structure. There is no reason to doubt this conclusion when comparing IPOs against other IPOs. However, the capital structure of IPO does not seem to influence the performance in general since IPOs are still underperforming when compared to matching non-issuing companies, regardless of the capital structure.

## 4 Analysis of IPOs' underpricing and performance in Finland 1999–2017

This section presents an empirical analysis of Finnish IPOs' underpricing and performance. The following chapters present used data and quantitative methods as well as received results.

### 4.1 Data and methodology

The data used in this thesis comprise 77 initial public offerings in Finland between January 1, 1999 and December 31, 2017. The sample is collected from Nasdaq Helsinki and qualifies the following criteria:

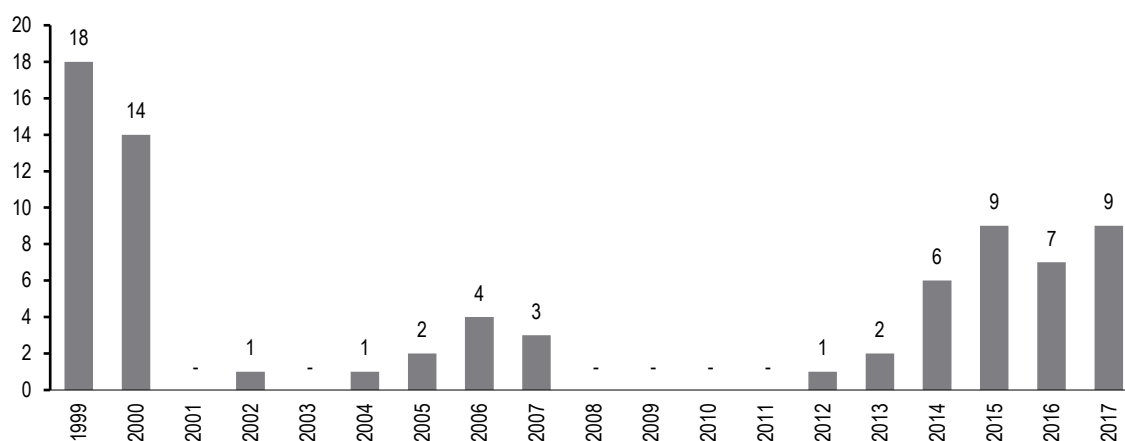
- 1) a company used IPO to the institutional and private investors as a listing method (i.e., no directed issues)
- 2) a company went public for the first time
  - i. a company has not been listed in Nasdaq Helsinki previously (e.g., Terveystalo Oyj went public in 2017 but its first IPO was executed already in 2007 when the company was known as Suomen Terveystalo Oyj, hence, the data comprise only the IPO executed in 2007)
  - ii. a company has not been listed in any other stock exchange (i.e., no secondary listings)
  - iii. no transitions from First North to the main list (e.g., Siili Solutions Oyj was originally listed in First North in 2012 and transferred to the main list in 2016, hence, only IPO executed in 2012 is included in the data)
- 3) IPO and the first public trading day realized before December 31, 2017

In addition to the criteria listed above, for the purpose of examining the long-run performance the companies should have been public at the minimum of three years at the time of collecting the data (i.e., before October 15, 2016), and a company that

executed an IPO has not been divided into two or several public companies within its first three-year period as a public company.

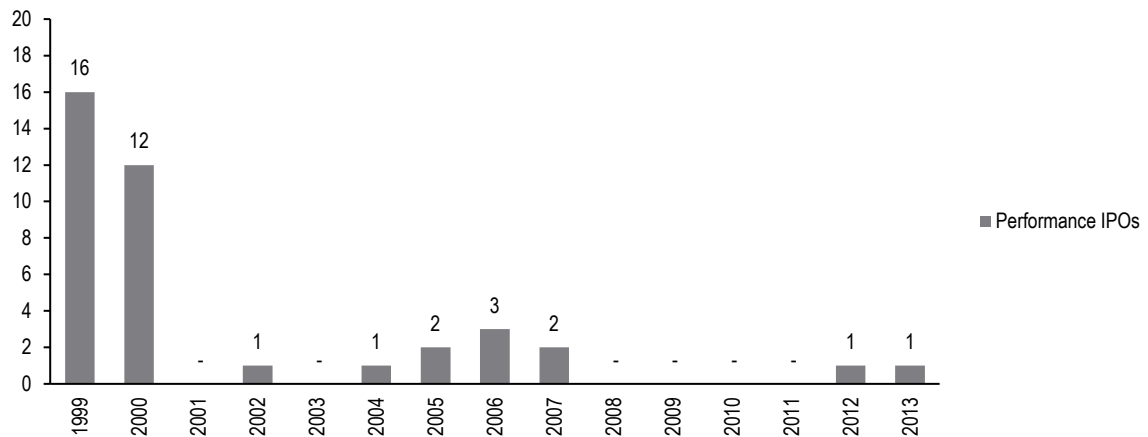
#### 4.1.1 Sample

All sample IPOs are presented in appendix 1. Figure 8 presented below illustrates the distribution of Finnish IPOs during the examination period. The figure also shows how the IPO activity has varied between different years. During the years 2001, 2003, and 2008–2011 there were no IPOs in Finland that would meet the criteria mentioned above. Low IPO activity in 2008–2011 might be a consequence of the financial crisis started in 2007. However, any potential implications or influences of the financial crisis to the Finnish IPOs are not examined in this research.



**Figure 8 – The distribution of the sample IPOs 1999–2017**

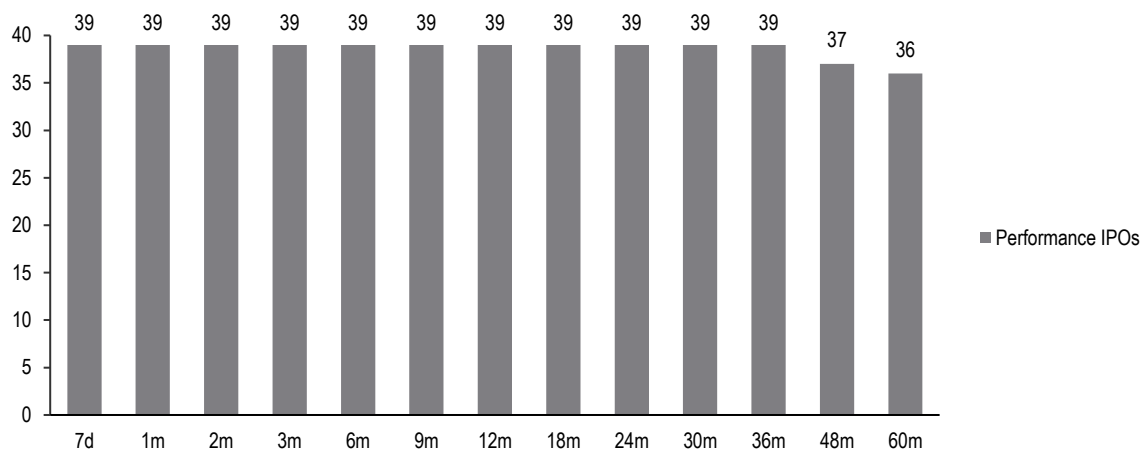
Underpricing and initial excess return are examined from all sample IPOs, consisting of 77 Finnish IPOs. Due to criteria restrictions mentioned before the data used for examining the performance contains 39 Finnish IPOs, comprising IPOs between January 1, 1999 and October 15, 2013 (figure 9). These restrictions are made in order to examine the performance with the corresponding data.



**Figure 9 – The number of IPOs per year used for the performance examination**

Due to the high fluctuation of IPO activity between years observing IPOs on a yearly basis does not lead to reliable analysis, and hence IPO data is examined as a whole.

Following figure 10 illustrates the number of IPOs that are examined in different holding periods.



**Figure 10 – The number of IPOs per period used for the performance examination**

It should be noted that the sample size decreases after the three-year period, and hence the results for the four-year and the five-year holding periods are not entirely comparable with the period of three years and under. The starting point of a holding period is the first public trading day of each IPO stock.



### 4.1.2 Underpricing

Underpricing is examined by comparing aftermarket value to the offering price of an IPO. The price realized on the first trading day is a stock's aftermarket value (Rock, 1986) and in this study the closing price of the first trading day represents the aftermarket value. Closing prices are gathered from Thomson Reuters Datastream, and offering prices from Nasdaq Helsinki, companies' websites or other reliable sources such as companies' annual reports. If there were more than one offering price, e.g., different prices for institutional and private investors, the average of these prices is used as an IPO price. Offering prices of employee issues have not been taken into account. Underpricing is calculated with the following formula:

$$\text{Underpricing} = UP_1 - IPO_p \quad (1)$$

where  $UP_1$  is an unadjusted closing price of the first trading day and  $IPO_p$  represents the offering price. Unadjusted price means that the price has not been adjusted afterward for example with paid dividends, and hence, unadjusted price is genuinely realized market price and comparable with the IPO price. An IPO has been underpriced if  $UP_1 > IPO_p$ , overpriced if  $UP_1 < IPO_p$ , and accurately priced if  $UP_1 = IPO_p$  (e.g. Rock, 1986).

### 4.1.3 Initial excess return ("IER")

Initial excess return denotes the first trading day return that would have been earned through an IPO comparing to the index. If a share would have been bought through an IPO and sold on the first trading day and the logarithmic change of these prices is larger than the logarithmic change of the index from the corresponding period an investor would have earned initial excess return. The index used in this study is OMX Helsinki Cap index, formerly known as HEX portfolio index. OMX Helsinki Cap includes all shares that are listed in Nasdaq Helsinki, however, a share's maximum weight is limited to 10% of the total market value of the index (Nasdaq Inc., 2017). The use of weight limited index reduces the impact of the shares that dominate the market, and hence, weighted index illustrates a more fragmented market which is

more suitable for the purpose of this study. Initial excess return (“IER”) is calculated by using the formula presented below:

$$IER = LN\left(\frac{UP_1}{IPO_p}\right) - LN\left(\frac{PI_1}{PI_{IPO}}\right) \quad (2)$$

where  $PI_1$  represents the value of the price index at the first public trading day of the stock, and  $PI_{IPO}$  stands for the price index value at the corresponding day of the IPO. Price index values are gathered from Thomson Reuters Datastream. The meaning of  $UP_1$  and  $IPO_p$  are the same as described before.

#### 4.1.4 Performance of IPOs

Performance of IPOs is examined in two different ways in this study: i) using Jensen’s alpha for calculating the abnormal returns, and ii) comparing realized returns of an IPO into the OMX Helsinki Cap return index (“OMXHCAP”). Total returns of IPO stocks, as well as return index, are collected from Thomson Reuters Datastream.

##### 4.1.4.1 Jensen’s alpha

The equation of Jensen’s alpha is derived from the capital asset pricing model and it is defined as follows (adapted from Jensen, 1967; Bodie, et al., 2005):

$$\alpha_{IPO} = \bar{R}_{IPO} - \left(\bar{R}_f + \beta_{IPO}(\bar{R}_m - \bar{R}_f)\right) \quad (3)$$

where  $\alpha_{IPO}$  is Jensen’s alpha for an IPO,  $\bar{R}_{IPO}$  is an average of realized returns of an IPO stock and realized market return  $\bar{R}_m$  is an average of OMX Helsinki Cap return index from the corresponding period, Euribor 12 months represents risk free rate  $\bar{R}_f$  for the period, and  $\beta_{IPO}$  is an IPO stock’s beta for the equivalent period. If  $\alpha_{IPO} > 0$  an IPO has earned abnormal returns meaning that the stock has performed better than was expected according to CAPM.

Realized average returns for IPO and market are generated by calculating logarithmic changes from daily total return data. Due to the use of daily data Euribor 12 months is changed to logarithmic daily values. In this study alphas are examined for following periods: seven days, one month, two months, three months, six months, nine months, twelve months (one year), 18 months (1,5 years), 24 months (two years), 30 months (2,5 years), 36 months (three years), 48 months (four years), and 60 months (five years). Periods consist of trading days instead of calendar days, and hence one month is actually 21 days, two months 42 days, one year comprises 252 days and so forth. Betas are also calculated separately for these periods by using slope function in Excel. In addition, alphas and betas are tested for randomly selected IPOs by using linear regression in order to achieve confidence in testing methods.

#### 4.1.4.2 IPO against the market

As mentioned, the performance of IPOs against the market is examined by using daily total return index data and comparing the return from IPOs to a return index. This test illustrates how well IPOs perform against the market, i.e., would an investor have been able to achieve higher returns by investing in an IPO than by investing in an index.

In former studies, e.g., Ritter (1991), Keloharju (1993), and Gompers & Lerner (2003), IPOs were compared either to index or a peer group for the purpose of examining the performance. These peer groups comprised public companies matched by industry and size with the corresponding IPO company. As Nasdaq Helsinki is a relatively small market place it is more rational to use OMX Helsinki Cap return index in this study.

The performance is examined for the same periods as alpha (see above). The formula used for calculating the returns is presented below:

$$Return = LN \left( \frac{Rindex_n}{Rindex_1} \right) \quad (4)$$

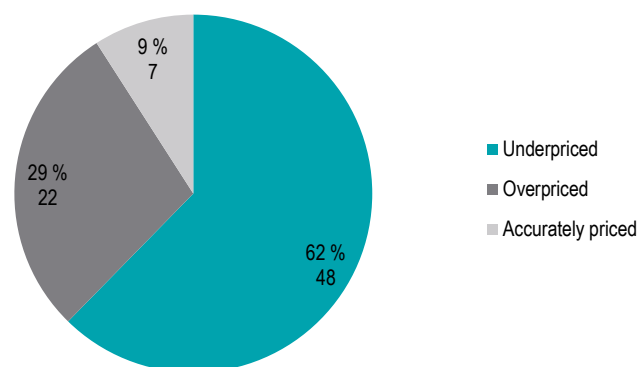
where  $Rindex_1$  is the return index value for a stock (always gets the value 100) at the end of trading on the first trading day and  $Rindex_n$  is the return index value for the last day of the examined period  $n$ . The purpose of this is to examine IPOs' performance in a short and the long-run. The return for the index is calculated with the same formula and the same intervals. If  $Return_{IPO} > Return_m$  an IPO outperformed compared to the market, and vice versa.

## 4.2 Results

This section illustrates the received results from examined factors presented above: underpricing, initial excess return, abnormal returns, and performance against the market.

### 4.2.1 Underpricing

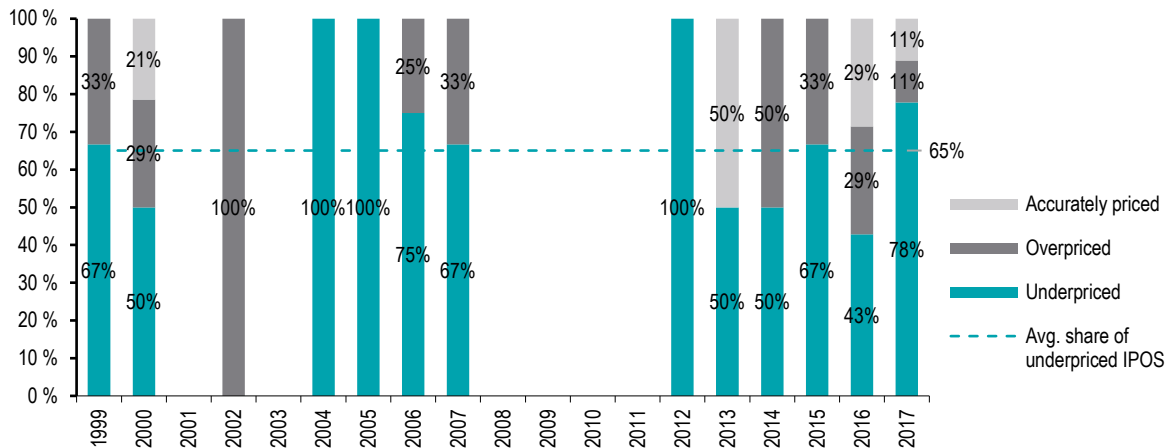
Over 62% of all observed IPOs are underpriced which means 48 IPOs out of 77. Circa 29% are overpriced and 9% are priced accurately (figure 11).



**Figure 11 – Total distribution of IPOs' pricing 1999–2017**

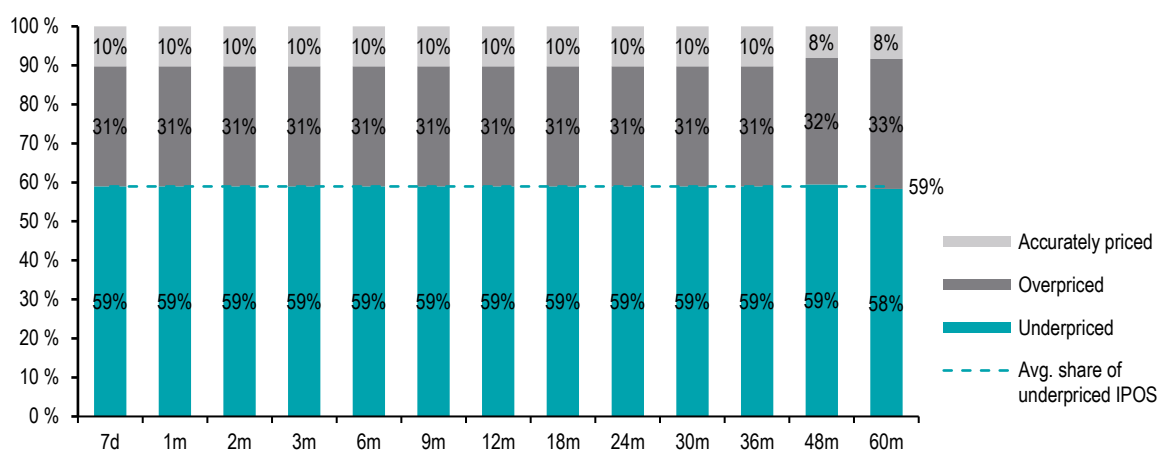
Due to the high fluctuation of the IPO activity, the share of underpriced IPOs varies between 0%–100% depending on the year. The average yearly share of

underpriced IPOs is 65% and the yearly median is 67%. Following figure 12 presents the distribution of IPOs' pricing on a yearly basis.



**Figure 12 – Distribution of IPOs' pricing per year**

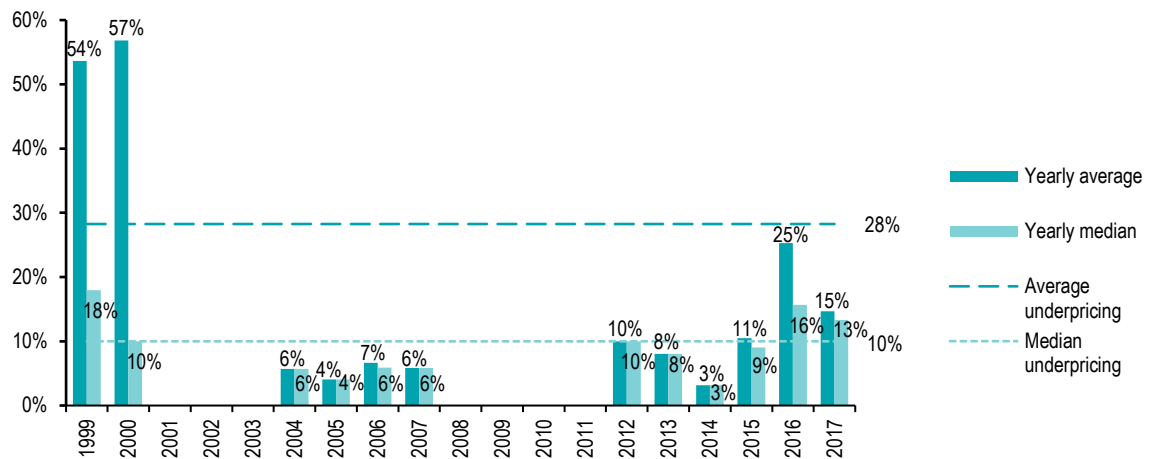
As mentioned earlier in connection with the chapter of data and methodology IPOs used for performance examination amount to 39 for the 7 days to 36-month period, 37 IPOs for 48-month period and 36 IPOs for 60-month period. The total share of underpriced IPOs is ca. 59% which is naturally also the periodic average and median. This means 21–23 IPOs (figure 13).



**Figure 13 – The distribution of IPOs' pricing per period of IPOs used in performance examination**

The average underpricing level is 28.3% from all underpriced IPOs while the median underpricing level is 10.0%. Figure 14 below presents the average and the median

underpricing level by year and in addition total average and median underpricing from the review period.



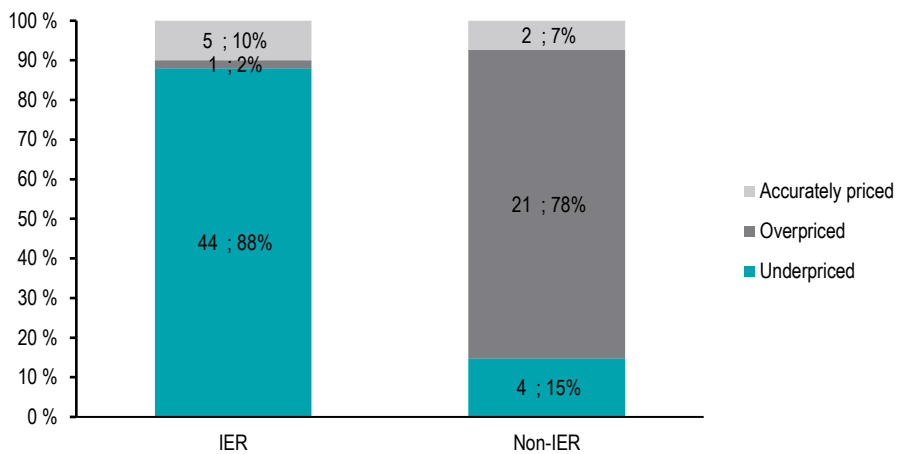
**Figure 14 – Yearly and total average and median underpricing 1999–2017**

Comparing the yearly highest underpriced IPOs the average maximum underpricing is 57.5% and the median is 10.6%. Respectively comparing all the lowest underpriced IPOs per year the average minimum underpricing level is 4.7% and the median is 3.4%. The highest underpriced IPO is Basware Oyj's listing in 2000. Basware Oyj's IPO is underpriced by 278.0%. The lowest underpriced IPO is Affecto Oyj's listing in 2005 that is underpriced only by 0.2%.

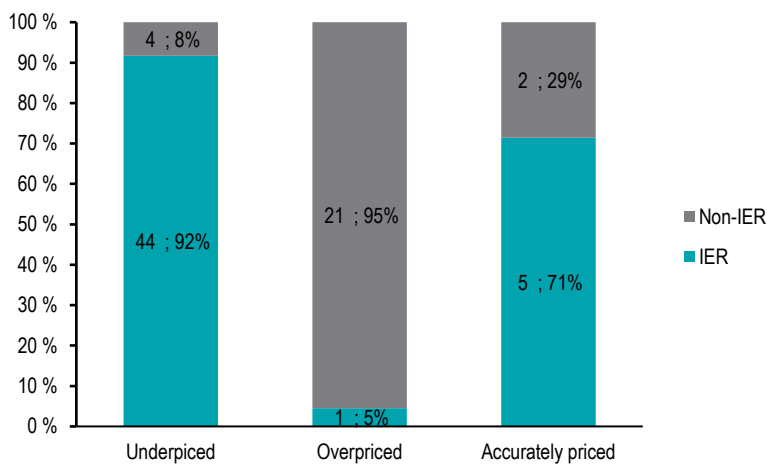
The average overpricing level is 11.5% and the median is 8.2% from all overpriced IPOs. The highest overpriced IPO is FIT Biotech Oy in 2015 with 33.3% overpricing, and the lowest overpriced IPO is Wecan Electronics Oyj (later divided into Scanfil Oyj and Sievi Capital Oyj) in 2000 with 0.2% overpricing. The maximum overpricing level is 19.5% on the average and the median is 21.8% when comparing only the highest overpriced IPOs of each year. Respectively average minimum overpricing is 8.5% and the median is 2.5% from the lowest overpriced IPOs.

#### 4.2.2 Initial excess return (“IER”)

Circa 65% IPOs achieved an initial excess return on the first trading day, i.e., 50 IPOs of 77. Out of these 50 IPOs 44 are underpriced, one is overpriced and five are accurately priced. This means that 92% of all underpriced IPOs achieved initial excess return while the corresponding share for accurately priced IPOs is 71% and only 5% for overpriced IPOs. Respectively 78% of the IPOs that did not achieve initial excess return are overpriced (21 IPOs), and only 15% are underpriced (4 IPOs). The following figures illustrate the relations of IPOs’ pricing and initial excess return. Figure 15 shows how IER and non-IER are divided between each pricing and figure 16 represents how each pricing is divided between IER and non-IER.

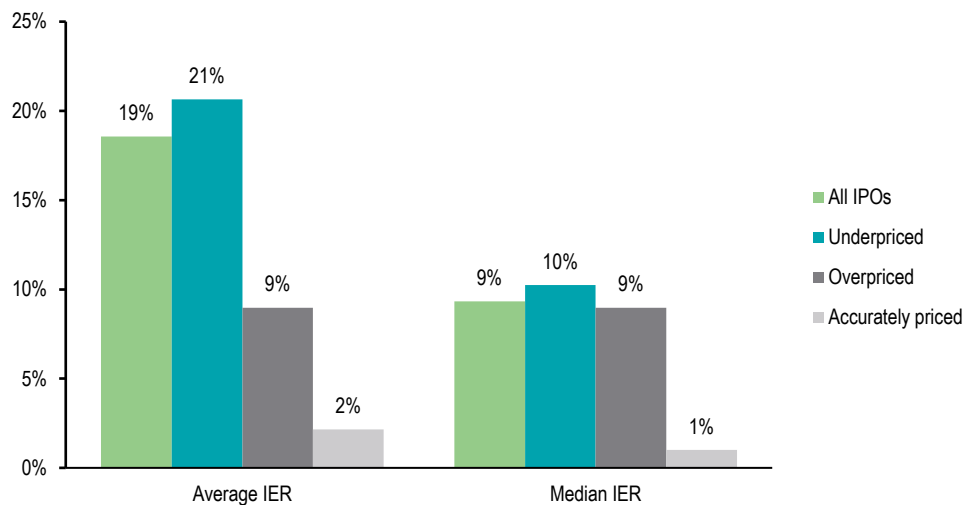


**Figure 15 – Breakdown of IPOs’ pricing per IER and non-IER**



**Figure 16 – The share of initial excess return per IPOs’ pricing**

Figure 17 presents the average and the median initial excess return divided into IPO pricing categories. The average initial excess return in total is 18.6% and the median is 9.3% while the average initial excess return from underpriced IPOs is 20.6% and the median is 10.2%. Corresponding average and median initial excess return is 9.0% from overpriced IPOs, and 2.2% and 1.0% from accurately priced IPOs, respectively.



**Figure 17 – Average and median IER per IPOs' pricing**

The highest achieved initial excess return is 131.4% and it is from underpriced IPO, Basware Oyj that is also the highest underpriced IPO as mentioned earlier. The lowest initial excess return is gained from an accurately priced IPO and totaled to 0.2%.

#### 4.2.3 Performance of IPOs

As a reminder the performance of IPOs is examined by using i) Jensen's alpha, and ii) comparing the return index value for IPOs into the OMX Helsinki Cap return index. Performance is examined within the periods from seven days to 60 months and the number of IPOs examined within each period varies between 36–39 depending on the time the company has been listed and the criteria mentioned earlier. The number of IPOs examined in the periods from 7 days to 36 months (i.e. 3 years) amounted to 39 each, 48 months



(i.e. 4 years) period comprise 37 IPOs, and a period of 60 months (i.e. 5 years) 36 IPOs (see the figure 10).

#### 4.2.3.1 Abnormal returns (Jensen's alpha)

Table 2 presented below shows the share of positive alphas of examined IPOs divided by pricing categories. The pricing category which achieved the highest share of positive alphas in each period is marked in green.

**Table 2 – Share of positive alpha per IPOs' pricing<sup>3</sup>**

	7d	1m	2m	3m	6m	9m	12m	18m	24m	30m	36m	48m	60m
All	46.2 %	28.2 %	43.6 %	46.2 %	43.6 %	46.2 %	43.6 %	38.5 %	28.2 %	30.8 %	25.6 %	24.3 %	19.4 %
U	39.1 %	30.4 %	47.8 %	47.8 %	52.2 %	52.2 %	47.8 %	47.8 %	30.4 %	39.1 %	30.4 %	27.3 %	23.8 %
O	50.0 %	25.0 %	33.3 %	33.3 %	33.3 %	33.3 %	33.3 %	25.0 %	16.7 %	8.3 %	16.7 %	16.7 %	16.7 %
A	75.0 %	25.0 %	50.0 %	75.0 %	25.0 %	50.0 %	50.0 %	25.0 %	50.0 %	50.0 %	25.0 %	33.3 %	0.0 %

Less than half of all IPOs have a positive alpha despite of the holding period meaning that under 50% of all IPO stocks earn abnormal returns. Accurately priced IPOs perform better compared to other IPOs as the share of positive alpha is 50% or above in periods of 7 days, 2 months, 3 months, 9 months, 12 months, 24 months, and 30 months. More than 50% of underpriced IPOs have a positive alpha in 6 and 9 months periods, and over 40% from 2 to 18 months. Half of the overpriced IPOs achieve abnormal returns only in the first seven days period. Furthermore, the share decreases notably being 25%–33% from one-month period to 18 months period and even under 20% from 24 months onwards. Comparing only the share of positive alpha between pricing categories accurately priced IPOs have the highest share seven times and underpriced IPOs six times in the examination period. Overpriced IPOs have not reached the highest share in the examination period.

As the number of examined IPOs varies notably in terms of pricing, for example, underpriced IPOs amounted to 21–23 in different periods while the number of accurately priced IPOs is only four or three (four in periods 7d–6m, three in periods 48–60m), hence, it is not possible to make reliable conclusions of the performance only based on the share of IPOs receiving abnormal returns. Instead of comparing

<sup>3</sup>All" = all examined IPOs, "U" = underpriced IPOs, "O" = overpriced IPOs, "A" = accurately priced IPOs

the share of abnormal returns it is more rational and comprehensive to compare the level of abnormal returns. For example, accurately priced IPOs have the highest share in seven periods and in addition reach the highest share of all, 75%, (table 2). However, accurately priced IPOs have the highest median abnormal return only two times and not at all the highest average abnormal return. The average and the median abnormal return per pricing categories are presented in the following tables 3 and 4.

**Table 3 – Average abnormal return<sup>4</sup>**

	7d	1m	2m	3m	6m	9m	12m	18m	24m	30m	36m	48m	60m
All	0.7 %	0.7 %	0.5 %	0.4 %	0.3 %	0.3 %	0.2 %	0.1 %	0.1 %	0.1 %	0.0 %	0.0 %	0.1 %
U	0.9 %	0.8 %	0.4 %	0.6 %	0.3 %	0.3 %	0.3 %	0.2 %	0.1 %	0.1 %	0.1 %	0.1 %	0.0 %
O	0.5 %	0.7 %	0.8 %	0.3 %	0.2 %	0.2 %	0.2 %	0.1 %	0.0 %	0.0 %	0.0 %	0.1 %	0.1 %
A	0.8 %	0.0 %	0.1 %	0.1 %	0.2 %	0.1 %	0.1 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	-

The highest average abnormal returns can be clearly achieved most often through underpriced IPOs as these IPOs have the highest average abnormal return in nine periods (table 3). Underpriced IPOs achieve also the highest median in most periods compared to overpriced and accurately priced IPOs (table 4).

**Table 4 – Median abnormal return<sup>4</sup>**

	7d	1m	2m	3m	6m	9m	12m	18m	24m	30m	36m	48m	60m
All	0.5 %	0.7 %	0.3 %	0.3 %	0.3 %	0.3 %	0.2 %	0.1 %	0.1 %	0.0 %	0.0 %	0.0 %	0.0 %
U	0.4 %	0.7 %	0.3 %	0.5 %	0.3 %	0.3 %	0.2 %	0.1 %	0.1 %	0.1 %	0.0 %	0.1 %	0.0 %
O	0.5 %	0.4 %	0.7 %	0.3 %	0.2 %	0.1 %	0.2 %	0.1 %	0.0 %	0.0 %	0.0 %	0.1 %	0.1 %
A	0.7 %	0.0 %	0.1 %	0.0 %	0.2 %	0.1 %	0.1 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	-

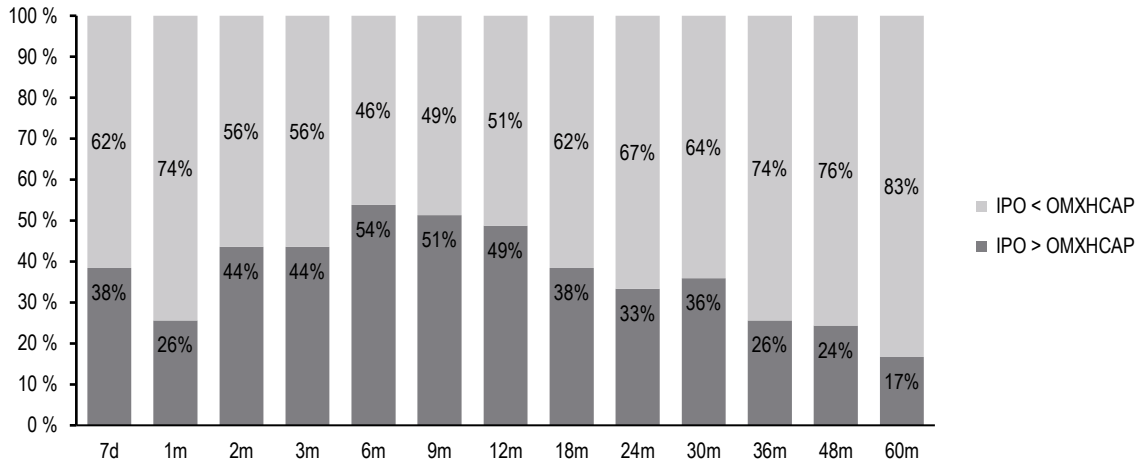
Furthermore, underpriced IPOs have overall the highest average and median abnormal returns, 0.86% in 7 days period and 0.74% in one-month period, respectively.

#### 4.2.3.2 IPO against the market

Figure 18 shows the overall performance of IPOs against the market by showing how many IPOs received higher returns than the OMX Helsinki Cap. The results show that quite many of the IPOs received higher returns than the OMX

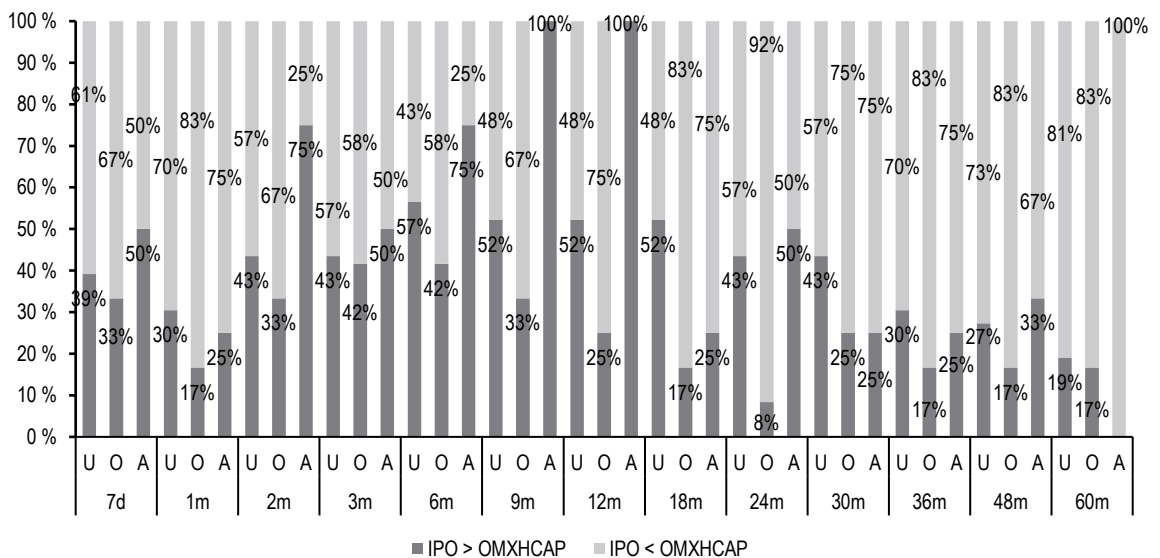
<sup>4</sup>Tables 3 and 4 comprise only the IPOs that have achieved abnormal returns, i.e., an IPO stock has a positive alpha

Helsinki Cap but the share exceeds 50% only two times, 6 and 9 months period which means that usually the market outperforms the IPOs.



**Figure 18 – All IPOs against OMX Helsinki Cap return index**

When comparing IPOs per pricing categories (figure 19) the share of underpriced IPOs that received higher returns than the market is an average 41%, while the corresponding average is 25% for overpriced and 49% for accurately priced IPOs.



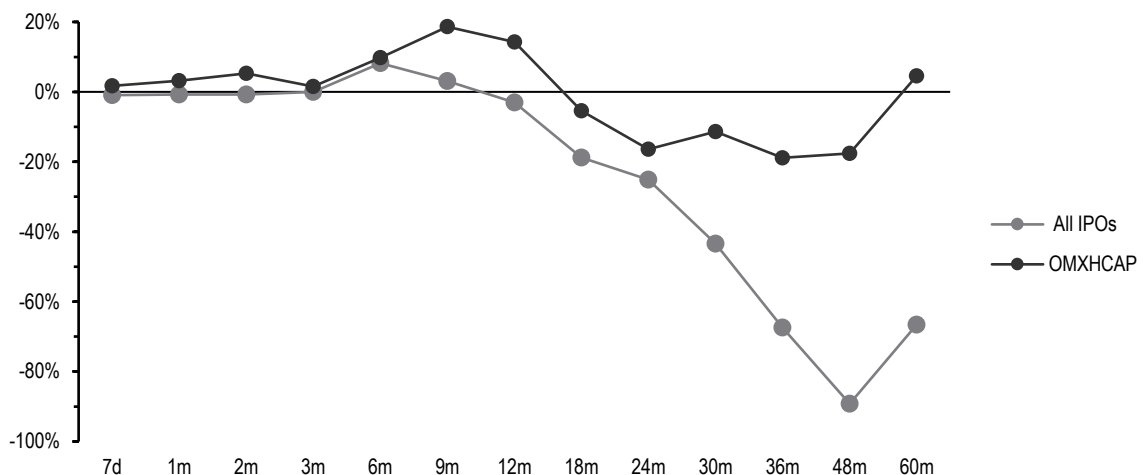
**Figure 19 – IPOs per pricing against OMX Helsinki Cap return index**

As mentioned in the connection to Jensen’s alpha to receive a further picture of IPOs’ performance it is not valuable to observe alone the share of IPOs that exceed

the market as the number of IPOs in different pricing categories varies notably. In order to examine the performance of IPOs further also the level of returns is compared against the market.

In order to limit the impact of deviation in the returns from IPOs, i.e. outliers, it is more reliable to use median return instead of average return. Furthermore, OMX Helsinki Cap return index give a maximum weight of 10% for a single stock, hence, the median return is more comparable. An alternative valid method is to use weighted average, however, the median is used in this study.

Figure 20 illustrates median returns from all IPOs by examination periods as well as the corresponding median from the OMX Helsinki Cap return index. The results show that the market clearly outperforms IPOs.



**Figure 20 – Median return from all IPOs and OMX Helsinki Cap return index**

Median returns are presented in values in table 5. The table presents median returns from all IPOs divided into pricing categories, and the median market return from the corresponding intervals as a peer group.

**Table 5 – Median return<sup>5</sup>**

	7d	1m	2m	3m	6m	9m	12m	18m	24m	30m	36m	48m	60m
<b>All</b>	-0.9 %	-0.7 %	-0.8 %	0.0 %	8.2 %	3.1 %	-3.0 %	-18.8 %	-25.1 %	-43.5 %	-67.4 %	-89.2 %	-66.6 %
<b>U</b>	-1.2 %	-1.2 %	0.4 %	0.4 %	9.5 %	20.1 %	13.7 %	10.1 %	-17.4 %	-10.3 %	-35.2 %	-77.9 %	-49.6 %
<b>O</b>	-0.8 %	-0.7 %	-10.8 %	-7.9 %	5.0 %	-15.8 %	-8.0 %	-40.3 %	-89.6 %	-101.0 %	-110.5 %	-97.2 %	-77.7 %
<b>A</b>	0.2 %	-0.4 %	1.4 %	-1.0 %	-12.9 %	-8.3 %	-19.9 %	-26.6 %	-17.6 %	-41.9 %	-55.2 %	-46.9 %	-56.1 %
<b>M</b>	1.7 %	3.2 %	5.3 %	1.5 %	9.8 %	18.6 %	14.3 %	-5.4 %	-16.4 %	-11.3 %	-18.9 %	-17.6 %	4.6 %

Figure 21 illustrates how differently priced IPOs performed each other. Overall underpriced IPOs performed better than other IPOs except for 48 months period where accurately priced IPOs median return is clearly higher. Median returns are quite steady for all IPOs in periods of 7 days and one-month, and for underpriced and accurately priced IPOs until three months. Accurately priced IPOs achieved the highest returns in 7 days, one month and two months periods. Underpriced IPOs have the lowest median returns in 7 days and one-month periods. As can be seen from the figure 21 overpriced IPOs do not outperform both underpriced and accurately priced IPOs, but in periods of 7 days, one-month, six months and twelve months overpriced IPOs received second highest median return compared to other IPOs.

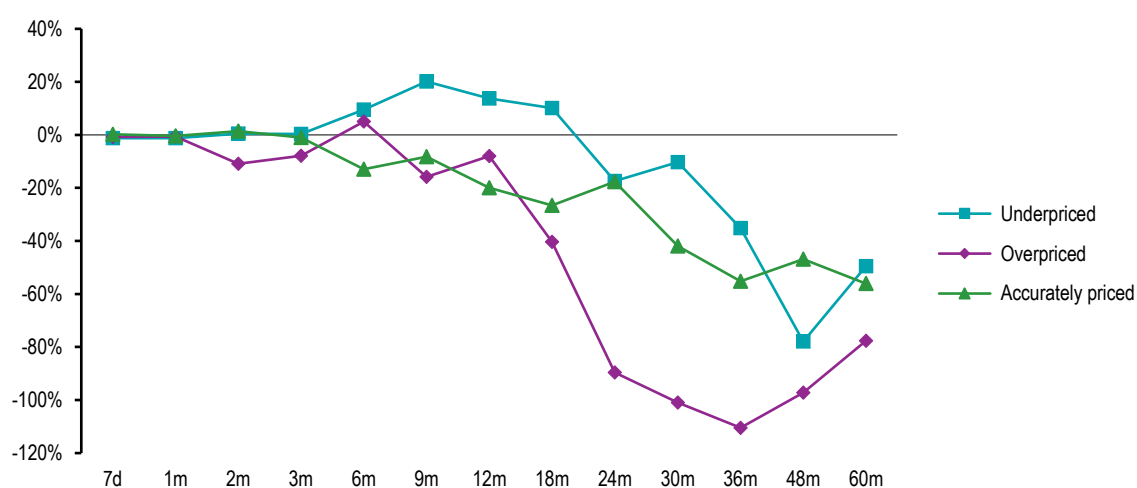
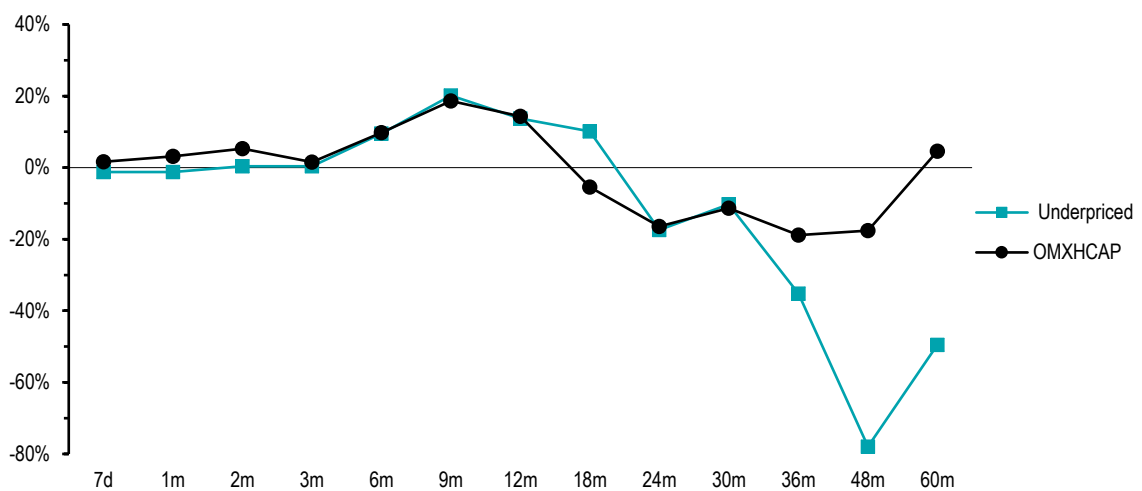
**Figure 21 – Median return by IPOs' pricing category**

Figure 22 illustrates how underpriced IPOs perform against the market. As mentioned earlier the OMX Helsinki Cap return index have higher returns in overall

<sup>5</sup>"M" = market, refers to OMX Helsinki Cap return index

during the examination period. However, returns from underpriced IPOs exceed the market in nine, 18 and 30 months periods. Returns from underpriced IPOs and the market are rather even from 3 to 12 months and from 24 to 30 months, when the swing is 0.3%-1.5% and 1.0%-1.1%, respectively. The gap between the returns from underpriced IPOs and the market is notably larger in other periods. For example, while the gap between the returns in periods of 7 days to two months shows minor in the figure 22 the swing is 2.9%-4.9%.



**Figure 22 – Median return from underpriced IPOs and OMX Helsinki Cap return index**

Table 6, presented below, shows how much IPOs have under- or overperformed the market. The table compares the median returns from IPOs and the market from the same period and the difference between the returns is presented in the table. If the value is negative, IPOs have underperformed the market in the current period and a positive value means that IPOs have outperformed the market. As noted earlier figure 18 the market clearly outperforms IPOs when all IPOs are measured as a lump. This performance could be seen from the negative values presented in the table's first row.

**Table 6 – IPOs’ performance against the market**

	7d	1m	2m	3m	6m	9m	12m	18m	24m	30m	36m	48m	60m
<b>All</b>	-2.5 %	-3.8 %	-5.8 %	-1.5 %	-1.4 %	-13.1 %	-15.1 %	-14.2 %	-10.4 %	-36.2 %	-59.8 %	-86.9 %	-68.0 %
<b>U</b>	-2.8 %	-4.3 %	-4.7 %	-1.2 %	-0.2 %	1.3 %	-0.5 %	16.4 %	-1.2 %	1.2 %	-20.1 %	-73.2 %	-51.8 %
<b>O</b>	-2.4 %	-3.7 %	-15.4 %	-9.3 %	-4.3 %	-29.0 %	-19.5 %	-36.9 %	-87.6 %	-101.1 %	-112.9 %	-96.6 %	-78.7 %
<b>A</b>	-1.4 %	-3.5 %	-3.7 %	-2.5 %	-20.7 %	-22.7 %	-29.9 %	-22.4 %	-1.4 %	-34.4 %	-44.8 %	-35.5 %	-58.0 %

The table 6 shows that underpriced IPOs have outperformed the market in nine, 18 and 30 months holding periods as presented also in the figure 22. Accurately and overpriced IPOs have not performed better than the market in the measured holding periods as shown in rows “O” and “A”.

To illustrate the results presented in the tables 5 and 6 (median returns and performance comparison) a practical example is presented below:

*An investor has €100 and decides to invest it to a) an IPO portfolio including all IPOs, b) the OMX Helsinki Cap return index (the market), c) an IPO portfolio including only underpriced IPOs. The investment is made at the first trading day of IPOs and exactly the same day to the market. The holding period is 1.5 years (18 months) for all alternatives.*

- a) After 1.5 years the return from IPO portfolio is -18.8% (table 5) which means that the current value of invested €100 is €81.16.
- b) After the same 1.5 year holding period the return from the market amount to -5.4% (table 5) which means €94.60.

*Result: Same invested amount, €100 in this example, brings 14.2% lower result when it is invested in IPOs instead of OMX Helsinki Cap return index (table 6).*

- c) When the amount is invested to IPO portfolio including only underpriced IPOs the return is 10.1% which means €110.14 after the same 1.5 year holding period (table 5).

*Result: The outcome is completely different as the return from the market amounted to €94.60 (-5.4%) underpriced IPOs outperformed the market by 16.4% (table 6).*

However, this is only a result for a one holding period and even underpriced IPOs receive higher returns than the market in total of three holding periods, the market clearly performs better than any of the IPOs.



#### 4.2.4 Summary of key findings

Key findings of the results presented above are gathered in table 7. The aim of the table is to summarize all relevant findings related to the research topics.

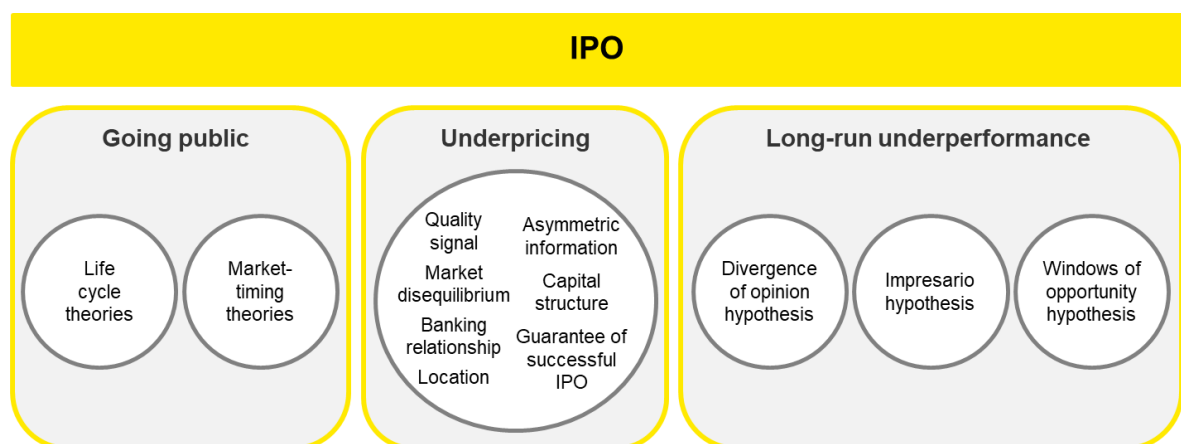
**Table 7 – Summary of key findings**

<b>Underpricing</b>	
Underpricing	62 % of sample IPOs are underpriced
Average underpricing	28.3 % measured from all underpriced sample IPOs
Median underpricing	10.0 % measured from all underpriced sample IPOs
<b>Initial excess return</b>	
Initial excess return	65 % of sample IPOs received initial excess returns, of which 88 % are underpriced IPOs
Average IER	18.6 %
Median IER	9.3 %
Average IER from underpriced IPOs	20.6 %
Median IER from underpriced IPOs	10.2 %
<b>Abnormal return</b>	
Share of abnormal return	<50 % of all sample IPOs received abnormal returns in examined periods
Share over 50% of IPOs received abnormal returns	Underpriced IPOs in 2 periods, overpriced IPOs in zero periods, accurately priced IPOs in 6 periods
The highest average abnormal return	Underpriced IPOs in 9 periods, overpriced IPOs in 3 periods
The highest median abnormal return	Underpriced IPOs in 8 periods, overpriced IPOs in 3 periods, accurately priced IPOs in 2 periods
<b>Performance against the market</b>	
Average share of IPOs received higher returns than the market	41% underpriced IPOs, 25% overpriced IPOs, 49% accurately priced IPOs
Returns from IPOs	Underpriced IPOs received higher returns than other IPOs in all periods except 48 months period
IPO return exceeds the market return	Return from underpriced IPOs exceed the market return in 3 periods

## 5 CONCLUSIONS

The purpose of this study was to examine the underpricing of Finnish IPOs and how the underpricing impacts the performance of these stocks in the short-run and in the long-run. Furthermore, the aim was to observe how IPOs perform against the Finnish market and does the pricing affects the performance.

Theories and aspects that have been presented in this study are gathered in the following figure 23. The left part of the figure represents the theories that are explaining why companies are willing to go public, the middle section is presenting the reasons why IPOs are underpriced and the part on the right illustrates the theories relating to IPOs' long-run underperformance. These theories and matters were presented in former studies and are discussed in more detail in connection to the theoretical background and literature review sections of this thesis.



**Figure 23 – Theories and other matters relating to IPOs**

The used data comprised 77 IPOs that have been executed in Finland 1999-2017, and tested factors were underpricing, initial excess return, abnormal return and performance in periods from 7 days to five years.

Three research questions were presented and the thesis was able to provide answers to these research topics. Appointed research questions were:

- i. Are Finnish IPOs underpriced?*
- ii. Do underpriced IPOs achieve higher returns than other IPOs?*
- iii. How underpricing affects company performance on the short- and on the long-run?*

## **5.1 Summary of findings and discussion**

The majority of the IPOs in Finland between 1999–2017 are underpriced. The overall share of underpriced IPOs is 62% while the yearly average is 65%. These results support former studies that have shown that most of the IPOs are underpriced globally and despite the year. According to this study the average underpricing level of Finnish IPOs in 1999–2017 is 28.3% measured from all IPOs explored in this thesis. The level is notably higher than former studies have proven. Based on Smith (1986) average underpricing is over 15% while Ritter and Welch (2002) show evidence of 19% underpricing. If the highest underpriced IPO (Basware Oyj) is excluded from the results the average underpricing totaled to 16.5% which is more in line with former studies. However, IPOs explored by Ritter and Welch (2002) are executed later than IPOs included in Smith's (1986) study. Based on the evidence presented in former studies the trend of underpricing increases over the years. As this thesis includes relatively most recent IPOs, the findings of higher average underpricing level are in line with the increasing underpricing trend.

The number of IPOs varies notably during the examination period. According to market-timing theories the volume of IPOs is in a relation with the market movements and companies are executing more IPOs when the economy is an upturn. It clearly shows in the Finnish market that IPO volumes follow the market trends. The highest volume in Finland was in 1999 when the global economy was in an upward trend. The growth of the European economy started to slow in 2000 while the economic growth was still ongoing in Finland and reflecting positively to listing volume. High listing volumes in Finland during 1999-2000 are partially

attributable to the global dotcom bubble. After the financial crisis started in 2007 there was no IPO activity in Finland during 2008–2011. In connection with the economic recovery IPO activity has started to increase again in 2014–2017.

Initial excess return is achieved by 65% of all IPOs while the share of underpriced IPOs 92%, overpriced 5% and accurately priced 71%. It could be said that it is more likely to reach initial excess returns if the IPO is underpriced. Furthermore, the level of achieved return is higher from underpriced IPOs than other IPOs.

Accurately priced IPOs gain most often abnormal returns compared to other IPOs. However, underpriced IPOs of gained constantly higher abnormal than accurately priced IPOs. Overall both the share of IPOs that achieve abnormal returns and the level of abnormal returns have a downward trend in terms of time, i.e., more IPOs reached abnormal returns and returns are higher in shorter holding periods and the amount decreases over the holding period. This result from Finnish IPOs is also in line with the former studies which states that abnormal returns are most often achieved in the short-run.

When comparing the performance of IPOs to the market by using total returns from IPO stocks and a return index (OMX Helsinki Cap), according to this study it is clear that the market performs better than the IPOs. This finding is in line with the evidence presented by e.g. Ritter (1991), Keloharju (1993) and Ritter and Welch (2002). Almost without exception the return received from the market is higher than the returns from the IPO stock. Former studies explore the performance in three-year holding period. According to these studies IPOs' underperformance has been 16.9% (Ritter, 1991), 23.4% (Ritter & Welch, 2002) and according to Keloharju (1993) underperformance of Finnish IPOs amounted to 21.1%. This thesis shows that IPOs' performance is even worse nowadays as underperformance in the three-year holding period amounted to 59.8% measured from the median return from all IPOs, and corresponding underperformance of underpriced IPOs' is 20.1%. The underperformance of underpriced IPOs in Finland 1999–2017 is slightly better than Keloharju (1993) presents in his study for all Finnish IPOs in 1984–1989. Moreover, if returns from IPO stocks are compared against each other, results show that the

highest returns are achieved from underpriced IPOs. Furthermore, only underpriced IPOs reached higher returns than the market, although only in three holding periods.

The question is how an investor could know beforehand if the IPO is underpriced or not? Due to asymmetric information this is a true challenge, especially for an individual investor. If an investor is willing to achieve all potential upsides that could be achieved through IPOs there are two alternatives. One is to invest in an IPO itself and if the IPO is underpriced an investor could sell the IPO stock at the first public trading day and achieve initial excess returns. But once again it is impossible to know the closing price beforehand. Of course, an investor can follow the trading activity and make assumptions of the forthcoming closing price but the risk is present. However, if an investor follows the share price in real-time and sells the IPO stocks right away if the share price exceeds the IPO price it is possible to earn some return. It should be remembered that every movement in the market impacts the share price due to the law of supply and demand. If an investor decides to not to sell the IPO share and the closing price shows that the IPO is underpriced, an investor could keep the share as it is more likely to earn abnormal returns from underpriced IPO shares than others. The second alternative is to purchase a share in the first trading day if the price is higher than the IPO price was, as it is more likely that also the closing price would amount higher than the IPO price meaning that the IPO is underpriced. As mentioned, it is more likely to achieve abnormal returns from underpriced IPOs and also the long-run performance is better. As said it is really challenging to know if the IPO is underpriced. If an investor decides to purchase an IPO stock or invest in it in the first trading day and then realizes that the IPO is overpriced, an investor could consider trying to sell the overpriced stock and take a hit as damage control.

According to these results, an investor would receive higher returns by investing in the market than in IPOs. The same outcome was observed in former studies (e.g. Ritter, 1991, Keloharju, 1993). However, if an investor chooses to invest in IPOs, underpriced IPOs are the most reasonable choice in order to maximize the profit. This conclusion is also valid if an investor decides to invest in direct shares at the later point of a company's life cycle, as underpriced IPOs perform better than accurately

or overpriced IPOs in terms of every aspect researched in this study, hence an investor should invest in a company which IPO was underpriced.

To conclude the findings of this thesis, research questions and corresponding conclusions are summarized below:

*Q: Are Finnish IPOs underpriced?*

A: Based on the results from this study Finnish IPOs are generally underpriced.

*Q: Do underpriced IPOs achieve higher returns than other IPOs?*

A: Yes, if IPOs are compared against each other, underpriced IPOs achieve higher returns.

*Q: How underpricing affect company performance on the short- and on the long-run?*

A: Based on the results it seems that underpricing is affecting positively to the company's performance in both short- and long-run. This result was observed in terms of initial excess return, abnormal return and also when comparing the performance to the market.

The key take away from this thesis can be phrased as follows: It cannot be emphasized enough that there is no guarantee to achieve any abnormal returns or better performance through underpriced IPOs either. As always, every investment includes some risks, nevertheless, the chances to succeed are better with underpriced IPOs.

## **5.2 Further research topics**

This thesis provided a lot of information related to the research topics, however, the deeper the dive in these topics were the more questions arose. For example, was the sample size sufficient or should the number of IPOs have been larger, is there a difference in terms of i) underpricing and ii) performance if the company is listing to the main market or to the First North, how financial crisis have affected the level

of underpricing and performance of IPOs executed during financial crises or before and after it. In addition, it would be interesting to find answers on the following topics:

- *Does the level of underpricing vary between the issuing company's industry?*
- *Is there a difference in underpricing level and earned returns when a company is executing a secondary listing (i.e. a company has been listed before e.g. Terveystalo Oyj)?*
- *Do the level of underpricing, abnormal return, and performance depend on the gender of issuing company's CEO and CFO?*
- *Are abnormal returns and performance greater for "responsible companies", e.g. green values, ethical responsibility, etc.?*

## REFERENCES

- Black, B. S. & Gilson, R. J., 1998. Venture Capital and the Structure of Capital Markets: Bank versus Stock Markets. *Journal of Financial Economics*, Volume 47, pp. 243 - 277.
- Bodie, Z., Kane, A. & Marcus, A. J., 2005. *Investments*. 6th ed. s.l.:The McGraw-Hill Companies Inc..
- Brav, A. & Gompers, P. A., 1997. Myth or Reality? The Long-Run Underperformance of Initial Public Offerings: Evidence from Venture and Nonventure Capital-Backed Companies. *The Journal of Finance*, 52(5), pp. 1791 - 1821.
- Carter, R. & Manaster, S., 1990. Initial Public Offerings and Underwriter Reputation. *Journal of Finance*, 45(4), p. 1045–1067.
- Chemmanur, T. J. & Fulghieri, P., 1999. A Theory of the Going-Public Decision. *The Review of Financial Studies*, 12(2), pp. 249 - 279.
- Choe, H., Masulis, R. W. & Nanda, V., 1993. Common Stock Offerings Across the Business Cycle: Theory and Evidence. *Journal of Empirical Finance*, 1(1), pp. 3 - 31.
- Financial Supervisory Authority, 2009. *Sisäpiirirekisteri ja sisäpiiriasioiden hallinnointi*. [Online]  
Available at:  
<http://www.finanssivalvonta.fi/fi/Listayhtiolle/Listautuminen/Sisapiiriasiat/Pages/Default.aspx>  
[Accessed 17 October 2016].
- Financial Supervisory Authority, 2013. *Jatkuva tiedonantovelvollisuus*. [Online]  
Available at:  
[http://www.finanssivalvonta.fi/fi/Listayhtiolle/Listautuminen/Jatkuva\\_tiedonantovelvollisuus/Pages/Default.aspx](http://www.finanssivalvonta.fi/fi/Listayhtiolle/Listautuminen/Jatkuva_tiedonantovelvollisuus/Pages/Default.aspx)  
[Accessed 17 October 2016].



Financial Supervisory Authority, 2015. *Säännölliset taloudelliset raportit ja IFRS-tilinpäätös*. [Online]

Available at:

[http://www.finanssivalvonta.fi/fi/Listayhtiolle/Listautuminen/Saannollinen\\_tiedonantovelvollisuus/Pages/Default.aspx](http://www.finanssivalvonta.fi/fi/Listayhtiolle/Listautuminen/Saannollinen_tiedonantovelvollisuus/Pages/Default.aspx)

[Accessed 17 October 2016].

Fondia Oy, 2016. *Listautuminen*. [Online]

Available at:

<https://virtuallawyer.fondiatools.com/Sivut/Listautuminen.aspx?url=https://virtuallawyer.fondiatools.com:443/en/Sivut/Public%20Listing.aspx>

[Accessed 17 October 2016].

Gompers, P. A. & Lerner, J., 2003. The Really Long-Run Performance of Initial Public Offerings: The Pre-Nasdaq Evidence. *The Journal of Finance*, 58(4), p. 1355–1392.

Grinblatt, M. & Keloharju, M., 2001. How Distance, Language and Culture Influence Stockholdings and Trades. *The Journal of Finance*, 56(3), pp. 1053 - 1073.

Ibbotson, R. G. & Ritter, J. R., 1995. Initial Public Offerings. In: R. A. Jarrow, V. Maksimovic & W. T. Ziemba, eds. *Handbooks in Operations Research and Management Science*. s.l.:Elsevier B.V. , p. 993–1016.

Jensen, M. C., 1967. The Performance Of Mutual Funds In The Period 1945–1964. *Journal of Finance*, 23(2), p. 389–416.

Keloharju, M., 1993. The Winner's Curse, Legal Liability, and the Long-Run Price Performance of Initial Public Offerings in Finland. *Journal of Financial Economics*, Volume 34, pp. 251 - 277.

Kim, M. & Ritter, J. R., 1999. Valuing IPOs. *Journal of Financial Economics*, Volume 53, p. 409–437.

Lee, P. M. & Wahal, S., 2004. Grandstanding, Certification and The Underpricing of Venture Capital Backed IPOs. *Journal of Financial Economics*, Volume 73, pp. 375 - 407.

Loughran, T. & Ritter, J. R., 1995. The New Issues Puzzle. *The Journal of Finance*, 50(1), pp. 23 - 51.

Lucas, D. J. & McDonald, R. L., 1990. Equity Issues and Stock Price Dynamics. *The Journal of Finance*, 45(4), pp. 1019 - 1043.

Maksimovic, V. & Pichler, P., 2001. Technological Innovation and Initial Public Offerings. *The Review of Financial Studies*, 14(2), pp. 459 - 494.

Mandelker, G. & Raviv, A., 1977. Investment Banking: An Economic Analysis of Optimal Underwriting Contracts. *The Journal of Finance*, 32(3), pp. 683 - 694.

Miller, E. M., 1977. Risk, Uncertainty, And Divergence of Opinion. *Journal of Finance*, 32(4), pp. 1151 - 1168.

Nasdaq Inc., 2016a. *Liquidity Provider*. [Online]  
Available at: <http://business.nasdaq.com/list/listing-options/European-Markets/liquidity-provider/index.html>  
[Accessed 12 October 2016].

Nasdaq Inc., 2016b. *Nasdaq First North*. [Online]  
Available at: <http://business.nasdaq.com/list/listing-options/European-Markets/nasdaq-first-north/index.html>  
[Accessed 12 October 2016].

Nasdaq Inc., 2016c. *Nordic Main Market*. [Online]  
Available at: <http://business.nasdaq.com/list/listing-options/European-Markets/nordic-main-market/index.html>  
[Accessed 12 October 2016].

Nasdaq Inc., 2017. *Global Indexes*. [Online]  
Available at: <https://indexes.nasdaqomx.com/Index/Overview/OMXHCAPPI>  
[Accessed 10 7 2017].

Nasdaq OMX Nordic, 2016a. *First North*. [Online]

Available at:

<http://www.nasdaqomxnordic.com/tietoaporssista/firstnorth?languageId=4&Instrument=SSE101>

[Accessed 13 October 2016].

Nasdaq OMX Nordic, 2016b. *Listings*. [Online]

Available at: <http://www.nasdaqomxnordic.com/uutiset/listauksia>

[Accessed 12 October 2016].

Nielsson, U. & Wójcik, D., 2016. Proximity and IPO Underpricing. *Journal of Corporate Finance*, Volume 38, pp. 92 - 105.

Pörssisäätiö, 2016. *Pörssilistautujan käsikirja*. Helsinki: Suomen Pörssisäätiö.

Ritter, J. R., 1991. The Long-Run Performance of Initial Public Offerings. *The Journal of Finance*, 46(1), pp. 3-27.

Ritter, J. R. & Welch, I., 2002. A Review of IPO Activity, Pricing, and Allocations. *The Journal of Finance*, 57(4), pp. 1795 - 1828.

Rock, K., 1986. Why New Issues are Underpriced?. *Journal of Financial Economics*, Volume 15, pp. 187 - 212.

Schenone, C., 2004. The Effect of Banking Relationships on the Firm's IPO Underpricing. *The Journal of Finance*, 59(6), pp. 2903 - 2958.

Schultz, P. & Zaman, M., 2001. Do the Individuals Closest to Internet Firms Believe They are Overvalued?. *Journal of Financial Economics*, Volume 59, pp. 347 - 381.

Shiller, R. J., 1990. Speculative Prices and Popular Models. *The Journal of Economic Perspectives*, 4(2), pp. 55 - 65.

Smith, C. W., 1986. Investment Banking and the Capital Acquisition Process. *Journal of Financial Economics*, Volume 15, p. 3–29.

Zingales, L., 1995. Insider Ownership and the Decision to Go Public. *Review of Economic Studies*, Volume 62, pp. 425 - 448.

## APPENDICES

### Appendix 1 - Sample IPOs

Year	Company	List	1 <sup>st</sup> trading day	UP <sub>1</sub>	IPO <sub>p</sub>	U/O/A	%	Note
1999	Janton Oyj	Main Market	11.3.1999	10.50	10.00	U	5.0 %	
	Marimekko Oyj	Main Market	19.3.1999	6.15	7.25	O	-15.2 %	
	Eimo Oyj	Main Market	24.3.1999	13.30	14.00	O	-5.0 %	
	Teleste Oyj	Main Market	30.3.1999	8.43	8.20	U	2.8 %	
	Stonesoft Oyj	Main Market	15.4.1999	6.56	6.50	U	0.9 %	
	TJ Group Oyj / Innofactor Oyj	Main Market	22.4.1999	12.50	8.50	U	47.1 %	
	Technopolis Oyj	Main Market	11.6.1999	3.20	3.50	O	-8.6 %	
	Perlos Oyj	Main Market	22.6.1999	11.92	9.50	U	25.5 %	
	Biohit Oyj	Main Market	23.6.1999	5.01	4.50	U	11.3 %	
	Sanitec Oyj Abp	Main Market	6.7.1999	12.70	11.00	U	15.5 %	Has been listed under 3 years. Only underpricing & IER.
	TH Tiedonhallinta Oyj / Solteq Oyj	Main Market	6.9.1999	5.03	5.10	O	-1.4 %	
	Tieto-X Oyj / Ixonos Oyj / Digitalist Group	Main Market	28.9.1999	5.58	5.75	O	-3.0 %	
	SysOpen Oyj / Digia Oyj	Main Market	29.9.1999	9.76	6.40	U	52.5 %	
	Oyj Liinos Abp / Visma Software Oy	Main Market	8.10.1999	9.68	9.00	U	7.6 %	Has been listed under 3 years. Only underpricing & IER.
	Proha Oyj / Dovre Group Oyj	Main Market	15.10.1999	6.10	7.80	O	-21.8 %	

	Aldata Solution Oyj	Main Market	22.10.1999	11.20	9.30	U	20.4 %	
	F-Secure Oyj	Main Market	5.11.1999	27.45	7.70	U	256.5 %	
	Comptel Oyj	Main Market	9.12.1999	53.00	17.75	U	198.6 %	
<b>2000</b>	BasWare Oyj	Main Market	29.2.2000	24.00	6.35	U	278.0 %	
	Satama Interactive Oy / Trainer's House Oyj	Main Market	15.3.2000	24.10	13.00	U	85.4 %	
	Oyj Saunalahti	Main Market	12.4.2000	6.51	9.00	O	-27.7 %	
	Etteplan Oyj	Main Market	27.4.2000	8.00	7.80	U	2.6 %	
	Wecan Electronics Oyj / Scanfil Oyj / Sievi Capital Oyj	Main Market	22.5.2000	8.98	9.00	O	-0.2 %	Divided in 2012 to Scanfil Oyj and Sievi Capital Oyj. Data is valid for the interval of 60 months.
	Tekla Oyj	Main Market	23.5.2000	5.09	5.00	U	1.8 %	
	Iocore Oyj / Sentera Oyj	Main Market	30.5.2000	7.70	7.00	U	10.0 %	
	Digital Open Network Environment Oyj Done / Revenio Group Oyj	Main Market	20.6.2000	4.90	5.40	O	-9.3 %	
	Biotie Therapies Oyj	Main Market	29.6.2000	6.80	6.80	A	-	
	Tecnomen Oyj	Main Market	30.6.2000	9.00	8.50	U	5.9 %	Has been listed under 3 years. Only underpricing & IER.
	Okmetic Oyj	Main Market	3.7.2000	7.00	7.00	A	-	
	Beltton-Yhtiöt Oyj / Wulff Group	Main Market	9.10.2000	6.00	6.00	A	-	
	Vacon Oyj	Main Market	14.12.2000	8.00	7.00	U	14.3 %	
	SSH Communications Security Oyj	Main Market	20.12.2000	14.85	16.00	O	-7.2 %	
<b>2001</b>	No initial public offerings							
<b>2002</b>	QPR Software Oyj	Main Market	8.3.2002	2.29	3.30	O	-30.6 %	

<b>2003</b>	No initial public offerings								
<b>2004</b>	Kemira GrowHow Oyj	Main Market	14.10.2004	5.55	5.25	U	5.7 %	Has been listed under 4 years. Data is valid for the interval of 36 months.	
<b>2005</b>	Neste Oil Oyj	Main Market	18.4.2005	16.18	15.00	U	7.9 %		
	AffectoGenimap Oyj / Affecto Oyj	Main Market	27.5.2005	4.81	4.80	U	0.2 %		
<b>2006</b>	Salcomp Oyj	Main Market	13.3.2006	3.19	3.20	O	-0.3 %		
	Ahlstrom Oyj	Main Market	14.3.2006	24.45	22.00	U	11.1 %		
	FIM Group	Main Market	13.4.2006	6.09	5.75	U	5.9 %	Has been listed under 3 years. Only underpricing & IER.	
	Outokumpu Technology Oyj / Outotec Oyj	Main Market	10.10.2006	12.87	12.50	U	3.0 %		
<b>2007</b>	Suomen Terveystalo Oyj	Main Market	3.4.2007	2.44	2.40	U	1.7 %	Has been listed under 3 years. Only underpricing & IER.	
	SRV Yhtiöt Oyj	Main Market	12.6.2007	9.90	9.00	U	10.0 %		
	Eirikuva Digital Imagen Oyj Abp / Zeeland Family Oyj	First North	3.12.2007	0.61	0.80	O	-23.8 %		
<b>2008</b>	No initial public offerings								
<b>2009</b>	No initial public offerings								
<b>2010</b>	No initial public offerings								
<b>2011</b>	No initial public offerings								
<b>2012</b>	Siili Solutions Oyj	First North	15.10.2012	7.70	7.00	U	10.0 %	Has been listed under 5 years. Data is valid for the interval of 48 months.	
<b>2013</b>	Orava Asuinkiinteistörahasto Oyj / Orava Asuntorahasto Oyj	Main Market	14.10.2013	10.30	10.30	A	-	Has been listed under 4 years. Data is valid for the interval of 36 months.	
	Restamax Oyj	Main Market	28.11.2013	4.97	4.60	U	8.0 %	Has been listed under 3 years. Only underpricing & IER.	
<b>2014</b>	Verkkokauppa.com Oyj	First North	4.4.2014	23.74	23.00	U	3.2 %	Has been listed under 3 years. Only underpricing & IER.	
	Herantis Pharma Oyj	First North	11.6.2014	10.59	10.50	U	0.9 %	Has been listed under 3 years. Only underpricing & IER.	

	Cleantech Invest Oyj	First North	12.6.2014	0.57	0.65	O	-12.3 %	Has been listed under 3 years. Only underpricing & IER.
	Nexstim Oyj	First North	14.11.2014	6.20	6.35	O	-2.4 %	Has been listed under 3 years. Only underpricing & IER.
	United Bankers Oyj	First North	24.11.2014	34.80	33.00	U	5.5 %	Has been listed under 3 years. Only underpricing & IER.
	Nixu Oyj	First North	5.12.2014	4.17	4.40	O	-5.2 %	Has been listed under 3 years. Only underpricing & IER.
<b>2015</b>	Piippo Oyj	First North	10.3.2015	8.38	7.50	U	11.7 %	Has been listed under 3 years. Only underpricing & IER.
	Detection Technology Oyj	First North	16.3.2015	5.07	5.20	O	-2.5 %	Has been listed under 3 years. Only underpricing & IER.
	Robit Oyj	First North	21.5.2015	6.19	5.70	U	8.6 %	Has been listed under 3 years. Only underpricing & IER.
	Pihlajalinna Oyj	Main Market	4.6.2015	11.50	10.50	U	9.5 %	Has been listed under 3 years. Only underpricing & IER.
	Talenom Oyj	First North	11.6.2015	6.78	7.36	O	-7.9 %	Has been listed under 3 years. Only underpricing & IER.
	FIT Biotech Oy	First North	1.7.2015	1.04	1.56	O	-33.3 %	Has been listed under 3 years. Only underpricing & IER.
	Kotipizza Group Oyj	Main Market	7.7.2015	5.19	5.00	U	3.8 %	Has been listed under 3 years. Only underpricing & IER.
	Elite Varainhoito Oyj	First North	30.11.2015	5.27	5.00	U	5.4 %	Has been listed under 3 years. Only underpricing & IER.
	Evli Pankki Oyj	Main Market	2.12.2015	8.37	6.75	U	24.0 %	Has been listed under 3 years. Only underpricing & IER.
<b>2016</b>	Suomen Hoivatilat Oyj	First North	31.3.2016	3.68	3.20	U	15.0 %	Has been listed under 3 years. Only underpricing & IER.
	Lehto Group Oyj	Main Market	28.4.2016	5.90	5.10	U	15.7 %	Has been listed under 3 years. Only underpricing & IER.
	Tokmanni Oyj	Main Market	29.4.2016	6.70	6.70	A	0.0 %	Has been listed under 3 years. Only underpricing & IER.
	Privanet Group Oyj	First North	15.6.2016	3.45	4.30	O	-19.8 %	Has been listed under 3 years. Only underpricing & IER.