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## The Main Step

The Effects on Institutional Ownership of Moving from First North to The Swedish Main List

Bachelor thesis in Industrial and Financial Management

School of Business, Economics and Law  
Spring 2018

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## **Abstract**

Since NASDAQ's alternative market place First North was first launched in 2006, many firms have considered the option of taking the next step to the Swedish main exchange – the Stockholm stock exchange. While the alternative marketplace offers much to the young and immature firms, many of them quickly grow up and wish to move on to a more mature marketplace. Since 2006, approximately 60 firms have taken the step from First North to the main Stockholm stock exchange, and many of them offer the same reasoning and arguments to justify such a step. Increasing the amount of institutional ownership is a recurring desire in firms' prospects prior to a change of lists. There are many reasons why firms wish to acquire more institutional ownership, it might be to improve corporate governance or to attain the firm a seal of quality. This paper examines the effects on institutional ownership of a listing change from First North to the Swedish main list – the Stockholm stock exchange. The report is directed towards decision makers, management and investors, and intends to compose a basis to help those parties make more informed decisions. It also aims to invite to further research on the area. The study is based on, and inspired by, previous research reports and studies on the area examining the consequences of a listing change, both Swedish and international. The study approaches the research questions with a deductive strategy of quantitative nature. With a method of an event-study the paper examines how the change of list itself affect institutional ownership and shares owned by institutions, by comparing data prior to change and post change. The main findings are that there is a positive effect on the number of institutional owners for firms that undergo the listing change. However, the results do not provide any evidence for an effect on the number of institutionally owned shares. The increase in number of institutional owners is essentially explained by investor awareness effects.

**Keywords:** Institutional Investors, Ownership Structure, Listing Change, Event Study, First North, Stockholm Stock Exchange, Difference in Differences, Investor Awareness

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## Elucidations

Institutional Investors

Institutional investors or owners are institutions who usually trade in large enough number of shares to be prioritized and qualified for discounts. In this report the institutions must have a core concept of trading in securities and may not be private individuals, to be considered institutional investor.

MTF (Multilateral Trading Facility)

An MTF is an alternative marketplace for securities. These marketplaces are self-regulated in contrary to the traditional stock exchanges which are not self-regulated.

The Main List

'The main list' is in this paper a term referring to the Stockholm stock exchange since it's the main stock exchange used in Sweden.

GICS

"Global Industry Classification Standard" is an international industry / branch classification system for firms which are listed on a stock exchange. The system was designed by Morgan Stanley and Standard & Poor's.

P/B-value

Price-to-Book value is a measurement used in corporate finance which compares the firm's market value to the firm's book value, this to give a rough idea if the stock is undervalued or overvalued.

Market Cap

Market capitalization is the value a firm has according to the market and is calculated by the number of shares outstanding multiplied by the price of each share.

Free Float

Free float refers to a firm's number of outstanding shares which are available to be publicly traded on a stock exchange.

Liquidity

Liquidity often refers to how a stock can be sold or bought in large volumes and in a short time span without affecting the price of the stock.

NASDAQ

NASDAQ stands for 'National Association of Securities Dealers Automated Quotations', and it is an American Stock Exchange company which operates several stock exchanges in the American region, Nordic region and the Baltic region.

## I. Introduction

The Monday morning of the 18th of May 2015, the e-commerce website Sportamore AB traded its first shares on the Stockholm stock exchange, a decision announced by the CEO in 2013. The firm had previously been traded on the alternative market, NASDAQ's own, First North since 2012 which started as a classic offering of new shares, both to the general public and institutional investors. When asked by the Swedish newspaper Svenska Dagbladet why they wanted to take the step to First North, the CEO Johan Rydling answered: "We want to grow" (Brännström, 2012 Page 1) but it was clear that they did not have the cash to do so. The interest for Sportamore was big and the issuance of shares was oversubscribed and the firm got what it wanted, an improved free float and over 50 million SEK in new investments. (Sportamore, 2012) From the initial listing on First North, it did not take long before the firm desired more and the firm announced that they will stop their trade at the alternative market First North and move their shares to Nasdaq Stockholm stock exchange, a decision that according to the CEO Johan Rydling (Sportamore, 2015) would enable them to reach out to more people, more investors and create an even larger interest for their firm, which certainly would benefit the firm, current and potential future stockholders. If the change itself paved the way for its current success is difficult to say, but succeeded they have. They saw both an increase of shares owned by institutional investors and an increase of investors overall and when Sportamore closed for new year's for the last time in 2015, their share price was at approximately 47.1 SEK and today they are just above 110 SEK per share. (Avanza, 2018a)

### I.I Background

When discussing listings in Sweden, there are two major marketplaces which usually are discussed. These are NASDAQ's First North and the Stockholm stock exchange. At the moment, there are approximately 600 different firms listed on these two marketplaces based in Stockholm, Sweden (Nasdaq, 2018e). The number of firms that has done initial public offerings (IPO)\* on both these lists has grown significantly the last five years. When looking on the First North there were 103 listed firms the 2<sup>nd</sup> of January 2013, which has grown significantly to 278 on 28<sup>th</sup> of March 2018. During almost the same time period, the Stockholm stock exchange has grown from 252 listed firms the 29<sup>th</sup> of January in 2013 to 314 listed firms the 22<sup>nd</sup> of February in

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\* Initial public offering or "IPO" is a stock market launch where shares are being sold to investors and which will be able to be traded openly on a public market.

2018. This may not seem like a huge increase, but during a five-year period, the number of listed firms has grown with approximately by 48 percent. (Nasdaq, 2018b)

The number of firms that are listing also seems to grow at a faster pace each year. According to a report done by EY (2017), there had been 52 percent more listings in the year 2017 first three quarters compared the same time period the year before. Only in Sweden there had been 50 listings, which is not only a record, but was by far the most listings in the Nordic region. (Ibid.)

Since 2006, approximately 60 firms have taken the step from the alternative marketplace NASDAQ's First North to the Stockholm stock exchange (Nasdaq, 2018b). The alternative marketplace called First North was developed and launched by Nasdaq in 2006, with the main purpose to serve as a marketplace for firms which are in a delicate stage of their life, in a time of rapid growth. First North offers these firms access to a marketplace which operates alongside the Stockholm stock exchange, but with significantly less requirements and regulations for the individual firm. (Nasdaq, 2018c) According to Nasdaq (2018c), one of the main purposes with an alternative market is to let the firm focus on what's important for them and their stakeholders. In other words, let the firm focuses on its daily operations, growth and core activity. While at the same time give the firm access to the many benefits of being openly traded on an international market.

Although it might seem like First North serves as a traditional marketplace, there exists some key differences. Even an application for a listing on the Stockholm stock exchange requires vastly more information compared to applying to an alternative market. Furthermore, the firm is required to change policy and other procedures in the daily operations to be able to apply for a listing. Changes which will be continuous during the time at the public market. A few of the most significant differences may be things such as that the firms are required to be able to publish three years of operation and accounting, documented capacity for profitability or working capital for at least twelve months, a total market value over one million euros and a change of accounting framework. (Nasdaq, 2018d)

According to Nasdaq (2017, p. 24), First North has been "An important growth platform, enabling Nordic and international entrepreneurs to access growth capital to develop and expand their businesses". However, the alternative markets still aren't viewed with the high esteem and legitimacy as the main markets - such as the Stockholm stock exchange – and are therefore still

dependent on the banking sector in the question of financing instead of institutional investors (Nasdaq, 2013).

Unregulated stock trading platforms - so called MTF-segments<sup>1</sup> - such as Nasdaq First North, has from the beginning had a reputation of being a market for less serious and immature firms, a sort of “cowboy market” as Gustav Carlsson (2016, page 1) called it in an article. However, MTF’s have in Sweden gone from being a market for hobby investments to a segment even an institutional investor can turn to (Carlsson 2016).

The reasons why a high number of firms choose to enter First North and not the main stock exchange are many, but one of the reasons is the high requirements that are forced onto firms who wish to be listed on the main list. These requirements, and in fact the whole process, is complicated, time consuming and can become expensive for firms that are in a high growth stage of its life cycle (Nasdaq, 2018g). However, if a company decides to initiate and complete the listing process to the main stock exchange, it gains access to the prestige full indexes and industry segments that will greatly increase the publicity and accessibility of the firm in question. (Nasdaq, 2018d)

Firms wish to list directly, or change from alternative markets to regulated markets for many different reasons. Typical arguments across the line can be for example to acquire more institutional investors, an improved transparency of the company or improved publicity in media which affect both investors and analysts. It could also improve the company’s stock liquidity and capital acquisition (Toll and Gustafsson, 2011). There are many parties that claim that the role of the main stock exchange has a major part to play in corporate governance, which is seen as a beneficial reason for many, including the firm itself, potential investors and other stakeholders (Christiansen and Koldertsova. 2009).

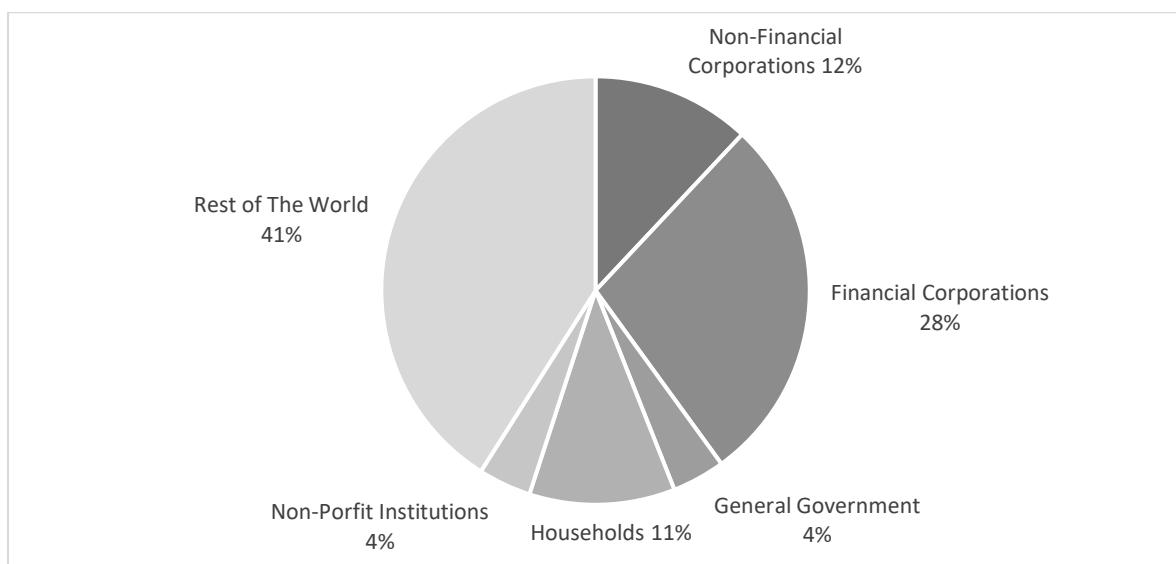
Institutional ownership started growing stronger on the Swedish stock market during the post-war era. The extensive increase up until today can - to a large extent - be explained by an increase in pension savings and by the emergence of investment funds (Gustafsson and Norin, 2009). The 1994 reformation of the Swedish pension system can also be considered a contributory factor (*ibid.*). Share wealth of listed firms on the Swedish marketplace amounted to SEK 6997 billion at the end of December 2017 (SCB, 2018). As shown in Figure I (SCB,2018),

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<sup>1</sup> Multilateral Trading Facilities

institutional ownership constituted 48 percent of total ownership on the market . However, institutional ownership is not evenly distributed among different market places and segments. A clear majority (87.11 percent) of institutional ownership was located in the Large Cap<sup>2</sup> segment of the Stockholm stock exchange, while only 2.35 percent was located in Sweden's largest alternative market, Nasdaq First North (SCB, 2018). Noteworthy in this context is also that Nasdaq First North at the time had a total of 283 listed firms, while the Large Cap segment of the Stockholm stock exchange had 93.

**Figure I. Total shareholdings per sector, percent, December 2017.** According to the definition of institutional investors in this report, all the below sectors except "Households" (private individuals) and "Rest of the World" (which furthermore could be institutional investors) fall into said definition



Since institutional owners have such a considerable influence over the invested capital in Sweden, the institutional investments are of great importance for growth and welfare (Gustafsson and Norin, 2009). With the growing number of private individuals who wish to invest their savings, the market of the institutional investors grows and since institutions have such a considerable influence over the invested capital in Sweden, the institutional investments are of great importance for growth and welfare (Gustafsson and Norin, 2009; Finra 2013). Alas, just as Finra (2013) states, just because they are professional, it does not mean they will succeed.

<sup>2</sup> Market cap segments or "market capitalization segments" is a classification where, depending on the market capitalization, a firm can get listed at the Stockholm Stock exchange. It exists three different groups: Small cap, Mid cap and Large Cap.

## I.II. Problem Discussion

There seems to be an upward trend in public listings and changing from a less regulated list to a more regulated list (Nasdaq, 2018b). It's fair to say that many firms are looking into the possibilities of taking "the next step" and fulfill a listing on the Stockholm stock exchange. The question one might ask oneself is if the action of changing lists really is a decision based on appropriate information. Do the gains really justify the means and does it create any real value for any party involved?

There may be several positive aspects in going from a private firm to public one, for the firm itself but also potential investors and other general stakeholders. In a report published by EY (2014), EY mentions several aspects which can be improved, including – but not limited to - credibility, brand image, view by the public and the "prestige". All these pros can for example benefit the firm when seeking further funds from potential investors and lenders. A listing can also increase and stabilize the market value, create a more easily acquired benchmark against other firms and the opportunity to change the owner structure and reduce debt. (EY, 2014)

However, every pro has to be weighted and compared against its cons, which can for example be the fact that a listing is time consuming, expensive both upfront and ongoing. A listing will also change the way the firm has to act and perform at its daily operations when it has to adapt to investor relations and other regulations which are connected to stock exchanges. (EY, 2014) These pros and cons has noticeable effects on firms and one has to examine if it's the right choice for the firms' future objectives and its shareholders (EY, 2014).

Extensive research has been made on the consequences of list changes from an alternative to a more regulated list. For example, Papaioannou, Travlos and Viswanathan (2003) studied the stock listing change effects on operating returns. Tang, Nguyen and Nguyen (2013) and Andersson and Thoresson (2015), and Derving, Gårdemyr and Lander (2016) studied the effects on stock liquidity and volatility. Leffler and Pettersson (2005), Toll and Gustavsson (2011) and Baker and Edelman (1992) studied the effects on firm value, and this is only naming a few. However, less extensive research has been made on the effects on ownership structure and institutional ownership. As per the literature review preceding this study, little previous research exists on these particular effects in relation to the Swedish stock markets.

Institutional ownership is associated with greater management disclosure, greater analyst following, liquidity, which results in lower information asymmetry (Boone and White, 2015). Hence, institutional investors provide external benefits for all shareholders by increasing firm transparency and information production (*ibid.*). And cost of capital increases with higher levels of information uncertainty and asymmetry (He, Lepone and Leung, 2013). It's not really surprising that many firms claim that institutional investors are beneficial for the firm and its shareholders, (see background) because securities with a large amount of institutional ownership are often looked upon with favorably since institutional investors can dedicate their time for advanced and deep research that retail investors could only dream of. (Finra, 2013) Not only do their investing – or selling – in firms imply that they know something no one else does, and with that power, increase (or decreases) in share prices may come. This may make investors want to look up and follow the “Smart money” as they are known as at Wall Street (Finra, 2013).

A firm should think about what kind of investors they wish to acquire because – as investing goes – there’s no guarantee that the deep pockets of institutional investors will create real value for the firm and its shareholders. (Finra, 2013) The opinions differ regarding how institutional ownership actually is beneficial to the individual firms. Critics argue that the frequent trading and short-term focus of institutions encourages managers to engage in myopic investment behavior, while others argue that the large stockholdings and sophistication of institutions allow managers to focus on long-term value rather than on short-term earnings (Bushee, 1998). Although it could be assumed that the heavy research that institutions put in might imply long term investment, there’s no guarantee and firms should be ready for that fact and its consequences. Either way, the level of institutional ownership is of interest to management and investors, and the effects on this level from a listing change is an unexplored side of the Swedish stock market.

### I.III. Purpose

This study aims to examine whether a stock listing change from the largest Swedish MTF (Nasdaq First North) to the Stockholm stock exchange (Nasdaq Stockholm) changes the amount of institutionally owned shares and/or the number of institutional investors in the firm. In order to accomplish this, the answers to the following questions are sought after:

1. How does the number of institutionally owned shares in a firm change by a stock listing change from Nasdaq First North to the Stockholm stock exchange?
2. How does the number of institutional owners change with this stock listing change?

In addition, the study aims to create a foundation for further future research on the Swedish stock markets and its owner structures.

#### **I.IV. Delimitations**

The study focuses on the Swedish stock market owned and operated by Nasdaq (Stockholm stock exchange and First North) to ensure that the data is comparable to each other, to more easily and accurately draw conclusions on the trends and factors on the Swedish stock market. Changes from the alternative market First North to the regulated market Stockholm stock exchange occurs relatively infrequently. Approximately five firms each year takes the step from First North to the Stockholm stock exchange (Nasdaq, 2018b), of which only a few – if any - falls under the same sector. Therefore, the study which is being attempted is naturally limited to the firms whom exists. Furthermore, all the data which exists is required to be able to even attempt to create an extensive, statistically reliable quantitative study. It's worth mentioning that more data does exist on other markets, such as Asia, North America and Europe. The reason why Sweden is chosen as the study market – even though the data is scarce – is because the value which is desired to be created will be far greater if it's domestic firms and domestic data. It's also desirable to study deeper within specific industries and segments, but once again the decision has been made to look across segment and industry boarders because the lack of data. The reason why this study only focuses on one MTF (First North) is because it's owned and operated by NASDAQ's, which is the same firm which owns and operate the main market in Sweden, the Stockholm stocks exchange.

#### **I.V. Target group**

Changing lists is not only a giant step for the firm itself, it will have real impact on its employees, management, investors and other stakeholders. (Avanza, 2018b) It's therefore safe to assume that such a vital decision should be well founded by the firms' managers which makes every aspect and perspective crucial. While it's assumed that the managers aim is to make a rational decision, based on the information which is at hand, it's believed that gaps of knowledge exist and can therefore be filled. This study only chooses to focus on one aspect, one of the many which a big number of firms mention in their prospects. It's by no doubt difficult to foresee what the consequences will be of a change of lists, which is why this report aims to fill at least one of the many, empty gaps which may exist at management level when deciding to switch or not to switch. For the records, it's believed that this study can be beneficial for many other parties, such as investors and analysist.

## II. Theoretical Framework and Hypothesis Development

There are many theories on the effects of index inclusions and stock listing changes, and extensive research has been made on the subject. To understand the effects of a listing change it is important to have a wide theoretical perspective. This study will lay its theoretical foundation in prominent and classical theories on the wider subject of index inclusions and listing effects, as well as more recent empirical research that is more subject-specific to this study. This chapter will describe the foundation of theories and previous research, and how the research hypotheses of this paper is derived from them.

### II.I. Derivation of Research Hypothesis I

Merton's ideas on investor awareness stands in contrast to the perfect-market models' assumptions of complete and symmetric information among investors. Merton (1987) argued that investors generally know only about a subset of the available securities, that these subsets differ across investors, and that an investor uses a certain security in constructing his optimal portfolio only if the investor knows about the security. This applies to even the largest of institutional investors, since the number of individual stocks held in a single institutional portfolio represent only a small fraction of the total number of securities available (Merton, 1987).

Merton (1987) further said that there are fixed costs that an investor must pay before obtaining detailed substantive information making him aware of the firm, and that investors that are not aware of the firm in this sense will not become stockholders of the firm. If, for each firm, investors must pay a significant "set-up" cost before they can process detailed information released from time to time about the firm, then this fixed cost will cause any one investor to follow only a subset of the traded securities (*ibid*). And If an investor does not follow a particular firm, then an earnings or other specific announcement about that firm is not likely to cause that investor to take a position in the firm, according to Merton (1987).

The findings of Chen, Noronha and Singal (2004) suggests that an inclusion of stocks to a higher index will increase awareness of the stocks, and causes enhanced monitoring by investors and reduces information asymmetry. This is consistent with Merton's (1987) ideas. Chen et al. (2004)

performed their study on additions and deletions to the S&P 500 index. Docking and Dowen (2006) supports the results of Chen et al. (2004) even further, showing positive awareness effects of an inclusion to a higher index. However, Docking and Dowen (2006) also emphasize how the index construction methodologies can make an important difference in the investor awareness effects of the addition of a firm to a particular index. Docking and Dowen compared the increased investor awareness due to an inclusion to the S&P 600 SmallCap Index to an inclusion to the Russel 2000 Index. The results suggested that an inclusion to the S&P 600 resulted in greater investor awareness than an inclusion to the Russel 2000, and that the difference could be explained by the continuous-monitoring method used by Standards & Poor.

Chen, Noronha and Singal's (2004) and Docking and Dowen's (2006) findings are consistent with Merton's (1987) theories of how widespread publicity about a firm or industry can either make investors more receptive to finding out about the firm if the publicity is favorable, or less receptive if it is not. Merton (1987) meant that this type of expanded media coverage of a firm, industry or other sector of the economy must be stimulated by changes in the same economic fundamentals that cause firms to change their plans and investors to reassess their portfolios. Advertising that initially attracts investor attention to a firm is assumed to leave that firm's investor base unchanged if the underlying fundamentals do not justify a change (Merton, 1987). Merton (1987) also argues that it would only pay for *some* firms to expend resources to expand the breadth of investor cognizance about the firm and thereby increase the size of its investor base. Merton (*ibid*) means that the benefits are likely to be greater for lesser-known firms with large firm-specific variances.

*In summary:* Merton (1987) argues that even the largest institutional investors are only aware of a small number of the securities on the market (and therefore only invests in a small fraction). Evidence has been provided of the positive awareness effects of an inclusion to a higher index (Chen, Noronha and Singal, 2004; Docking and Dowens, 2006). On the basis of this, a change from Nasdaq First North to Stockholm stock exchange is expected to increase the size of the institutional investor base, because of the favorable publicity that can be expected to follow a listing on the Stockholm stock exchange. The benefits of greater investor cognizance are assumed to be greater for lesser known firms (Merton 1987). And although Nasdaq First North contains many well-known firms, it is still a growth market with relatively smaller firms. This leads up to the first hypothesis of this paper:

**Hypothesis I:** A firm which undergoes a listing change from Nasdaq First North to the Swedish main market Stockholm stock exchange is expected to experience an increase in the number of institutional investors who hold shares in the firm.

### **II.II. Derivation of Research Hypothesis II**

Kraus and Stoll (1972) early proposed that securities are not perfect substitutes and that sales of large amounts of shares will reduce the share price. They meant that due to different investors preferences for a given security, a large seller may find it difficult to distribute his shares because there is no buyer who values the security to the same price he did. In order to find willing buyers he would have to lower the price. Kraus and Stoll (1972) calls this the distribution effect, and distinguished it from price changes due to new information (the information effect). Under this hypothesis securities are not close substitutes, and hence, long term demand is not perfectly elastic and equilibrium prices will change when demand curves shift in order to eliminate excess demand (Harris and Gurel, 1986). The price impact due to the distribution effect is not expected to reverse (Kraus and Stoll, 1972).

Making large trades of shares, or block trades as Kraus and Stoll (1972) called it, is characteristic for institutional investors. Therefore, the distribution effect is particularly relevant to institutional investments. If an institution makes a block purchase of shares in a company and decides to sell after some time, they might have to sell shares at a considerably discounted price, due to the imperfect substitution of shares. This could mean severe losses to the institution selling. So, it is reasonable to believe that an institution looking to make a block purchase will be more interested in established firms with continuous, stable demand of stock, in order to avoid the risk of not finding willing buyers at the ask-price when they decide to sell. Firms included in the higher segments and indexes of the Nasdaq listings can be expected to have these characteristics to a greater extent than those listed on the alternative markets.

Kraus and Stoll (1972) and Scholes (1972) continued to propose that in the short run, under the assumption of a less than perfectly efficient market, transaction costs can have a temporary effect on prices. For large block sales, it might be difficult to find willing buyers in the short run, even if they exist. To find willing buyers of large amounts of shares fast, sellers will have to sell to intermediaries at a discounted price. This is so that the intermediaries are compensated for buying a security they otherwise would not trade, i.e. the liquidity of shares increase in the short run. Intermediaries are compensated when the prices later rise to the full-information level. The price drop in this case is temporary and the price is expected to return to equilibrium fairly

quickly, and hence also the increased volume traded. In the case of excess demand the price impact will be reversed. (Kraus and Stoll, 1972; Scholes, 1972) In this case it is not a question of whether or not willing buyers exist, but of how difficult it is to find them in the short run. For an institutional owner with a large possession of shares it would be preferable to possess liquid stock, so that there would be no need for discounted ask-prices if they wished to quickly make a block sale. How a listing on a higher segment can increase stock liquidity (and thereby the appeal to institutional investors) can be explained by the theories on liquidity presented by Baker and Johnson (1990), Demsetz (1968), Amihud and Mendelson (1986) and Schleifer (1986).

Liquidity in stock trade refers to the potential to quickly buy and sell large orders of stock at low transaction costs. Baker and Johnson (1990) showed that stock liquidity is one of the top motives of managers for listing on an exchange. Demsetz (1968) proposed that the cost of exchanging a security declines as trading activity in that security increases. Demsetz was early with using bid-ask spreads as a measurement of transaction costs. These are fundamental findings for the theories on liquidity. Amihud and Mendelson (1986) built on this and suggested that the expected return on assets increases with the bid-ask spread. Investors expect higher returns in compensation for the risk of holding illiquid securities. This give firms incentive to invest in increasing the liquidity of their securities, and thus reducing their opportunity cost of capital. Consequently, liquidity-increasing financial policies may increase firm value. (Amihud and Mendelson, 1986)

Shleifer (1986) expanded on the subject of liquidity. He argues that an inclusion of a firm into a higher index is followed by closer scrutiny of the company, greater institutional interest in the stock, and therefore an increase in public information about it. As a result, the stock will be traded more widely, become more liquid, and the bid ask spread will fall (Shleifer, 1986). So, under these theories on liquidity, a phase-up in exchange listing can be expected to lead to permanently higher liquidity. And, as mentioned earlier, liquid stock is more attractive to institutional investors.

The Nasdaq Capital Market (formerly known as the Nasdaq Small Capital Market) is a U.S. stock exchange with focus on early-stage companies with lower market capitalization, that are not ready to take on the heavy listing requirements of certain other exchanges (Nasdaq, 2018a). The Nasdaq Global Market (formerly known as the Nasdaq National Market) is a U.S. stock exchange that lists companies with an overall global leadership and international reach with their products

and services. (Nasdaq, 2018h) Tang, Nguyen and Nguyen (2013) examined the effects of listing changes between Nasdaq Small Capital Market (SmallCap) and Nasdaq National Market (NNM), and found that firms that phased up from SmallCap to NNM experienced significant declines in bid-ask spreads. As Nasdaq First North and Nasdaq Stockholm can be considered the Swedish equivalents of Nasdaq SmallCap and NNM, Tang, Nguyen and Nguyen's study provides support of the expectation that a change from Nasdaq First North to Nasdaq Stockholm will make a firm's stocks more liquid and thereby more interesting to institutional investors.

Harris and Gurel (1986) and Shleifer (1986) both pointed out that listings per se are information less. However, Jain (1987) implied that the announcement of inclusion or exclusion in an index may impart information to the investing public that changes their perception of a stock's investment appeal. Jain (1987) suggests that an inclusion may signal a perceived increase in quality of management, that a firm is perceived as more stable, or that a firm's securities are perceived as less risky. Dhillon and Johnson (1986) supports this theory in a study that shows that stock, bond, and call prices increase on the announcement date of inclusion into an index. A change of exchange listing from Nasdaq First North to Nasdaq Stockholm would mean that the firm in question is included in a more reputable index. And under Jain's (1987) theories on signaling, the firm might thereby also be perceived as more stable, less risky and management improved. Characteristics that can be expected to appeal to investors, retail as well as institutional.

*In summary:* From Kraus and Stoll's (1972) and Harris and Gurel's (1986) theories on distribution effects, institutional investors can be expected to be more interested in established firms with continuous, stable demand of stock. From Kraus and Stoll's (1972) and Scholes' (1972) ideas on price pressure effects, institutional investors can be expected to prefer liquid stock. This, in combination with Baker and Johnson (1990), Demsetz (1968), Amihud and Mendelson (1986), Schleifer (1986) and Tang, Nguyen and Nguyen's (2013) consensus that an inclusion to higher index will make stocks more liquid, leads to the expectation that a listing change will increase demand from institutions. Previous literature on signaling effects (Harris and Gurel 1986; Shleifer 1986; Jain 1987; Dhillon and Johnson 1986) suggest that an inclusion to a higher index may signal a perceived increase in quality of management, that a firm is perceived as more stable, or that a firm's securities are perceived as less risky. All characteristics that can be expected to make a stock more attractive to institutional investors. These previous findings are what leads up to the second research hypothesis of this paper:

**Hypothesis II:** A firm which undergoes a listing change from Nasdaq First North to Swedish main market Stockholm stock exchange is expected to experience an increase in the number of institutionally owned shares in the firm.

### III. Methodology

The study takes a starting point in theories relevant for the purpose of this study. Empirical material was thereafter gathered and analyzed from the perspective of these theories. In this sense, a deductive research approach has been used for the study. Deductive research refers to the fact that the hypotheses which are presented in this paper are based on existing knowledge and are then tested with gathered data with the aim to either reject or accept those hypotheses. It's believed that this approach is the most suitable for the problem in hand, both for the problem which is described, but also for the data which is gathered. (Collis & Hussey, 2014) The approach or strategy which will be used in this study is of the quantitative nature. The reason for this is believed to be the most suitable approach is that the nature of the data which is desired to be researched is of the numerical form and will therefore be needed to be gathered in a large quantity. (Collis & Hussey, 2014) Although the possibility for the use of a qualitative study was examined, which could be done by interviewing and examining specific firms, it's the authors belief that there is not enough time nor understanding to be able to make any rewarding and secure results.

To be able to reach a conclusion regarding whether a change of lists will have any effect on institutional ownership there needs to be a test which compares data from prior to the change to data post the change. The approach which is generally used in economics and finance is an “event study” which aims to measure the effects that an “event” (a specific happening) has on something which is measurable, such as stock price or ownership structure (MacKinley, 1997). Although the method of event studies generally tests how an event may impact market value and therefore its stock price, the general concept of the method can be used on various areas. One important aspect to keep in mind is that the event and its time frame must be easily definable and the consequences measurable. (MacKinley, 1997)

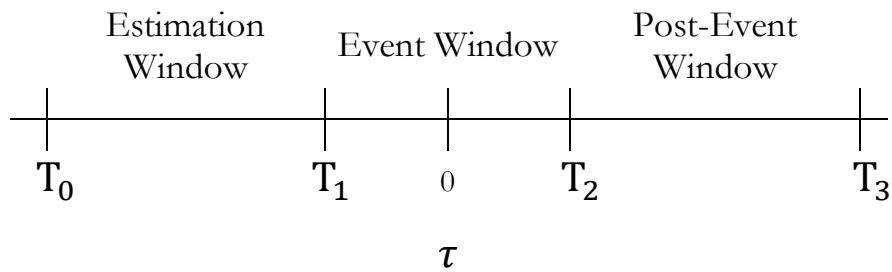
#### III.I. Definition of The Event

According to MacKinlay (1997), the first step in constructing a study with event characteristics is to define the event of interest, the event must be specific and the date it occurred on must be generally known. The event of interest for this study is defined as the first day of trading on the Stockholm stock exchange. The specific dates of listing change for each individual firm have been retrieved from the Swedish Tax Agency (Skatteverket).

### III.II. The Time Frame

MacKinlay's (1997) second step in the process is to define the time frame or "event window". As shown in Figure II, the event itself is the midpoint of the event window. Then there's a point prior to that date ( $T_1$ ) and a point beyond that event ( $T_2$ ). The time in-between is the event window. The data prior to the event is later compared to the data after the event to examine if the event has any effect on the particular measurement of interest. (MacKinley, 1997) The event window can vary greatly, a rather typical time frame is a couple of days which for example can be used when comparing stock prices. However, an event window can span up to years as well, it's decided by the characteristics of data which are wished to be examined. (MacKinley, 1997) The time frame used for this study will be the same as the one used in Pruitt and Wei's (1989) event study of the effects on institutional ownership due to listings and delisting to the S&P 500 index. That is, data from the calendar quarter closest before the listing change and data from the calendar quarter closest after is gathered. So, in consistence with Pruitt and Wei's (1989) method, all data collected will be on quarterly basis. MacKinley (1997) says that if the time frame is too narrow there is a risk that it does not capture the real effects of the event. Therefore, in case the closest calendar quarter is closer than 14 days to the event (before or after), data for the next closest quarter is used instead.

Figure II. MacKinlay's Illustration of the Time Frame for an Event Study.



### III.III. Selection Group for The Study

MacKinlay's last step is to create a selection criterion which includes or excludes potential study participants. Reason for inclusion can be things such as; acting on the same marketplace, similar industry or regulations. The reason this is important is to be able to make sure that the data is comparable. (MacKinlay, 1997) The selection criterion for study participants for this study is simply that the firm has changed exchange listing from Nasdaq First North to Stockholm stock exchange since First North was introduced in 2006. 58 firms fulfill this criterion, and of these 58

there is a random loss of nine firms due to missing data. In addition to the selection firms used in this study, data has been collected for a control group. Every study firm has a corresponding control firm in order to implement the “Difference in Differences” (DiD)-model explained below. A complete table of the study firms, control firms, and statistical loss from the groups is available in Appendix A.

### **III.IV. Difference in Differences (DiD) Model**

Simple pre- and post-treatment comparisons may be impacted by temporal trends in the outcome variable, or by other events that occurred during the event-window. To overcome this issue, DiD can be used when two periods of data are available for a treatment and a control group. The DiD estimator measures the treatment effect by looking at the difference between the average outcome in the control and treatment groups, before and after treatment. (Zhou et al., 2016) The “treatment” in this case being the event, i.e. the listing change.

In an evaluation of a treatment effect, a sample of patients (or firms in this case) are observed before and after a treatment. In the simplest case, if two periods of data (0 and 1) are analyzed and treatment begins in between the two periods of time, the treatment effect can be identified by simply looking at outcomes before and after the treatment (Zhou et al., 2016). The problem with this approach is that the effects of any other event that happened between the two periods are attributed to the treatment. Therefore, in order to account for changes over time, a control group is required. (Zhou et al., 2016)

In the case of this study, there is one group that is administered the treatment between periods 0 and 1 (calendar quarter before and after listing change), while a control group does not receive the treatment at all. Zhou et al. (2016) argues that the limitations of DiD-method relate to the need to find similar study groups, as ideally, the only difference should be exposure to the intervention. For instance, according to the common shocks assumption, any event that occurs during or following the intervention, should equally affect each group. Therefore, a limitation of this method is in finding treatment and control groups which meet these assumptions. (Zhou et al., 2016). To compound a control group which fulfills these assumptions, a control firm was assigned to each of the selection firms. Aims for criteria were set up to create a goal of proper representation. These aims were:

1. The control firm is required to be listed on First North during the whole event window which face its corresponding study firm.
2. The control firm should be part of the same sector as the corresponding study firm, in accordance with the Global Industry Classification Standard (GICS).

The first criterion is met for all firms in the control group. The second criterion is met for most, however, it was not possible to find a control firm in the same GICS sector for all study firms. In these cases, the available firm considered most similar to the study firm was chosen as control firm. A complete table of study firms, control firms, and GICS sector belonging is available in Appendix A. Using the DiD-method, the regression model to test a hypothesis is as follows:

$$Y_i = \beta_0 + \beta_1 Treatment_i + \beta_2 Time_i + \beta_3 DiD_i + \varepsilon$$

Where  $Y_i$  is the outcome variable for firm  $i$  and  $\beta_0$  is the intercept.  $Treatment_i$  is a dummy variable stating if the firm  $i$  has been treated, i.e. whether it is part of the study selection group or the control group (0=control, 1=study).  $\beta_1$  is the coefficient of the  $Treatment_i$  variable and it measures the difference between treated and non-treated before treatment.  $Time_i$  is a dummy variable stating if the observation of firm  $i$  is before or after the listing change (0=before list change, 1=after list change).  $\beta_2$  is the coefficient of the  $Time_i$  variable and it measures change across time common to both treated and controls.  $DiD_i$  is an interaction variable and the product of multiplication of variables  $Treatment_i$  and  $Time_i$ .  $\beta_3$  is the coefficient of the  $DiD_i$  variable and this is the most important one because it measures the effect of the treatment itself.  $\varepsilon$  is the error term.

### III.V. Variable specification

*Dependent variables:* To test the two hypotheses of his study, two outcome variables are defined which – as dependent variables go – are used to measure and study how independent variables influence these dependent variables. (Collins & Hussey, 2013)

1. **Number of Institutional Owners:** This variable shows the estimated number of institutional owners who hold shares in the firm.
2. **Number of Institutionally Owned Shares:** This outcome variable measures the estimated number of institutionally held shares (in millions of shares) in the firm.

*Explanatory variables:*

1. **Treatment:** This is a dummy variable stating if the observation belongs to the study selection group or the control group (0=control, 1=selection).
2. **Time:** This is a dummy variable stating the time of the observation (0=before list change, 1=after list change).
3. **DiD:** This is an interaction variable of Treatment and Time, i.e. the product of multiplying variables Treatment and Time.

*Control variables:* To control for influences of other variables on the outcome, independent variables (control variables) can be used in the regression to make sure the outcome is invariant to the inclusion of different control variables. (Collins & Hussey, 2013). The results of this study have been controlled to be invariant to the inclusion of the following control variables:

1. **P/B-ratio:** This is the price-to-book (P/B) ratio of the value of a firm's stock. The P/B-ratio gives a rough idea if the stock is overvalued or undervalued and will, will according to theory, affect the number of investors who are willing to invest (Gianetti and Simonov, 2006). Institutional investors are believed to avoid overpriced stocks and instead favor stocks that are undervalued, which is a sign of potential growth (Guah deb, 2017). Gianetti and Simonov (2006) showed that P/B-ratio is a significant variable for effects on investor behavior. Therefore, it is considered a relevant variable for control. While using the P/B value, the following assumption can be made: If  $P/B < 1$  it is undervalued and if  $P/B > 1$  its it overvalued.
2. **Log Mkt Cap:** This variable is the logarithm of firm market capitalization. Market cap is generally considered to reflect a firm's publicity, visibility, and size and takes into account that investors are more likely to hold shares in companies whose supply of shares is larger (Gianetti and Simonov, 2006). As in Gianetti and Simonov's (2006) study, because of the nature of the distribution of the market capitalization, the logarithmic values have been used.
3. **Log Age:** This variable is defined as the logarithm of the number of months since the firm first entered the alternative market, First North. There are several reasons the firms age can be relevant. Some theories suggest that firms not only seem to have a negative correlation between age and performance (Loderer & Waelchli, 2010), but it is also said that ownership structure vary with age (Giannetti & Simonov, 2006). Gianetti and Simonov (2006) have further showed that the age of a firm is a significant factor for institutional investors portfolio preferences.

*Like Gianetti and Simonov (2006) used sectoral dummies to help control for the fact that ownership structure may be industry-dependent, this study will use sectoral dummies as control variables:*

4. **Consumer Staples:** This is a dummy variable stating whether or not the firm is included in the Global Industry Classification Standard (GICS) sector “Consumer staples” (0=no, 1=yes).
5. **Consumer Discretionary:** This is a dummy variable stating whether or not the firm is included in the GICS sector “Consumer Discretionary” (0=no, 1=yes).
6. **Industrials:** This is a dummy variable stating whether or not the firm is included in the GICS sector “Industrials” (0=no, 1=yes).
7. **Financials:** This is a dummy variable stating whether or not the firm is included in the GICS sector “Financials” (0=no, 1=yes).
8. **Information Technology:** This is a dummy variable stating whether or not the firm is included in the GICS sector “Information Technology” (0=no, 1=yes).
9. **Health Care:** This is a dummy variable stating whether or not the firm is included in the GICS sector “Health Care” (0=no, 1=yes).
10. **Energy:** This is a dummy variable stating whether or not the firm is included in the GICS sector “Energy” (0=no, 1=yes).

### **III.VI. Method for Data Collection and Data Handling**

The first variable, Number of Institutional Owners was gathered from the database terminal “Bloomberg” and based on Bloomberg’s own definition of institutional investors. Several firms’ ownership data was not automatically produced by the terminal, they were instead gathered manually by the same definition as Bloomberg's. The definition Bloomberg states is that the firm must have a core concept of investment in securities and may not be private individuals. There has not been any kind of differentiating between institutional investors when gathering data, for example if the institution were investment banking or pension funds, nor if they were domestic or foreign. The second variable, Number of Institutionally Owned Shares was collected in the same fashion as the first dependent variable. Market capitalization data was gathered with the same time window as the two dependent variables. The data was once again gathered from the terminal Bloomberg and automatically calculated based on outstanding shares and price per share. There were several firms which did not have data on Bloomberg, these firms’ market capitalization was calculated with end of the fiscal year reports issued by the individual firm. The firm age data was collected by retrieving firm listing date from the Swedish Tax Agency (Skatteverket), and then manually calculating the months up until before and after the listing

change. P/B-ratio or price-to-book ratio was gathered in the same fashion as the dependent variables, via financial analysis in Bloomberg terminal. The GICS sector classification was determined manually for each firm, by researching the individual firms and identifying their core activities and determining which GICS sector they fall under. The collected data have been processed and analyzed using the data handling tools Microsoft Excel, SPSS and Stata Statistics/Data Analysis.

### **III.VII. Validity and Reliability**

High validity is important, it refers to the concept where the data and its results can describe and fairly reflect the phenomenon which is desired to be studied. There are several actions which can hollow out a study's validity, things such as poor data, wrong models for the particular data, or misleading variables and measurements. (Collis & Hussey, 2013) One important aspect of creating a study with high validity is to ensure that the phenomenon, its reasons and its consequences are definable and that the data is measurable. When addressing this particular study one of the typical weaknesses is the event study and its methods and even though the event which is studied in this report is known, the event window may not be as precise. It's important to try to isolate the event and its consequences so no other happening affect the results, alas this can be difficult because of external factors, frequent company news and updates. It's however believed that this study in a successful fashion catches the consequences of the event with the appropriate time window, method and measurements.

A study should aim to produce results with high reliability. The term describes the repeatability of the study and its results and the results should therefore – if done by someone else with the resembling conditions – be similar. Why reliability is something to reach for is because one should be able to motivate why the data, methods and models used in the study were suitable for the problem in hand. (Collis & Hussey, 2013) There are several reasons the authors of this report believes that this study has succeeded in creating a paper with high reliability. The data which are used in the study is mainly gathered from Bloomberg terminal, which is the leading provider of financial data and a frequently used source for researchers and analysts. Furthermore, the methods and models used in this study is adaptions of former methods used in similar studies and are therefore shown to be applicable. Also, the fact that the data for this subject are scarce, the blunder of subjectivity could simply not be an alternative. The paper used the data which was accessible and therefore could this study be replicated with resembling results and conclusions.

## IV. Data Management

### IV.I. Missing Values Management

In addition to the loss of firms in the study group (see section III.III) there has been some missing values among the collected data. Table I shows the missing values statistics for each of the variables. As is shown, the variable Log Mkt Cap has 16 percent missing values and Price-to-Book 17 percent. For these missing values mean imputation has been implemented, i.e. the missing values have been replaced with the mean value in each variable. There is also a variable called B/A-Spread. This is a variable defined as the average bid-ask spread, and it was initially planned to be used as a control variable. However, as is shown in Table 1, the amount of missing values in this variable was as high as 47 percent and it was therefore excluded from the study. To ensure that the results are robust without imputation for missing values, the regressions have been run on data without imputation. The results are shown in Appendix B and the results are robust.

**Table I. Statistics of the missing values in the data collected for each variable.** Column (1) shows the number of valid observations, (2) the number of missing observations, and (3) the percentage share missing values of total observations.

VARIABLES	(1) Valid	(2) Missing	(3) Percentage Missing
Institutionally Owned Shares	192	0	0
Institutional Owners	192	0	0
Treatment	192	0	0
Time	192	0	0
DiD	192	0	0
Log Age	192	0	0
Log Mkt Cap	162	30	16%
Price-to-Book	159	33	17%
B/A- Spread	102	90	47%
Consumer Staples	192	0	0
Consumer Discretionary	192	0	0
Industrials	192	0	0
Financials	192	0	0
Information Technology	192	0	0
Health care	192	0	0
Energy	192	0	0

## **IV.II Outlier Management**

After handling missing values and statistical loss, the resulting descriptive statistics of variable data are presented in Table II. Table II shows that the variable that has the widest range between minimum and maximum values is by far the dependent variable Institutionally Owned Shares, with a range from 0 to 282.82 million shares, and this do raise some flags. Table III gives a closer look at the distribution of observed values within each variable. As is shown in Table III, both dependent variables (Institutionally Owned Shares and Institutional Owners) show values that could be interpreted as outliers. However, the data collection and research done related to these variables show no sign of the outlying observations being incorrect or erroneous in any way. On the contrary, they are considered important and interesting findings for the purpose of this study. For example, firms that had zero (zero being the outlying value in this example) institutional holdings in firm stock before the listing change, but had gained a considerable amount of institutional ownership after, and these are highly relevant observations for the study. The same goes for outlying observations in the top percentiles. So, on the basis of no indications of “bad data” or errors in observations, inclusion of outlying points have been the standard for statistical analysis. Nonetheless, since it is not possible to know for certain that all outliers are in fact non-erroneous, the results have been run with outliers excluded as well. Results adjusted for outliers through winsorizing is shown in Appendix C.

**Table II. Descriptive Statistics for each variable.**

This table shows descriptive statistics for each variable. Column (1) shows number observations, (2) mean, (3) Standard deviation, (4) the minimum value among observations, (5) the maximum value among observations, (6) the variance, (7) the skewness in the distribution of data, and (8) the kurtosis of the distribution of data.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	N	Mean	SD	Min	Max	Var	Skewness	Kurtosis
Institutionally Owned Shares	192	15.65	37.89	0	282.8	1,436	4.498	27.26
Institutional Owners	192	9.380	14.18	0	102	201.1	3.885	22.25
Treatment	192	0.500	0.501	0	1	0.251	0	1
Time	192	0.500	0.501	0	1	0.251	0	1
DiD	192	0.250	0.434	0	1	0.188	1.155	2.333
Log Age	192	1.330	0.445	0	2.064	0.198	-0.973	4.066
Log Mkt Cap	192	8.610	0.616	6.980	10.20	0.379	-0.169	3.499
Price-to-Book	192	4.037	3.737	0.270	21.89	13.96	2.189	8.652
Consumer Staples	192	0.0625	0.243	0	1	0.0589	3.615	14.07
Consumer Discretionary	192	0.115	0.319	0	1	0.102	2.420	6.857
Industrials	192	0.146	0.354	0	1	0.125	2.007	5.028
Financials	192	0.125	0.332	0	1	0.110	2.268	6.143
Information Technology	192	0.188	0.391	0	1	0.153	1.601	3.564
Health care	192	0.188	0.391	0	1	0.153	1.601	3.564
Energy	192	0.156	0.364	0	1	0.133	1.893	4.585

**Table III. Percentile ranks.**

Shows percentile ranks of collected data for each variable, where column (1) P1 is the first percentile, column (2) P5 is the fifth percentile, column (3) P10 is the tenth and so on.

VARIABLES	(1) P1	(2) P5	(3) P10	(4) P25	(5) P50	(6) P75	(7) P90	(8) P95	(9) P99
Institutionally Owned Shares	0	0	0.0253	0.460	2.463	12.44	30.04	110	274.6
Institutional Owners	0	0	1	2	5	10	24	33	102
Treatment	0	0	0	0	0.500	1	1	1	1
Time	0	0	0	0	0.500	1	1	1	1
DiD	0	0	0	0	0	0.500	1	1	1
Log Age	0	0.477	0.699	1.146	1.415	1.591	1.845	1.991	2.053
Log Mkt Cap	6.980	7.403	7.889	8.282	8.610	8.968	9.371	9.599	10.15
Price-to-Book	0.460	0.700	0.860	1.545	3.080	4.635	7.920	12.33	20.17
Consumer Staples	0	0	0	0	0	0	0	1	1
Consumer Discretionary	0	0	0	0	0	0	1	1	1
Industrials	0	0	0	0	0	0	1	1	1
Financials	0	0	0	0	0	0	1	1	1
Information Technology	0	0	0	0	0	0	1	1	1
Health Care	0	0	0	0	0	0	1	1	1
Energy	0	0	0	0	0	0	1	1	1

#### IV.III. Correlations

Table IV shows that there are no substantially high correlations among any of the variables. The highest observed correlation between explanatory variables is 0.577, and it is between the explanatory variable DiD (5) and the explanatory variables Treatment (3) and Time (4). This correlation in each variable alone is not high enough to be likely to create a problem in the regression analysis, i.e. it does not indicate collinearity. And although the correlation is relatively high, the correlations of DiD (5) with Treatment (3) and Time (4) are not either considered to combined be likely to create problems when independent variable (5), DiD, is regressed on variable (3) and (4), i.e. there are no indication of multicollinearity in the data. The relatively high correlation between DiD (5) and Treatment (3) and Time (4) can be explained by the fact that DiD is an interaction variable of Treatment and Time.

**Table IV. Correlation Matrix.** Shows the correlation between all variables used for this study.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Institutional Owners	1.000														
(2) Institutionally Owned Shares	0.447	1.000													
(3) Treatment	0.266	0.078	1.000												
(4) Time	0.039	0.027	0.000	1.000											
(5) DiD	0.196	0.064	0.577	0.577	1.000										
(6) Log Age	0.161	0.097	0.473	0.129	0.316	1.000									
(7) Log Mkt Cap	0.607	0.400	0.463	0.035	0.277	0.192	1.000								
(8) Price-to-Book	0.205	-0.072	0.128	-0.003	0.086	0.075	0.359	1.000							
(9) Consumer Staples	0.022	0.064	0.000	0.000	0.000	-0.157	-0.052	-0.095	1.000						
(10) Consumer Discretionary	0.247	-0.054	0.033	0.000	0.019	-0.044	0.163	0.220	-0.093	1.000					
(11) Industrials	-0.163	-0.134	-0.059	0.000	-0.034	-0.097	-0.129	0.004	-0.107	-0.149	1.000				
(12) Financials	-0.031	-0.068	0.000	0.000	0.000	0.006	0.134	-0.191	-0.098	-0.136	-0.156	1.000			
(13) Information Technology	-0.094	-0.038	0.053	0.000	0.031	0.190	-0.091	-0.019	-0.124	-0.173	-0.198	-0.182	1.000		
(14) Health care	-0.141	-0.135	-0.053	0.000	-0.031	-0.059	-0.099	0.173	-0.124	-0.173	-0.198	-0.182	-0.231	1.000	
(15) Energy	0.215	0.405	0.029	0.000	0.017	0.067	0.141	-0.074	-0.111	-0.155	-0.178	-0.163	-0.207	-0.207	1.000

## V. Results

**Table V. Regression Results.** Column (1) presents the regression results on the outcome of number of institutional owners, excluding control variables. Column (2) presents the results including control variables in the model. Column (3) presents the regression results on the outcome of number of institutionally owned shares excluding control variables. Column (4) shows these results including control variables. The table shows the coefficient for each variable and its standard deviation in parentheses. Coefficients with P-value<0.01 is marked with \*\*\*, P-value<0.05 with \*\*, and P-value<0.1 with \*.

VARIABLES	(1) Institutional Owners	(2) Institutional Owners	(4) Institutionally Owned Shares	(5) Institutionally Owned Shares
Treatment	6.521** (2.783)	-3.078 (1.963)	5.388 (7.721)	-17.195 (11.007)
Time	0.125 (0.151)	-1.225* (0.692)	1.595 (1.393)	-2.376 (2.442)
DiD	1.979*** (0.499)	2.889*** (0.812)	0.952 (1.678)	4.074 (2.641)
Log Age		2.662 (2.164)		7.975 (6.875)
Log Mkt Cap		13.665*** (4.223)		33.701*** (10.222)
Price-to-Book		-0.117 (0.466)		-2.397*** (0.910)
Consumer Staples		-0.333 (4.973)		20.323 (16.619)
Consumer Discretionary		2.608 (4.613)		-0.517 (13.487)
Industrials		-6.609 (4.335)		1.950 (13.082)
Financials		-8.172* (4.422)		-10.741 (13.489)
Information Technology		-5.376 (3.910)		7.921 (13.732)
Health care		-6.011 (3.983)		4.427 (12.562)
Energy		0.299 (5.486)		35.119* (18.468)
Constant	5.563*** (0.951)	-106.119*** (34.565)	11.922* (6.235)	-274.622*** (80.777)
Observations	192	192	192	192
R-squared	0.073	0.441	0.007	0.369
Adjusted R-squared	0.0585	0.400	-0.00904	0.323
F test	7.982	2.619	2.939	2.713
Prob >F	8.43e-05	8.43e-05	8.43e-05	8.43e-05

Robust standard errors in parentheses

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

## **V.I. Number of Institutional Owners**

The results from running a regression on the DiD-method variables (see section III.IV) with “number of institutional owners” as outcome variable is shown in the first column of Table V. This model shows that the DiD and Treatment variables are significant. The DiD coefficient suggests that the effect of a listing change on the number of institutional investors would result in an increase of almost two institutional investors. Furthermore, the Treatment coefficient shows that the treatment group firms, i.e. the firms that made the listing change, had an average of 6.52 institutional investors more than the control group firms in the period prior to the treatment. However, adding control variables (as specified and motivated in section III.V) to the model to control that the results are invariant to the influence of other possibly influencing variables, shows that the treatment coefficient is not invariant. It does not remain significant after adding control variables to the model. The DiD coefficient nonetheless, remains statistically significant and increases suggests an even higher effect of a listing change: a positive of 2.889 institutional investors due to the listing change. This gives us the estimation model for the outcome of number of institutional owners shown below. In this model however, the only statistically significant estimator is the DiD variable. The adjusted coefficient of determination for the model is 40 percent and P-value of the F-statistic is 0.0037. The fact that the positive coefficient of DiD is statistically significant at a 1 percent level signifies that we may reject the null hypothesis and provide support for the first research hypothesis of this study:

**Hypothesis I:** A firm which undergoes a listing change from Nasdaq First North to the Swedish main market Stockholm stock exchange is expected to experience an increase in the number of institutional investors who hold shares in the firm.

Another result shown in column 2 of Table V is that the logarithm of market capitalization also shows statistical significance as an explanatory variable for outcome of number of institutional investors, with a coefficient as big as 13.66. This suggests that for every unit of logarithmic market capitalization, the number of institutional investors increases by 13.66 investors.

## **V.II. Number of Institutionally Owned Shares**

Column 3 of Table V shows the regression results of the DiD-model without control variables with number of institutionally owned shares as outcome variable. All explanatory variables in this model are statistically insignificant and although the P-value of F shows an acceptable fit of the model, the adjusted coefficient of determination is negative. Regression with control variables

(shown in column 4 of Table V) enhances the adjusted coefficient of determination to 32.30% and the P-value of F with this model is 0.0027. The P-value for the DiD-variable decreases as well. However, it remains statistically insignificant, like all other explanatory variables. The p-value of the DiD coefficient with number of institutionally owned shares as outcome variable is 0.126. Therefore, the null hypothesis may not be rejected and no evidence to support the second research hypothesis of this paper has been provided.

**Hypothesis II:** A firm which undergoes a listing change from Nasdaq First North to Swedish main market Stockholm stock exchange is expected to experience an increase in the number of institutionally owned shares in the firm.

Column 4 also shows that logarithm of market capitalization and price-to-book ratio, are statistically significant estimators for the outcome of number of institutionally owned shares. In this case, just like for the outcome of number of institutional investors, the coefficient for the logarithm of market capitalization is large, increasing expected outcome with 33.7 million shares per unit of logarithmic market capitalization. The Price-to-Book coefficient (-2.397) shows that the outcome will decrease more for overvalued stock than for undervalued. For example, if the Price-to-Book ratio is equal to ten, the estimated outcome of institutionally owned shares decreases with 23.97 million shares. And if Price-to-Book ratio is equal to 0.5, the estimated outcome decreases with 1.2 million shares.

## VI. Analysis and Discussion

In this section, the results presented above are analyzed from a viewpoint of the theoretical framework, and the results and its importance are further discussed and interpreted. The main focus is on the findings relevant to the research questions. However, other interesting findings are analyzed here as well.

### VI.I. Number of Institutional Owners

The results suggest that there is a significantly positive effect on the number of institutional investors holding stock in a firm, due to a listing change from First North to the main Stockholm Stock Exchange. The position of this analysis is that this can mainly be explained by investor awareness effects. The results are (as expected) consistent with, and provide support for Chen, Noronha and Singal (2004) and Docking and Dowen's (2006) findings. They found that the inclusion of a stock to a higher index will increase the investor awareness of the stock. Docking and Dowen (2004) showed further how index construction methodologies are crucial to the awareness effects. Our results suggest significant awareness effects due to the listing change, and hence, it suggest that the index construction of the Swedish Nasdaq segments enables efficient awareness effects. The results are further consistent to Merton's (1987) ideas on how favorable publicity can make investors more receptive to informing themselves about (becoming aware of) a firm, and therefore become more likely to invest in that firm's stock. The publicity following a move up from First North to the Stockholm Stock Exchange can be considered wide spread and favorable. Therefore, the expansion of the investor base was expected to follow the change.

However, what was more difficult to prophesy around was the size of the effect. Merton (1987) argues that the awareness effects will be greater for lesser-known firms. Although First North is a growth market, there are several established and well known firms. As Table III shows, there is a positive correlation between market cap and treatment, i.e. there is a correlation between a higher market cap and making the upward listing change. Firms with higher market cap can in general be expected to be more well known. Merton further means that publicity will leave the investor base unchanged if the underlying fundamentals do not justify a change. So, what is said is that; if the fundamentals of the stock are unchanged after the listing change, the investor base will not increase. One typical example of a firm fundamental is operating return, and previous research has shown that the inclusion to a higher index has positive effects on for example operating

returns (Papaioannou, Travlos and Viswanathan, 2003). Nonetheless, it is difficult to speculate in how large effect the listing change by itself will have on stock fundamentals.

Considering the two above mentioned factors: the fact that firms that change lists have relatively higher market cap (and therefore might be more well-known and have smaller awareness effects), and the uncertain role that underlying fundamentals play, the size of the listing change effect was hard to speculate around. However, as the results show, the effect of a listing change is an increase of 2.889 institutional investors. This is a considerable increase, and for Merton's (1987) theories to hold this would mean that the underlying fundamentals of the stock is improved after the listing change.

Increased institutional ownership will result in lower information asymmetry (Boone and White, 2015) and thereby decrease cost of capital (He, Lepone and Leung, 2013). So, our results suggest external benefits to all shareholders in the form of a lower cost of capital. Further, as institutions generally work to promote shares and try to drive share prices higher once they own a stock, a higher number of institutional owners means a higher number of "promoters". Hence, investors holding stock prior to, or early on to, a substantial addition of institutional investors stand to possibly make a lot of money.

The increase of institutional investors could also contribute with stability to the stocks, in the sense of decreased volatility. Greater diversification of institutional owners could mean less idiosyncratic risk. If a firm has only one or just a few institutional owners holding large amounts of stock in the firm, there is a greater risk of excess supply and sudden price drops if the institution(s) decide to sell a large portion of its holdings. This having a big impact on many individual shareholders. However, if there is greater diversity in the investor base of institutions, distributing the ownership among many institutions, the risk is generally lower that they will all sell at the same time, causing excess supply and price drops. This means lower risk for investors, and therefore likely a lower cost of capital, creating value to investors.

## **VI.II. Number of Institutionally Owned Shares**

No significant effect of a listing change can be established on the number of institutionally owned shares, contradicting the expected result based on the theoretical framework. The results are not as expected from the distribution effects point of view (Kraus and Stoll 1972; Harris and Gurel 1986). As explained in the theoretical framework, distribution effects would imply that

institutional investors will be more willing to invest in well-established firms in higher segments and indexes. However, no such effect on number of institutionally held shares has been seen in this study. Kraus and Stoll's (1972) and Scholes' (1972) ideas on price pressure, and theories on liquidity (Demsetz 1968; Shleifer 1986; Amihud and Mendelson 1986; Baker and Johnson 1990; Tang, Nguyen and Nguyen 2013) are also inconsistent with these findings. Assuming these theories on price pressure and liquidity effects hold, an inclusion into a higher index could be expected to result in a greater interest from institutional owners. Again, this is not shown looking at effects on institutionally held shares. The findings on information signaling (Harris and Gurel 1986; Shleifer 1986; Jain 1987; Dhillon and Johnson 1986) cannot either be considered consistent with these findings. According to information signaling theory, the announcement of a listing would signal a perceived increase in quality of management, that a firm is perceived as more stable, or that a firm's securities are perceived as less risky. These characteristics are likely to make institutions more willing to invest.

All theories mentioned here can be interpreted as that a listing change to a higher list would improve a firm's characteristics in a way that can be expected to give institutions more incentive to invest, or at least not sell the holdings they already have. Yet, this is not the case. If present institutions holding stock in the firm would invest further, or at least not sell, and at the same time new institutions invest as well, the number of institutionally owned shares would increase. However, the results suggest no effect on the amount of institutionally held shares. This must mean that the number of shares bought and sold by institutions after the change are about the same. And this is contradicting the expected results based on the theoretical framework. Consequently, the positive effect on the number of institutional owners can essentially be explained by awareness effects.

So how come the number of institutionally held shares do not increase? Intuitively this seems illogical, and an increase in institutionally owned shares might be expected to walk hand in hand with an increase in the number of institutional investor. The results of this study however, would mean that this is not the case. However, perhaps it is not all that illogical. The results have shown to be consistent with the theories on investor awareness, but inconsistent with the ideas that signaling, liquidity, price pressure or distribution effects due to the listing will make institutions more willing to invest. One explanation for this might be that a listing change by itself is not enough to create the perception of stability, establishment, liquidity, and decreased volatility that these theories are based on. Or at least not within the time frame used for this study. Perhaps the

next closest quarter after the change (as was used for this study) is too soon for these perceptions to be met, and a study reaching over a longer period of time might show that these perceptions are eventually fulfilled and an effect on number of institutionally held shares is present in a later stage of the post event period. This idea can be compared to the results of Tang, Nguyen and Nguyen's (2011) study, which found that a phase up between the equivalents of First North and the main Stockholm stock exchange on the US market (Nasdaq SmallCap and the NNM) has a positive effect on stock liquidity and decreases volatility of returns, using data reaching from 100 days before to 100 days after the change. Comparing that time frame to the time frame used for this study (see method section), where some of the observations have been made as close as 20 days after the change, this might explain the inconsistencies in the results. On the other hand, the effects of changes between US Nasdaq segments and Swedish Nasdaq segments may not be comparable for other reasons.

### **VI.III. Other Variables**

The logarithm of market capitalization – unlike a listing change – proves to be an important explanatory variable for both the outcome of number of institutional investors and institutionally owned shares. This result may on one hand not be very surprising. A larger market cap generally means a larger number of shares outstanding and therefore more shares available to institutions (and retail investors as well). Also, a large market cap generally entails greater firm visibility and awareness. But what is interesting is that, if the purpose is to increase the number of institutionally owned shares, our results indicates that a new emission of stock on the present market is a more efficient way than a listing change alone. However, a new share issue in connection to a listing on the main exchange would be the most efficient way to go, getting the awareness effects of the listing and the effects of a larger market cap on institutionally owned shares.

The Price-to-Book ratio showed significance as an explanatory variable for the outcome of institutionally owned shares, with a negative effect of -2.397 per unit of Price-to-Book ratio. Since the price will never be zero, nor negative, this means that no matter the P/B-ratio, it will always have a negative effect on the outcome. This seems strange, since undervalued stocks might be expected to have a positive effect on institutional ownership. As undervalued stock implies that it is worth more than its sold for, an undervalued stock might indicate that there exists an opportunity for future growth (in share price) and, for the time being, it offers an arbitrage opportunity for the investors who buys it and wait for the stock to be fairly priced.

However, for overvalued stocks these opportunities are likely slimmer, and therefore, they are not demanded to the same extent by institutions.

Therefore, it is somewhat surprising that the undervalued stock does not have a positive effect. However, since the variable is constructed the way it is, it is not possible for the variable to have a positive effect for undervalued stock, and at the same time a negative for overvalued. The coefficient can only be negative or positive, not both, and since the price is never negative the effect will be either negative or positive for all Price-to-Book ratios (unless the book value of equity is negative, which is considered an exceptional case). But the effect of Price-to-Book ratio are similar to that of positive for undervalued and negative for overvalued. Undervalued stocks will have a P/B-ratio varying between 0-1 and this means that the negative effect always decreases with undervalued stocks, and if low enough making the coefficient insignificantly small. But since there is no upper limit for the price, there is no theoretical limit for the increase in negative effect of overvalued stocks.

## VII. Conclusions

This paper studies the effects on institutional ownership for firms that made a listing change from the largest Swedish MTF Nasdaq First North to the Stockholm Stock Exchange, from the launch of First North in 2006 up until today. The results suggest, as expected, that there is a significantly positive effect on the number of institutions investing in a firm that changes list. The viewpoint of the study is that the effect can essentially be explained by positive investor awareness effects from a listing change. This finding is important because it further supports the results and conclusions on investor awareness obtained by Chen, Noronha and Singal (2004) and Docking and Dowen (2006), all consistent with Merton's (1987) theories on investor awareness. The results do not, however, provide any statistically significant evidence of the prediction that the listing change would have a positive effect on the number of institutionally owned shares in a firm. Previous theories on distribution effects (Kraus and Stoll 1972; Harris and Gurel 1986), price pressure effects (Kraus and Stoll 1972; Scholes 1972), liquidity effects (Demsetz 1968; Shleifer 1986; Amihud and Mendelson 1986; Baker and Johnson 1990; Tang, Nguyen and Nguyen 2013) and signaling effects (Jain 1987; Dhillon and Johnson 1986) would all indicate that a listing change gives a firm characteristics that would likely make institutions more willing to invest in the firm. The results contradict this notion.

### V.III. Implications and Potential Future Research

Furthermore, as mentioned before a complication with the use of event-studies and the time-window is to capture the full effects of the event, but also to successfully isolate the event and its consequences from other happenings which occurs during the time window. As discussed in the analysis, there is a risk that the chosen time frame leaves out important effects on the outcome of number of institutional investors.

The gathering of data also suggests some implications. The data of interest was scarce, and this made it essential to use data reaching back to the launch of First North, in order to obtain sufficient data for a statistically significant study. The implication of this is that the reputation and characteristics of First North has since then changed substantially, and perhaps observations from so far back is not adequate material for decision making today.

Another implication is related to the transferability of the results. Considering the findings of Docking and Dowen (2006), the awareness effect that increases the number of institutional investors in this study may in part be explained by the index construction methodology of the index that the firm is included to. This would mean that the results are not necessarily transferable to listing changes with different index construction methodologies.

Further, the authors wish to forward suggestions which are of interest to study, which mainly came up during the study. The proposals will be suggested with a description of the problem accompanied with a formulated research questions.

The estimation models including control variables shows adjusted R-squared values of 40 percent and 32.3 percent, indicating that the outcomes can be explained further by other factors to a relatively large extent. This report used several control variables and found statistically significant support for the explanatory effect in two of them. However, there are several more that would be interesting to examine further. Some of the interesting variables which could be included in future research are:

- If the firm actively tried to obtain institutional investors (Dummy variable)
- Leverage
- Beta
- Degree of free float

- If an equity issuance has been made in connection with the change (Dummy variable)

**Proposal 1:** Several firms who switch from First North to Stockholm stock exchange has international presence and a global strategy. According to research done by Guha Deb (2017) international presence plays a major part when an institutional investor decides to invest, and it seems that institutional investors actively choose firms which has this characteristic.

- Does the fact that a firm has a global strategy and an international presence prior to a change of list lead to an increase of institutional investors compared to firms which do not? If so, does the number of countries where the firm is active have an impact as well? Does it matter how long the firm had been active on the international market?

**Proposal 2:** Firms change lists for different reasons and not every firm might desire for institutional investors, at least that is not their number one priority. This might mean that the firms which wish to obtain more institutional investors accomplish this goal, not only with the switch but with an active strategy to lure investors. While at the same time, firms which do not actively invite investors might get these all the same. It would be of interest to see first if firms whom rank institutional investors as a high priority gain more of these than the firms who do not. Secondly, it could be of interest to know what kind of strategy that is applied.

- Do firms who actively invite institutional investors generally gain more than the firms which do not when doing a change of lists? Is there any specific strategy these firms have in common or is it out of their hands?

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## Appendix

### Appendix A – Table of Selection Firms, Corresponding Control Firms, and GICS Sectors

<u>Selection Group Firms</u>	<u>GICS Sector</u>	<u>Corresponding Control Group Firm</u>	<u>GICS Sector Control Firm</u>
LeoVegas AB	Consumer Discretionary	Aspire Global PLC	Consumer Discretionary
Immundic AB	Health Care	2CureX AB	Health Care
Zeta Display AB	Information Technology	Cinnober Financial Technology AB	Information Technology
Starbreeze AB	Information Technology	Advenica AB	Information Technology
Catena Media PLC	Consumer Discretionary	Lauritz.com Group A/S	Consumer Discretionary
Saniona AB	Health Care	Aino Health AB	Health Care
Evolution Gaming Group AB	Consumer Discretionary	Kambi Group PLC	Consumer Discretionary
Christian Berner Tech Trade AB	Industrials	Absolent Group AB	Industrials
Catella AB	Financials	Bonäsudden Holding AB	Financials
B3IT Management AB	Industrials	Verisec AB	Industrials
Volati AB	Industrials	Nilsson Special Vehicles AB	Industrials
Xvivo Perfusion AB	Health Care	Vicore Pharma Holding AB	Health Care
Medcap AB	Health Care	Nuevolution AB	Health Care
Hexatronic Group AB	Information Technology	Kentima AB	Information Technology
Wise Group AB	Industrials	Cell Impact AB	Industrials
Hansa Medical AB	Health Care	Brighter AB	Health Care
Invisio Communications AB	Information Technology	Advenica AB	Information Technology
Sportamore AB	Consumer Discretionary	Mackmyra Svensk Whisky AB	Consumer Staples
D. Carnegie & Co AB	Financials	Amasten AB	Financials
Oscar Properties Holding AB	Financials	Prime Living AB	Financials
Eolus Vind AB	Energy	Petrotarg AB	Energy
C-RAD AB	Health Care	PledPharma AB	Health Care
Africa Oil Corp.	Energy	Cassandra Oil AB	Energy
Episurf Medical AB	Health Care	Diamyd Medical AB	Health Care
Lucara Diamond Corp.	Energy	Arctic Minerals AB	Energy
Victoria Park AB	Financials	Alm Equity AB	Financials
Creades AB	Financials	New Equity Venture International AB	Financials
Opus Group AB	Energy	Pallas Group AB	Energy
Tethys Oil AB	Energy	Lucara Diamonds Corporation AB	Energy
Endomines AB	Energy	Shamaran Petroleum Corp.	Energy
Invuo Technologies AB (fFormer Seamless Distribution AB)	Information Technology	Wifog Holding AB	Financials
Avega Group AB	Information Technology	PSI Group ASA	Information Technology
Trigon Agri A/S	Industrials	Agrokultura AB	Consumer Staples
Odd Molly International AB	Consumer Discretionary	WeSc AB	Consumer Discretionary
NAXS Nordic Access Buyout Fund AB	Financials	Vinovo AB	Industrials
Cellavision AB	Health Care	Human Care HC AB	Health Care
eWork Scandinavia AB	Information Technology	Iptor Supply Chain Systems AB	Information Technology
Formpipe Software AB	Information Technology	Hifab AB	Information Technology
Black Earth Farming LTD	Consumer Staples	Cellavision AB	Health Care
AllTele Allmänna Svenska Telefonaktiebolaget	Consumer Discretionary	Generic Sweden AB	Consumer Discretionary
Electra Gruppen AB	Information Technology	Sensori AB	Financials

Cloetta AB	Consumer Staples	Firefly AB	Industrials
Nordic Mines AB	Energy	Black Earth Farming Ltd.	Consumer Staples
ITAB Shop Concept AB	Information Technology	Electra Gruppen AB	Information Technology
Swedol AB	Industrials	Precomp Solutions AB	Industrials
Morphic Technologies AB	Energy	Vinovo AB	Energy
Nordic Service Partners Holding AB	Consumer Staples	Petrogrand AB	Consumer Staples
Tangayika Oil Compant LTD	Energy	Nordic Mines AB	Energy
Immunovia AB	Firm excluded because of missing data		
Nilörngruppen AB	Firm excluded because of missing data		
Ferronordic Machines AB	Firm excluded because of missing data		
Björn Borg AB	Firm excluded because of missing data		
West Siberian Resources LTD	Firm excluded because of missing data		
Sagax AB	Firm excluded because of missing data		
SCF Technologies A/S	Firm excluded because of missing data		
AarhusKarlshamn AB	Firm excluded because of missing data		
Uniflex AB	Firm excluded because of missing data		
Melker Schörling AB	Firm excluded because of missing data		

## Appendix B – Regression Results without Corrections for Missing Data

VARIABLES	(1) Institutional Owners	(2) Institutionally Owned Shares
Treatment	-1.740 (2.161)	-14.067 (11.343)
Time	-0.863 (1.046)	-3.540 (2.679)
DiD	2.367** (1.147)	2.854 (2.864)
Log Age	-0.567 (3.609)	-0.434 (12.296)
Log Mkt Cap	16.286*** (4.772)	35.359*** (11.463)
Price-to-Book	-0.285 (0.506)	-2.516** (1.021)
Consumer Staples	-2.886 (6.747)	21.326 (22.560)
Consumer Discretionary	0.848 (5.443)	-3.149 (13.943)
Industrials	-7.858 (5.515)	-0.508 (13.441)
Financials	-11.150* (6.452)	-17.216 (14.681)
Information Technology	-5.948 (4.887)	8.388 (13.773)
Health Care	-6.002 (5.020)	5.076 (12.681)
Energy	-1.419 (7.152)	44.255* (23.927)
Constant	-123.244*** (38.243)	-276.045*** (86.265)
Observations	149	149
R-squared	0.475	0.422
F test	2.42	2.33
Prob>F	0.0085	0.0115

Robust standard errors in parentheses

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

## Appendix C – Regression Results with Winsorized Outliers

VARIABLES	(1) Institutional Owners	(2) Institutional Owners	(3) Institutionally Owned Shares	(5) Institutionally Owned Shares
Treatment	5.688** (2.289)	-2.626 (1.738)	8.149 (5.936)	-11.171* (6.273)
Time	0.125 (0.151)	-0.987* (0.525)	1.764 (1.378)	-1.670 (2.035)
DiD	1.979*** (0.499)	2.692*** (0.707)	0.776 (1.665)	3.464 (2.334)
Log Age		2.247 (1.836)		7.195 (5.623)
Log Mkt Cap		11.595*** (2.645)		28.520*** (6.926)
Price-to-Book		0.066 (0.372)		-2.036*** (0.709)
Consumer Staples		-0.221 (4.400)		20.923 (15.767)
Consumer Discretionary		2.957 (3.927)		0.743 (12.313)
Industrials		-6.801** (3.405)		2.219 (12.171)
Financials		-7.145** (3.349)		-7.961 (12.142)
Information Technology		-5.306* (3.066)		8.151 (13.107)
Health Care		-6.292** (3.111)		4.519 (11.746)
Energy		-1.586 (3.730)		28.641* (14.932)
Constant	5.562*** (0.951)	-89.006*** (21.290)	9.171** (3.808)	-234.596*** (56.160)
Observations	192	192	192	192
R-squared	0.084	0.502	0.022	0.422
F test	7.87	3.36	3.35	3.09
Prob>F	0.0001	0.0003	0.0222	0.0008

Robust standard errors in parentheses

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