

## SUBSTITUTES FOR INSIDER TRADING

"I'd be a bum in the street with a tin cup if the markets were efficient."

-Warren Buffett

### ABSTRACT

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Trading upon insider information is an illegal activity. Trading in shares that can be assumed to perform in a similar way based on the same information is legal, and potentially profitable. The goal of this thesis is to investigate if substitutes to listed shares exist on the Stockholm Stock Exchange, and whether they provide a similar return when affected by releases of insider information. We use an event study methodology and compare the return of the share that releases insider information to the stock market, to that of its substitute. Over a time frame of five years, substitutes show a return indicating that it is profitable for insiders to trade in these securities using insider information obtained from a similar company.

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Key words: insider trading, substitutes

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## 1. INTRODUCTION

Insider trading is a well known phenomenon in the financial world. It is defined as trading in financial instruments using information that is not publicly available. The information stems from, and is dependent on, the position that the insider or individuals related to the insider possesses. In order to be traded upon, the information must also be of such importance that it will affect the value of the traded instrument. This kind of trading is prohibited by law and supervised by government-associated agencies in most countries<sup>1</sup>. Insider trading is explained in more detail in chapter 2 of this thesis.

Due to the fact that illegal insider trading is potentially profitable<sup>2</sup>, individuals in possession of insider information can be assumed to seek alternate, legal, ways to profit from the information. One way that this can be facilitated, is the possibility for insiders to trade in a substitute to the corporation they possess inside information about<sup>3</sup>. In this case, the investor can seek to invest in a company that operates in the same line of business as the one the investor has inside information about. In theory, if the two companies are identical, the information should impact both in the same way that it will impact the company where the inside information stems from. In reality, however, perfect substitutes can be assumed to be non-existent due to the complex nature of corporations. Despite this fact, one can assume that if two corporations operate in the same field of business and have similar structure in their main operations, they can both be affected in a similar way on the stock market from a news release.

Many academic studies performed on the subject of insider trading concentrate on insider trading in the insider's own corporation. The purpose of this thesis is instead to examine whether there exists a legal and profitable substitute to insider trading for stocks listed on the Stockholm Stock Exchange (hereon: SSE). The fact that a person in possession of insider

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<sup>1</sup> Regulated in Sweden under: Market Abuse Penal Act (2005:377)

<sup>2</sup> Meulbroeck 1992

<sup>3</sup> Ayres and Bankman 2001

information cannot make a legal profit by trading in the company he/she is affiliated with, makes a legal substitute interesting from the perspective of the insider.

If evidence in support of the theory that substitutes to regular insider trading can be profited upon is found, it can be of interest to corporations when they design contracts for top executives. This is due to the fact that the insider can make a personal profit using the information that the executive is provided with by the nature of his/her position within the corporation. This would be a potential second source of income that today is not accounted for in the executive's benefit package. One way that this can be regulated is by incorporating rules in the employment contracts that prohibits trading in shares of competitors during the period that the executive is an employee of the company,

This thesis can also be seen as a contribution to the debate relating to the legislation that surrounds insider trading. Legislation regarding insider trading is today limited to stock issued on the corporation that the insider is an employee of<sup>4</sup>. If substitute trading is found to be profitable, it circumvents the regular insider regulations which are created with the goal to limit the possibilities for executives to profit from the information they have access to by the nature of their position within the corporation. The legislators, however, are facing a potential challenge if they have the ambition to minimize this kind of usage of insider information. As mentioned earlier, this is due to the fact that defining substitutes in a corporate environment can be complex at best - impossible at worst. If prevented, it may have strong affect on the individual's right to trade on the stock market for executives, due to the fact that the legislation would have to be very wide, virtually limiting executive's rights to trade in shares at all.

The study will investigate information releases by corporations and their substitutes on the SSE during the period 2000-05-31 to 2005-05-31, and whether the information causes abnormal returns on the share price of the substitutes.

Although research on the topic of substitute trading has been performed before, no research has been attempted at such a large scale before, with the single purpose of determining

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<sup>4</sup> Act concerning Reporting Obligations for Certain Holdings of Financial Instruments (2000:1087)

whether substitute trading is actually profitable to individuals that possess insider information. Earlier work has either had a more conceptual view, such as Hansen & Lott (1995) where they examine whether incentives exists for officers and directors in one company to trade in shares of another company, or a more high-level view such as Tookes (2003) who examine whether information-based trades occur in firms other than those that actually release information. A third view that has been covered is Ayres and Bankman (2001) who examine the legal aspects of trading in competitor's shares. Inspiration for this thesis stems from the aforementioned research, and the intention is that this thesis will shed light on the monetary aspect of substitute trading. This thesis should therefore provide an additional view on the conflict of interest between insiders and society in general.

We wish to express our deepest gratitude to our tutor Clas Bergström, whose inspiration and guidance has helped make this thesis possible.

## **2. INSIDER, INSIDE INFORMATION & INSIDER TRADING**

### **2.1. INSIDER**

An insider is anyone that falls under the laws that govern the trading activities in Sweden.

According to the Swedish legislation, an insider is any person who, by power of his/her employment, profession or duties, usually obtains information regarding circumstances affecting securities prices.<sup>5</sup> The following persons are considered to be insiders by the Swedish legislation:<sup>6</sup>

1. a director or deputy director of the board of the company or its parent company,
2. the managing director or deputy director of the company or its parent company,
3. an auditor or deputy auditor of the company or its parent company,
4. a partner in a corporate partnership which is the parent company of the company, but not a limited partner,
5. other leading officer or holder of a highly qualified assignment of a permanent nature for the company or its parent company, if the position or assignment may normally involve access to confidential information about circumstances which may affect the price of shares in the company,
6. a holder of a highly qualified assignment or position in accordance with §§ 1-3 above, or a holder of a senior position in a subsidiary if this individual can be assumed to have access to non-disclosed information that has a potential impact on the share price of the company,
7. a person owning shares in the company equal to at least ten percent of the total share capital or at least ten percent of the total numbers of votes in the company, or who own shares equalling that amount together with a natural or legal person closely related to the share holder (spouse, minor and substantial influenced legal person).

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<sup>5</sup> Market Abuse Penal Act (2005:377)

<sup>6</sup> Act concerning Reporting Obligations for Certain Holdings of Financial Instruments (2000:1087)

Other individuals who are not directors, officers and employees could also be considered to be an insider if the company need to share material information. This implies that employees of law, consultancy, banking, brokerage and printing firms who were given such information are considered to be insiders according to the definition above.

## **2.2. INSIDE INFORMATION**

Inside information, according to the Swedish law, concern circumstances that have not been made public, and would likely have substantial effects on the price of the shares and other financial instruments of a company.<sup>7</sup>

Note however that not all non public information is inside information, It's is only material information, which upon its release could affect a company's stock price that falls under this category.

The following are examples of material information<sup>8</sup>:

1. the announcement that the company will receive a tender offer
2. the declaration of a merger
3. a positive/negative earnings announcement
4. the release of the company's discovery such as a new drug
5. an upcoming dividend announcement and
6. an unreleased buy/sell recommendation by an analyst.

## **2.3. INSIDER TRADING**

Insider trading is a term that most of us have heard of and usually relate with illegal conduct. But the term actually includes both legal and illegal conduct. The legal trading is when insiders buy and sell stock and other financial instruments in their own companies, and report these trades to the Swedish Financial Supervisory Authority, Finansinspektionen (Hereon: FI)<sup>9</sup>, following certain stipulated rules.

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<sup>7</sup> Market Abuse Penal Act (2005:377)

<sup>8</sup> Market Abuse Penal Act (2005:377)

<sup>9</sup> Finansinspektionen - supervises the financial system in Sweden.

1. Insiders have to report the shares they hold in the corporations they are insiders to FI.
2. Insiders have to report all changes in their possession of shares within five days, starting from the day the transaction takes place.
3. Insiders cannot trade shares in the corporations where they are insider within 30 days prior to the reporting days of quarterly reports and annual reports.
4. During the period covered in this thesis, the 30-day trading ban explained in (3) above was not implemented. The rule during the time period covered was then that an insider had to keep securities they bought for a period of at least three months before he/she could sell them.

Insider trading prohibition concerns all trading in the securities market, this includes trading on a stock exchange, other organized market places or trading through securities institutions. All kinds of financial instruments in the security market are included in the prohibition.<sup>10</sup>

Illegal insider trading occurs when someone makes an investment decision based on information that is not available to the general public or breaches any of the rules explained above. In some cases, the information allows them to profit, in others, avoid a loss. It is also illegal to give someone access to that information, enabling them to trade, and potentially profit upon it.<sup>11</sup>

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<sup>10</sup> Market Abuse Penal Act (2005:377)

<sup>11</sup> Market Abuse Penal Act (2005:377)



### **3. PREVIOUS RESEARCH**

#### **3.1. INSIDER TRADING**

Studies that have been performed on insider trading have almost exclusively concentrated on whether there has been a positive abnormal return, compared to that of the market in general, from insider trading. This is of interest to this thesis, since substitute trading aim to replicate the returns of trading in the insider's own corporation, with the one exception that the insider can legally trade on all information available to him/her without any restrictions regarding time or nature of information used as the basis for trading. Also of interest for this thesis is that if earlier studies prove that insiders earn abnormal returns, it indicates that they do have access to information that can move the stock prices, one of the foundations of this thesis.

International studies have shown inconclusive evidence when studying legal insider trading. When studying insider trading on the New York and American Stock Exchanges during 1962-1968, Jaffe (1974) showed that insiders possessed special information that yielded them higher returns and that trading using this information was widespread. The study also found that outsiders cannot profit from the publicly released information of insider trading when taking trading costs into account. Finnerty (1976) confirmed those findings for the period 1969-1972, Rozeff & Zaman (1988) for the time period 1973-1982 and Seyhun (1988) for the time period 1975-1981. Baesel & Stein (1979) and Fowler & Rorke (1984) found evidence supporting the findings of superior returns for insiders on the Toronto Stock Exchange. Pope, Morris & Peel (1990) later found evidence in line with the other studies for the UK market.

Tests for insider's superior information availability have been performed by investigating the prediction value of insider trades. Seyhun (1992) found evidence that insiders do possess superior information when studying the insider trading for the time period 1975-1989. According to the findings, up to 60% of the variation in the stock returns can be predicted by insider trading patterns. Seyhun (1998) found evidence that insiders have a predictive power upon purchasing when studying more than one million trades covered by the SEC in 1975-

1995. This was later confirmed by Lakonishok & Lee (2001) for the same time period, and Jeng et al (2002) for 1975-1996 data. All three studies show that insiders have little or no predictive power upon selling and that the predictive effect is larger for small companies relative that of larger corporations. The argument for this is that insiders sell shares for a multitude of reasons, while buying them with the single purpose of making money. Smaller firms are also better predictors, since they are less thoroughly analyzed by the market, hence making the potential upside larger.

Eckbo (1998) found evidence that contradicted the others when studying insider trading on the Oslo Stock exchange. Insider trading showed zero or negative abnormal returns when studying more than 18,000 reported insider trades during the period 1985-1992.

Illegal insider trading has primarily been proven as run-up effects in event-studies before a release of information, such as a takeover announcement where 40-50% of the price increase of the target firm takes place before the information is made public.<sup>12</sup> Meulbroek (1992), on the contrary, studies illegal insider trading not reported to the SEC<sup>13</sup> which has later lead to a conviction. The obvious difference is that these trades definitely are performed on basis of superior inside information, and since they are not reported to the SEC the insider aim to profit from it - hence their illegal nature. The findings are that the insider trading itself triggers an increase in the price of the security, averaging 3% abnormal return on the insider trading days, and cumulatively approximately half of the run-up in the target company price (43%) occurs on insider trading days.<sup>14</sup>

Other studies of illegal insider trading are Cornell & Sirri (1992), Chakravarty & McConnell (1997) and Gomperts & Lerner (1998). They all find support for the theory that insider trading leads to rapid price discovery, in line with Meulbroeks findings. Chakravarty & McConnell (1999) on the other hand finds evidence that contradicts the earlier when studying the insider trades of one specific insider trader. The earlier studies focused on whether insider trading occurred during times of price increases, which in turn was taken as evidence that insiders

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<sup>12</sup> Keown & Pinkerton 1981

<sup>13</sup> Securities and Exchange Commission, governing financial markets in the USA

<sup>14</sup> Meulbroek 1992

were the cause of price run-ups. This new study focuses on whether the insider trades are distinguishable from trades by outsiders. Statistically, this is not found to be the case.

### **3.2. SUBSTITUTE TRADING**

While research performed on the subject of insider trading almost exclusively focus on trading in the insider's own corporation, a few papers touch on the subject of substitute trading. Hansen & Lott (1995) argues that it is likely that insider trading exists also in securities issued on competitors ("cross-trading"), since actions performed by corporations have effects on the other players in the market – hence affecting their share price.

The study focuses on the case where officers in one company, Company A, knows about an impending action by Company A that will have a predictable effect on the market valuation of another company, Company B.

Firstly, Hansen & Lott argues that there exist two profits from a business decision by Company A, one which is the estimated direct profits on the revenues of Company A, and a secondary indirect cross-trading profit which is the effect on Company B's share price.

Secondly Hansen & Lott argues that public policy also is affected by cross-trading, since virtually no regulation on cross-trading exists.

Thirdly, Hansen & Lott say that executive compensation might be affected by cross-trading, since it has "the potential to be an easier source of additional executive compensation than traditional insider trading".<sup>15</sup> Hansen & Lott concludes that the profit from cross-trading has the potential to significantly alter the prediction of economic models. For instance, in a bidding competition, one participant can bid lower than the Nash equilibrium (a competitive model), but use a long position in other bidders to ensure that private profits will be created. That would generate a loss for the company, but on the other hand generate a profit for all individuals that know that the company will lose the bidding competition due to a too low bid, hence increasing the share price of the other companies involved in the bidding competition.

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<sup>15</sup> Hansen & Lott 1995

Charlton & Fischel (1983) illustrates this issue with a case when an executive of a firm's supplier short-sold stocks in a company, and then withheld critical supplies to that company. This caused a lower share price for the company as it could not produce goods. It did also create a profit for the company, as the shorted shares fell in value. They argue that this is legal, since the executive does not owe a "fiduciary duty to the shareholders of another firm"<sup>16</sup>. Ayres & Bankman (2001) confirms this statement but adds that this requires that the employee is not prohibited to perform such trades by his/her employer, and that the trading can have no potential to harm the employee's own firm.

Tookes (2003) examines whether insiders have an incentive to trade in the stock where an information event occurs or in the stock of competing firms, based on private information. He uses a model of informed trading, where share prices are set in imperfectly competitive markets and where there are events that cause private information to occur within individual firms. A key finding of his model is that trades that are information-based are likely to occur in stocks, other than that where the information event takes place. Another primary finding is that insiders are more likely to trade in stocks of competing firms when the information event occurs at dominant, large market-share firms. Tookes reasons that this is because firms with large market shares are less likely to be affected by shocks. The insider assumedly wants to use the information to trade in weaker companies that are more likely to be affected by the information, moving the price of the share to a greater extent.

Tookes' model predicts that the insider will trade dependent on the kind of information possessed, whether it's industry-wide (affecting all companies within an industry), or of a competitive nature (affecting the company's competitors). By studying 921 quarterly earning announcements in 136 companies he finds evidence of information-based trading both in the stocks of the firm that announces the information, as well as the company's competitors that do not announce any information during the earnings-announcement period. Tookes' findings are of interest to this thesis due to the fact that he finds evidence that supports the reasoning that insiders might have a propensity to trade in shares of competitors.

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<sup>16</sup> Charlton & Fischel 1983

## 4. HYPOTHESIS

We will set out to answer the following hypotheses:

1. Do information releases by corporations produce abnormal returns for their substitutes?
2. Do the returns from substitute trading vary among years?

The null hypothesis to be tested will in both cases be that there are no abnormal returns:

$H_0$ : No abnormal returns from information releases by Substitute Company

$H_1$ : Abnormal returns from information releases by Substitute Company

In the first hypotheses test we have divided the dataset by the abnormal returns shown by the company issuing the information release. If the market reaction for the company releasing the information is positive over the event window, the substitute share's abnormal return is allocated to the positive group. If the reaction for the releasing company is negative, the abnormal return for the substitute share is allocated to the negative group. The data is grouped on basis of the amount of return that the information releasing company shows. The different subsets of data are then examined for the existence of abnormal returns.

Hypothesis 1: No abnormal returns

The second hypothesis test examines if there are differences for the different years in the dataset. Here, the data is split both among the returns gained upon the information release, as well as split by year. We then examine the different years to see if they differ in terms of how many occasions the null hypothesis is rejected for each year.

Hypothesis 2: No difference in effect between different years

## **5. METHOD**

### **5.1. EVENT STUDIES**

Event study methodology was introduced by Fama et al. in the 1969 paper “The adjustments of stock prices to new information”. The effect of specific information is tested by defining an “event window” – a set number of days before and after the event that will be studied occurred. During this event window, the stock price movements are compared to a theoretical “normal” evolvement of the stock price, based on historical information of how the stock has been performing relative to the market.

#### **5.1.1. EVENT WINDOW LENGTH**

As we measure the effect on the share price caused by information releases from corporations, we also need to include a period prior to the information release. This is due to potential “leaking” of information that can have an effect on the share price of both the company releasing the information, as well as its substitute. We also need to include a period after the release of the information, in order to allow for any adjustment effects after the information has been properly interpreted by the market. By using a time period surrounding the release, we will capture any abnormal returns that occur prior to the release, as well as during an adjustment period immediately after the release. We use a time period of 5 days prior to the release and 5 days after the release and also the actual day of the release. The reason for this length, apart from capturing run-up and adjustment effects, is that we want an as long time period as possible, but do not wish for different event windows to intersect with one another. Allowing for longer event windows inevitably would lead to that undesired effect. We also do not wish to study long-run effects, being primarily interested in the short-term effect of the information.

#### **5.1.2. MARKET MODEL**

In order to determine the abnormal return during the time period surrounding each information release, we have to estimate the normal – expected - return for the shares. This is

achieved by a model that uses the historic development of each share compared to that of the market in order to estimate the “normal” development of the share during the event window. The actual performance of the share is then compared to the output from the model, yielding a positive or negative abnormal return. The historical evolvement of the market that is used for this estimation is the market portfolio, which for the purpose of this thesis will be represented by the index value evolvement of the SSE.<sup>17</sup> The model has the following shape:

$$\ln R_{i,t} = \alpha_i + \beta_i \cdot \ln R_{m,t} + u_{i,t}$$

where:

$R_{i,t}$  is the return for security  $i$  at time  $t$ .

$R_{m,t}$  is the return for the market portfolio  $R_m$  at time  $t$ .

$\alpha_i$  is the intercept in the regression analysis, a factor that is company specific.

$\beta_i$  is the amount that the security changes with a change in the market.

$u_{i,t}$  is the difference between the actual return and the value produced by the market model.

This term should theoretically sum to zero if there is no presence of abnormal return.

The  $\beta_i$  for each share is estimated against the AFGX, as to capture the relative volatility of the individual shares for estimation purposes.

### **5.1.3. CUMULATIVE ABNORMAL RETURNS**

The abnormal returns that occur as a result of the information releases have to be summarized over the each individual event window, as well as for the entire period covered in the study. For this purpose, Cumulative Abnormal Returns (hereon: CAR) is used. The CAR is obtained by taking the sum of the differences between the expected return and the actual return for a stock stemming for each release of news on the market. This way of measuring the return of a stock shows if the information events have an impact on the way that the stock has performed over the defined time period.

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<sup>17</sup> AFGX

The period for which we will examine the true performance relative the theoretical will be a 10 day period surrounding the release of the selected information for each company.

1. Since the actual return as well as the return on the market portfolio is known, the abnormal return is calculated according to the formula below.

$$AR_{i,t} = \ln R_{i,t} - (\alpha_i + \beta_i \cdot \ln R_{m,t})$$

2. The abnormal return variance is calculated by adding the squares of the abnormal returns and dividing by (n-1)

$$Var(AR_{i,t}) = \frac{\sum (AR_{i,t})^2}{(n-1)}$$

3. We then calculate the aggregate abnormal return for the sample in the event window. This is calculated by taking the average abnormal returns for at a specific date.

$$AAR_t = \frac{\sum_i AR_{i,t}}{n}$$

4. We then calculate the variance of the aggregate abnormal return by taking the sum of the abnormal return variance and dividing it by the square of (n-1)

$$Var(AAR_t) = \frac{\sum_i Var(AR_{i,t})}{(n-1)^2}$$

5. By summarizing the aggregate cumulative abnormal return, we get the aggregate cumulative abnormal return.



$$ACAR(t_1, t_2) = \sum_t AAR_t$$

We calculate the variance of the aggregate cumulative abnormal return by summarizing the variance of the aggregate abnormal return...

$$Var(ACAR(t_1, t_2)) = \sum_t Var(AAR_t)$$

We will use the student's t-distribution for the purpose of calculating the test statistic. Since we have a very large number of observations in our sample, we can assume our sample to be normally distributed, which is a prerequisite of the student's t-distribution. The test statistic is shown below:

$$J = \frac{ACAR(t_1, t_2)}{\sqrt{Var(ACAR(t_1, t_2))}}$$

The value of the test statistic will be evaluated against the value for the 5% significance level. The value for the 5% level is 1.645<sup>18</sup>, if the value of the test statistic is greater then that, the null hypothesis will be rejected.

## **6. DATA SOURCES & DATA GATHERING PROCEDURES**

### **6.1. SOURCES**

#### **6.1.1. TIME PERIOD**

Stock data for a time period of 5 years will be used. This will generate a satisfying number of observations for data processing in a statistically correct/robust manner. The period that will be covered will be 2000-05-31 – 2005-05-31. This will ensure that the results are up to date and that recent patterns of stock behavior are examined.

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<sup>18</sup> Newbold et al (2003)

### **6.1.2. CORPORATION/STOCK SELECTION CRITERIA**

First, we used commonly available sources of information such as Affärsvärldens index over companies divided by the line of business that the corporations operate in as to gather corporations that were potential substitutes. We then used the Annual Report for each company for the process of pairing the corporations into substitutes. Finally, we examined the detailed breakdown for the turnover of the corporations in order for them to be as close match as possible to each other, in terms of the turnover percentage for their main line of business. This resulted in 25 pairs of substitutes.

Due to the fact that not all listed stocks on the SSE have a substitute that also is listed on the SSE, we cannot include all the listed companies on the SSE. In order to have a formal selection process, the following selection criteria have to be fulfilled in order for the company to be included in the sample.

1. The Stock must be listed on the Stockholm Stock Exchange.
2. The Substitute must be listed on the Stockholm Stock Exchange.
3. The Substitute's main line of business must be in the same line of business as the Stock.
4. The two Substitute's turnover for their common main line of business must be at least 20% of their total turnover, to ensure that its stock will be affected by an information release

### **6.1.3. SUBSTITUTE COMPANY PROFILES**

Since no two companies are totally alike, we cannot expect to find perfect substitutes that will react in the exact same way upon an information release. Differences are plentiful, including turnover, company structure, markets the company operates in, customers, or even its company culture. More challenging for a study of this nature is that not all companies have a listed substitute on the SSE, although the company might have several listed substitutes on other exchanges. An obvious example of this nature is Hennes and Mauritz, which has a more

natural substitute in its direct competitor Zara, which is listed on the Spanish Stock Exchange. For this study, we have to settle for a less direct competitor, Lindex, which still will be likely to capture a majority effect on the stock from the same events that will cause effects on the Hennes and Mauritz stock. The stocks that do not have a natural substitute on the SSE, will not be covered by this thesis, as the amount of work needed for research on all the stock markets globally is not allowed for within the limited time span set for a Master Thesis.

One issue that is difficult to control for is evolvement over time. Two companies that are similar today do not have to share a similar history. This will have a negative impact on the study, since we compare the performance over time for two shares assumed to be as alike as possible. For the purpose of this study, we have based the grouping into pairs of substitutes on the annual reports for 2005. We will leave it for later studies to determine a model for the evolvement over time.

## **JC - Retail and Brands**

JC owns and develops concepts for fashion stores on the Swedish and international clothes market. Each concept has a distinct target group and position. JC facilitates this through the two concepts JC 6-25 years and Brothers/Sisters. JC is the fourth largest clothing company in Sweden and also owns operations in Norway and Finland. The total amount of stores is 264, with 92 being operated by JC and the remaining 172 operated as franchises.

Retail and Brands owns and develops concepts for fashion stores. Retail and Brands facilitates this through RNB Retail, which operates 64 stores throughout Sweden and Norway, as well as Polarn O. Pyrets 37 self-owned and 25 franchise operated stores.

	JC	Retail and Brands
Main line of business	Concepts and Stores 100%	Concepts and Stores 100%
Total turnover MSEK	963	1,707

*Potential reasons for a negative fit: Retail and Brands has a focus on the higher-value customers, and has a more aggressive expansion strategy compared to JC.*

### Hennes & Mauritz – Lindex

Hennes and Mauritz develops and sells clothing for women, men, teenagers and children with a focus to offer fashion and quality at the best price. The company is one of the world's largest in its line of business. The total amount of stores is 1,193 in 22 countries.

Lindex develops and sells female underwear, female apparel and children's clothes with a focus on value for money. The company is a market leader in female underwear, and one of the leading companies in female apparel in Sweden and Norway. The total amount of stores is 350, of which 322 are located in the Nordic area and 23 in Germany.

	Hennes & Mauritz	Lindex
Main line of business	Own branded clothes 100%	Own branded clothes 100%
Total turnover MSEK	71,886	5,202

*Potential reasons for a negative fit: Hennes & Mauritz has a substantially larger market cap than Lindex, as well as being positioned in a more fashionable segment. Hennes and Mauritz also has a more aggressive growth strategy with yearly increases of 10-20% on turnover and EBITDA.*

### Cherry företagen – Unibet

Cherry företagen is split into three distinct divisions: *Bettsson*, which operates Internet betting with poker, sports betting and casino as its main focus areas. The amount of active betting accounts amounts to more than 200,000. *Net Entertainment*, which develops software for betting applications that is licensed out to roughly 30 different betting companies including Unibet, Bet24, Ogame and 24hpoker. *Cherry Casino*, which operates traditional gambling operations such as Black Jack and Roulette at Restaurants and international cruise ships. The Internet betting operations comprises some 46% of the total turnover.

Unibet operates betting over Internet and mobile applications. Unibet's betting operations is divided into two categories: *Sports betting*, which offers betting on local and international sports events. *Other betting products*, which offers poker and 25 different casino products such as roulette, Black Jack and baccarat. Unibet has more than 171,000 active betting accounts.

	Cherryföretagen	Unibet
Main line of business	Online Betting 46%	Online Betting 100%
Total turnover MSEK	452	587

*Potential reasons for a negative fit: Cherryföretagen operates traditional casino betting and betting platform development as well as online betting. Since the Online Betting operations for Cherryföretagen comprises roughly half of the total turnover, while having a lower total turnover, Unibets comparable operations is nearly three times as large as Cherryföretagen's.*

### **Skandinaviska Enskilda Banken – Handelsbanken**

Skandinaviska Enskilda Banken is a leading Scandinavian bank which offers Retail Banking and Merchant Banking, and operates over 600 offices in Scandinavia, Germany and Eastern Europe.

Handelsbanken is a leading Scandinavian bank which offers Retail Banking and Merchant Banking, and operates over 580 offices in Scandinavia, Great Britain and Eastern Europe.

	Skandinaviska Enskilda Banken	Handelsbanken
Main line of business	Retail Banking 64%	Retail Banking 87%
Total turnover MSEK	34,227	26,338

*Potential reasons for a negative fit: Skandinaviska Enskilda Banken has a larger share of Merchant Banking when compared to Handelsbanken*

### **Föreningssparbanken - Nordea**

Föreningssparbanken is a leading Scandinavian bank which offers Retail Banking and Merchant Banking, and operates over 650 offices in Scandinavia and the Baltic region.

Nordea is a leading Scandinavian bank which offers Retail Banking and Merchant Banking, and operates over 1100 offices in Scandinavia and the Baltic region.

	Föreningssparbanken	Nordea
Main line of business	Retail Banking 91%	Retail Banking 83%
Total turnover MSEK	29,460	60,472

*Potential reasons for a negative fit: Föreningsparbanken has a lower turnover, as well as a lower share of Retail Banking when compared to Nordea.*

### **NordNet – Avanza**

Nordnet provides Nordic customers with Internet trading & saving solutions for shares and funds. The company has over 117,000 customers with an active trading account.

Avanza is Sweden's largest operator of Internet trading & saving solutions for shares and funds. The company has over 100,000 customers with an active account for trading.

	NordNet	Avanza
Main line of business	Internet trading & saving 100%	Internet trading & saving 100%
Total turnover MSEK	434	285

*Potential reasons for a negative fit: None*

### **Hagströmer & Qviberg – Carnegie**

Hagströmer & Qviberg is one of Sweden's leading independent Investment and Private Banking companies, and operates within Private Banking, Securities, Asset management and Investment Banking. The company is split in two divisions, Investment Banking and Private Banking.

Carnegie is a leading independent Nordic investment bank which operates within Private Banking, Securities, Asset management and Investment Banking.

	Hagströmer & Qviberg	Carnegie
Main line of business	Investment Banking 39%	Investment Banking 86%
Total turnover MSEK	518	3,514

*Potential reasons for a negative fit: Hagströmer & Qviberg has a lesser share of its turnover from Investment Banking. Carnegie has Nordic operations, while Hagströmer & Qviberg has a Swedish focus.*

### Skandia – Salus Ansvar

Skandia is one of the world's leading independent providers of quality solutions for long-term savings in more than 20 countries. The focus area is selling products and services for individuals and organizations. Skandia performs fund selection, concept development, and market support & service. Skandia also operates a niche-bank that comprises 13.8% of the turnover.

Salus Ansvar is provides pension solutions for organizations in Sweden. Salus Ansvar performs concept development, and market support& service, but does not create any of the products it sells.

	Skandia	Salus Ansvar
Main line of business	Long term saving solutions 100%	Long term saving solutions 100%
Total turnover MSEK	11,992	212

*Potential reasons for a negative fit: Skandia has a global presence compared to Salus Ansvar's Swedish focus, Skandia also has a substantially larger market cap. Salus Ansvar does not produce any of the products it sells, while Skandia is vertically integrated to a larger extent.*

### Daydream – Dice

Daydream is a Scandinavian producer and publisher of games and content for mobile phones. The company owns publishing rights for well-known brands, such as Star Trek, Mastermind, and Othello.

Dice is a Scandinavian producer of computer games. The company owns several well-known brands for the major consoles, as well as PC. These include Battlefield and Rallisport Challenge.

	Daydream	Dice
Main line of business	Skilled Gaming 100%	Skilled Gaming 100%
Total turnover MSEK	18	226

*Potential reasons for a negative fit: Daydream produces games for mobile applications, while Dice produces games for PC and Consoles. Dice also has a significantly larger turnover, as well as a number of major products that has been topping the sales charts globally.*

### **WM-Data – Tieto Enator**

WM-Data is one of the leading IT services companies in the Nordic region with more than 8,000 employees. WM data sells IT related services and solutions, as well as design and product development services. Customers are primarily within Banking & Insurance, Retail & Logistics, Industrial, Utilities, Public & Healthcare, and Telecom.

Tieto Enator is one of the leading IT services companies in Europe with more than 15,000 employees. The company is active in more than 25 countries. Customers are primarily within Banking, Telecom, Healthcare, and Forest.

	WM-Data	Tieto Enator
Main line of business	IT Services 100%	IT Services 100%
Total turnover MSEK	9,265	15,471

*Potential reasons for a negative fit: WM-Data has a Nordic focus for its operations, while Tieto Enator has a European focus. The two companies also operate in slightly different industrial segments.*

### **Strålfors – Elanders**

Strålfors is the leading company within Information Logistics in the Nordic Region. The company operates primarily within Information Logistics and Graphic productions. Information Logistics is a slightly larger share of the total turnover with 58% of the total.

Elanders is a Nordic company that delivers Information Logistics and printing solutions within the Nordic region. Information Logistics is a dominating share of the total turnover with 78% of the total..

	Strålfors	Elanders
Main line of business	Information Logistics 58%	Information Logistics 78%



Total turnover MSEK	3,375	1,953
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*Potential reasons for a negative fit: Strålfors has a lower share of its total turnover from Information Logistics when compared to Elanders. The inverted logic applies for the two companies' printing divisions, where Strålfors has a larger share of its turnover from its printing operations than Elanders, with 42% versus 22% respectively.*

### Broströms – Concordia Maritime

Broströms is an international shipping company that operates within the oil and chemicals industry and offers its customers global solutions within Shipping and Logistic Services. The Logistic Services comprises a minor part of the total turnover.

Concordia Maritime is an international shipping company that operates within the crude- and fuel oil industry.

	Broströms	Concordia Maritime
Main line of business	Shipping 81%	Shipping 100%
Total turnover MSEK	3,818	310

*Potential reasons for a negative fit: Broströms has a larger turnover when compared to Concordia Maritime. Broströms also has a small division which operates within Marine & Logistics services, which Concordia Maritime lacks.*

### SCA – Stora Enso

SCA is a global consumer goods and paper company that develops, produces and markets personal care products, tissue, packaging solutions, publication papers, and solid-wood products. SCA operates in more than 90 countries. Packaging comprises some 33% of the total turnover. Forest Products accounts for 15% of the total turnover.

Stora Enso is an integrated paper, packaging, and forest products company. The company produces publications and fine paper, packaging board, and forest products. Stora Enso

operates in more than 40 countries. Packaging comprises some 23% of the total turnover. Forest Products account for some 11% of the total turnover.

	SCA	Stora Enso
Main line of business	Packaging 33%	Packaging 23%
Total turnover MSEK	96,385	121,330

*Potential reasons for a negative fit: Other than the two sub-divisions within each company that we consider to be a good fit, SCA is more heavily exposed to the personal care and tissue segment, while Stora Enso leans more toward the fine paper production.*

### **Nobia - Ballingslöv**

Nobia is Europe's leading producer of kitchen interiors. The company also produces bathroom interior. Sales are primarily directed through specialized kitchen stores, driven as franchises or company owned stores.

Ballingslöv is one of the leading producers of kitchen interiors in the Nordic region. The company also produces bathroom interior. Sales are directed through specialized kitchen stores, as well as through third party stores.

	Nobia	Ballingslöv
Main line of business	Kitchens 88%	Kitchens 85%
Total turnover MSEK	12,442	1,871

*Potential reasons for a negative fit: Nobia has a significantly larger turnover when compared to Ballingslöv. Nobia also has a more vertically integrated approach, and owns a larger part of the value chain.*

### **Ericsson – Nokia**

Ericsson is one of the worlds leading Mobile Systems and Mobile Phones manufacturers. The company has operations in more than 140 countries worldwide. Ericsson manufactures Mobile Phones through a joint venture with Sony. The company is a market leader in Mobile Systems,

while having a weaker position on Mobile Phones. Mobile Phones is the secondary source of revenues, accounting for 14% of the total turnover

Nokia is one of the worlds leading Mobile Phones and Mobile Systems manufacturers. Nokia has global operations. The company is the market leader on Mobile Phones, while having a weaker position on Mobile Systems. Mobile systems is the secondary source of revenues, accounting for 19% of the total turnover

	Ericsson	Nokia
Main line of business	Mobile Networks 86%	Mobile Networks 20%
Total turnover MSEK	151,821	314,557

*Potential reasons for a negative fit: The two companies have a structure for the sources of turnover that is the mirror image of that of each other. Ericsson has a 86%-14% respective share for mobile systems and mobile phones, while Nokia has a 20%-80% respective share of the same. The companies however operate in the exact same market niches, and as Nokia has a turnover that is twice that of Ericsson, the 20% share of Mobile Networks for Nokia will account for as much turnover as 40% of Ericsson's revenues.*

### **Volvo – Scania**

Volvo is one of the worlds leading producers of trucks, buses, and construction equipment. The company is diverse, and also produces marine engines and components for flight engines, and a full range from light trucks to heavy trucks.

Scania is one of the worlds leading manufacturer of heavy trucks, but also has operations within buses and marine engines.

	Volvo	Scania
Main line of business	Trucks, Buses, Engines 78%	Trucks, Buses, Engines 100%
Total turnover MSEK	231,191	63,328

*Potential reasons for a negative fit: Volvo has a larger share of its turnover from the mid-segment of light and middleweight trucks, while Scania does not operate in that segment. Volvo also has operations within the aero segment, which produces parts for flight engines, as well as other components, such as components for space applications. Volvo also operates within the construction equipment segment. Scania currently does not operate within any of these segments. Furthermore, apart from having a more diverse corporate operation, Volvo is a larger company than Scania, with a turnover that is nearly four times as large as Scania's.*

### ACSC – Xponcard

ACSC produces identification products for customers in the banking and finance sectors. Their products span from banking and loyalty cards to high-security products.

Xponcard offers its customers in banks, telecom, chain stores, and regulatory authorities plastic card concepts for safe payments, loyalty cards, and identification cards. The company is a market leader in the Nordic area.

	ACSC	Xponcard
Main line of business	Plastic Cards 92%	Plastic Cards 100%
Total turnover MSEK	265	1,084

*Potential reasons for a negative fit: ACSC is primarily focused on the Banking and Finance sector, while Xponcard also is exposed to other industries, such as Telecom, Store Chains, and Authorities. ACSC also has a high-security division that Xponcard lacks. Finally, Xponcard also is a larger company when comparing the turnover, being roughly four times as large as ACSC.*

### TV4 – Modern Times Group

TV4 operates advertisement financed Free-to-Air TV broadcasting in Sweden. The Channel operates national as well as regional broadcasts. TV4 is the largest advertisement financed Free-to-Air television channel in Sweden.

Modern Times Group operates Free-to-Air TV broadcasting in Sweden, Finland and Denmark as well as in Eastern Europe through TV3. The company also operates Pay-TV broadcasting

in Scandinavia and Eastern Europe. TV3 is the second largest advertisement financed Free-to-Air channel in Sweden.

	TV4	Modern Times Group
Main line of business	Broadcasting Scandinavia 100%	Broadcasting Scandinavia 69%
Total turnover MSEK	2,594	8,012

*Potential reasons for a negative fit: Modern Times Group is a more diverse company than TV4, with its Scandinavian broadcasting operations being split into two parts – Free-to-Air and Pay TV. Modern Times Group also operates within on-line retailing through CDON and TV-Shop, publishing through Brombergs, Radio through MTG Radio and P4 Hele Norge, as well as having an Eastern European broadcasting operation. Modern Times Group also has a turnover that is roughly three times as large as TV4's.*

### **Skanska – NCC**

Skanska is one of the leading construction companies in the Nordic area. The company also has operations in Eastern Europe, Great Britain and USA. Proportionally, the company has a larger share of non-housing construction than NCC. Based on turnover, Skanska is the largest listed construction company on the SSE.

NCC is one of the leading construction companies in the Nordic area. The company also has operations in Eastern Europe and Germany. Proportionally, the company has the second-largest share of non-housing construction, and the second largest turnover of the major listed construction companies on the SSE.

	Skanska	NCC
Main line of business	House Construction 55%	House Construction 78%
Total turnover MSEK	124,106	49,506

*Potential reasons for a negative fit: NCC has a lower share of its turnover from non-housing construction compared to Skanska. Skanska is also geographically more diverse than NCC, with operations in Great Britain and USA.*

## PEAB – JM

PEAB is one of the leading construction companies on the Swedish market. The company also has operations in Norway and Finland. PEAB has a focus on house construction, and is the third largest listed construction company on the SSE.

JM is one of the leading developer of house and housing area projects in the Nordic region. The company also develops commercial real estate and non-house construction. The company is the fourth largest listed construction company on the SSE.

	PEAB	JM
Main line of business	House Construction 83%	House Construction 88%
Total turnover MSEK	25,501	9,887

*Potential reasons for a negative fit: PEAB does not have a true Nordic operation, while JM has a Nordic focus. PEAB is also a larger company, with a turnover of roughly twice that of JM.*

## Wallenstam – Heba

Wallenstam is the second largest private real estate owner in Stockholm, and the third largest in Gothenburg. The company has a focus on apartments, with a smaller share of commercial real estate.

Heba is one of the largest private real estate owners in Stockholm. The company has a focus on apartments.

	Wallenstam	HEBA
Main line of business	Property Investment 100%	Property Investment 100%
Total turnover MSEK	1,220	205

*Potential reasons for a negative fit: The two companies has a slightly different composition in their investment portfolio. Wallenstan has a more diverse focus, with significant operations in Stockholm and Gothenburg, while HEBA is mainly concentrated to Stockholm. Wallenstam also has a commercial real estate portfolio, which*

*HEBA lacks. Furthermore, Wallenstam is roughly six times as large as HEBA when comparing the yearly turnover.*

### **Ljungberggruppen – Fabege**

Ljungberggruppen operates within real estate and property development in Sweden. The main focus is commercial real estate, with a minor share of apartments in the portfolio.

Fabege is one of the leading real estate companies in Sweden, with a focus on commercial real estate. The company owns and develops real estate, mainly in the Stockholm area.

	Lundberggruppen	Fabege
Main line of business	Property Investment 100%	Property Investment 100%
Total turnover MSEK	425	2,778

*Potential reasons for a negative fit: Fabege is larger than Lundberggruppen, with a turnover of nearly seven times that of the latter. Fabege is also geographically more concentrated to the Stockholm area, while Lundberggruppen has a more diverse geographical approach.*

### **Poolia – Proffice**

Poolia is one of the leading companies within temporary staffing solutions in Sweden. The company offers staffing and recruitment on all hierarchy levels within the areas finance, administration, and IT.

Proffice is one of the leading companies for temporary staffing and recruitment in the Nordic area. The company offers staffing and recruitment on all hierarchy levels mainly within the areas of customer service, sales & marketing, administration, accounting, finance, IT, logistics, transport, and construction. Proffice also offers outsourcing services, which accounts for a minor part of the total turnover.

	Poolia	Proffice
Main line of business	Staffing & Recruitment 100%	Staffing & Recruitment 84%

Total turnover MSEK	1,009	2,421
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*Potential reasons for a negative fit: Poolia offers staffing & recruitment services within fewer segments than Proffice. Proffice also has an outsourcing division, which accounts for 16% of the total turnover, something that Poolia lacks. Proffice is also a larger company than Poolia, with a turnover twice as large as its competitor.*

## Tele2 – TeliaSonera

Tele2 is one of Europe's leading non-incumbent telecom operators, with more than 30 million customers in 23 countries. Tele2 offers products and services within fix and mobile telephony, broadband, and cable-TV.

Telia Sonera is one of the leading telecom operators in the Nordic and Baltic areas, with positions in Eurasia, Russia, and Turkey. The company has more than 80 million customers, and offers services within fix and mobile telephony, broadband, and cable-TV.

	Tele2	TeliaSonera
Main line of business	Mobile Telecom 38%	Telecom 87%
Total turnover MSEK	49,943	87,661

*Potential reasons for a negative fit: Tele2 has a lower share of its total turnover from mobile telephony than TeliaSonera. TeliaSonera also has nearly three times as many customers than Tele2, as well as roughly twice as high turnover. TeliaSonera, being an incumbent, also owns and operates a larger amount of its networks, while Tele2 buys spare capacity from other operators to a larger extent.*



## 6.2. INCLUDED INFORMATION

### 6.2.1. PRESS RELEASES

We have chosen to include press releases that could have significant impact on the company and its substitute<sup>19</sup>. The included information releases are categorized by the below categories. It should be noted that year 2000 and year 2005 contain 6 month data only, which renders the number of observations invalid, when comparing yearly number of releases.

CATEGORY	EVENT	2000	2001	2002	2003	2004	2005	TOTAL
1	Offer for the company	0	1	0	0	0	0	1
2	Acquisition	27	25	21	16	23	13	125
3	Divestment	5	8	7	5	4	1	30
4	Positive earnings announcement	1	1	1	2	4	0	9
5	Negative earnings announcement	1	2	1	0	3	0	7
6	Merger	2	3	1	2	0	0	8
	TOTAL	36	40	31	25	34	14	180

Table 1 – Number of press releases in each category

Category 1, 2, 3 and 6 are included since previous studies have shown that mergers and acquisitions give positive abnormal returns for the companies within the sector even if they are not part of the merger or acquisition<sup>20</sup>. This has the effect that an information release will have an impact on the substitute share; even if it is not directly involved in the merger or acquisition. Divestments are included due to the fact that they cause less consolidation, which in theory should give a negative effect on abnormal returns, following the above reasoning.

Category 4 and 5 are included because of their obvious impact. For example if Ericsson announces unexpected increase or decrease in earnings it tends to increase or decrease the stock return of its competitors, in this case the stock return of Nokia.

<sup>19</sup> A full list of releases is displayed in the appendix

<sup>20</sup> Eckbo 1982

### **6.2.2. QUARTERLY REPORTS**

Quarterly company reports are chosen because it could have a significant impact on the stock of the company in question and its substitute upon its release. These dates are also well defined in time and repeatable. One weakness is that the quarterly reports are usually issued around the same time period for all corporations on the SSE, therefore in some cases it can be difficult to be sure if it is the information from the substitute or the company's own report that causes the stock reaction. To limit this effect, we have chosen the event window length to be short, so that the intersections will be less frequent. Although some event windows intersect, they have been included due to the fact that we want to include all events that can drive the share price, to ensure a complete dataset.

### **6.2.3. SOURCE OF FINANCIAL DATA**

The source of all stock data used for this thesis is Thomson Financial, courtesy of the Stockholm School of Economics. Due to the fact that the stock value fluctuates during the day, the value at closing has been consistently used for all shares included in the dataset. The press releases on the quarterly reports, mergers and acquisition, divestments and financial estimates are obtained from the corporations' homepages and the homepages of business papers like DI.se and privataaffarer.se.

### **6.2.4. PROGRAMS FOR ANALYZING THE STOCK DATA**

There exist several software programs such as SPSS, ATATA , Eviews and Microsoft Excel that can be used to process the data. In this thesis we have used SPSS and Microsoft Excel to process the data. SPSS is a very useful and simple program because of its predefined functions for performing statistical tests on data.

## 7. RESULTS AND ANALYSIS

One constraint that applies to all observations for all hypothesis tests is that there is no mechanism that sorts the observations according to an expected reaction for the stock substitute. This can be illustrated with the following example: Ericsson shows an increased profit, higher than expected. This is due to the fact that Ericsson has gained market share by taking 2% of Nokia's customers. Ericsson rises 5% on the news release, Nokia is down 3%. In our model, we examine whether the substitute follows the company releasing the news and make no difference between news that causes an opposite reaction on the substitute share. This will be a challenge left for future researchers.

### 7.1. HYPOTHESIS 1

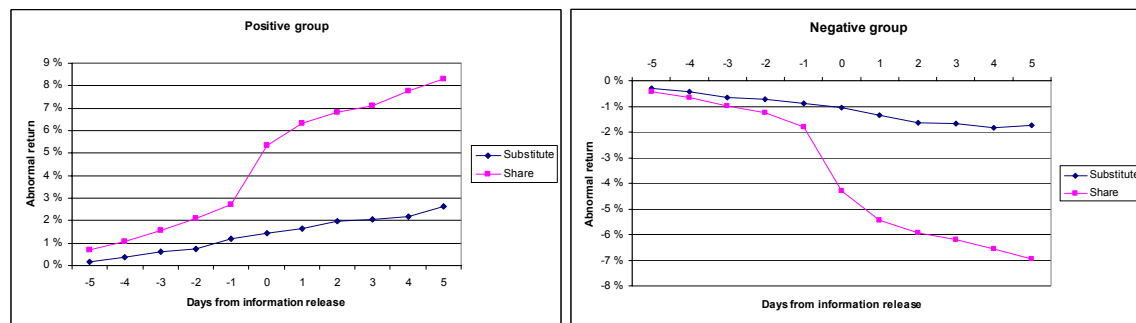
For each information event, the abnormal return for the corporation releasing the information and the abnormal return for the substitute was collected. The dataset was then divided into two groups, one where the information releases caused a positive cumulative abnormal return for the company releasing the information, and one where the effect was negative. The substitute's abnormal return for each information event was grouped according to the return of the information releasing company, regardless if the substitute showed a positive or a negative return.

Table 2 below shows the number of observations in the two groups.

INFORMATION RELEASING COMPANY ABNORMAL RETURN	OBSERVATIONS	PERCENTAGE
Positive	612	55 %
Negative	495	45 %
TOTAL	1107	100 %

**Table 2 – Positive and negative abnormal return observations for the information releasing company**

Shown in the charts below is the cumulative abnormal return over the event window for the positive group and the negative group. Both the information releasing company, called "Share" and the substitute, called "Substitute" are plotted.



**Chart 1 – Abnormal returns for Information releasing companies and Substitutes in positive and negative group**

As can be seen in the charts above, the negative group shows less abnormal returns when compared to the positive group.

SUBSTITUTE COMPANY ABNORMAL RETURN	RETURN	T-STATISTIC	H0 REJECTED
Return when information releasing company return is Positive	2,59 %	6,0154	YES
Return when information releasing company return is Negative	-1,77 %	-4,1486	YES

**Table 3 – Statistics for positive and negative groups**

The table above shows that the null hypothesis is rejected at the 5% level. This applies for both the positive and the negative groups. Interestingly, the results are statistically significant on very low significance levels, which indicate that these results also have an economical value. On the other hand, due to the very low returns for the substitute shares, it is probably not feasible for insiders to gain economically after transaction costs are accounted for, especially for the negative group.

Due to the fact that more “valuable” information can be expected to cause stronger returns both for the company releasing the information, as well as the substitute, we then divided the returns for the information releasing company in four groups with increasingly higher returns on the positive side, and four groups with increasingly lower returns on the negative side. The substitute’s abnormal return for each information event was grouped according to the return of the information releasing company, regardless if the substitute showed a positive or a negative return.

The sub-groups for the positive group are as follows:

1. All positive returns above 0%
2. All positive returns above 1%
3. All positive returns above 5%
4. All positive returns above 10%

And for the negative group:

1. All negative returns below 0%
2. All negative returns below 1%
3. All negative returns below 5%
4. All negative returns below 10%

This yielded the following amount of observations in for the different groups, as shown in table 4 below:

INFORMATION RELEASING COMPANY ABNORMAL RETURN	SUB GROUP	OBSERVATIONS	PERCENTAGE OF OBSERVATIONS
Positive	10 %	173	16 %
	5 %	330	30 %
	1 %	545	49 %
	0 %	612	55 %
Negative	0 %	495	45 %
	-1 %	429	39 %
	-5 %	246	22 %
	-10 %	113	10 %

**Table 4 – Positive and negative abnormal return observations for the information releasing company**

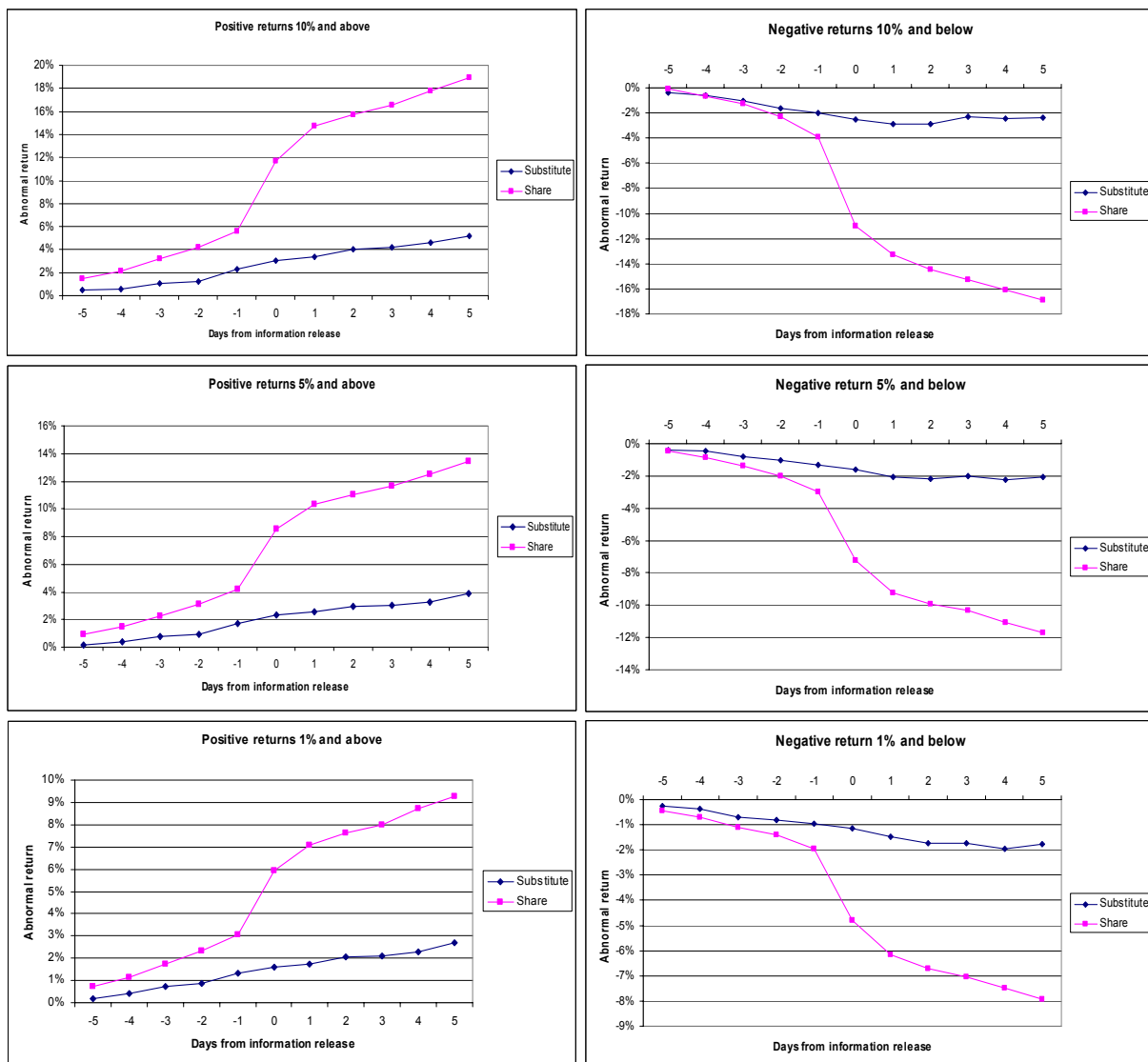
Interestingly, the number of “strong” abnormal returns for the information releasing company is high. The number of observations for all abnormal returns above ten percent accounts for 26% of the total amount of observations. In table 5 below, the statistics for the different subgroups are shown.

SUBSTITUTE COMPANY ABNORMAL RETURN	SUB GROUP	OBSERVATIONS	ABNORMAL RETURN	T-STATISTIC	H0 REJECTED
Return when information releasing company return is Positive	10 %	173	5,06 %	5,4259	YES
	5 %	330	3,81 %	5,9021	YES
	1 %	545	2,65 %	5,6624	YES
	0 %	612	2,59 %	6,0154	YES
Return when information releasing company return is Negative	-10 %	113	-2,38 %	-2,4493	YES
	-5 %	246	-2,06 %	-3,1794	YES
	-1 %	429	-1,80 %	-3,8245	YES
	0 %	495	-1,77 %	-4,1486	YES

**Table 5 – Statistics for each sub-group**

Comparing the results for the different subgroups, it can be concluded that the stronger the return for the company releasing the information, the higher is the return for the substitute.

One exception is the group with returns 1% and above/below. This group shows a lower return for the substitute in both negative and positive returns when compared to the group with returns 0% above/below. Although the null hypothesis is rejected in all cases, the negative side shows consistently lower statistical significance than the positive, as well as consistently lower returns. In the charts below, the cumulative abnormal returns is shown for the information releasing company called “Share” and the substitute, called “Substitute”.



**Chart 2 – Abnormal returns for Information releasing companies and Substitutes in positive and negative sub-groups**

## 7.2. HYPOTHESIS 2

The second hypothesis investigates whether different years give raise to the same amount of abnormal returns. Here, we have split the data by year as well as the split for different strengths used in hypothesis 1 above. The table below shows the number of observations in each group as well as by year.

INFORMATION RELEASING COMPANY ABNORMAL RETURN	SUB GROUP	OBSERVATIONS 2005	OBSERVATIONS 2004	OBSERVATIONS 2003	OBSERVATIONS 2002	OBSERVATIONS 2001	OBSERVATIONS 2000	TOTAL
Positive	10 %	22	28	32	39	34	18	173
	5 %	30	49	66	76	67	42	330
	1 %	52	107	108	113	108	57	545
	0 %	60	123	128	122	120	59	612
Negative	0 %	52	108	91	94	99	51	495
	-1 %	43	89	79	84	88	46	429
	-5 %	23	43	48	51	52	29	246
	-10 %	12	17	17	24	26	17	113

**Table 7 – Positive and negative abnormal return observations for the information releasing company in each subgroup per year**

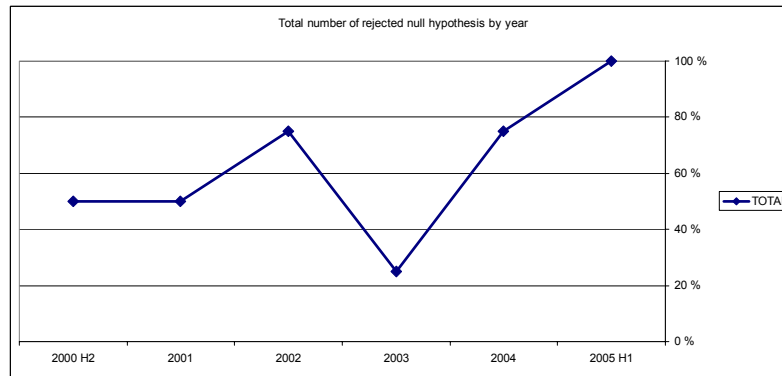
Observations are evenly distributed over the years, indicating that the data is not affected by the general market conditions, such as bull or bear markets. If that was the case, one would expect the number of observations for the positive group to be skewed toward the later period, due to the fact that the market turned upward during that time. The opposite can be expected for the negative group of observations, due to the fact that the market declined during that period. In the chart below, the returns for the individual years are shown. Here, we find larger discrepancies when comparing the different years.

SUBSTITUTE COMPANY ABNORMAL RETURN	SUB GROUP	STATISTIC	2005 H1	2004	2003	2002	2001	2000 H2
Positive	10 %	ABNORMAL RETURN	8,88 %	4,54 %	1,12 %	6,05 %	6,48 %	4,52 %
		T-STATISTIC	3,048	2,494	0,672	2,573	2,679	1,232
		H0 REJECTED	YES	YES	NO	YES	YES	NO
	5 %	ABNORMAL RETURN	5,96 %	3,08 %	1,73 %	4,48 %	4,92 %	3,86 %
		T-STATISTIC	2,548	2,665	1,515	2,662	3,075	1,975
		H0 REJECTED	YES	YES	NO	YES	YES	YES
	1 %	ABNORMAL RETURN	3,03 %	1,24 %	1,70 %	3,98 %	3,45 %	2,85 %
		T-STATISTIC	2,052	1,733	1,709	3,109	3,062	1,760
		H0 REJECTED	YES	YES	YES	YES	YES	YES
	0 %	ABNORMAL RETURN	2,76 %	1,64 %	1,74 %	3,82 %	3,15 %	2,82 %
		T-STATISTIC	2,094	2,477	1,963	3,130	3,016	1,795
		H0 REJECTED	YES	YES	YES	YES	YES	YES
Negative	0 %	ABNORMAL RETURN	-1,83 %	-1,18 %	-1,20 %	-2,39 %	-1,68 %	-2,86 %
		T-STATISTIC	-2,222	-1,673	-1,322	-2,252	-1,369	-1,915
		H0 REJECTED	YES	YES	NO	YES	NO	YES
	-1 %	ABNORMAL RETURN	-1,85 %	-1,24 %	-1,49 %	-2,44 %	-1,51 %	-2,63 %
		T-STATISTIC	-2,023	-1,626	-1,477	-2,149	-1,118	-1,638
		H0 REJECTED	YES	NO	NO	YES	NO	NO
	-5 %	ABNORMAL RETURN	-2,73 %	-1,99 %	-1,26 %	-2,00 %	-2,07 %	-2,99 %
		T-STATISTIC	-2,126	-2,062	-0,870	-1,389	-1,067	-1,518
		H0 REJECTED	YES	YES	NO	NO	NO	NO
	-10 %	ABNORMAL RETURN	-6,00 %	-2,37 %	-1,33 %	-1,15 %	-1,77 %	-3,51 %
		T-STATISTIC	-2,751	-1,510	-0,582	-0,511	-0,660	-1,266
		H0 REJECTED	YES	NO	NO	NO	NO	NO

**Table 8 - Statistics for each subgroup per year**

We cannot reject the null hypothesis of no abnormal return in three cases for the positive side. The null hypothesis of no abnormal returns for the negative side is rejected in 15 cases out of

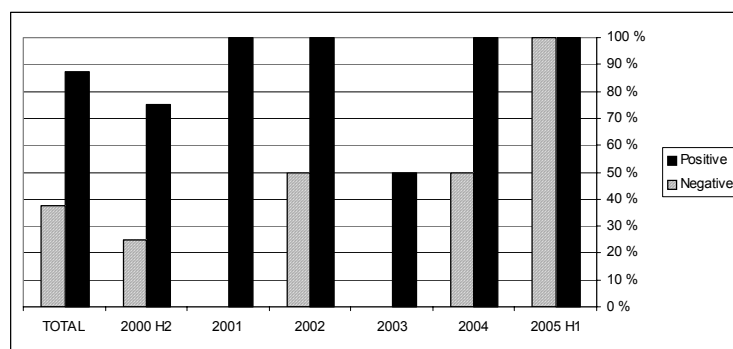
24. These are spread evenly throughout the years, with one exception being 2005 for the negative side, where all results are statistically valid, and 2003 for the positive and negative side, where just 25% of all results are statistically valid. The total percentages of rejected null hypothesis are shown in chart 4 below.



**Chart 2 – Total percentage of rejected null hypothesis per year**

The conclusion here is that there is no remarkable difference between the individual years, since 5 years out of 6 show valid results in the range of 50-100%. Also, if the two years where we only included data for 6 months (2000H2 and 2005H1) are excluded, we are left with one year (2003) that shows less reliable results, which can be considered an exception.

The chart below shows the percentage of rejected null hypothesis by year for the positive and negative side, as well as a total. We find that the positive side has a significantly higher percentage of cases where the null hypothesis is rejected, both by individual year, as well as in total.

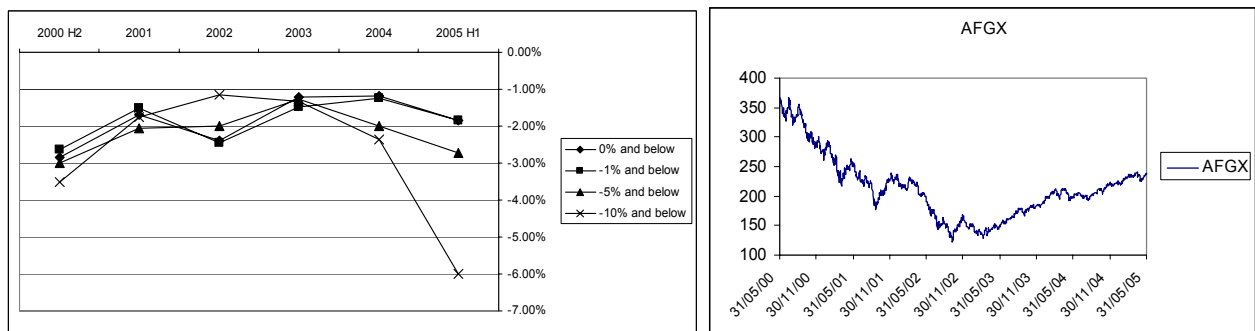


**Chart 3 – Rejected null hypothesis for positive and negative group per year**

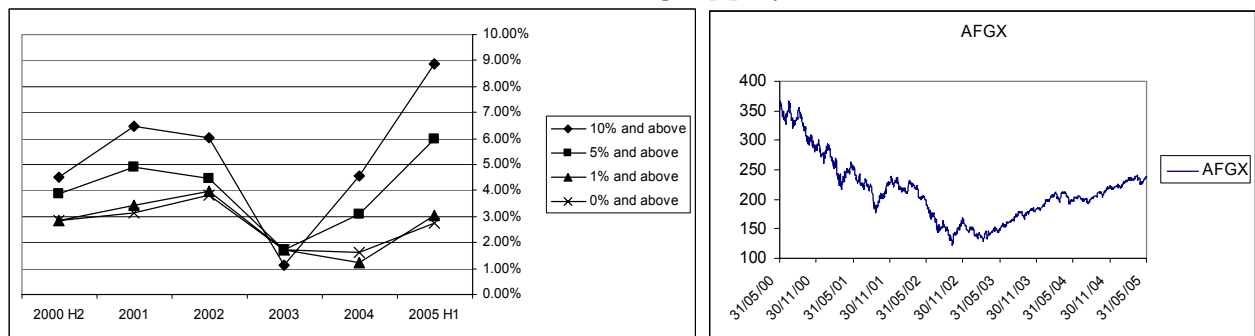
In the graphs below, the average return of the substitute share is plotted over time. It is obvious that the substitutes show a return in both bull and bear markets, although the average



of the return varies. The year 2003 marks a year when returns were significantly lower than the other years. As can be seen in the graph below, 2003 marks an inflection in the market, when it turns from a bear market to a bull market. This sets it apart from the other years in the study, and might be a possible explanation to the low returns for the substitutes in that period. Another interesting finding is that 2005 shows a strong increase in the amount of returns that the substitutes show. Again, this shows that there is no remarkable difference between individual years, with 2003 being an exception, especially for the positive side of the dataset.



**Chart 5 – Abnormal return for substitute in each sub group per year & AFGX evolvement over time**



**Chart 6 – Abnormal return for substitute in each sub group per year & AFGX evolvement over time**

## 8. CONCLUSIONS

The main conclusion that can be drawn from the results found in this thesis is that substitutes show a return that is similar to that of the company releasing new information to the market. This suggests that insiders can potentially profit from trading in substitutes to the company where they are considered an insider, using otherwise illegal insider information. This highlights the complexity of insider information and the regulation of trading upon such information.

First, when examining the data on an aggregate level, we find that both positive and negative reactions for the company releasing information results in abnormal returns for its substitute share over the time period covered by this thesis. The positive reaction upon an information release from the releasing company show a higher absolute return for the substitute share compared to the substitute's return when negative information is released. This effect is nearly twice as large for positive information releases.

Dividing the data into different strengths for the information released, we find that if the signal is stronger (i.e. that the share price for the company releasing the information moves more strongly upwards or downwards), the return for the substitute is higher in absolute terms. This effect is found to be more accentuated for positive returns, while the negative returns remain roughly constant.

Further breakdowns of the data per year shows that the positive returns for the Substitutes are more statistically reliable when compared to the negative ones. Over the five year period, the number of statistically valid returns for the positive side is more than twice the number of statistically valid returns for the negative returns for the substitutes.

Looking at the absolute return per year shows that the positive returns and the negative returns for the substitutes are on roughly the same level for all years in the study, although they vary slightly. The negative returns for the substitutes are consistently found to be lower than those for the positive side.

The results suggest that there is a potential economical gain to be made from substitute trading. One must bear in mind that the model used for the purpose of this thesis does not use a model that predicts the way that the information release will affect the substitute. It can be assumed that insiders can estimate the impact that an information release will have on substitute shares better than our model does, thus earning a return higher than the one presented in this thesis. The results should also be of interest to legislators, since the results suggest that there is a potential personal profit to be made for insiders using the same information that today is prohibited to use when trading in the insiders own company. One potential way that this could be regulated is that insiders might be imposed with the same trading rules that today apply for trading in their own company, for all listed companies.

## **9. SUGGESTIONS FOR FURTHER RESEARCH**

Apart from looking deeper into the finding that negative reactions to information releases produce lower abnormal returns for the substitutes, as described in the previous chapter, one potential area where further research would be beneficial is to extend the study by including a larger number of substitutes.

We see two main ways that this could be done. One is to include substitutes that are listed on other stock exchanges than the SSE, as substitutes for those shares that currently do not have a listed substitute on the SSE. Another way to facilitate such an increased study is to include more stock exchanges where substitutes can be studied. A natural alternative here is to increase the scope to include all shares listed on the recently opened Nordic Exchange.

Another interesting study would be to increase the time period studied, as this study only covers data for a five-year period. It would also be of interest to study another time period, for instance the five-year time period prior to this study, as to see if the results would vary.

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## **LAWS AND REGULATIONS**

Act concerning Reporting Obligations for Certain Holdings of Financial Instruments (2000:1087)

Market Abuse Penal Act (2005:377)

## **DATABASES**

Thomson Financial

Affärsvärldens generalindex – [www.afv.se](http://www.afv.se)

## **WEB RESOURCES**

[www.di.se](http://www.di.se)

## **APPENDIX**

Company	Date	Type	Information Released
ACSC			[No relevant release]
Avanza	2004-11-11	2	Avanza acquires Banco Fondförsäkring
Ballingslov	2004-03-22	2	Ballingslov acquires new distribution channel on the Danish market
	2005-04-04	2	Ballingslov acquires Kvik, the second largest kitchen manufacturer in Denmark
Broström	2005-01-24	2	Broström makes new acquisitions and enters into co-operation
Carnegie			[No relevant release]
Castellum			[No relevant release]
Cherry företagen	2000-01-23	2	Cherry buys Internet gaming company
	2004-03-31	2	Cherry acquires Engdahl Casino
	2004-04-19	2	Cherry acquires Knutsson Casino
	2005-02-17	2	Cherry acquires Bettson.com
Concordia			[No relevant release]
Daydream	2001-09-28	3	Daydream sells Tonteknik AB
	2002-05-25	3	Daydream sells Obbit
	2002-12-06	2	Daydream buys Twine Media
	2003-09-01	2	Daydream signerar LOI avseende förvärv av UDS ( DI.se)
	2004-03-11	2	Daydream acquires Fun Planet
	2004-07-07	2	Daydream acquires It's Alive Mobile Games AB.
	2004-12-13	2	Daydream acquires Rezet
Dice	2000-06-16	2	Digital Illusions acquires Digital Reality
	2001-01-24	1	Digital Illusions signs LOI regarding acquisition by U.S based games developer
Elanders	2000-11-09	2	Elanders acquires Novum Grafiska
	2001-03-23	5	Elanders revises earnings prognosis downward
	2002-07-04	3	Elanders divests in order to focus on core business
	2004-06-30	2	Elanders acquires Skövde Offset
Ericsson	2000-10-13	2	Ericsson to acquire Nasdaq-listed Microwave Power Devices (MPD)
	2001-03-12	5	Ericsson's first quarter sales and income will be lower than forecasted
	2001-04-24	6	Ericsson and Sony Corporation to announce Memorandum of Understanding
	2002-06-12	3	Ericsson sells Microelectronics to Infineon Technologies
	2002-09-26	3	Ericsson sells product development operations to TietoEnator
	2002-09-30	5	Ericsson comments negatively on industry development
	2003-10-15	4	Sony Ericsson reports profit and a continued strong increase in sales in the third quarter
	2004-04-01	4	Ericsson will report first quarter gross margin higher than level achieved in fourth quarter
	2004-04-19	4	Sony Ericsson reports a strong increase in shipments and record profits for the first quarter of 2004
Fabege/wihlborgs			[No relevant release]
Föreningssparbanken	2001-04-23	2	Hansabank acquires LTB
	2002-09-18	2	FöreningsSparbankenacquires HSB Bank
	2003-02-05	2	FöreningsSparbankens acquires EnterCard AS
	2003-05-26	2	FöreningsSparbanken acquires First Securities
Hagströmer & Qviberg			[No relevant release]
Handelsbanken	2000-10-23	2	Handelsbanken Finans acquires Danish finance corporation
	2001-04-11	2	Handelsbanken acquires Midtbank AS
Heba			[No relevant release]
Hennes & Mauritz			[No relevant release]
IBS	2000-06-16	5	IBS forecasts weaker revenue and results
Intenia			[No relevant release]
JC			[No relevant release]

Company	Date	Type	Information Released
JM	2003-09-02	2	JM acquires Vikevåg Bolig A.S
Lindex	2001-11-26	2	Lindex acquires Twilfit
	2001-12-28	4	Strong sales and increased profitability for Lindex
	2004-03-09	5	Lindex result second quarter strongly negative CEO resigns
	2004-06-14	5	Lindex result to be adjusted downward
	2004-12-07	4	Lindex result adjusted upward
Ljungberggruppen	2003-06-13	2	LjungbergGruppen acquires Celtica
Lundbergs			[No relevant release]
MTG			[No relevant release]
NCC	2001-01-11	2	NCC acquires Polish construction company
	2003-02-21	2	NCC acquires Swedish construction company
	2003-12-12	3	NCC sells Road marking company to Geveko
	2004-01-15	3	NCC sells A-Train
	2004-06-14	3	NCC sells concrete company
	2005-04-08	3	NCC sells wholly owned NCC Roads
Nobia	2000-08-28	3	Nobia sells Svenska Fönster
	2001-04-23	2	Nobia acquires Magnet
	2003-12-01	2	Nobia acquires UK kitchen manufacturer Gower
	2004-04-13	2	Poggenpohl acquires retail outlets in London
	2004-11-17	2	Nobia acquires the leading Austrian kitchen manufacturer
	2004-12-27	2	Nobia completes acquisition of EWE-FM
Nokia	2000-12-07	2	Nokia to Acquire Ramp Networks
	2001-07-25	2	Nokia to Acquire Amber Networks for \$421 Million
	2004-01-08	4	Nokia fourth quarter 2003 sales and profitability to exceed its guidance
	2004-04-06	5	Nokia expects its first quarter 2004 reported EPS to be EUR 0.17 (meets guidance) and net sales to decline 2
Nordea	2000-09-20	2	NBH Expands in Poland
	2000-10-16	2	Christiania Bank og Kreditkasse to become part of the Nordic Baltic Holding Group:
	2000-12-27	2	Nordea expands in Poland
	2000-04-10	4	Preliminary result first quarter: Increased operating profit despite market turbulence
	2001-07-31	2	Nordea acquires Postgirot Bank - strengthens competitiveness and increases customer base
	2002-05-07	2	Nordea to acquire LG Petro Bank in Poland
	2004-06-03	2	Nordea to acquire Kredyt Bank's Lithuania operations
NordNet	2001-04-11	6	TeleTrade and Nordnet merges
PEAB	2000-07-07	3	Peab sells SRG
	2001-07-18	2	Peab acquires Asfaltbeläggningar i Boden AB, Leeman & Olsson Byggnadsservice AB
	2002-09-12	2	Peab acquires Opus Entreprenad
	2002-10-15	2	Peab acquires PNB Asfalt
	2003-09-25	2	Peabs acquisition of Seicon completed
	2004-06-30	2	Peab acquires Berg och Väg Maskin AB
	2005-05-23	2	Peab acquires Markarbeten i Värmland AB
Poolia	2001-01-22	2	Poolia acquires health company
	2001-02-14	2	Poolia acquires German staffing company
	2002-10-15	2	Poolia acquires health company in Norway
	2003-12-17	2	Poolia acquires UK company
Proffice	2000-07-05	2	Proffice acquires Executive Office
	2000-07-17	2	Proffice acquires the Norwegian company RC Consultants.
	2000-08-28	2	Proffice acquires Capita Urval
	2001-04-26	2	Proffice expands in Finland through acquisition
	2001-05-22	2	Proffice has acquired Sveriges Bemanningskontor
	2001-11-15	2	Proffice expands in Denmark through acquisition
	2002-02-13	2	Proffice Care acquires company in the health care sector in Denmark
	2002-08-19	2	Proffice Care expands in Denmark
	2003-09-17	6	Proffice Care in co-operation with Medpro - one of the largest healthcare staffing agencies in Scandinavia
Retail & Brands	2005-01-25	2	RNB takes over department at Steen & Ström in Oslo
	2005-02-09	2	RNB completes strategic acquisition, takes over departments at NK in Stockholm and Göteborg
Salus ansvar			[No relevant release]



Company	Date	Type	Information Released
SCA	2000-07-12	2	SCA acquires additional Metsä Tissue shares (KONSOLIDATION)
	2000-07-28	3	SCA to divest Neopac A/S, Denmark
	2001-01-31	3	Acquisition of Metsä Tissue not approved by European Commission
	2001-01-22	2	U.S. acquisitions in Hygiene Products and Packaging
	2001-06-15	2	SCA acquires protective packaging business
	2001-08-24	2	SCA makes US acquisition
	2001-11-21	2	SCA complements its US tissue operations
	2001-12-13	2	Complementary acquisition of US packaging company
	2002-01-17	2	Acquisition of protective packaging company in the US
	2002-02-18	2	Packaging acquisition in the US
	2002-03-25	2	SCA acquires French packaging company
	2002-07-16	3	SCA sells stake in German liquid packaging company
	2002-07-30	2	SCA expands in premium packaging through German acquisition
	2002-09-20	2	SCA acquires UK tissue producer
	2003-01-20	3	SCA divests minority interest in Metsä Tissue
	2003-08-25	2	Acquisition of Chilean hygiene products company
	2003-09-05	2	SCA acquires a small packaging company in the US
	2003-12-22	2	SCA acquires Dutch packaging company
	2004-03-01	2	SCA carries out hygiene products acquisition in Asia
	2004-03-25	2	SCA acquires hygiene companies in Australia and New Zealand
	2004-12-14	2	SCA acquires Munksjö's tissue operations
Scania	2000-11-09	2	Scania intends to acquire Beers n.v.
	2001-12-21	3	Scania sells Danish bodybuilding company and conc...
	2003-04-25	4	Scania continues to expand in Sweden
SEB	2000-08-28	2	SEB takes another great step in the Baltics
	2001-02-22	6	FöreningsSparbanken and SEB creates European finance group
	2001-09-19	3	FöreningsSparbanken and SEB terminates the merger
	2004-06-24	2	SEB buys Codans Danish insurance division
	2005-04-25	2	SEB announces offer for all shares in Privatbanken ASA
Skandia	2005-06-13	2	SEB acquires life insurance company Balta Life in Latvia
	2001-11-07	3	If to merge with Sampo's P&C insurance operation
	2001-12-19	2	Skandia makes offer for Bankhall
	2002-01-08	3	The sale of Skandia Asset Management to Den norske Bank (DnB)
	2002-12-20	3	Skandia Sells American Skandia
Skanska	2003-12-24	3	Skandia announces sale of Japanese operations
	2004-02-11	3	Skandia sells its stake in If
	2000-06-09	3	Skanska signs agreement concerning the sale of Nybron
	2000-06-16	2	Skanska acquires IT-infrastructure companies, Bøge Larsen Projects Oy and Proconord International Oy
	2000-06-27	2	Skanska has made an offer to acquire a controlling interest in IPS, the largest Czech construction group
	2000-08-02	2	Skanska acquires the construction management company Barclay White
	2000-08-29	2	Skanska acquires Kvaerner Construction and 50 percent of Gammon
	2000-09-15	2	Skanska acquires leading construction company Baugh Enterprises
	2000-11-02	3	Skanska sells Costain holding
	2001-05-15	2	Skanska acquires Coromatic Datasä...
Stora Enso	2001-08-27	3	Skanska sells Ralling AB
	2002-08-29	2	Skanska expands in US infrastructure sector - wi...
	2003-02-25	2	Skanska makes strategic acquisition of MIAB indu...
	2003-04-04	3	Skanska sells American housing development firm
Strålfors	2000-08-30	6	Stora Enso merger with Consolidated Papers approved by the shareholders of Consolidated Papers
	2000-09-19	2	Stora Enso to acquire Tetra Pak's Forshaga production unit
	2002-08-15	2	Stora Enso Timber to acquire Estonian sawmilling company
	2004-07-07	2	Stora Enso inaugurates Arzamas Mill in Russia (positive outlook for future)
	2004-07-15	2	Stora Enso to acquire Scaldia Papier in the Netherlands
	2005-01-18	2	Stora Enso plans to acquire French merchanting business from IP
	2005-04-25	2	Stora Enso to acquire Schneidersöhne Group
Tele2	2000-07-24	2	NETCOM AB announces SEK 27.9 billion offer for Société Européenne de communication
	2000-10-03	2	Tele2 AB acquires Latvian cellular operator
	2002-05-28	2	Star capital partners and Tele2 bid for Blu
Tele2	2003-02-17	2	Tele2 acquires Alpha telecom
	2004-09-22	2	Tele2 offers SEK 75 per share for Song Networks
	2004-12-22	2	Tele2 acquires Votec mobile in Russia
	2005-02-01	2	Tele2 acquires Tiscalis Danish operations

Company	Date	Type	Information Released
Telia	2000-06-23	2	Telia acquires Netcom ASA
	2001-01-22	3	Telia sells Combinator IT AB
	2001-06-26	2	Telia buys Powercom
	2002-03-26	6	Telia and Sonera merges
	2003-05-12	3	TeliaSonera sells Telia Mobile Finland to Fi...
	2004-01-15	3	TeliaSonera sells Telia Finans to De Lage Landen International
	2004-05-07	2	TeliaSonera Sweden buys operations from Flextronics Network Services
Tieto Enator	2000-08-29	2	TietoEnator and ABB Automation to form joint venture
	2001-01-30	2	TietoEnator acquires Eurotime AB
	2001-06-13	2	TietoEnator acquires oil&gas consultants
	2002-02-26	2	TietoEnator acquires Norwegian InfoVest
	2002-03-20	2	TietoEnator acquires the CIS activities of A...
	2002-07-17	2	TietoEnator acquires the US company MAJIQ
	2002-10-24	2	TietoEnator acquires Enterprise Systems Cop
TV4			[No relevant release]
Unibet			[No relevant release]
Wallenstam			[No relevant release]
WM Data	2001-11-01	2	WM-data acquires Tedasys from Sonera in Finland
	2001-12-14	3	WM-data sells Branche A/S in Denmark
	2002-10-01	2	WM-data acquires consultancy in Norway
	2003-02-12	2	WM-data acquires Loop AB
	2003-11-13	2	WM-data acquires Trisys
	2003-10-29	6	WM-data and Novo Group creates leading Nordic IT corporation
	2004-11-24	2	WM-data acquires Navision unit
	2005-03-30	2	WM-data acquires consultancy
	2005-05-23	2	WM-data acquires Atos Origins operations in Sweden and Norway
Volvo	2000-07-20	6	The Volvo/Renault agreement is now finalized
	2000-07-28	2	Agreement finalized for Volvo's acquisition of shares in Mitsubishi Fuso Truck & Bus company
XPonCard			[No relevant release]