

Gaining abnormal returns using insider transaction data

An Event study approach on Swedish data

Abstract

This study tests if abnormal return can be gained by mimicking insider transactions. Using an event study and looking at Swedish data from 2005 to 2009 we find that economically significant returns can be gained by outside actors trading on insider transaction information. The thesis finds that the size of abnormal returns differ greatly depending on type of insider, number of insider positions held, as well as transaction type, with sell transactions having a far greater predictive effect for abnormal returns. Moreover, it is concluded that the main abnormal returns insiders gain come from analysis rather than usage of short term tradable insider information. Our results are in line with weak-form efficiency.

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INTRODUCTION

Insider trading is frequently a topic covered in media, most often regarding potentially illegally using this information advantage for quick financial profits. Although insider trading is a regular phenomenon with more than 20 000 reported buy- and sell- transactions of shares in Sweden in the last 5 years, there is only a handful of cases of insider trading which have been successfully proven in Swedish court to be illegal. When Finansinspektionen (The Swedish Financial Supervisory Authority) release information on insider transactions it is often covered in the media and the corresponding stock's price will in many cases be affected by the announcement. Clearly, there is a signaling effect in insider transactions, carrying information of interest. Much research and many papers, looking at different sample-sets, time-periods and with slightly different methods have also shown that insiders are able to earn abnormal return – the difference between realized return and normal return of a security - which further cements insider trading as a topic of interest.

Our focus with this thesis is to find whether it is possible to gain abnormal returns by mimicking insider transaction data by looking at the dates they are made public by Finansinspektionen, and thus if the market efficiently incorporates public insider transaction data into the share price. If the market fails with this on some account it could be possible to earn abnormal return and this will be the main point that this thesis will investigate. In specific we will carry out an event study using stock-data from the companies mainly on the Nasdaq OMX Stockholm (OMX) and Nordic Growth Market (NGM) stock exchanges as well as insider transaction data from Finansinspektionen. The timespan investigated spans from the first of July 2005 until the last of October 2009 and we follow the event study-methodology of MacKinlay (1997).

Further, the thesis will look at four different types of insiders which we have classified from the sub classifications that are reported to Finansinspektionen. Our divisions of interest are *CEO, board member, larger shareholder* and *other position in company*. With this division we hope to show which category's publicized data, if any, earns a higher abnormal return on insider trades if traded upon. Finally, we examine if insiders with several insider positions in a company are associated with higher abnormal return over time compared with single position-insiders.

The definition of insider

The data on insider transactions comes from Finansinspektionen and our definition of insider will therefore be the same as they employ. Finansinspektionen states that the companies which are subject to the insider trading legislation Lag (2005:377) are the Swedish companies listed at OMX and NGM, the Swedish companies within the European Economic area (EEA) and foreign companies listed at OMX or NGM that are legally registered outside of the EEA¹.

Finansinspektionen states further on their webpage that "Persons with an insider position who through their position in the company are considered to very likely have access to insider information about the company"² are the ones subject to reporting their insider position given that the company in which they have the position is subject to Finansinspektionen's regulations. Stated below is a direct quote, in bullets, from Finansinspektionen's homepage explaining which individuals in practice fall under the definition provided:

- *a **member** or **alternate member** of the company's or its parent company's board of directors*
- *a **managing director** or **deputy managing director** of the company or its parent company*
- *an **auditor** or **deputy auditor** of the company or its parent company*
- *a **partner** in a partnership that is the company's parent company, though not a limited partner*
- *a holder of an **other senior executive post** or **qualified function** of a permanent nature at the company or its parent company, if the post or function can normally be considered to have access to non-public information on circumstances that may affect the company's share price*
- *a **holder of a senior executive post** or a **service provider** in accordance with points 1-3 and 5 above in a **subsidiary** if they may normally be considered to have access to non-public information which may affect the company's share price*

¹ http://www.fi.se/Templates/Page____11253.aspx

² http://www.fi.se/Templates/Page____11252.aspx

- *larger shareholders who themselves, together with one or more natural or legal persons in concert or through a company, own at least ten per cent of the share capital or number of votes for all shares in the company*³

We have followed this definition, but have chosen to exclude transactions that occurred because of heritage since they do not signal intent of the insider.

THEORETICAL BACKGROUND

The methodology for event studies that is essentially the same as used today was largely developed by Fama et al. (1969). The method has further been refined by among others MacKinlay (1997) whose methodology this thesis follow.

The Efficient Market Hypothesis

According to The efficient market hypothesis proposed by Fama (1970), the market efficiently incorporates various types of information into security prices, and consistently earning excess return over the market should be impossible. Fama put forward three requirements that must be fulfilled in order to obtain market efficiency:

- Rational behavior by market actors
- No one player can individually affect prices on securities
- All information is freely available

There are three commonly stated forms of the hypothesis. They are the weak-form efficiency, semi-strong-form efficiency and strong-form efficiency. We will look at these hypotheses and see what implications they have for the possibility to gain abnormal return from mimicking insider transactions.

Weak-form efficiency

According to the weak-form, predicting future prices based on past price information is not possible since all such information is already incorporated in the present price data. In the long run market actors cannot earn abnormal returns by using price or historical data; technical analysis should thus not work consistently. Some forms of fundamental analysis, and insider information could still be used to earn excess returns.

³ http://www.fi.se/Templates/Page____11252.aspx

Semi-strong-form efficiency

The semi-strong-form efficiency states that all new publicly available information will very quickly adjust the security prices in an unbiased way. Trading on such information one cannot earn abnormal returns. This implies that it will not be possible to earn abnormal returns through fundamental or technical analysis. Insider information could still be used to earn abnormal returns as it is not publically available and therefore not reflected in the stock price.

Strong-form efficiency

The strong-form efficiency states that all information, whether public or private, is reflected in the security prices. This implies that it would be impossible to earn abnormal returns by using fundamental or technical analysis or by using insider information. Any legal obstacles to making private information public would prevent strong-form efficiency, except if everybody ignores such legislation. Strong-form efficiency would be a highly unlikely scenario in Sweden due to insider trading laws which severely restricts the information one is allowed to trade upon.

In the economic literature, there is strong evidence against the strong form, whereas both supporting and rejecting research exist for the weak and the semi-strong-form hypotheses.

Signal effect

We assume that insider transactions have a signaling effect on the market which participants take into account when valuing securities which then will affect the prices on the market. We do however not make any assumptions about whether the market is correct in judging the magnitude of the signal effect. Thus this would imply that in a market where semi-strong efficiency holds, the market believes insiders trade on valuable private information. Whereas in a weak-form setting the market's belief may in addition be that insiders are superior in fundamental and technical analysis.

Earlier foreign studies

One important article on insider trading was written by Jaffe (1974). Jaffe looked at data on trades by insiders - defined as large shareholders, management and directors - from the US market between 1962 and 1968. His results suggest that insiders have special information. Finnerty (1976) looked at insider transactions

on the NYSE in 1969 to 1972 and his results suggest that insiders were able to make abnormal returns, particularly in the short term.

Lakonishok (2001) looked at insider trading in all companies on the NYSE, AMEX and NASDAQ during the period 1975 to 1995. This study shows that insiders can gain abnormal return when buying, whereas insider selling does not show predictive ability on future stock returns.

There are also studies that point in the direction that one cannot earn abnormal returns by mimicking insider transactions. Lin (1990) finds evidence that suggest that insiders can earn abnormal return, but due to mainly bid-ask spreads, it is in practice not possible for neither insiders nor outsiders mimicking insider's behavior to realize any excess return by active trading.

Eckbo looked at insider trading on the Oslo Stock Exchange between January 1985 and December 1992. Using methodology that incorporates weighting and time-varying expectations he finds zero or negative instead of positive abnormal returns that are reported using more traditional event study methodology.

Earlier Swedish studies

There have been a number of master theses looking at Insider trading in Sweden. Albert et al (2008), looked at Swedish data from 1997 to 2007 and found a strong indication that insider trading have signal effects. Li et al (2008) studied abnormal returns in different sectors on the Stockholm Stock Exchange, and also looked at if similar returns can be obtained by outsider imitation, using data from 2004 to 2008. They show that abnormal returns can be acquired by an insider for the majority of the sectors, but that this can't be replicated by an outside investor for the majority of the sectors. Sjöholm et al (2006), using fourteen years of data ending in 2004, demonstrate significant and high abnormal returns in both shorter and longer time periods and also an added effect when cluster effects are present. Widlund et al (2007), demonstrates in their thesis that when insider information is released, the signal effect allows one to gain abnormal returns, trading in similar companies.

METHODOLOGY

The thesis investigates the effect of an economic event, namely publication of an insider transaction, using event study-methodology. This thesis will examine the possibility of gaining abnormal returns by mimicking, and thus, if the market reaction to the relevant events is swift and of correct magnitude.

An event study consists of the following steps:

- Determining the event window
- Determining the estimation window
- Calculating normal return using the estimation window
- Calculating the abnormal return by taking the actual return minus the normal return
- Aggregating the abnormal returns for all events over time
- Making statistical inferences about the data

The first step of an Event study is to determine which event is of interest and which period is to be analyzed. This period is called the event window. This thesis uses an event window of 21, 63 and 126 trading days. The event of interest is the date the insider trade information is made public by Finansinspektionen and the starting day, $t = 0$, is set to the day after in order to assure that information released after the stock exchange closing time is not evaluated using stock data from the same day.

The abnormal return is the return over the post-event window minus the normal return of the stock over the event window. The normal return is defined as the assumed expected return if the event had not happened.

Market model

We have chosen to calculate the normal return by looking at the market return as MacKinlay (1997) suggest is possible. We assume a stable linear relationship between the return of the share and the market. This relationship is found by looking at the period before the event window, the estimation window. The estimation window consists of 126 trading days, $t=-1$ to $t=-126$, and is used to acquire the alphas and betas used in calculating the normal return, below. Hence, each individual event has its own alpha and beta values. The specific choice of 126 trading days for the event window is chosen to represent approximately half a

year of trading days, in line with MacKinlay's (1997) suggestion of using a window of 120 trading days. The estimation window should not be too short due to risk of unique events, and not too long as the company may differ from the present state and had increasingly different opportunities the further in the past one goes. One should also have in mind that depending on the nature of the trading strategy and holding periods employed, different lengths are appropriate. The event period is not included in the calculation of the normal return as the event itself otherwise could have an effect on the value of the normal return. The methodology used assumes that the impact from the event is captured solely by the abnormal return. Should the estimation and event windows overlap, there would be a risk of obtaining biased parameters.

Abnormal return is calculated as follows:

$$AR_{i,\tau} = R_{i,\tau} - E(R_{i,\tau}|X_\tau)$$

where $AR_{i,\tau}$ is abnormal return, $R_{i,\tau}$ is the real or actual return and $E(R_{i,\tau}|X_\tau)$ is the normal return for the time period τ .

Making the assumption that the asset returns are jointly multivariate normal and independently and identically distributed through time makes it possible to specify the market model as

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t}$$

where $R_{i,t}$ is the return on stock i at time t and $R_{m,t}$ is the market return at time t . The market parameters α_i and β_i are the company-specific regression intercepts and the individual security covariance with the market. $\varepsilon_{i,t}$ is the zero mean disturbance term with variance σ_{ε_i} . The normal return of the market model is dependent on the market's return. This assumption is a possible improvement compared to the alternative constant mean return model, which assumes the same future return as past return, as it takes into account the portion of the variation in the share that is due to the market's fluctuations. This in turn may increase the chances of observing effects from the examined event.

Aggregating abnormal returns

Aggregating across securities and through time will allow us to make statistical inferences. One important assumption is that there is no presence of so called

clustering, i.e. the event windows of the included securities do not overlap. This assumption is used to set covariances to zero when calculating the variance estimators. In our case we actually have clustering, something that we will discuss in detail further down under discussion. We calculate CAR, the cumulative abnormal return as follows:

$$CAR_{i(\tau_1, \tau_2)} = \sum_{\tau_1}^{\tau_2} AR_{it}$$

where $[\tau_1, \tau_2]$ is the time period over the event window. The corresponding variance is asymptotically (as the event window length increases):

$$\sigma_i^2(\tau_1, \tau_2) = (\tau_2 - \tau_1 + 1)\sigma_{\varepsilon_i}^2$$

When we aggregate over each individual security i , we get CAAR, cumulative average abnormal return:

$$CAAR(\tau_1, \tau_2) = \frac{1}{N} \sum_{i=1}^N CAR_{i(\tau_1, \tau_2)}$$

The corresponding variance is calculated as follows:

$$\sigma^2(CAAR(\tau_1, \tau_2)) = \frac{1}{N^2} \sum_{i=1}^N \sigma_i^2(\tau_1, \tau_2)$$

Under the assumption of no clustering, i.e. no cross correlation between the windows of individual securities, we have that

$$CAAR(\tau_1, \tau_2) \sim N(0; \sigma^2(CAAR(\tau_1, \tau_2)))$$

Finally, we obtain the test statistic for testing H_0 :

$$\theta = \frac{CAAR(\tau_1, \tau_2)}{\sigma^2(CAAR(\tau_1, \tau_2))} \sim N(0,1)$$

The test statistic will be evaluated at a significance level of 5%.

HYPOTHESES

This thesis' purpose is to answer if abnormal returns can be earned from mimicking insider's trades after the knowledge of the transaction has become public. Our main hypothesis is stated as follows:

H_0 : No abnormal return from mimicking publicized insider-transaction data

H_1 : Abnormal return from mimicking publicized insider-transaction data

In addition to testing the general hypothesis we will examine if a certain type of insider is better to mimic in order to gain abnormal returns. The division is based on Finansinspektionen's classifications, and has been divided into four groups: *CEO, board member, larger shareholder and other position*.

Finally this thesis looks at if the number of positions an insider holds in a company allows for higher abnormal returns over a three month period.

When looking at all transactions and at certain types of insiders we look at one, three and six month-timespans. When looking at the number of positions in a company that insiders hold, we look at a three month timespan.

DATA

Two sets of data are used for this thesis: data on reported insider transactions and data on the listed Swedish shares' movements as well as a benchmark index. The data on Swedish shares have been gathered mainly from Thomson DataStream. The set of stocks we use correspond to the stock exchange traded shares that are required to report to Finansinspektionen.

The insider data has been collected from Finansinspektionen. The data collected consists of registered buy and sell transactions of shares for insiders during the period from 1st July 2005 - when the insider trading regulations were changed significantly due to law 2005:377 - until 31st October 2009. Our original data contains 21292 observations after removing transactions that were not due to specific intent from the insider, as in the case of insiders inheriting shares. We have also excluded the reported insider trades in shares which are not openly traded, mainly certain A-shares. Finally we exclude the transactions of

aktiemarknadsbolag and end up with 18917 observations. The reason for excluding *aktiemarkadsbolag*, which is the term Finansinspektionen uses when the company trades its own shares⁴, is because the regulations were changed in 2007 which meant companies no longer needed to report trades to Finansinspektionen.

The data from Finansinspektionen was on transactions in 429 shares. It was possible to retrieve data for a total of 372 of these shares from DataStream. Data on the remaining 57 shares were retrieved manually from various internet sources. In the cases where the stocks had been delisted for any other reason than being bought up through a public bid, we used the end value of the last trading day as a base and assumed a continuation of the share movement with identical returns as our chosen index OMX Stockholm Benchmark_GI (OMXSBGI). In practice this means that we have assumed that the investor will sell the share on the last day before delisting and invest the returns in the OMXSBGI. The same procedure was practiced when a company was delisted due to being bought up through a public bid, except that we then assumed that a shareholder would accept the bid price and then get returns that followed the OMXSBGI. There were also five cases of companies going bankrupt, in which case we set the stock price value after it was delisted to zero. In these cases we assumed that the insiders kept their shares and thus lost all the money on their investment.

For our market index we have chosen the OMXSBGI since it is an index that captures the great majority of market-value among publically traded shares and because it is constructed in such a way that it is possible for an investor to mimic. OMXSBGI is based on the 80-100 largest and most traded stocks' market value adjusted for free float, that is to say non-tradable capital is excluded in the index weight. This is in line with our choice of data-set as we also have excluded non-tradable capital. We choose a value-weighted index as it well represents what an investor would have as an alternative investment to mimic the total amount of insider trades reported. It is impossible to achieve an exact risk-replica of our supposed investment strategy, and we do get a possible bias because of a high proportion of large companies affecting the index compared to our observations that are not weighted the same way. According to Fama et al (1992) there is a

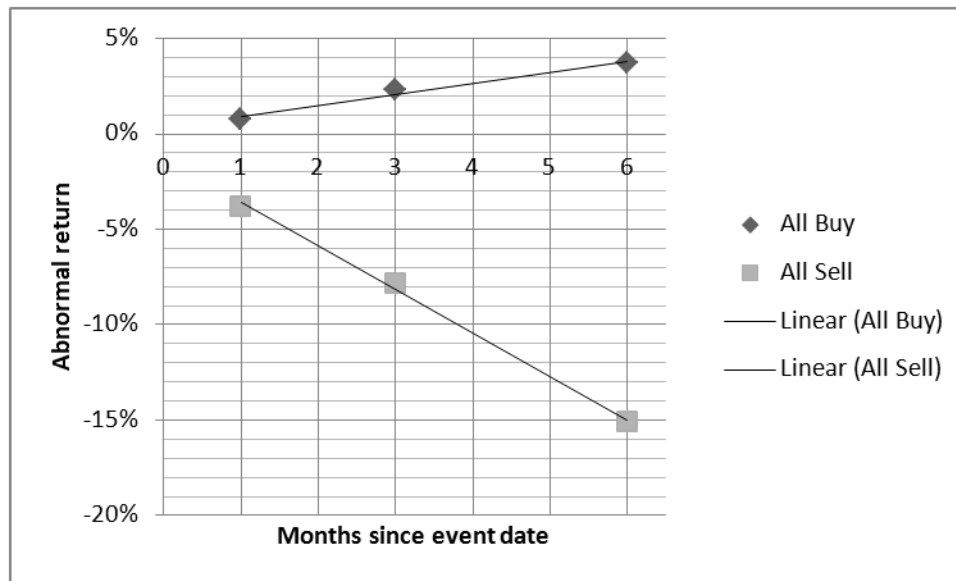
⁴ Scott A. K., 12 April 2010, Finansinspektionen

difference in return depending on company size, and this could possibly create bias in our results. By visually scanning our insider trading data we see however that there are in general more observations of insider trading in larger companies, but there are many exceptions to this rule, which would mitigate a possible bias. Using an equally weighted index would on the other hand put far too much weight on small companies, and thus our choice of a weighted index.

RESULTS

General results

The results from our study suggest that abnormal return is gained over time both when securities are sold and bought by insiders. These results are statistically significant even at a 0.1% level for all transactions. The results also show us that the abnormal return is much greater for sell transactions than for buy transactions. One possibility for this may be that insiders are less likely to trade right before good news, if they know of it, as it will be more obvious that the disclosure of good news and the purchase of shares happened close to one another. Good news is often quite final, such as a new order from a major customer, whereas bad news often is no news. Companies do not send out as many pieces of bad news, as for example the lack of getting a big order many times is not told to the market, which may not even be aware that the company in question was in negotiations. An insider can more inconspicuously sell the shares without question as he/she cannot be as easily criticized for trading on any specific insider information. Another explanation may be that an insider is prone to believe more in the company in general than the market does. It is also the case that it is not as socially accepted to sell shares as an insider, whereas buying is normally encouraged. For an insider to sell he/she must then have quite strong incentive to sell. We also see only 7030 selling transactions compared to 13398 buying transactions in the period examined.



Graph 1. Linear approximation of abnormal return over time for all buy and sell transactions.

As seen from the graph above the abnormal return for both buy and sell transactions seem to increase in a linear fashion with time. There is however only three measurement-points to draw the line from. The results seem to suggest that insiders have predictive power on the trend for up to at least 6 months for the share in which they are insider in.

In a setting without transaction costs these results would be economically very significant. The general size of the results will be analyzed further in the discussion section.

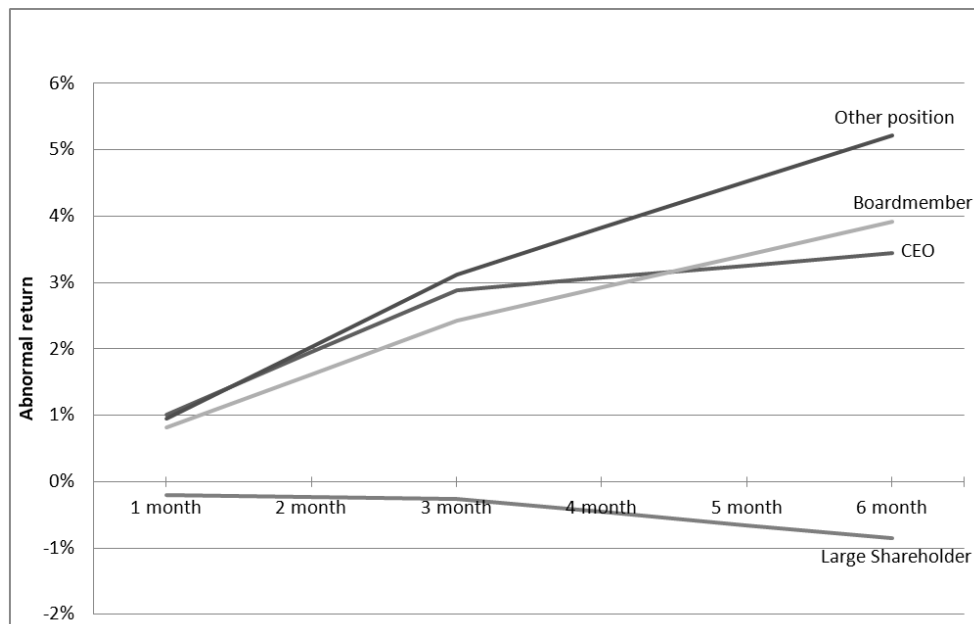
All transactions					
Transactions	Event window	CAAR	t	P>t	Ho rejected
BUY	1 month	0,78%	4,7	0,000	yes
	3 months	2,32%	7,42	0,000	yes
	6 months	3,69%	6,53	0,000	yes
SELL	1 month	-3,79%	-7,21	0,000	yes
	3 months	-7,88%	-11,07	0,000	yes
	6 months	-15,11%	-14,41	0,000	yes

Table 1. Abnormal returns for all buy and sell transactions.

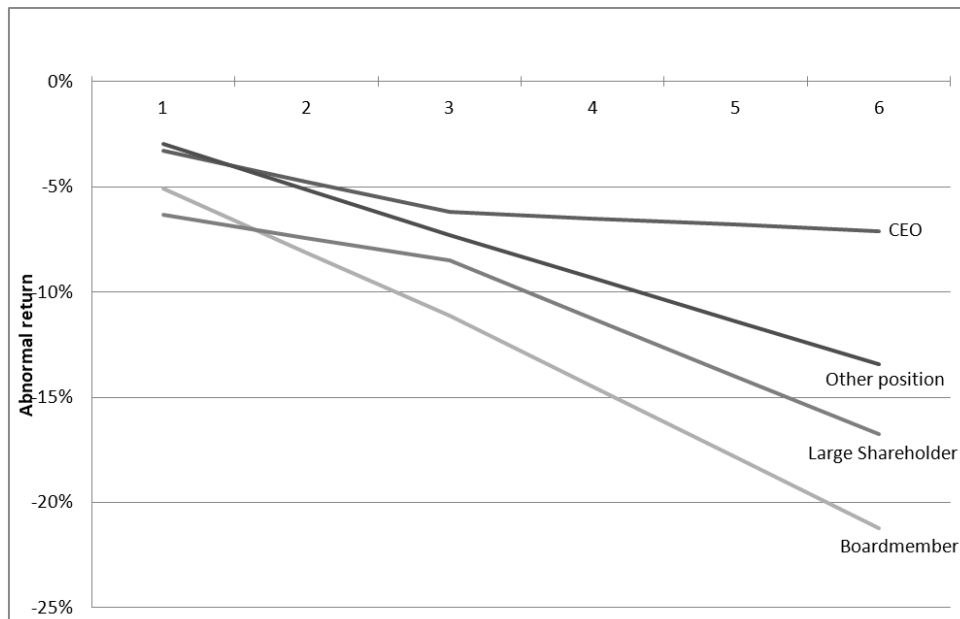
Results depending on sub-group

The results are predominantly in line with the general results as expected. Larger shareholder buy transactions stand out however as the abnormal return is not

significantly different from zero, and in our data even produce on average negative abnormal return. The other results on average produce abnormal return in the area between 3.5-5.2% during a 6 month period. The sell transactions all produce abnormal returns statistically significant form zero, and suggest abnormal returns between -7.1 to -21.2 during a 6 month period. Large shareholders show the second greatest negative abnormal returns for sell transactions. The explanation as to why large shareholders fail to earn abnormal returns in a 6 month period after buying may be due to several effects. Notable possibilities are that larger shareholders may lack significant information prior to buying. Larger shareholders are presumably more likely to make larger transactions which in the case of buying shares would cause a rise in price of the share due to a demand shock. Larger shareholders may in many cases have a much longer investment time horizon and may be less concerned about the return in the short run.



Graph 2. Linear display of abnormal return for buy transactions depending on type of insider



Graph 3. Linear display of abnormal return for sell transactions depending on type of insider

CEO					
Transactions	Event window	CAAR	t	P>t	Ho rejected
BUY	1 month	1,01%	2,52	0,012	yes
	3 months	2,89%	3,71	0,000	yes
	6 months	3,45%	2,26	0,024	yes
SELL	1 month	-3,30%	-1,51	0,132	no
	3 months	-6,19%	-2,45	0,015	yes
	6 months	-7,11%	-2,04	0,042	yes

Table 2. Abnormal returns for CEOs buy and sell transactions.

Boardmember					
Transactions	Event window	CAAR	t	P>t	Ho rejected
BUY	1 month	0,82%	2,7	0,007	yes
	3 months	2,42%	4,38	0,000	yes
	6 months	3,92%	3,95	0,000	yes
SELL	1 month	-5,07%	-4,21	0,000	yes
	3 months	-11,13%	-6,76	0,000	yes
	6 months	-21,22%	-8,77	0,000	yes

Table 3. Abnormal returns for Board members buy and sell transactions.

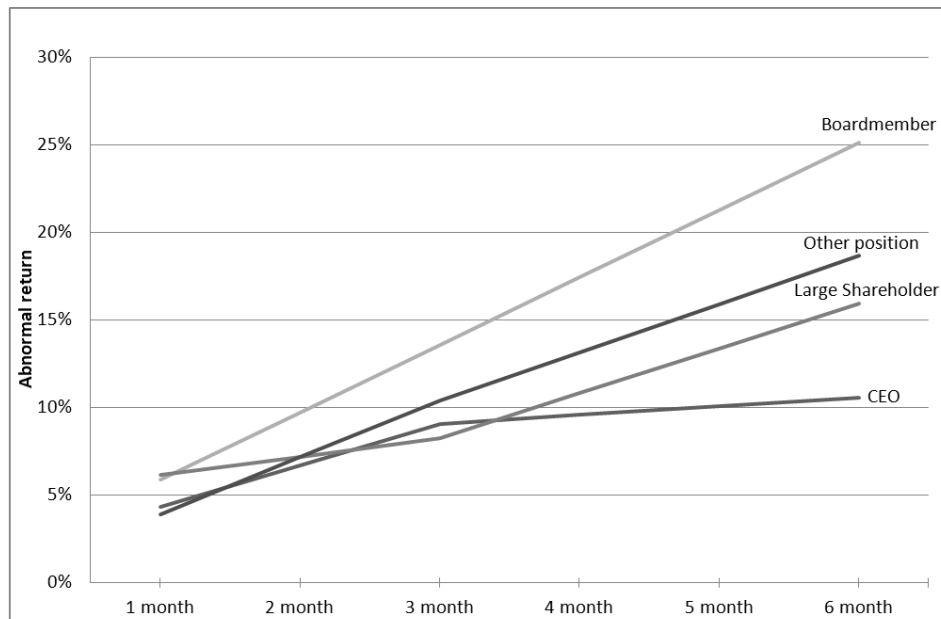
Large Shareholder					
<i>Transactions</i>	<i>Event window</i>	<i>CAAR</i>	<i>t</i>	<i>P>t</i>	<i>Ho rejected</i>
BUY	1 month	-0,20%	-0,47	0,639	no
	3 months	-0,25%	-0,4	0,688	no
	6 months	-0,86%	-0,78	0,433	no
SELL	1 month	-6,34%	-3,63	0,000	yes
	3 months	-8,50%	-4,24	0,000	yes
	6 months	-16,77%	-5,26	0,000	yes

Table 4. Abnormal returns for Large Shareholders buy and sell transactions.

Other position					
<i>Transactions</i>	<i>Event window</i>	<i>CAAR</i>	<i>t</i>	<i>P>t</i>	<i>Ho rejected</i>
BUY	1 month	0,94%	4,73	0,000	yes
	3 months	3,12%	7,46	0,000	yes
	6 months	5,21%	7,23	0,000	yes
SELL	1 month	-2,96%	-5,96	0,000	yes
	3 months	-7,28%	-10,72	0,000	yes
	6 months	-13,44%	-13,21	0,000	yes

Table 5. Abnormal returns for Other positions buy and sell transactions.

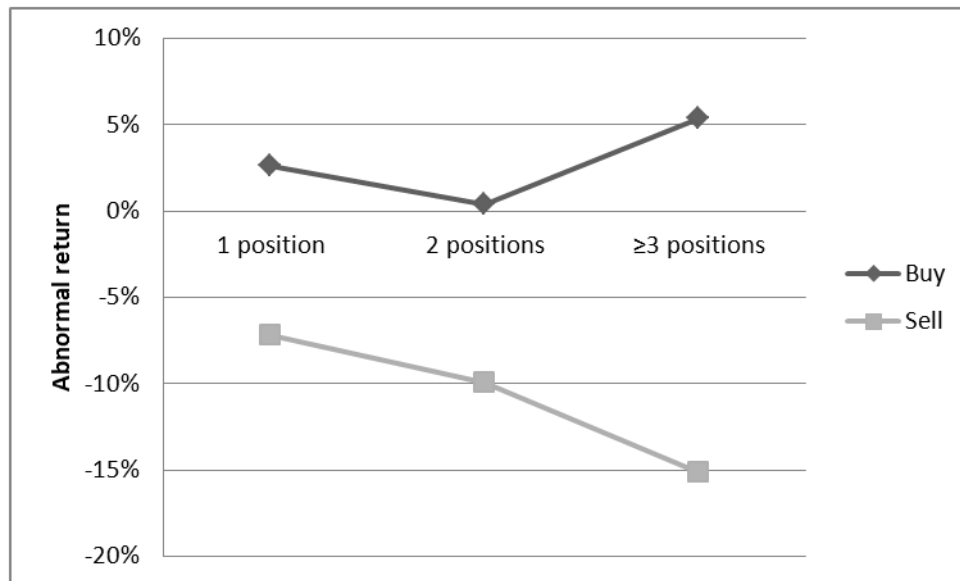
Looking at the difference in abnormal returns for sell and buy transactions we find that board members make the best decisions in general over a 6 month period whereas CEO's have the least abnormal returns. In general these two groups are likely to have the most accurate view of the company's progress, so it would seem natural that both board members and CEOs perform well in trading. The reason CEO's have the least abnormal returns could be due to that they most of the time during the year in many cases are hindered to buy and sell as they undoubtedly sit on insider information. It is also important to remember that there usually is an initial reaction by the market after CEOs have traded. This may lead to that if we look at CEOs performance they may perform significantly better. Our research indicates however that they are the least good group to mimic to gain as high abnormal return as possible.



Graph 4. Difference in abnormal return for buy and sell transactions depending on type of insider.

Results depending on number of positions held in company

The thesis looks at whether the abnormal returns differ on a three month period after the event, depending on number of positions in the company. The data suggest in general that after three months since the event date, the abnormal returns are more likely to be larger if the insider holds several positions in the company. The abnormal returns are all significantly different from zero except for buy transactions where the insider holds two positions. We observe the highest numbers for all groups in a three month time window both for buy and sell transactions for insiders holding three or more positions in the company. Our research thus suggests that the number of positions an insider holds in a company is a better determinant for gaining high abnormal returns than to mimic insiders with a specific position.



Graph 5. Abnormal return for buy and sell transactions depending on number of positions in company.

CAAR with variable position (3 months)					
Transactions	Nr. of positions	CAAR	t	P>t	Ho rejected
BUY	1	2,64%	7,88	0,000	yes
	2	0,40%	0,47	0,642	no
	≥3	5,37%	2,33	0,021	yes
SELL	1	-7,21%	-10,59	0,000	yes
	2	-9,93%	-3,25	0,001	yes
	≥3	-15,13%	-5,99	0,000	yes

Table 6. Abnormal returns for Other positions buy and sell transactions.

DISCUSSION

The results received from the event study, in general suggest that one can gain abnormal return in the particular periods of our chosen event windows. The abnormal return is positive for insider buying and negative for insider selling. The results also suggest that as the length of the event window increases, the magnitude of the abnormal return also rises - at least up to six months.

There are several issues to be addressed before any further conclusions can be drawn from the data. Our event study has event windows that overlap across the individual securities; the relevant distribution will thus not be normal, but follow a distribution with wider dispersion around the mean. This in turn means that our

results in reality have different significance levels than reported, and also different variances.

One explanation for the received high abnormal returns could be that the risk may be poorly adjusted for. Accounting for risk - using a suitable measure - trading on insider transaction data may not be as attractive despite high possible returns.

The beta-values obtained from past performance may not be representative for the future. It is plausible that one could expect higher beta-values in the period following insider purchase. The reason for this being that insiders are more likely to buy if they believe that there will be events in the near future that will have effects on the share price. If this is true it would suggest that a stock is more likely to have a higher beta-value and a higher risk after insider purchases compared with the estimation window period. The obtained abnormal returns for insider purchases may thus when properly risk adjusted be normal or less than the normal returns obtained using the beta-values from using historical data. In the same way one must then explain why the beta-value will be lower than before when insider's sell. One explanation would be that insider's sell if they do not foresee any events that will affect the share price in the near future, which would lower the risk of that share. It would also allow for a lower normal return, when properly risk-adjusted.

According to Eckbo et al's (1998) research, the abnormal returns seem to be largely dependent on the methodology employed. When he accounts for actual trading size and holding periods, the abnormal returns seem to be reduced or eliminated. Allowing for time-varying expectations also limits the abnormal returns found. In a similar way, correcting for the variation of the beta-values over time, or using a methodology similar to Eckbo - more correctly accounting for risk, - abnormal returns could be significantly lower.

If the case is that insiders indeed make better judgments, and that they gain abnormal return measuring from one day after Finansinspektionen published the transactions, it is far from certain that other players may gain abnormal returns from this knowledge. There are three costs associated with using a trading strategy that would try to mimic insider's transactions. Watts (1978), finds in his research that even though abnormal returns are present in a time period

investigated, the returns could only have been earned by a broker not subject to transaction costs. The costs we have to take into account are transaction handling fees, trading spread costs and the cost for the time spent to follow up on an active strategy. The transaction handling fee is today in many cases lower than 0.1 % and thus quite insignificant. The trading spread costs can especially for small shares be several percent. Both of these costs occur both when selling and buying shares. The maintenance fee for funds is normally between 1-3 % for a whole year of following a trading strategy and may represent a benchmark for what the cost may be to follow a trading strategy. It is clear that these costs put together reduce the possibilities to gain abnormal returns.

When considering the linear shape of the abnormal return over time it leads one to believe that the abnormal return is earned by correctly seeing a positive trend in the company in which the trader is an insider in, rather than trading on some specific knowledge of inside information. If the trading was predominantly from usage of specific insider knowledge we would expect results that were more in line with high abnormal return in near time, with further abnormal return quickly decreasing with time. This is based on the assumption that specific insider information is more valuable in the near future, in terms of possibility to use it to gain abnormal return. The results suggest that insiders would have comparatively better ability for fundamental analysis than any outsider. We would like to point out though, that this says nothing about the insiders' ability to optimize trading on their own information (see Eckbo (1998) for indications of this being the case).

There is also the issue of why our abnormal returns increase over time - why are they not corrected for earlier, why do the market fail to make a correction? Hirshleifer et al. (2008) investigates the driving forces between post earnings announcement drift (PEAD)⁵ and propose that individual naïve investors are behind the drift. Although their results do not support this in the case of PEAD, it would be possible that this could be one mechanism behind the drift associated with the insider trading abnormal returns that we have found. Behavioral finance support that the behavior of imperfectly rational investors can indeed induce mispricing, and that this mispricing can persist in certain circumstances. We suggest that if the abnormal return is due to mispricing, the continued increase in

⁵ The cumulative abnormal return of a stock's tendency to drift in the direction of an earnings surprise up to three quarters after announcement

abnormal return may be explained by new potential investors constantly overvaluing the significance of past insider transactions.

Hirshleifer et al. (2008) also point out in the paper the importance of arbitrage by sophisticated investors, such as fund managers and professionals. If they are risk averse, the degree to which they are able to arbitrage mispricing will be limited. In addition, short-selling limits can prevent prices to adjust to reflect the views of sophisticated investors.

CONCLUSION

The thesis has showed that mimicking publicized insider transaction data will on average lead to returns that are higher than the market in general and that the size of abnormal return differ significantly between different types of insiders. The results strongly indicates that an insider who is more likely to know more about the company produce higher abnormal returns. Although there is presence of clustering, and although results received may not be properly risk adjusted, it is clear that trading on insider transaction data as an outsider one can receive abnormal returns during the holding periods used in this thesis. When also taking all costs associated with trading into account it seems very likely that abnormal returns historically still could be gained by mimicking behaviors of at least the most successful insider trading subgroups. As pointed out earlier, several papers have in the past shown that abnormal returns are associated with insider transaction data. The data used in this thesis is more recent, and the fact that the phenomenon persists, seem to indicate that the market is not efficient. Although the past does not equal the future, this resistance for the market to correct itself makes it possible that abnormal returns may be gained also in the future on the Swedish stock market.

Going back to the discussion on insider trading we can conclude that the shapes of the abnormal return curves strongly indicates that the main source of insider's abnormal return does not stem from the usage of insider information, but rather seem to come from superior fundamental analysis-ability. The straight lines of increasing abnormal return observed give further evidence for weak-form efficiency.

FURTHER RESEARCH

To build on this thesis' research we would suggest correcting for clustering and to consider using a methodology that incorporates time-varying expectations to see if abnormal returns by mimicking still persist. One could in addition investigate differing parameters such as divisions depending on market cap of shares, sector analysis and the size of the transaction measured in monetary units (SEK). This would make it possible to better determine which type of insider earns the highest returns.

In general approaches that accounts for risk in different ways would be highly encouraged.

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