THE IMPACT OF COVERAGE INITIATIONS

DO SWEDISH SMALL CAP FIRMS BENEFIT FROM ANALYST COVERAGE?

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Abstract:

This study analyzes the value impact of coverage initiations on Swedish small cap firms by looking at stock price reactions and change in liquidity for firms where a commission-based analyst coverage is initiated during the period 2015-2019. The study is a partial replication and extension of Dhiensiri and Sayrak's (2010) paper ''The Value Impact of Analyst Coverage'' and has been performed using an event study methodology, including ordinary least square regressions, to calculate normal returns and estimate abnormal returns during a period around the publication of the included coverage initiations. A significant stock price reaction was observed for the sample stocks on the publication day and the liquidity increased. Hence, coverage initiations seem to have a value to the firms being covered. This is, to our knowledge, the first study that focuses on coverage initiations on Swedish listed firms in general and small cap firms in particular. Thus, it can provide a more comprehensive and complete picture of the impact of coverage initiations.

Keywords:

Coverage initiations, Analyst firms, Event study, Stock returns

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1. Introduction

The impact of analyst recommendations has been assessed in a number of research articles over the years and researchers have been able to show that information from analysts has a significant impact on the share price of the companies being covered.[1]
However, previously conducted research has primarily focused on the U.S stock market and analyst recommendations published in financial magazines and business-related newspapers.[2]
In addition, there are only a few research papers where the impact of a coverage initiation has been studied. Dhiensiri and Sayrak (2010) studied the impact of first-time coverage initiations on U.S firms during 1995-2000 and found a significant positive price reaction as well as an increase in liquidity. Furthermore, Irvine (2003) analyzed the impact of sell-side analysts' coverage initiations compared with recommendations from analysts who already covered the stock and found that first-time initiations resulted in a larger stock price reaction. Additionally, Bradley et.al (2003) analyzed coverage initiations in connection to the quiet period around IPOs and concluded that abnormal returns for initiated firms are larger than for non-initiated firms.

This paper aims to determine whether Swedish small cap firms[3] benefit from analyst coverage, by looking at stock price reactions and change in liquidity following a coverage initiation. The paper is a partial replication and extension of Dhiensiri and Sayrak's (2010) work, who applied an event study methodology including OLS regressions to investigate the value impact of analyst coverage. By determining abnormal returns and change in liquidity around first-time coverage initiations, they were able to show that firms benefit from analyst coverage through an increase in liquidity. While Dhiensiri and Sayrak focused on US firms that received first-time coverage during 1995-2000, our research is limited to Swedish small cap firms and the time period 2015-2019. Hence, our study should be able to capture more current effects. The reason why we decided to focus on small cap firms is that these firms, in general, receive less attention by media and analysts than larger firms. Thus, there is a reason to believe that the impact of a coverage initiation might differ compared to larger firms. Furthermore, our study differs from Dhiensiri and Sayrak (2010) as we compare the impact of coverage initiations between different analyst

[1] See Beneish (1991), Bjerring et al. (1983), Givoly et al. (1978) and Womack (1996).
[2] See Givoly et al. (1978).
[3] Firms with a market capitalization in the range SEK 10 - 3,000 millions.

firms and hence, we address the reputation effect in a new way.[4] In addition, since our sample firms are covered as part of a commission-based mandate[5], we are able to investigate whether there is a difference in impact compared with traditional, non-commission-based coverage and, in turn, if it is economically beneficial for Swedish small cap firms to pay for analyst coverage.

Stock returns for 100 Swedish small cap firms, that received analyst coverage during the observed period, are used to estimate normal- and abnormal returns and change in liquidity is measured by comparing the average daily turnover and volume before and after the coverage initiation was published. Cumulative abnormal returns around the day when the coverage initiation is published are then calculated to observe the stock price reactions. A regression is later done to determine whether the effect is due to certain factors such as analyst firm, stock index, market capitalization or change in liquidity.

Our results align with the findings of Dhiensiri and Sayrak (2010). A significant positive stock price reaction is observed around the publication of a coverage initiation while the liquidity increases. In addition, we observe a positive correlation between liquidity and stock price reaction around the day when the coverage initiation is published. Consequently, Swedish small cap firms seem to benefit from analyst coverage.

To our knowledge, this is the first study investigating the impact of coverage initiations on Swedish firms. The closest related research has been conducted by Lidén (2004), who analyzed the impact of stock recommendations published by journalists in Swedish printed media and analyst recommendations during 1995-2000. In this research, he found that journalist recommendations had a larger impact on the share price than analyst recommendations. However, although Lidén focused on the Swedish stock market, he did not look at coverage initiations nor small cap firms in particular. Thus, we believe that our work can contribute to a more comprehensive and complete picture of the impact of coverage initiations.

[4] Stickel (1992) studied the correlation between abnormal returns and analyst reputation based on Institutional Investor's All American Research Team membership. Dhiensiri and Sayrak (2010) used this membership as a proxy for reputation and included it as dummy variable in their regression model explaining the market reaction to a coverage initiation.

[5] A commission-based mandate means that the company wishing to be covered pays the analyst firm on a monthly basis for the coverage. Thus, the business model is similar to that of credit rating institutes. In Sweden, the monthly fee for commission-based analyst coverage is in the range SEK 10 000- 35 000, depending on analyst firm.

However, there are certain limitations relating to our data as well as our method that may impede the validity of our analysis. One issue is that we have only investigated the effects of coverage initiations on 100 companies. Because of this, we have significantly less data points than Dhiensiri and Sayrak (2010) who analyzed the effects of 3,242 coverage initiations. However, the Swedish stock market is much smaller than the US stock market and our sample constitutes around 12% of all listed firms in Sweden[6].

The rest of this paper is structured in six sections as follows. Section 2 constitutes a literature review in which we describe previous research on analyst coverage as well as the characteristics of event studies. In section 3, we state our main hypothesis. Section 4 includes a description of our applied method. In section 5, we present and describe our results. Section 6 constitutes a discussion of the implications of our findings. Finally, section 7 includes a summary and conclusion.

2. Literature Review

2.1 The impact of analyst coverage

Over the years, there have been multiple studies examining the impact on securities following analyst attention. Many of these have focused on agency costs (Jensen and Meckling, 1976), liquidity (Roulstone, 2003) as well as institutional ownership (Kadach and Schain, 2016). Jensen and Meckling (1976) found in their research that both agency costs and information asymmetry can be reduced as an effect of analyst coverage, since the analyst acts like a supervisor of the firm on behalf of its shareholders. This idea was later supported by Chung and Jo (1996), who found that analyst coverage has a positive impact on the market value of the firm being covered. Furthermore, D'Mello and Ferris concluded in a study from 2000 that firms being followed by fewer analysts tend to have larger negative returns around the announcement of an equity issue compared with firms followed by more analysts.

[6] According to Statistics Sweden (Statistiska Centralbyrån, SCB), there were 864 listed firms in Sweden by the end of 2018.

Another interesting finding was discovered by Brennan et.al (1993), who concluded that portfolios of firms being covered by many analysts tend to outperform portfolios of firms with fewer analysts, even though the portfolios include firms of roughly the same market size. Additionally, Womack (1996) was able to show that analyst recommendations result in significant stock price reactions. However, no research area comes without criticism. One relatively frequent critique to the previous findings is that analyst coverage tends to be initiated in periods when a firm is in a good period with a high frequency of news announcements, etc. This critique has been answered by Juergens (2000), who studied the difference in impact between analyst recommendations published around news announcements and recommendations published in non-eventful periods. In this study, Juergens could show that even though recommendations, to a large extent, tend to be published in periods with important announcements from the firm, recommendations that are published in periods without any announcements also result in significant stock price reactions. Thus, analyst recommendations seem to contain some kind of information content on their own.

Further critique addresses the statement that analysts in general have a too optimistic view of the companies that they cover. This could potentially be due to the fact that the company's management team is providing the analyst with useful information or that the firm that the analyst works for wants to establish a good relationship with the company in order to provide investment banking services in the future (Womack 1996, Lim 2001).

There could also be a potential issue with commission-based research, which is common among small cap companies in the Nordics. As the company being covered is paying the analyst firm for the coverage, it might be easy for the analyst to provide a too optimistic view in order to keep a good relationship with the company and its management team. This is the same issue that arises with credit rating institutes.

However, by publishing too optimistic recommendations, the analyst firm will likely experience a bad reputation which will be problematic in the longer term. This holds since reputation has been found to be of great importance when it comes to impact from analyst coverage. In a study from 1992, Stickel concluded that cumulative abnormal returns in connection to upward

revisions are positively correlated with analyst reputation.[7] Hence, an analyst firm providing commission-based research will likely struggle to attract new contracts if its reputation has been tarnished as an effect of over-optimistic coverage initiations.

2.2 Event studies

Measuring effects of economic events, using financial data, can be difficult. However, event studies have been particularly popular among finance researchers to circumvent this issue since the effect of an event will, if the market is efficient, be immediately reflected in the share price (MacKinlay, 1997). Accordingly, the impact of an event can be observed using share price data over a relatively short period of time.

The first ever event study was conducted by Dolley (1933) in a study where he examined the stock price effects of stock splits and the methodology has been popular among economic researchers ever since. Fama, Fischer, Jensen and Roll used an event study methodology in 1969 in their research about the adjustment of stock prices to new information and Fama also applied an event study in 1976 when he examined stock price reactions to stock splits. Furthermore, Campbell and Wasley (1996) performed an event study in their research on trading volumes. By 2006, there were around 500 event studies published (Kothari and Warner, 2006).

The number of studies using the methodology has continued to grow over the years and it has been a very popular approach among researchers who have tested the impact of analyst coverage. The reason for this is that it is a good method for calculating abnormal returns following coverage initiations. Abnormal returns can be determined by looking at the actual return and compare it with an estimated normal return, which is calculated by determining an average return during a period in which the event does not take place (estimation period).

There are several ways to calculate the normal return for a security and approaches can be divided into two different groups; *statistical* and *economic* (MacKinlay, 1997). When it comes to statistical models, assumptions rely on the behaviour of returns, regardless of economic

[7] Stickel used membership of Institutional Investor's All American Research Team as a proxy for reputation and found that revisions from analyst firms with a membership resulted in higher cumulative abnormal returns in connection to the revision.

arguments. Economic models on the other hand, such as the CAPM formula, follow assumptions regarding investors' behaviour. However, economic models tend to be less reliable in short-period studies, and thus statistical models are more frequently used among researchers (MacKinlay, 1997). Statistical models assume that returns are normally distributed and independent over time, meaning that the two most commonly used models; *the constant mean return model* and *the market model* are sufficient to correctly determine the normal return of a stock.

The constant mean return model, which was first applied by Brown and Warner in the 1980's, has been shown to provide similar results as more complex models, although it has been considered as very simple (Brown & Warner, 1980,1985). This is mainly because the variance of abnormal returns is often unchanged as an effect of using more complex models (MacKinlay, 1997).

(1)
$$R_{it} = \mu_i + \mathrm{C}_{it}$$
$$E(\mathrm{C}_{it}) = 0 \qquad VAR(\mathrm{C}_{it}) = \sigma^2_{\mathrm{C}_i}$$

In the constant mean return model, μ_i is the mean return for security *i* over the estimation window. R_{it} constitutes the return of security *i* on day t, while C_{it} is the disturbance term.

When it comes to the market model, it relates to the linear relationship between a specific stock and a market portfolio. The model assumes a joint distribution of returns and the market portfolio constitutes an appropriate stock index (MacKinlay, 1997).

(2)
$$R_{it} = \hat{\alpha}_i + \hat{\beta}_i R_{mt} + \varepsilon_i$$
$$E(\varepsilon_{it}) = 0 \qquad VAR(\varepsilon_{it}) = \sigma^2_{\varepsilon_i}$$

In the formula above, R_{it} is the estimated return of security *i* during day t, while R_{mt} constitutes the actual return on day t for the market portfolio, which is the underlying stock index. ε_{it} is the disturbance term and α_i, β_i and $\sigma^2_{\varepsilon_i}$ are the parameters. The parameters are estimated by performing an OLS regression over the estimation period.

The market model is considered to be more sophisticated than the constant mean return model as it is adjusted for the return that is related to the market portfolio. Thus, the variance of the abnormal return can be reduced and event effects can more easily be observed.

However, calculating normal returns can be tricky and it is particularly difficult to determine an appropriate estimation period. 120 days has been used in many studies and is deemed a good estimation period (MacKinlay, 1997). However, both shorter and longer estimation periods have been used. Barber and Loeffler (1993) used a 100-day estimation period, while Liu et al. (1990) applied a 250-day estimation period. When it comes to abnormal returns, the calculation is done during a so called event window, which can be very short.

However, there are some potential errors in interpreting abnormal returns that should be emphasized. For instance, share price movements during the event window can be due to other factors than the studied event, such as earnings announcement as well as quarterly and annual reports. If a coverage initiation is released close to an annual report, the share price movement might be due to information related to the annual report rather than the coverage initiation. Further, Ball (1978) stated that the variable being tested might be a proxy for other variables that have impact on the return, but are not included in the study. An example of such a variable could be an increasing interest among institutional investors or a higher M&A activity. Even though there are some drawbacks, the benefits of conducting an event study hopefully outweigh the potential shortcomings.

3. Hypothesis

Previously conducted research has, as mentioned above, shown that analyst recommendations and coverage initiations on US companies of all sizes tend to result in significant stock price reactions around the day when the recommendation is published and that the liquidity increases. Accordingly, our belief is that Swedish small cap firms benefit from analyst coverage through an increase in liquidity as well as a positive stock price reaction following the publication of a coverage initiation.
Hence, our study is performed with the following hypothesis:

- A coverage initiation on a Swedish small cap firm results in a significant positive stock price reaction and the liquidity in the stock increases.

4. Method

Since Dhiensiri and Sayrak (2010) applied an event study methodology in their research and due to the relatively easy construction as well as the limited amount of data required, we will perform an event study in our research. Like Dhiensiri and Sayrak (2010), we will analyze abnormal returns during a relatively short period of time around the publication of a coverage initiation.

In this study, the market model is used to estimate the normal returns for the stocks we analyze as it better captures how the return of a given stock relates to the market return. However, Dhiensiri and Sayrak (2010) applied the market adjusted return method since the majority of coverage initiations in their sample included stocks that had only been traded on a stock exchange for one month. Hence, their data was not sufficient to use the market model as historical daily returns were limited.

4.1 Impact on stock returns

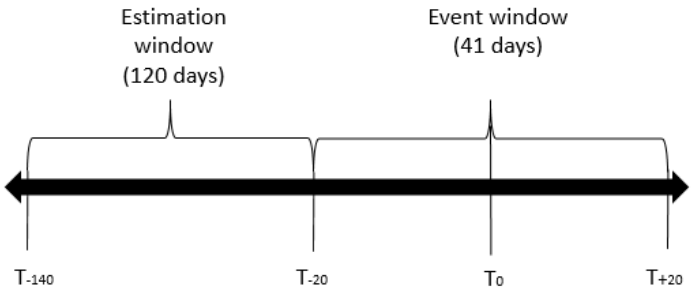
In order to investigate the stock price effect of analyst coverage initiations, we calculate abnormal returns for a sample of Swedish small cap stocks around the period when coverage of them is initiated. The sample is limited to coverage initiations during the period 2015-2019. Our sample stocks are collected from the research universe of seven prominent analyst firms and banks in Sweden covering small- and medium sized firms under a commission-based mandate. These are: Redeye, Erik Penser, Nordea, SEB, Carlsquare, Analyst Group and Introduce. The rationale for focusing on these analyst firms is that they are the most reputable and well-known firms when it comes to commission-based analyst coverage in Sweden[8].

By utilizing Bloomberg as well as the websites of NASDAQ First North, NASDAQ Stockholm Small Cap and Spotlight Stock Market, daily data on closing prices, volume and turnover for stocks during time periods is obtained. The index values for the three different stock exchanges described above is also obtained through their respective websites.

[8] In a 2019 Prospera report on the commission-based research market in Sweden, these seven firms were all included on the basis of being well-established within commission-based research.

The estimation period used to estimate normal returns, using the market model, is 120 days prior to the event window, which is the most frequently used length as it constitutes a large sample and, at the same time, keeps the intertemporal correlation low (MacKinlay, 1997).
The event window itself is 41 days (20 trading days prior to the event day, the event day itself, and 20 trading days after the event day) as suggested by MacKinlay (1997).

Figure 1 - Event Study Design



By performing an OLS regression for each stock individually, with the daily returns of the stock during the estimation period as the dependent variable and the daily returns of the underlying stock market index during the estimation period as the independent variable, the Beta-value and the Alpha-value of each stock in our sample is estimated. These values are then used to estimate the normal returns of the sample stocks during the event window, and in turn, determining the abnormal returns. The abnormal return is calculated for each stock during each day of the event window.

(3) $$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt} + \varepsilon_i)$$

The abnormal return, AR_{it}, for security *i* on day t is calculated in accordance with equation (3) above. R_{it} is the actual return of security *i* on day t while $(\hat{\alpha}_i + \hat{\beta}_i R_{mt} + \varepsilon_i)$ is the estimated normal return, calculated in accordance with the market model described in equation (2) above. This is done for each stock in our sample.

(4) $$AR_{it} \sim N(0, \sigma^2(AR_{it}))$$

Under the null hypothesis, the sample distribution of abnormal returns is expected to follow a normal distribution during the event window.

(5) $$\overline{AR}_t = \frac{1}{N}\sum_{i=1}^{N} AR_{it}$$

To calculate the sample mean abnormal return, equation (5) is applied. AR_{it} is the estimated abnormal return for security *i* on day t, while N is the total number of stocks in our sample. This is also done with respect to which analyst firm that initiated coverage, by calculating the average abnormal return for the sample of stocks covered by each analyst firm.

The abnormal returns are later aggregated into a compounded abnormal return ($\overline{CAR}$) in order to be able to draw conclusions from the stock price impact of a coverage initiation.

(6) $$CAR_{it} = \sum_{t=T_1}^{T_2} AR_{it}$$
$$\overline{CAR}_{T_1,T_2} = \sum_{t=T_1}^{T_2} \overline{AR}_t$$
$$\overline{CAR}_t \sim N(0, VAR(\overline{CAR}_t))$$

4.2 Change in liquidity

According to Stoll (1978) and Chordia et. al (2001), trading activity is a good proxy for determining the liquidity of a stock and this is commonly done by looking at either the trading volume or the trading turnover. The trading volume of a stock is measured as the number of shares traded each day, while the turnover is the volume multiplied by the closing share price during the same day. Following the methodology of Dhiensiri and Sayrak (2010), we analyze the difference in liquidity by comparing both the average daily turnover and the average daily

volume before and after the coverage initiation is published. The pre-initiation period is from day -65 to day -6 (-65,-6) while the post-initiation period is from day +6 to day +65 (+6,+65).[9]

4.3 Regression model

In order to test for the impact of different variables, such as analyst firm, change in daily turnover, market cap and market index, the following regression is performed:

$$(7)\quad CAR_{T_1,T_2} = Intercept + \beta_1 Change\ in\ Average\ Daily\ Turnover + \beta_2 Market\ Cap + \beta_3 Introduce + \beta_4 Nordea + \beta_5 Erik\ Penser + \beta_6 SEB + \beta_7 Analyst\ Group + \beta_8 Carlsquare + \beta_9\ Spotlight + \beta_{10} NASDAQ\ Small\ Cap$$

CAR_{T_1,T_2} is the cumulative abnormal return during the time period (T_1,T_2) around the publication of the coverage initiation. Following the methodology of Dhiensiri and Sayrak (2010), we run the regression four times with the cumulative abnormal return during four different time periods; (-5,+5), (-3,+3), (-1,+1) and the event day (0), as the dependent variable in each regression. Market Cap is the market capitalization in millions of SEK the day before the coverage initiation is published, while NASDAQ Small Cap and Spotlight are dummy variables set to one if the covered firm is listed on NASDAQ Stockholm Small Cap or Spotlight Stock Market, respectively. Accordingly, NASDAQ First North is the control variable. The six analyst firms: Introduce, Nordea, Erik Penser, SEB, Analyst Group and Carlsquare are also dummy variables, while analyst firm Redeye is the control variable. Change in average daily turnover is the percentage change, calculated as the difference in average daily turnover between the post-initiation period (+6, +65) and the pre-initiation period (-65, -6), divided by the average daily turnover during the pre-initiation period.

[9] Day -65 means 65 days prior to the day when the coverage initiation is published, while day +65 is 65 days after the coverage initiation is published. The time period is the same as Dhiensiri and Sayrak (2010) used in their paper.

5. Results

5.1 Data

When only including firms listed on the three small cap exchanges; NASDAQ First North, NASDAQ Stockholm Small Cap and Spotlight Stock Market, and due to the fact that certain banks and analyst firms do not make their coverage initiations available to the public, we created a list consisting of 100 firms, which represents around 12% of all listed firms in Sweden.[10] Our initial sample included 170 small cap firms but due to various reasons, we had to exclude 70 of them.[11] However, this is still much lower than Dhiensiri and Sayrak (2010), who had a sample of 3,242 coverage initiations.

Table 1 - Sample Data Summary

			Year			
Analyst firm	2015	2016	2017	2018	2019	*Total*
Redeye	1	5	7	10	11	34
Erik Penser	0	1	2	5	10	18
ABG/Introduce	0	0	0	0	12	12
Analyst Group	0	0	0	10	11	21
Nordea	0	0	0	4	3	7
SEB	0	0	0	3	0	3
Carlsquare	2	0	1	1	1	5
Total	3	6	10	33	48	100

As shown in the table above, Redeye, Analyst Group and Erik Penser are the three analyst firms with the most coverage initiations in our sample. In terms of time period, the majority of coverage initiations analyzed occurred during 2018 and 2019.

[10] According to Statistics Sweden (Statistiska Centralbyrån, SCB), there were 864 listed firms in Sweden by the end of 2018.

[11] Some companies that were initially included in our sample had coverage initiations that were published in too close connection to the IPO, meaning that the available data was not sufficient to estimate normal returns. Other reasons for exclusion were temporarily trading stops, M&A activities, bankruptcies and delistings.

5.2 Stock price reactions following a coverage initiation

Table 2 - Abnormal Returns and Cumulative Abnormal Returns During the Event Window[12]

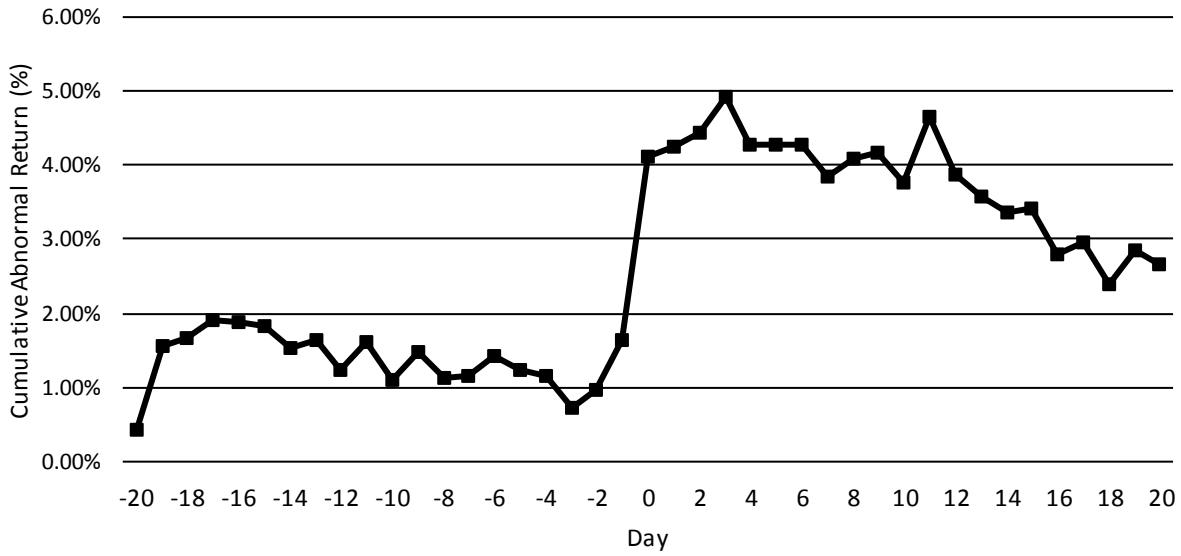
Day	*Abnormal Return* $\overline{AR_t}$	*t-value*	*P-value*	*Cumulative Abnormal Return* $\overline{CAR_t}$	*t-value*	*P-value*
-20	0.44%	0.85	39.64%	0.44%	0.85	39.64%
-19	1.13%**	2.07	4.13%	1.56%***	2.66	0.91%
-18	0.09%	0.24	81.18%	1.66%**	2.32	2.23%
-17	0.26%	0.74	45.97%	1.92%**	2.56	1.18%
-16	-0.04%	-0.12	90.80%	1.88%**	2.31	2.32%
-15	-0.04%	-0.10	92.12%	1.84%**	2.09	3.90%
-14	-0.30%	-0.78	43.92%	1.54%	1.56	12.28%
-13	0.09%	0.19	84.68%	1.63%	1.43	15.47%
-12	-0.40%	-1.14	25.73%	1.24%	1.10	27.57%
-11	0.37%	0.52	60.67%	1.61%	1.11	26.91%
-10	-0.52%	-1.23	22.03%	1.09%	0.75	45.73%
-9	0.38%	0.70	48.35%	1.47%	0.99	32.46%
-8	-0.35%	-0.85	39.77%	1.12%	0.74	45.94%
-7	0.05%	0.10	92.15%	1.17%	0.70	48.60%
-6	0.26%	0.43	66.49%	1.42%	0.79	43.16%
-5	-0.19%	-0.53	59.40%	1.23%	0.67	50.18%
-4	-0.07%	-0.16	87.04%	1.16%	0.60	55.22%
-3	-0.42%	-1.20	23.37%	0.74%	0.38	70.42%
-2	0.22%	0.66	50.91%	0.96%	0.49	62.59%
-1	0.68%	0.83	40.67%	1.64%	0.79	43.11%
0	**2.49%*** **	**3.86**	**0.02%**	**4.13%***	**1.93**	**5.63%**
1	0.13%	0.29	77.58%	4.26%*	1.93	5.68%
2	0.20%	0.49	62.83%	4.45%**	1.99	4.99%
3	0.47%	0.81	41.75%	4.92%**	2.01	4.71%
4	-0.65%*	-1.94	5.55%	4.28%*	1.75	8.32%
5	0.01%	0.02	98.71%	4.29%*	1.69	9.37%
6	-0.02%	-0.04	96.53%	4.27%*	1.69	9.43%
7	-0.42%	-1.25	21.35%	3.85%	1.55	12.33%
8	0.24%	0.71	47.82%	4.09%	1.63	10.61%
9	0.08%	0.15	87.86%	4.17%	1.58	11.62%
10	-0.40%	-1.44	15.31%	3.77%	1.44	15.19%
11	0.87%	1.18	23.99%	4.65%	1.55	12.37%
12	-0.76%***	-2.80	0.62%	3.89%	1.26	20.90%
13	-0.29%	-0.76	44.90%	3.59%	1.19	23.60%
14	-0.23%	-0.69	49.44%	3.36%	1.10	27.31%
15	0.05%	0.14	89.06%	3.41%	1.12	26.59%
16	-0.61%**	-2.00	4.88%	2.80%	0.92	36.00%
17	0.16%	0.47	63.88%	2.96%	0.96	33.73%
18	-0.56%	-1.62	10.93%	2.40%	0.78	43.76%
19	0.44%	1.06	29.34%	2.84%	0.90	37.29%
20	-0.18%	-0.51	61.25%	2.66%	0.80	42.32%

[12] A significance level below 10%, 5% and 1% is marked with *, **, and *** respectively.

The table above shows the sample mean abnormal return and cumulative abnormal return for each day during the event window, as well as the corresponding t-value and P-value each day. As can be seen, there is a statistically significant abnormal return ($\overline{AR}_t$) of 2.49% on the event day (0) and the cumulative abnormal return is 4.13%. On the event day, we also find the highest t-value for the entire sample of $\overline{AR}_t$, showcasing that, on average, a coverage initiation leads to significant abnormal returns for small cap stocks on the event day. During the days before as well as after the event day, there are no significant abnormal returns.

If there were significant abnormal returns closely prior to the event day, this would potentially indicate leakage, where informed investors who knew the information before it was released to the public attempted to take advantage of this. On the other hand, if there were abnormal returns a couple of days after the event day, this would indicate that the market is not fully efficient as the information from the coverage initiation is not immediately reflected in the stock price.

Figure 2 - Cumulative Abnormal Return (%) During the Event Window



The graph above shows the full sample mean cumulative abnormal return ($\overline{CAR}$) each day during the event window. There is a large increase on the event day (0), when the $\overline{CAR}$ shoots up from 1.64% to 4.13%. Before the event day the $\overline{CAR}$ goes from 0.44% on day -20 to 1.64% on day -1, and after the event day the $\overline{CAR}$ decreases from 4.13% on the event day to 2.66% on day +20. Hence, there are positive stock price reactions following coverage initiations.

5.3 Analyst firm comparison

Table 3 – Abnormal Returns for Different Analyst Firms During the Event Window[13,14]

	Abnormal Returns $\overline{AR_t}$						
Day	*Redeye*	*Introduce*	*Nordea*	*SEB*	*Analyst Group*	*Erik Penser*	*Carlsquare*
-20	0.88%	1.41%	0.22%	0.86%	-1.02%	0.72%	0.25%
-19	0.18%	0.33%	1.04%	-3.09%	1.94%	3.31%**	0.86%
-18	0.85%	-2.85%**	-0.47%	1.34%	-0.11%	0.21%	2.42%
-17	0.73%	1.96%	-0.05%	1.45%	-0.06%	-1.00%*	-1.32%
-16	-1.02%	0.13%	0.61%	2.16%	1.28%*	-0.53%	0.20%
-15	-0.81%*	-0.85%	2.81%	5.32%	-1.30%**	1.48%*	-0.23%
-14	0.55%	-0.13%	-0.35%	-1.81%	-1.56%*	-0.27%	-0.27%
-13	0.52%	-0.94%	0.20%	2.50%	0.18%	-0.39%	-0.59%
-12	-1.05%	-1.57%**	1.29%	-1.43%	0.47%	0.42%	-1.39%
-11	-0.80%	-0.88%	0.86%	0.14%	3.59%	-0.15%	-0.84%
-10	-0.06%	-1.26%	-0.65%	0.96%	-2.05%	0.82%	-1.05%*
-9	0.67%	-0.67%	2.80%	2.64%	-0.56%	0.43%	-0.11%
-8	-0.12%	-0.33%	0.14%	-0.47%	-0.41%	-0.75%	-0.83%
-7	0.23%	-1.36%	-0.92%	1.27%	0.87%	0.21%	-1.19%
-6	0.11%	-1.97%	-0.74%	2.04%	2.14%	0.11%	-0.48%
-5	0.54%	-0.56%	0.24%	0.97%	-1.24%	-0.64%	0.42%
-4	-0.80%	0.63%	-0.38%	-0.61%	0.02%	0.84%	0.27%
-3	-1.30%**	-1.41%	1.88%	-2.87%	0.22%	0.24%	1.13%
-2	0.86%	-0.03%	-0.23%	1.62%**	0.63%	-1.26%**	-0.04%
-1	0.34%	-1.90%	1.36%	-0.21%	1.36%	1.55%*	2.77%
0	**4.04%*** **	**0.60%**	**-1.55%**	**-2.43%**	**2.31%***	**4.04%****	**0.22%**
1	-0.49%	-1.29%	0.18%	2.96%	1.20%	-0.47%	3.60%
2	-0.04%	0.89%	-1.37%	0.49%	0.15%	1.00%	-0.57%
3	0.24%	-0.84%	-0.50%	3.07%	2.27%	-0.85%	2.19%
4	-0.75%	-1.57%	-0.75%	0.25%	-0.80%	0.36%	-1.10%
5	0.74%	-0.39%	-1.94%**	-0.02%	-0.22%	-1.47%***	5.03%
6	-0.92%*	0.41%	1.74%	4.49%	-0.81%	-0.17%	3.80%
7	-0.37%	1.42%	0.34%	-0.33%	-2.20%**	-0.16%	0.22%
8	-0.21%	-0.22%	-0.38%	0.99%	1.47%	0.85%	-2.52%*
9	-0.82%*	-1.00%**	1.07%	-0.10%	1.32%	-1.11%*	6.63%
10	-0.61%	0.59%	0.42%	-2.12%	-0.04%	-0.49%	-2.64%**
11	1.17%*	-1.05%	1.23%	2.42%	1.91%	0.69%	-1.68%
12	-1.37%***	-0.16%	-0.77%	-1.21%	-0.50%	-0.89%	1.57%
13	-0.31%	0.69%	-0.89%	1.08%	-0.15%	-0.83%	-1.19%
14	0.63%	-1.51%	0.58%	0.53%	-0.82%	-0.81%	-0.08%
15	0.49%	0.44%	-0.45%	-1.47%	-0.63%	0.29%	-0.27%
16	-1.06%*	-1.91%	1.46%	-1.22%	-0.06%	0.15%	-2.00%
17	0.87%	1.53%*	0.03%	-0.29%	-1.32%**	0.10%	-1.18%
18	-0.50%	-0.13%	0.15%	0.66%	-1.42%	-0.69%	0.42%
19	0.92%	0.64%	-1.46%	2.13%	1.27%	-1.13%	0.54%
20	0.28%	0.16%	-0.85%	-1.51%	-0.73%	-0.09%	-0.39%

[13] A significance level below 10%, 5% and 1% is marked with *, **, and *** respectively.
[14] Calculated as $\overline{AR_t}$ for the sample stocks of each analyst firm.

The table above shows the average abnormal return for each day of the event window based on which analyst firm that initiated coverage. As can be illustrated, the only analyst firms whose coverage initiations on average lead to significant abnormal returns on the event day (0) are Redeye (4.04%), Analyst Group (2.31%) and Erik Penser (4.04%). The reason for only Redeye, Analyst Group and Erik Penser having significant stock price reactions on the event day is likely that they are the analyst firms with the most coverage initiations in our sample. Consequently, it is difficult to draw any conclusions from the impact of the four other analyst firms included.

The reason for the differences between Redeye, Analyst Group and Erik Penser is unclear, though. However, the fact that Redeye has the most significant result is likely consistent with the fact that the firm is the pioneer on commission-based small cap firm coverage and the market leader in terms of number of firms under coverage. Due to this, it may be that investors put more trust in Redeye's coverage initiations or simply pay more attention to when Redeye initiates coverage of a company than when the other analyst firms do so.

5.4 Regression analysis

Table 4 – Regression Analysis[15]

Variables	CAR (-5,+5)	CAR (-3,+3)	CAR (-1,+1)	Event Day (0)
Intercept	0.027	0.030	0.023	0.051***
	(1.05)	(1.29)	(1.59)	(4.25)
Change in Average Daily Turnover	0.001	0.002	0.003***	1.00E-03
	(0.59)	(1.01)	(3.04)	(1.21)
Market Cap	1.71E-05	-4.05E-06	2.46E-06	-9.99E-06
	(0.73)	(-0.20)	(0.19)	(-0.96)
Introduce	-0.092**	-0.074**	-0.034	-0.039**
	(-2.35)	(-2.12)	(-1.50)	(-2.21)
Nordea	-0.077	-0.034	-0.031	-0.050**
	(-1.48)	(-0.74)	(-1.04)	(-2.12)
Erik Penser	-0.002	0.004	0.020	-0.022
	(-0.06)	(0.13)	(1.01)	(-1.34)
SEB	-0.005	-0.015	-0.026	-0.060*
	(0.07)	(-0.24)	(-0.62)	(-1.83)
Analyst Group	-0.052	-0.013	-0.038*	-0.039**
	(-1.47)	(-0.42)	(-1.94)	(-2.55)
Carlsquare	-0.015	0.056	-0.025	-0.042
	(-0.25)	(1.15)	(-0.72)	(-1.67)
Spotlight	0.013	0.024	0.018	0.014
	(0.38)	(0.77)	(0.90)	(0.88)
NASDAQ Small Cap	-0.013	0.015	0.004	-0.008
	(-0.43)	(0.57)	(0.21)	(-0.64)
No. of observations	95	95	95	95
F-Stat	0.94	1.06	1.96**	2.00**
Adjusted R^2	-0.007	0.006	0.093	0.096

The table above shows the results of our four regressions with the dependent variable CAR during the four different time periods. The regressions are adjusted for outliers. Regressions with all 100 firms were first conducted, and subsequently outliers with studentized residuals over +2 and below -2 were removed ahead of the final regressions, the output of which can be seen above. The effect of which analyst firm that initiated coverage is captured by the dummy variables: Introduce, Nordea, Erik Penser, SEB, Analyst Group and Carlsquare.

[15] A significance level below 10%, 5% and 1% is marked with *, **, and *** respectively. The t-values are found in the parentheses.

Hence, the effect of analyst firm Redeye acts as the control variable. When it comes to the effect of which market a stock is listed on, the effect is captured by the dummy variables NASDAQ Small Cap and Spotlight. Accordingly, NASDAQ First North acts as the control variable. As can be illustrated in the table, the coefficient of the variable "Change in Average Daily Turnover" was found to be 0.003 during the time period (-1,+1), which was statistically significant on a 1% level. Hence, the effect on CAR is 0.3%. This is similar to the findings of Dhiensiri and Sayrak (2010), who found a coefficient of 0.005 (0.5%).

Furthermore, we can see that the market capitalization of a firm does not seem to have a statistically significant impact on the stock price reaction following a coverage initiation. This aligns with the findings of Dhiensiri and Sayrak (2010) who did not either find a statistically significant relationship between market capitalization and cumulative abnormal returns. Thus, there does not seem to be a significant firm size-related effect on cumulative abnormal returns following a coverage initiations for the market as a whole nor for small cap firms in particular. All analyst firms, except Erik Penser and Carlsquare, have a significantly lower cumulative abnormal return than Redeye on the event day, while only Analyst Group has a significantly lower cumulative abnormal return during the time period (-1,+1). When looking at the effect from the underlying stock index, we do not observe any statistically significant coefficients.

The results from our regression model align with the findings of Dhiensiri and Sayrak (2010). Hence, Swedish small cap firms seem to benefit from being covered through a positive stock price reaction, partly derived from an increase in liquidity, measured in trading turnover.

5.5 Test of assumptions

In order to test the validity of our regressions, we conducted a number of tests. The results of these are shown in Appendix B. From these, we can conclude that none of the regressions have issues with normality (tested using the Jarque-Bera Normality test) or multicollinearity (as none of our independent variables had correlations of 0.8 or higher). Furthermore, all outliers in our samples were removed by computing regressions with all 100 firms, and then removing data points for which the studentized residual was above +2 or below -2.

However, we did find issues with linearity and heteroskedasticity. As can be seen in Appendix A, it seems like there is no linear relationship between our CAR with neither market capitalization nor change in average daily turnover, respectively. This is a problem as it means that our OLS regression is no longer the most appropriate model for our data. In order to address this, we performed our regressions with the natural logarithm of market capitalization, the results of which can be found in Appendix D. These regressions yield a significant negative effect of market capitalization, implying that firms with higher market value benefit less from a coverage initiation. As can be seen in Appendix E, the relationship between CAR and the logarithmized market capitalization seems to indicate a slight negative relationship.

Furthermore, we detect an issue of heteroskedasticity in our regression performed for the CAR during the event day. We see in Appendix C that the residuals become higher as the fitted values increase, indicating heteroscedasticity. Furthermore, according to the Breusch-Pagan test shown in Appendix B, heteroscedasticity is present in our regression for the event day.
This is an issue which, among other things, makes the t-test and F-test of our regression invalid. In certain cases, heteroskedasticity can be resolved by transforming the independent variables. We hoped that using the logarithm of market capitalization would avoid heteroskedasticity in our case, but as can be seen in Appendix F, heteroskedasticity is still present even when using the logarithm of market capitalization.

There are other potential solutions to our problem, such as transforming the dependent variable or using another type of regression method, different from OLS. The main reason why we have not done this is because we want to replicate and extend Dhinesiri and Sayrak's (2010) paper, in which OLS regressions and non-transformed variables are used. We believe that if we employed these techniques to improve our regression model, we would risk straying too far from their method, which could potentially impede the comparability.

5.6 Change in liquidity

Table 5 - Liquidity Analysis

Variables	Pre-initiation mean (1)	Event day mean (2)	Difference (2)-(1)	t-test	P-value
Daily turnover	1,055,028	2,288,405	1,233,377	4.96	0.00%
Daily volume	137,629	283,742	146,113	2.94	0.41%

Variables	Pre-initiation mean (1)	Post-initiation mean (3)	Difference (3)-(1)	t-test	P-value
Daily turnover	1,055,028	1,334,932	279,903	0.85	39.76%
Daily volume	137,629	109,720	-27,909	-0.46	64.61%

The two tables above show the difference in liquidity, measured in both average daily turnover and average daily volume around the publication of a coverage initiation. As can been seen, there is a statistically significant difference in both turnover and volume between the event day and the pre-initiation period (-65,-6). However, when comparing the difference in average daily turnover between the post-initiation period (+6, +65) and the pre-initiation period (-65,-6), the increase is not statistically significant.

One surprising finding is that the average daily trading volume is lower for the post-initiation period compared with the pre-initiation period. This goes against the findings of Dhiensiri and Sayrak (2010). However, the decrease in volume is not found to be statistically significant.

The differing results may be due to a couple of reasons. While Dhiensiri and Sayrak (2010) observed an increase in trading volume followed by a coverage initiation, an increase of ownership share by institutional investors was also observed. Thus, it is possible that the increase in trading volume observed in their paper is due to institutional investors feeling comfortable to invest in stocks once coverage of them has been initiated by a reputable analyst firm. Due to the size of the firms in our sample, they are generally too small for most institutional investors to invest in, even if they are covered by an analyst firm. Thus, this may explain why a coverage initiation for the relatively small companies in our sample does not lead to a significant increase in trading volume.

6. Discussion

There are certain limitations relating to our data as well as our method that may impede the validity of our results. One issue is that we have investigated the effects of coverage initiations on 100 companies. Because of this, we have significantly less data points than Dhiensiri and Sayrak (2010) who analyzed the effects from a sample of 3,242 coverage initiations. The closest related Swedish paper by Lidén (2004) also had more data points and included 2,282 stock recommendations published by both analysts and journalists.

The cause of us having significantly less data points is due to the nature of what we are investigating. Firstly, the Swedish stock market has significantly less companies listed compared with the US stock market. Secondly, as we are only looking at small cap firms, this eliminates a large proportion of all listed firms in Sweden. Thirdly, as coverage of a company can per definition only be initiated for the first time once, this limits the number of data points available to us, compared to if we were investigating the effects of, for example journalist recommendations, where each stock can be recommended by a large number of journalists several times during a given time period.

Another potential problem is that we, as Dhiensiri and Sayrak (2010) did in their paper, aimed to look at the effects of first-time coverage initiations. In cases where two or more analyst firms cover the same company, we have looked at the effect of the earliest coverage initiation out of these. However, a problem for us is that certain analyst firms and banks do not make their coverage initiations available to the public, but only to, for example, their own private banking customers. Because coverage initiations published by these analyst firms are not accessible to us, it may be that for some of the stocks in our sample, coverage by another analyst firm may already have been initiated without us knowing. The impact of this on our data is unclear. Based on previous research by Irvine (2003), it would be logical to assume that the effect of a coverage initiation is larger when it occurs for the first time. Thus, by including some firms that may be covered for the second time, we are likely to underestimate the effect of a coverage initiation. However, we know for sure that the vast majority of all coverage initiations in our sample are first-time coverage initiations, meaning that the potential underestimation effect is likely to be very limited.

Another limitation of our data relates to segmenting abnormal returns based on different analyst firms. Some of the analyst firms included cover very few companies relevant for our research. SEB, for example, only has 3 firms included in our sample of 100. Because of this, it is difficult for us to draw conclusions about the differences between all analyst firms when it comes to the stock price effect.

One interesting question is where the abnormal returns on the publication day stem from. Are they due to information content in the report, which leads to a higher trading turnover and valuation, or does the simple fact that an analyst firm initiates coverage of a company lead to a higher valuation since this is seen as a sign that the company in question is of a certain quality? This relates to the endogeneity of analyst coverage. There is a chance that analyst firms initiate coverage of companies with good quality or that the companies being covered under a commission-based mandate tend to approach the analyst firm when they experience a strong momentum. Being covered as part of a commission-based mandate costs around SEK 10,000 to SEK 35,000 per month, depending on analyst firm. Hence, one could expect the management team of a company to enter into such an agreement when they consider the net present value to be the highest. If this is the case, we potentially overestimate the impact of a coverage initiation. While an interesting question, this falls outside the scope of this thesis. However, attempting to answer this question would be an appropriate topic if one wanted to build on this thesis and complement its findings.

Another potential issue is related to the integrity of commission-based research. One could easily expect that the impact of a coverage initiation published under a commission-based mandate would be smaller in comparison to traditional research as an effect of analyst bias, where the analyst is providing a too optimistic view of the covered firm, which the market takes into account. However, when looking at our results, there is no significant difference in abnormal returns around the publication day compared to what was found by Dhiensiri and Sayrak (2010). Hence, the effect from a coverage initiation seems to be similar regardless of research type and firm size.

7. Summary and Conclusion

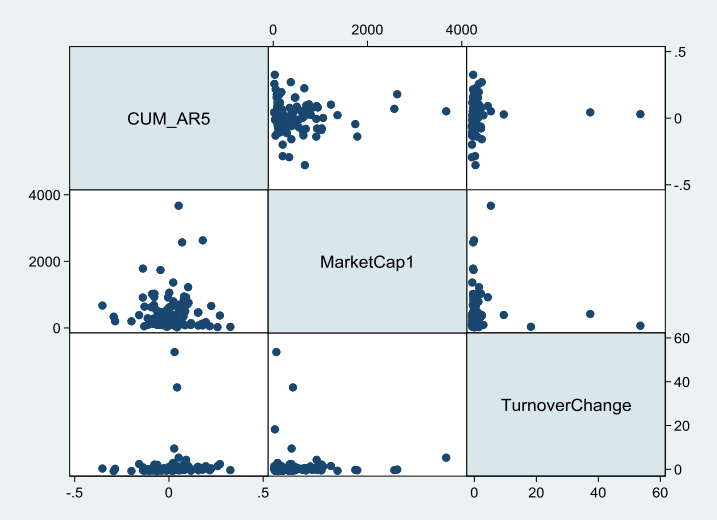
This study analyzed the impact of coverage initiations on Swedish small cap firms by looking at stock price reactions and change in liquidity for firms that received a coverage initiation during the period 2015-2019. By following an event study methodology, and partly replicating the research performed by Dhiensiri and Sayrak (2010), we were able to analyze abnormal returns during an event window of 41 days, including the publication day for the coverage initiation. Significant stock price reactions could be observed on the publication day for the sample firms and the liquidity measured as trading turnover also increased. Thus, the observed effect from a coverage initiation in our sample supports the findings by Dhiensiri and Sayrak (2010).
In addition, it can be concluded that there is a difference in impact between analyst firms, which can be due to reputation. When investigating the difference between analyst firms, only coverage initiations by Redeye, Analyst Group and Erik Penser resulted in significant stock price increases based on our sample of 100 companies. However, the small sample impedes the comparisons between analyst firms.

To conclude, Swedish small cap firms seem to benefit from analyst coverage through an increased firm value, partly driven by an increase in liquidity. However, there is some difference in impact between analyst firms.

Appendix

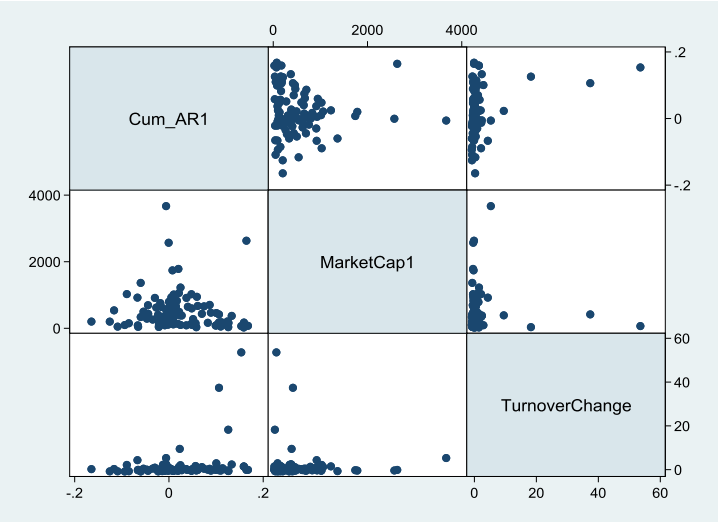
A. Linearity tests with outliers removed

Day -5 to 5 – Linearity test

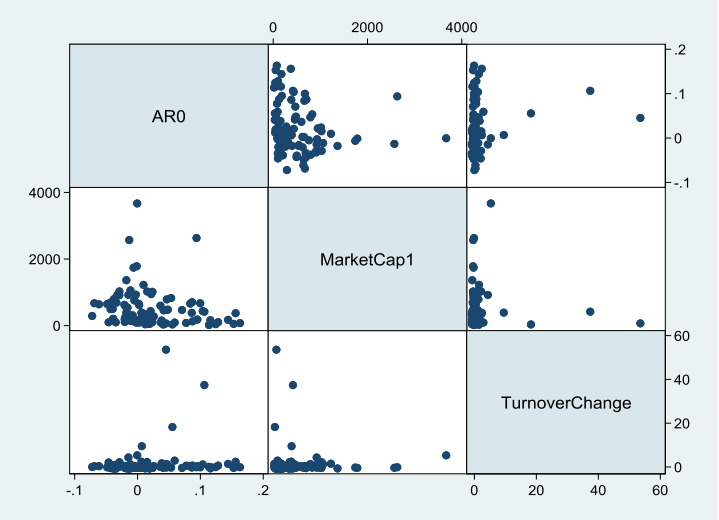


Day -3 to 3 - Linearity test

Day -1 to 1 – Linearity test



Event day (0) – Linearity test



B. Assumption tests

	Cumulative Abnormal Return			
	-5 to 5	-3 to 3	-1 to 1	Event day (0)
Jarque-Bera Normality test				
Chi(2)	*5.071*	*0.165*	*1.256*	*2.138*
Probability	*0.0792*	*0.9207*	*0.5338*	*0.3434*
Heteroskedasticity				
Breusch-Pagan Chi(2)	*0.41*	1.02	0.04	9.18
Cook-Weisberg Prob > chi(2)	*0.5233*	0.3129	0.8419	0.0024

Multicollinearity

	CAR (-5,5)	Market Cap	Turnover Change
CAR (-5,5)	1.000		
Market Cap	0.018	1.000	
Turnover Change	0.068	-0.047	1.000

Multicollinearity

	CAR (-3,3)	Market Cap	Turnover Change
CAR (-3,3)	1.000		
Market Cap	-0.068	1.000	
Turnover Change	0.126	-0.047	1.000

Multicollinearity

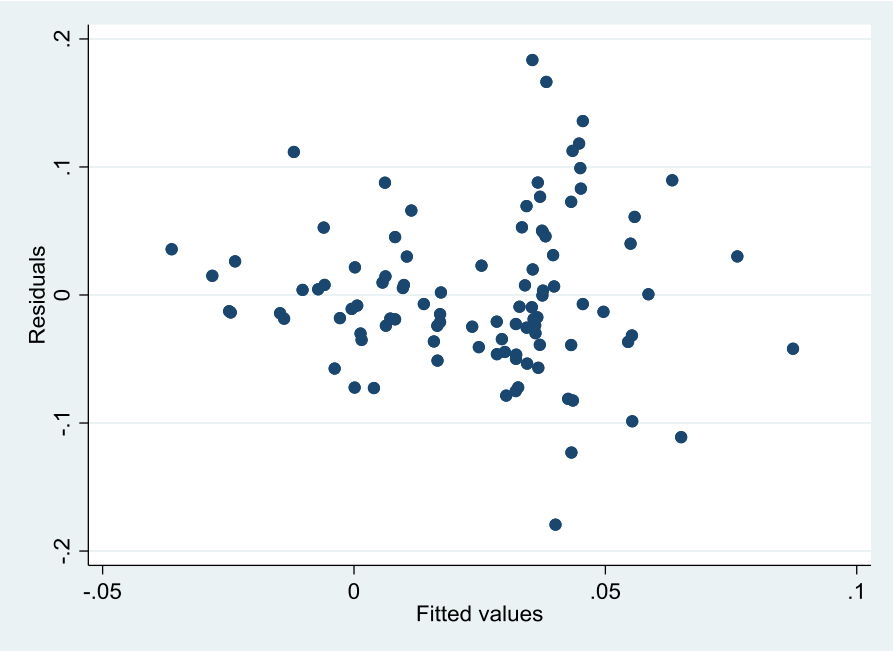
	CAR (-1,1)	Market Cap	Turnover Change
CAR (-1,1)	1.000		
Market Cap	-0.061	1.000	
Turnover Change	0.283	-0.047	1.000

Multicollinearity

	CAR (0)	Market Cap	Turnover Change
CAR (0)	1.000		
Market Cap	-0.189	1.000	
Turnover Change	0.142	-0.047	1.000

C. Heteroskedasticity in event day regression

Event Day (0) – Fitted values without outliers and non-logarithmic market caps

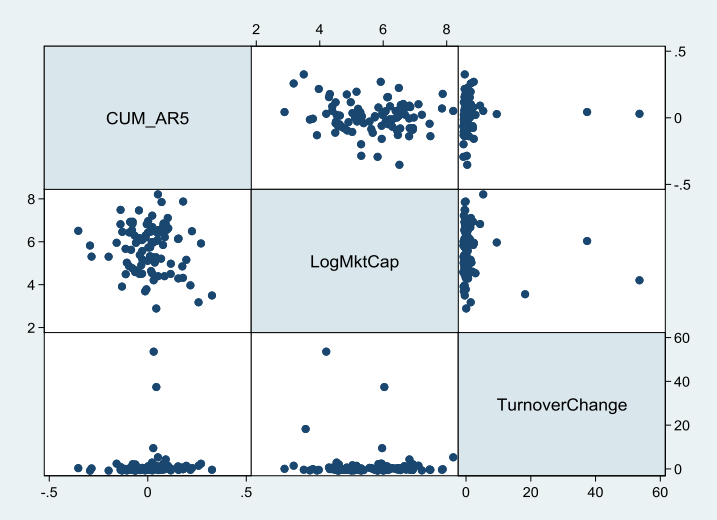


D. Regression with logarithmized market caps

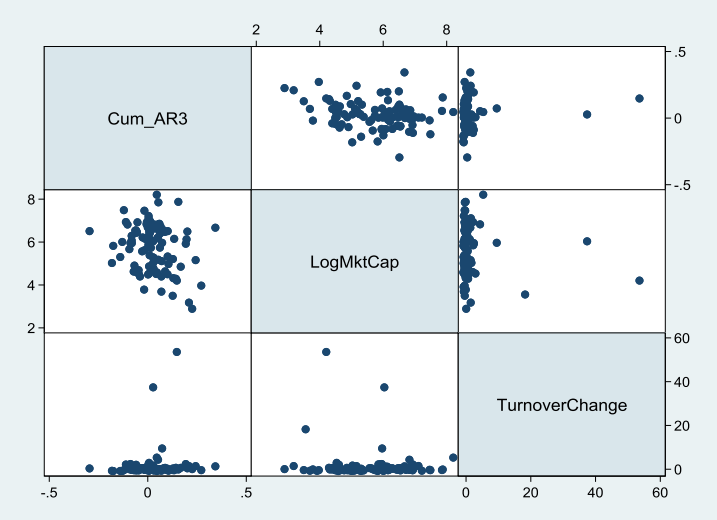
Variables	(-5,+5)	(-3,+3)	(-1,+1)	Event Day (0)
Intercept	0.109	0.167**	0.070	0.133***
	(1.42)	(2.50)	(1.59)	(3.95)
Change in Average Daily Turnover	0.001	0.002	0.003***	0.001
	(0.60)	(1.04)	(2.99)	(1.15)
Log Market Cap	-0.013	-0.024**	-0.008	-0.015***
	(-1.00)	(-2.18)	(-1.08)	(-2.72)
Introduce	-0.092**	-0.073**	-0.035	-0.039**
	(-2.36)	(-2.16)	(-1.54)	(-2.27)
Nordea	-0.050	-0.014	-0.021	-0.043*
	(-1.01)	(-0.32)	(-0.74)	(-1.99)
Erik Penser	-0.007	0.000	0.018	-0.024
	(-0.20)	(0.01)	(0.90)	(-1.53)
SEB	0.012	-0.006	-0.023	-0.056*
	(0.17)	(-0.10)	(-0.55)	(-1.76)
Analyst Group	-0.056	-0.019	-0.042**	-0.045***
	(-1.60)	(-0.61)	(-2.09)	(-2.98)
Carlsquare	-0.014	0.062	-0.024	-0.039
	(-0.23)	(1.29)	(-0.69)	(-1.59)
Spotlight	-0.002	0.005	0.013	0.010
	(0.00)	(0.18)	(0.65)	(0.45)
NASDAQ Small Cap	-0.006	0.024	0.007	-0.002
	(-0.18)	(0.96)	(0.44)	(-0.17)
No. of observations	95	95	95	95
F-Stat	0.99	1.59	2.10**	2.80***
Adjusted R^2	-0.001	0.059	0.105	0.161

E. Linearity test with logarithmized market caps

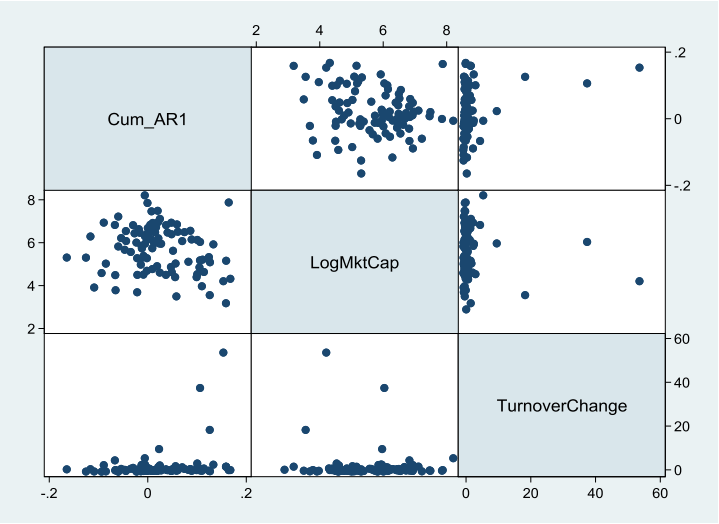
Day -5 to 5–Linearity test



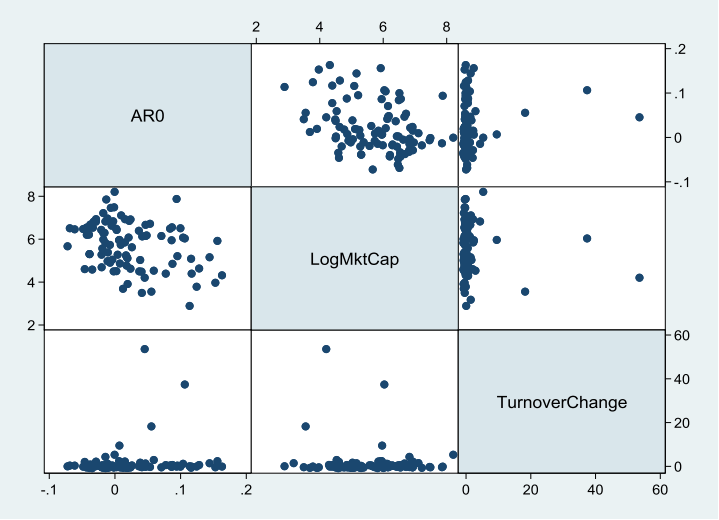
Day -3 to 3 – Linearity test



Day -1 to 1 – Linearity test



Event day (0) – Linearity test



F. Assumption tests with logarithmized market caps

	Cumulative Abnormal Return			
	-5 to 5	-3 to 3	-1 to 1	Event day (0)
Jarque-Bera Normality test				
Chi(2)	*3.067*	*0.146*	*1.980*	*1.312*
Probability	*0.2158*	*0.9296*	*0.3715*	*0.5189*
Heteroskedasticity				
Breusch-Pagan Chi(2)	*0.68*	0.61	0.11	9.30
Cook-Weisberg Prob > chi(2)	*0.4113*	0.4346	0.7416	0.0023

References

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