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The effect of sponsored equity research on stock prices

- An event study on Swedish companies

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Abstract

This paper examines the effect from issuer-sponsored equity research on stock prices in Sweden. This kind of reports has risen in popularity and today, over 290 firms in Sweden are covered by a sponsored equity research. To reach a conclusion, a traditional event study was performed on 141 Swedish firms between the years of 2008 and 2019. The result show that there are significant, at the 1%-level, abnormal returns in the event period, both when looking at all 141 firms and when dividing the reports published by one of the large banks (Nordea, SEB and Danske Bank) and the reports published by one of the smaller firms (Redeye, Jarl Securities and Introduce) into two subsamples. Previous research has shown that traditional equity and credit research can act as a coordination mechanism for stock prices and the result from this paper indicate a similar result; the stock price increases due to good news and the volatility decrease as the sponsored equity research is published. Perhaps, due to the rendering and interpretation of already public information, together with new target prices and estimates for the future.

Keywords: Sponsored equity research, commissioned research, event study, abnormal returns

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1. Introduction

290 Swedish firms are ready to pay a yearly fee of between 0.25 MSEK and 0.75 MSEK for outsourced marketing material directed to potential investors. As the European market for traditional equity research suffered a decline of almost 30 per cent between the years of 2009 and 2013, a new market has surged; the market for issued-sponsored equity research. Today, the Swedish market for these kinds of reports is estimated to be worth between 75 MSEK and 100 MSEK and the large banks Nordea, SEB and Danske Bank has joined the crowd of firms willing to produce equity research with a cost structure much like the one of credit ratings (Almgren, 2019; Lee, 2018). The traditional equity research has formerly mainly been financed by the brokerage department of the same firm. The financial institutes simply had incentives to perform equity research as a method of creating revenue through the customer's trading commissions. But the entrance of the European legislation MiFID II forced the financial institutes to be more transparent about costs and therefore made it harder to justify paying for the equity research. This has led to a decrease in the number of stocks covered by analysts, which can have negative consequences for the firms (Lee, 2018; Derrien & Kecskés, 2013). Especially the smaller firms suffer from this and the only solution is to pay to be researched. But there is a conflict of interest when the firm being researched pay for the research and in some cases even have the right to stop a research before publication.

In contrast to the traditional equity research, there has been little, or no research on how this new kind of research affects the stock market. The purpose of this paper is to analyze whether the market views this research as new credible information, or if it discards this as outsourced marketing material. A difference from traditional equity research is that the sponsored research rarely contains any recommendation apart from the target price. The question is if this really matters, since studies show that as little as 5 per cent of equity analysts gives a recommendation to sell the researched stock in traditional equity research. This is explained as a will to refrain from upsetting the colleagues in the investment bank which might lose business if the bank give a recommendation to sell a firm's stock (McLannahan, 2015). There are therefore conflicts of interest in the traditional equity research too and yet, this is a market that has existed for several centuries.

The questions that I want to answer are as following:

1. How does the market react to the publishing of a sponsored equity research?
2. Does the market react different when the analyzed firm has paid to be researched, compared to traditional equity research?
3. Does a large bank have a stronger impact on credibility regarding sponsored equity research, i.e., does the market react more if one of the large banks publish a sponsored equity research compared to the smaller actors?

I am doing an event study with the purpose of addressing these questions by calculating the abnormal returns related to the dates of which the initial sponsored research is published by the financial institutes. I am also going to divide these reports based on which kind of institute that publish it. Lastly, I am going to compare the results from the event study with previous results on traditional equity and credit research to see whether the market reacts differently when it comes to sponsored research.

The event study showed abnormal returns in the event window including the day of which a initial sponsored equity research was published and the day after that. For all firms, the number was 2.25 per cent and highly significant, for the reports published by one of the large banks the abnormal return was 1.54 per cent and the remaining reports published by one of the smaller firms the number was 2.51 per cent. This means that the market views these reports as either a coordination mechanism for earnings announcements and other public firm information, or as completely new information not formerly known to the public.

The remainder of this thesis is structured as follows. In section 2, a background discussion on sponsored equity research is made. In section 3, the theory and earlier research that tries to explain how the market reacts to this kind of research are discussed. In section 4, a walkthrough of the event study methodology and the data used is done. Section 5 includes both the results and the analysis of the results from the event study. Section 6 contain the conclusion based on the result in the previous parts of the thesis together with a review of the earlier research on similar topics.

2. The sponsored equity research

This section will discuss the purpose of sponsored equity research and why there has been an emergence of these in the last couple of years. There will also be a section on how most of the sponsored equity research are designed by using an excerpt from one of the financial institutes discussed in this thesis.

2.1 The history of sponsored equity research

The model of paying to have your company and stock analyzed is not new. Firms like Introduce and Redeye were both founded during the IT-boom in the year of 2000 and produced traditional equity research. Three years later, Redeye saw a diminishing demand for sell-side coverage and therefore chose to start producing issuer-sponsored equity research with a focus on those firms with little or no coverage at all (Redeye, n.d.). Introduce followed, and together they became the leading institutes in Sweden on sponsored equity research. The large banks did, however, not and continued to focus on their traditional sell-side equity research which was funded by their brokerage department. The large banks therefore had an incentive to cover as many stocks as possible to generate business, since their reports could encourage investors to trade in different stocks. With the entry of internet brokers, the revenue from equity-trading commissions fell from €4.2 billion in 2009 to €3 billion in 2013 in Europe alone. For the U.S, the numbers were \$13.9 billion in 2009 and \$9.3 in 2013. The possibilities for revenues in the equity research departments therefore decreased substantially, mostly because of rationalization of how people and institutes trade stocks.

2.2 MiFID II

As of the 3rd of January 2018, MiFID II (or MiFIR) applied to all members of the European Union. The purpose is to strengthen investor protection and make the financial markets more efficient and transparent. One of the rules to improve the transparency, was to force the financial institutes to explicitly present what they pay for (Esma, n.d.). For the financial institutes, this means that they must state which percentage of the paid commission that finance the equity research department. The extension of this is that the fund managers must pay for the equity research directly, instead of indirectly through commissions. Due to this regulation, the market for issuer-sponsored equity research grew as the traditional research decreased, leading to less coverage of especially smaller firms. These firms have incentives to pay to get researched, to increase the knowledge of the firm and to increase the trading in their stock.

2.3 The Swedish market for sponsored equity research

The regulations and decreased market have made the large banks follow the smaller firms' business model, while still maintaining a production of traditional equity research. As of February 2019, there was approximately 290 Swedish firms that was covered by a sponsored equity research. In most cases, this means that the financial institute perform an initial research and then releases quarterly updates, which means an analysis of the quarterly earnings reports. The price for this differs between the financial institutes, but for this kind of coverage plus the possibility to participate in investor events costs circa 0.25 MSEK per year, at Analysguiden (through Jarl Securities). But according to some sources, the large banks charges more than the double of that (Lee, 2018). Svenska Dagbladet estimates the market revenue to be between 75 and 100 MSEK (Almgren, 2019).

2.4 The criticism of sponsored equity research

It goes without saying that this kind of research has had bad reputation over the years. They are not independent since the researcher gets paid by the firm to conduct the analysis and have incentives to keep the customer over time. On the other hand, in some sense, this is also true for traditional equity research where the investment bank department is keen on having a good relationship with firms to get business from them when they want to, for example, raise capital. There are therefore incentives to not be negative about firms if they are a possible source of revenue in the future (Lee, 2018). It is likely that the reputation has changed over the years, mostly because there is no other alternative for some firms than to pay to get analyzed and the fact that the large banks also started to perform this kind of research. But one essential fact stands. At some of the financial institutes, the researched firm have an option to stop a research if they find it too negative (Lee, 2018). This means that there should be an overweight of positive outlooks and few, or no, negative outlooks in the research.

2.5 The structure of sponsored equity research

The structure of the research depends on the financial institute, though there are similarities between most of them that differs them from traditional equity research, like the lack of an outright recommendation. As an example of how these reports can be structured, Figure 1 is an excerpt from the list of contents of a sponsored equity research by Nordea (called commissioned research by the bank) on Serneke.

Figure 1 List of contents from sponsored equity research performed by Nordea

7 December 2018		Serneke
Contents		
Factors to consider when investing in Serneke		3
Valuation		9
Company overview		17
Business areas		25
Joint ventures and other significant projects		32
Strategy and financial targets		41
Market overview		42
Benchmarking of peers and competitors		53
Estimates		62
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Marketing material commissioned by Serneke 3

(Source: Nordea)

This research is the initial report on the construction and real estate company Serneke. The report has 75 pages in total and includes discussions on the business model, estimates, peer comparison and valuation. At the bottom of the page it clearly states that this is marketing material commissioned by Serneke. In contrast, the quarterly updates range from 15 to 32 pages and is less detailed on the firm as a whole and more focused on the earnings reports released by the firms.

3. Theoretical framework and previous research

In this section I am going to discuss the underlying theories that are used to explain how the stock market ought to react and the papers that has examined similar topics related to equity and credit research.

3.1 Efficient market hypothesis

In 1970, Eugene Fama wrote the hypothesis about the efficiency of the financial markets. He stated that the prices should reflect all relevant information at any given point. The hypothesis is divided into three different forms: weak, semi-strong and strong. The weak form tests whether historical prices are reflected in current prices, meaning that no abnormal returns would be possible by only studying historical price data. The semi-strong tests if all publicly available information is reflected, for example earnings reports, mergers and acquisitions and so on, meaning that neither technical nor fundamental equity research would be able to achieve abnormal returns. Lastly, the strong form tests whether prices incorporate both public and private information, which would mean that not even insiders could receive abnormal returns using information that yet has to become public (Fama, 1970).

Assuming semi-strong or strong efficiency would therefore mean that equity research, traditional or sponsored, should not be able to affect stock price since this kind of information already should be incorporated in the price. This is especially true if one assumes that the research does not contain any new information formerly unknown to the public, which of course, is debatable.

3.2 Earlier research

Lidén (2006) looked at how stock recommendations in Swedish printed media affected stock prices using a buy-and-hold abnormal return methodology for the period 1996-2000. This is much like a regular event study but also looks at price changes in up to 24 months after the event date. The result showed that buy-recommendations mislead the investors regarding returns, while sell-recommendations yielded return in line with the market (when short selling). According to the author, the reason for this result is that negative corporate news is more easily interpreted than good news (Lidén, 2006).

Loh and Stulz (2010) discuss the effect of analysts' recommendations between 1993 and 2006 in the U.S. According to the authors, only 12 per cent of recommendations are influential on stock prices. These changes are more likely to occur if they come from well-known analysts, if they are contrarian to consensus or if they are issued on smaller growth firms with high

institutional ownership. This means that even if there is an explicit recommendation from the analyst, the market rarely adjust their views of the valuation of firms, at least not on a significant level (Loh & Stulz, 2010).

A similar study was done for year 1997 to 2003 by Altinkılıç and Hansen (2009) that found low impact from recommendation changes on stock prices. The authors view analysts as mere followers to recent corporate news, meaning that analysts often quickly update their recommendations upwards after positive news and downwards after negative news. The results indicate that the market does not view recommendation changes as informative, but rather just a rendering of earnings reports (Altinkılıç & Hansen, 2009).

In the paper *Information content of equity analyst reports* from 2005, the authors come to a different conclusion on the contents and the information that security analyst reports contain based on data between 1997 and 1999. They showed that the price target not only affect the stock price, but revisions to the target has a stronger market reaction than an equally large revision of earnings from the firm itself. This means that the market both think that the analyst provides new information and provide an interpretation of already public information (Asquith, et al., 2005).

Derrien and Kecskés (2013) state that when firms lose analyst coverage, the cost of capital increases which leads to lower investments, financing and payout, while at the same time, the information asymmetry increases. This means that it is costly for a firm to lose analyst coverage financially, especially for constrained firms (Derrien & Kecskés, 2013).

An event like that of sponsored equity research is the credit rating. This is because it has the same cost-structure where the firm must pay to be researched which can induce a conflict of interest. According to the paper written by Holthausen and Leftwich (1986) on the American market, the reaction to a credit rating announcement is asymmetric, meaning that there were a significant negative effect on the downgrades done, while the upgrades showed no average excess stock return (Holthausen & Leftwich, 1986).

There exists a theory of moral hazard for investors, where they cannot know whether a firm is a good firm, or a so-called 'lemon' meaning that an investor does not know if the firm will engage in safe or risky projects. Boot and Milbourn (2006) discusses this in the perspective of credit rating as a coordination mechanism. They mean that there exist several different equilibria for a firm's stock since its impossible for outsiders to know whether a firm is a good or a 'lemon' type of firm. The authors state that much of the previous research done on the topic

of credit ratings neglects the part where credit ratings act as a coordination mechanism, or as they call it, a focal point between the firm and the outside investors. They therefore mean that credit rating agencies play an important role in the financial markets (Boot & Milbourn, 2006).

It is obvious looking at the previous research that none has performed an event study on the new type of issuer-sponsored equity research. There is no clear result on whether traditional equity research yield a positive abnormal return, but some studies show that like that of the credit rating, there are asymmetric returns; negative announcements result in a negative abnormal return while positive announcement does not. It is also debatable if equity research is seen as new information or just a rendering of previous earnings announcement from the firm itself. The question is therefore if the sponsored equity research, which in some way is a combination of the information given by a traditional equity research and the cost-structure as that of a credit rating, is any different. All three also contain obvious conflicts of interests, especially the sponsored equity research which in some cases are clearly labeled as marketing material.

4. Methodology and data

Section 4 describes the methods and the data used to answer the question stated in the introduction. This mean that the event study methodology is thoroughly described and which firms that were eligible for the study.

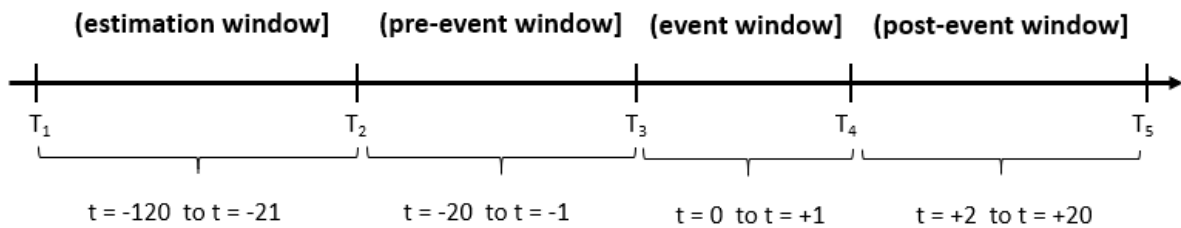
4.1 Event study

To measure the effect of economic effects on firm value, event studies are commonly used. The requirements to perform an event study is financial market data (stock prices and event data) and a definition of the event and the event window.

4.1.1 Event definitions

In this paper, the ‘event’ is the publishing of a sponsored equity research which will be set to $t=0$ and the event window will include the following day, namely $t=0$ to $t=1$. There are also three other windows, the estimation window which is a period of $t=-120$ to $t=-21$ days before the publishing, the pre-event window which is $t=-20$ to $t=-1$ and lastly the post-event window which includes $t=2$ to $t=20$.

Figure 2 Timeline of the event definitions



4.1.2 Abnormal stock returns

Event studies are based on the abnormal return, which is the difference between actual, observed, stock prices and a proxy for what the returns would have been if the event did not occur, called the normal return.

$$AR_{it} = R_{it} - E(R_{it}|\Omega_{i\tau}) \quad (1)$$

where AR_{it} is the abnormal return, R_{it} is the actual return, and $E(R_{it}|\Omega_{i\tau})$ is the normal return for respective firm, where $\Omega_{i\tau}$ states the conditional information used to calculate the expected normal return. To calculate the normal return, I used two methods called constant mean return model and the market model, respectively.

Constant mean return

According to MacKinlay (1997), the most basic model to calculate normal returns is the constant mean return model which assumes that the mean of a given stock is constant over time.

$$R_{it} = \mu_{it} + \epsilon_{it}, \quad (2)$$

$$E(\epsilon_{it}) = 0, \text{var}(\epsilon_{it}) = \sigma_{\epsilon}^2$$

where R_{it} is the return in a given period t on asset i and ϵ_{it} the disturbance term related to the same period and asset. The constant μ_{it} , is estimated from the estimation window to act as a proxy for normal return in the event window. Despite the simplicity of this model, it often yields results similar to that of more advanced statistical models (Brown & Warner, 1980) which is why it is used as a robustness check for the market model, in Appendix C.

Market model

The market model is a statistical one-factor model which assumes joint normality of asset returns and a linear relation between the market return and the asset return. For any asset i , the market model is as following:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \quad (3)$$

$$E(\epsilon_{it}) = 0, \text{var}(\epsilon_{it}) = \sigma_{\epsilon i}^2$$

$$\sigma_{\epsilon i}^2 = \frac{1}{L_1 - 2} \sum_{\tau=\tau_0+1}^{\tau_1} (R_{it} - \alpha_i - \beta_i R_{mt})^2 \quad (4)$$

The α_i and β_i are calculated as the intercept and slope, respectively, from an OLS regression of the individual assets returns on the market return in the estimation window. According to theory, the α_i is the excess return over the return that CAPM assume and β_i is a measure of the systematic risk, namely the sensitivity of an individual asset to the market return. This model has an advantage over the constant mean return model as it removes the variability in the abnormal return based on broad market volatility (MacKinlay, 1997).

These models are used to calculate the normal returns for the event window which are then subtracted from the actual returns of each individual stock. These abnormal returns are then aggregated over time to create the cumulative abnormal return, $CAR_i(\tau_1, \tau_2)$. This is defined as:

$$CAR_i(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_{it} \quad (5)$$

Which asymptotically has the variance:

$$\sigma_i^2(\tau_1, \tau_2) = (\tau_2 - \tau_1 + 1)\sigma_{\varepsilon i}^2 \quad (6)$$

The next step is to aggregate over assets which leads to an average cumulative abnormal return, $\overline{CAR}(\tau_1, \tau_2)$, defined as:

$$\overline{CAR}(\tau_1, \tau_2) = \frac{1}{N} \sum_{i=1}^N CAR_i(\tau_1, \tau_2) \quad (7)$$

$$var(\overline{CAR}(\tau_1, \tau_2)) = \frac{1}{N^2} \sum_{i=1}^N \sigma_i^2(\tau_1, \tau_2) \quad (8)$$

To be able to draw inference about the abnormal returns and to test the null hypothesis of abnormal returns being zero, we must assume that:

$$\overline{CAR}(\tau_1, \tau_2) \sim N(0, var(\overline{CAR}(\tau_1, \tau_2))) \quad (9)$$

The test statistic is calculated as:

$$\theta_1 = \frac{\overline{CAR}(\tau_1, \tau_2)}{var(\overline{CAR}(\tau_1, \tau_2))^{\frac{1}{2}}} \sim N(0,1) \quad (10)$$

(MacKinlay, 1997)

4.2 Data

The phenomenon of sponsored research is large in Sweden. This can be due to a high amount of interest for stocks and due to regulatory matters. Therefore, it is of interest to make a geographical limitation to Sweden and research published by Swedish financial institutes.

4.2.1 Data collection

The collection of the data was done by finding the date on which the initial research on respective firm was published, on the website of the publishing firm. Like stated in section 2, the first sponsored equity research was released in 2003, but not all dates were available from this time. Therefore, the time frame stretches between 2008 and 2019. Again, the equity research firms of interests were Nordea, SEB, Danske Bank, Redeye, Introduce and Jarl Securities since they are the most prominent firms that perform sponsored equity research. A total of 141 equity research was found after sorting out the firms that had their research published in a period too close to its IPO, where stock price data was unavailable for the estimation window. Lastly, the stock price data was collected from Datastream. In Table 1, the distribution of the reports is shown.

Table 1 Number of reports per financial institute

Nordea	19
SEB	12
Danske Bank	3
Jarl Securities	36
Redeye	65
Introduce	6
Total	141

4.2.2 Focus on the event

Most often the product that the firms buy from the financial institutes consists of an initial research and quarterly updates. But the latter is almost always published in close correlation with the quarterly earnings reports which makes the stock price fluctuate because of the quarterly report released by the firm itself. To single out the effect of the publishing of the sponsored research on the stock price, I chose to only include the initial research which can be published any time during a year. Also, I collected the date of the publishing of the annual or quarterly report that was published closest in time, before or after, the publishing of the sponsored equity research. Then a threshold of +/- 5 days was chosen as 'too close to the event', meaning that only firms that had their equity research published more than 5 days before or after their annual or quarterly report was of interest, in an attempt to remove the effect from these events of non-interest. There are several other kinds of news that would affect the stock price, for example different kinds of press releases or other firm related news. These are not considered.

4.2.3 Robustness

To control for robustness in the data, a normality test is performed using Jarque-Bera methodology. This means that the skewness and kurtosis for the data are tested and compared to the values given by the normal distribution. As stated in section 4.1.2, the market model assumes joint normality of asset returns which the test in Appendix B proved not be the case of the CAR used in this sample. That is why the constant mean return model results are shown in Appendix C as a test for robustness for the market model.

5. Empirical results and analysis

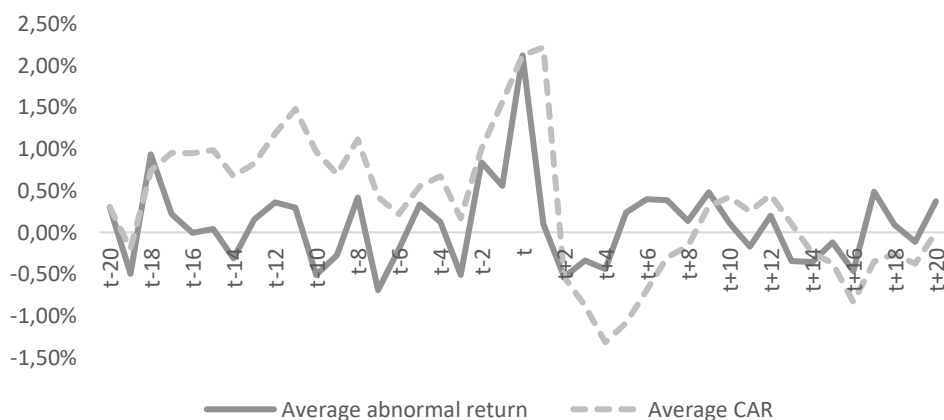
The empirical results from the event study and an analysis is gathered in section 5. First, the event study from all firms are shown, followed by an event study on the equity research published by large banks only, and lastly the study on reports published by the smaller firms only is revealed.

5.1 Abnormal returns and event study

5.1.1 All firms

Figure 3 illustrates the average abnormal return for all the 141 firm, together with the average CAR (also written as $\overline{\text{CAR}}$) from the event period. The average abnormal return is the difference in return between the normal return and the observed returns, while the $\overline{\text{CAR}}$ is a cumulation of these.

Figure 3 The average abnormal return and average CAR for the event period.



We can see that the periods before and after the event, t, are quite stable. But, the average abnormal returns, exhibits peaks at t-2 and t. Two days after the publishing of the sponsored research, the pattern return to a similar shape as before the event but at a smaller magnitude, meaning that the volatility decreases in the period after the publishing. The information provided, or processed, by the sponsored equity research could be a reason for why the market stabilizes after the publishing of a research has been made. This means that the market participants receive homogenous information, much like the theory by Boot & Milbourn (2006), that stated that credit ratings act as a coordination mechanism of information, which therefore could be true for sponsored equity research too. Unlike other types of possible events (earnings announcements, credit up/downgrades), it would be reasonable to assume that there would be higher volatility in the post-event window since the processed information would be read at different periods by different market participants. But this seems to not be the case, but rather

quite the opposite since the difference between the real return and the normal return decreases compared to the pre-event window.

In Table 2, Table 3 and Table 4, the results from the calculation and cumulation of the abnormal returns for the event dates for all 141 firms, for the 34 firms with research published by large banks (Nordea, SEB and Danske Bank) and lastly the remaining 107 reports published by smaller firms (Jarl Securities, Redeye and Introduce) are displayed. The variance and t-distribution are calculated as given by equations 8 and 10, which then is translated to a significance level which describes if the difference between observed and normal return is significant, meaning that there has been an effect from the event happening. The results are divided into pre-event (-20 to -1), event (0 to +1) and post-event (+2 to +20).

Table 2 The result from the event study for all 141 firms

Window	$\overline{\text{CAR}}$	$\text{Var}(\overline{\text{CAR}})$	t-statistic	p-value
-20 to -1	2.04%	0.00027	1.18	0.187
0 to +1	2.25%	0.00001	5.66	0.000***
+2 to +20	0.48%	0.00026	0.28	0.382

* = $P \leq 0.05$, ** = $P \leq 0.01$, *** = $P \leq 0.001$

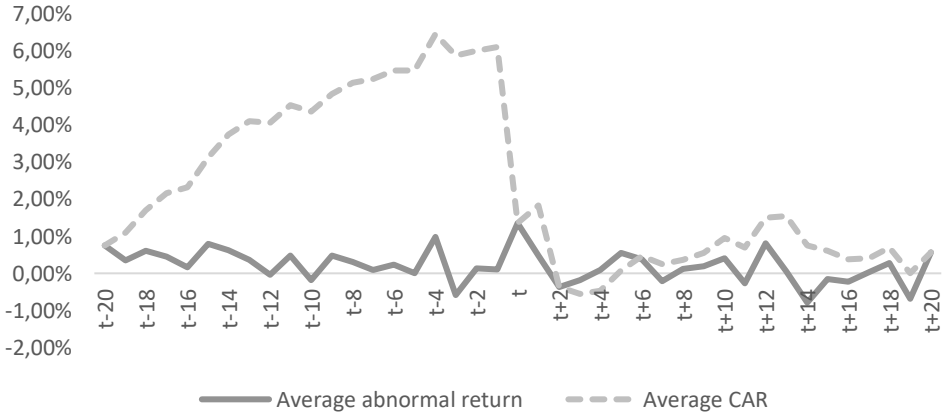
In Table 2, it is obvious that there are on average positive abnormal returns for all three periods, especially in the pre-event and event window. The pre-event $\overline{\text{CAR}}$ is not anticipated but can relate to indications from the firm or the financial institute that a research is about to be published. If the market views this as a positive signal, then there is reason to assume that there will be abnormal returns. But this result is not significant and can be due to high returns in a few firms related to annual reports or other events affecting price. The positive abnormal return of 2.25 per cent in the event period (0 to +1) is highly significant. This means that the market interprets the sponsored research, which some of the firms explicitly calls marketing material, as new information. This result contrasts with the result in the paper published by Altinkılıç and Hansen (2009). They found no effect from traditional equity research on stock prices and that equity research are just a rendering of the annual reports. The paper by Loh and Stulz (2010) did on the other hand, show that 12 per cent of recommendations are influential on stock prices, mostly affected by for example how well-known the analyst is (Altinkılıç & Hansen, 2009; Loh & Stulz, 2010). Those results do however not have a focus on the Swedish stock market like the paper by Lidén (2006). My result, nevertheless, contradict the results by Lidén that showed that there was no positive $\overline{\text{CAR}}$ for buy-recommendations. This would mean that Swedish investors not only think that equity research are providing new information, but even that equity research where the firm has paid to be researched and given the possibility to stop overly

pessimistic research from even being published, are relevant information. There are similarities between sponsored equity research and credit rating but when looking at these results and comparing them to those of Holthausen and Leftwich (1986), the market responds differently. Even though there was no categorization of whether the research was positive or negative (but rather just assumed to be positive), the sponsored research lead to a positive \overline{CAR} , which not upgrades in credit ratings does. Again, the paper was looking at the American market instead of the Swedish, but the comparison is still remarkable. This result is more in line with the result of Asquith, et al. (2005) that showed that the target price is even more affecting the stock price than what earnings announcements are. It is reasonable to think that it might depend on the fact that a common private investor is not capable of interpreting the information given by the firm and therefore a sponsored equity research have an important purpose.

5.1.2 Research published by large banks

Figure 4, show the same thing as Figure 3, but with a focus on the research published by one of the large banks (Nordea, SEB or Danske Bank).

Figure 4 The average abnormal return and average CAR for the event period for research published by large banks only.



On average, the firms that had their sponsored equity research published by one of the large banks had a high pre-event window \overline{CAR} . This means that they performed well above their normal return in the period before their research was published. Another notable thing is that the abnormal return seems to be quite stable both in the pre-event, event and post-event window which could be a result of low, or no, effect from the research being published. The reason for the high pre-event \overline{CAR} , could be other events in the period before, or an anticipation from the market if they get hold of the information that one of the large banks is going to publish a sponsored equity research in the near future, which will be discussed later on. It is also of

essence to remember that this pre-event \overline{CAR} does not affect the event \overline{CAR} as it is divided in to three different periods and not affecting the period before or after.

Table 3 The result from the event study for the research published by one of the large banks.

Window	\overline{CAR}	$\text{Var}(\overline{CAR})$	t-statistic	p-value
-20 to -1	5.90%	0.00049	2.46	0.012*
0 to +1	1.54%	0.00003	2.79	0.004**
+2 to +20	0.50%	0.00047	0.22	0.388

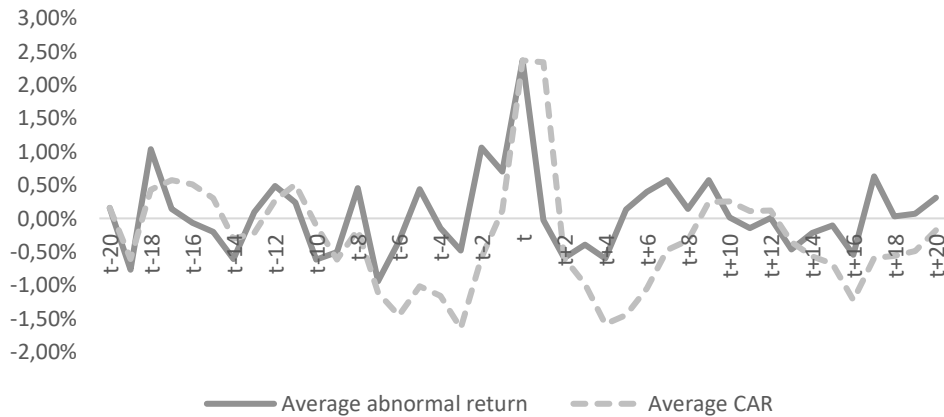
* = $P \leq 0.05$, ** = $P \leq 0.01$, *** = $P \leq 0.001$

Table 3 show the results for the cumulative abnormal returns for the firms that had their sponsored research published by one of the large banks. As we saw in Figure 4, the pre-event window exhibits large abnormal returns that we now can see are significant at a one-star level. These could be related to the mentioned anticipation from the market participants for the coverage from a large bank. The event window has a positive and significant abnormal return that is lower than the one of all firms together. The result from Loh and Stulz (2010), show that this effect from the anticipation could be relevant and that the reputation of the large banks are affecting the effect from sponsored research, but the abnormal returns in the event window proves otherwise. The first reasonable explanation for the low event window \overline{CAR} is that it seems like much of the effect from the sponsored equity research is incorporated in the stock price in the pre-event window, much according to the efficient market hypothesis; if the market knows that positive news will come, it will adjust the price. The extension of this is that the market views this rendering of already public information as new and positive information, maybe as the analogy of the beauty contest where the participants must guess how the other participants are going to react.

5.1.3 Research published by the smaller firms

Figure 5 show the remaining abnormal returns for the firms whose sponsored research was published by one of the smaller firms (Jarl Securities, Redeye and Introduce).

Figure 5 The average abnormal return and average CAR for the event period for research published by smaller firms only.



The sponsored equity research published by one of the smaller firms seems to affect the stock prices more like in Figure 3 (all firms). The main difference is that there are more negative abnormal returns in both the period before and after the event. The volatility does seem to decrease after the publishing has been made which was explained earlier in the text; the market seems to stabilize when the rendered information has been published. There are clear positive abnormal returns in the event window which show that the market reacts positively to the published research, possibly too positive since the price seem to be corrected in the following days.

Table 4 The result from the event study for the research published by one of the smaller firms.

Window	\overline{CAR}	$Var(\overline{CAR})$	t-statistic	p-value
-20 to -1	0.61%	0.00043	0.28	0.382
0 to +1	2.51%	0.00002	5.09	0.000***
+2 to +20	0.47%	0.00040	0.22	0.388

* = $P \leq 0.05$, ** = $P \leq 0.01$, *** = $P \leq 0.001$

The results in Table 4, show that the \overline{CAR} in the event window is higher than both all firms and the firms with a research published by a large bank. The event window \overline{CAR} is significant at a three-star level which mean that the reports that the smaller actors publish has a positive effect on the stock return. The market therefore views these reports as even more informative than those published by the large banks, which can seem counterintuitive. One reason for this could be that the smaller firms has a history of producing these kinds of reports while the larger banks

started publishing these in the last couple of years. This could both affect the credibility of the research itself, but also make the smaller firms the “go-to” for sponsored research. The research published by the banks were done on firms with an average market capitalization of 1174 MSEK, while the smaller firms published research on firms with average market capitalization of 3923 MSEK. This is also unexpected as it would be reasonable to assume that larger firms more often choose to hire one of the larger banks. But the result can also show why the pre-event \overline{CAR} on the large bank research was so high; the smaller firms was affected more by either unrelated events or the incoming research. The opposite would be true for the large firms that show a lower volatility over the pre-event, event and post-event windows.

In Appendix C, Table 7, Table 8 and Table 9 show the same calculations but with the constant mean return model. The results are similar and show the same relationships as that of the market model, but the market model is more responsive to market volatility. This mean that despite non-normality in the data, the result seems to hold even when changing the model specification.

6. Conclusion

Sponsored equity research is a phenomenon that is growing worldwide, especially in Sweden as a result of legislation and increased demand for information. The reputation of the research seems to have experienced an upsurge as the larger banks has started to produce these “pay-to-be-researched” reports. From formerly being viewed as a way for smaller firms to market themselves, to a necessary thing to be able to reach out to both private and institutional investors. Based on what Derrien and Kecskés (2013) state, firms face a higher cost of capital while at the same time, the information asymmetry increases when a firm loses analyst coverage. With a declining number of equity analysts worldwide and a tougher competition between investment banks, there are less possibilities for smaller firms to receive coverage. This results in a higher need for equity research that the banks can earn money on and the answer to this is sponsored equity research.

There has been, to the best of my knowledge, no earlier research on how the sponsored equity research affects stock prices in the short run, but more on how traditional equity research affects stock prices. There are differences between sponsored and traditional research mainly on how they are paid for, but also in the way they are formulated as traditional research are published without the consent of the firms being analyzed and most often contain a recommendation to either buy, sell or hold. However, when the research is sponsored by the researched firm, there are seldom any recommendation, but most importantly, the firm can in some cases choose to forbid the publishing of the research if they find it too negative, since they are the actual customer paying for it. There are therefore incentives for the institute that produce the research to be too positive in their analysis and target prices to keep the customer. These are all reasons to assume that the stock price should be unaffected by the publishing of this kind of research. Altınkılıç and Hansen wrote in their paper in 2009, that the information in equity research are almost solely a rendering of already public information. According to the efficient market hypothesis, this mean that all information published in the research are already incorporated in the stock price. It would therefore be reasonable to assume that these should not create any abnormal returns at all.

To answer the questions asked in the introduction, an event study was performed on 141 different firms, first with all firms included, but then divided into those published by a large bank and those published by a smaller firm.

Looking at all firms, there is positive abnormal return in the event period. This means that the market, in contrast to the efficient market hypothesis, view this as new and positive information even though most of it is already known, and some of the firms state that the research should be viewed as marketing material. In the event study, it is also possible to see that the volatility decreases after the publishing has been made which could be interpreted as the market stabilizes as more people receive all relevant information in the rendering, much like the theory of Boot and Milbourn (2006). The authors in that paper stated that credit ratings act as a coordination mechanism for investors that cannot be sure whether a firm is a good firm, or a 'lemon' firm engaging in risky projects. It could therefore be reasonable to think that sponsored equity research also works as a way for investors to interpret company news and earnings announcements, despite its flaws regarding conflicts of interests. Another result from the event study is that the market seems to react instantly to this kind of research and not over a longer period.

The next test was to see whether the market trusts the large banks, in this case Nordea, SEB and Danske Bank, more than the smaller actors, Jarl Securities, Redeye and Introduce. The findings by Loh and Stulz (2010), was that only 12 per cent of traditional recommendation changes affected the stock price. It was more likely that the recommendation influenced the stock price if the analyst was well known. If the large banks are more well known than the smaller firms, it was therefore interesting to see that the opposite was true; the \overline{CAR} in the event window was higher for the research that was published by the smaller firms. On the other hand, the pre-event \overline{CAR} was much higher in the case of the large banks. Maybe because the market receives information about the fact that an equity research will be published on the firm and therefore assumes it to be positive news, even before it has been published.

The conclusion is that the market view sponsored equity research to be positive information no matter if it is a large bank or a smaller firm that publish it. This despite that the reports in a large extent are a rendering of already public information, and the obvious conflict of interest between the financial institute and the firm being researched. The sponsored equity research even generates a positive abnormal return which papers like Lidén (2006) and Holthausen and Leftwich (1986) did not find in traditional equity and credit research. There are therefore incentives for firms to pay for sponsored equity research from a stock perspective, while at the same time, their cost of capital should decrease.

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Appendix A – List of the firms with a published sponsored equity research

Table 5 All firms with a sponsored equity research, research house and date of publishing

Research house	Firm	Date of initial research
Nordea	ADDvise Group	2017-10-02
https://research.nordea.com/CommissionedResearch	Cantargia	2018-05-09
	CLS	2018-07-09
	Copperstone Resources	2018-09-28
	DDM Holding	2017-05-31
	Eastnine	2017-10-18
	Elanders	2018-11-27
	Ferronordic Machines	2018-10-03
	Idogen	2018-12-19
	Magnolia Bostad	2017-12-12
	MedCap	2017-04-06
	Moberg Pharma	2018-08-20
	Orexo	2018-06-27
	Raketech Group Holding	2019-03-06
	SBB	2018-05-25
	Saniona	2018-06-29
	Serneke	2018-12-07
	Starbreeze	2018-03-06
	Xbrane Biopharma	2018-04-06
SEB	Actic	2018-04-23
https://research.sebgroup.com/corporate	Alligator Bioscience	2018-10-15
	Bactiguard	2018-04-23
	Balco	2018-11-26
	Bergs Timber	2018-11-30
	Cibus	2018-10-16
	Clavister	2018-06-14
	Global Gaming	2018-12-10
	KappAhl	2018-04-23
	MQ Holding	2018-04-23
	SSM	2018-04-23
	Tobii	2019-01-24
Danske Bank	SyntheticMR	2018-01-15
https://research.danskebank.com/research/#/	Zenikor	2018-05-09
	GomSpace	2018-06-29
Aktiespararna/Jarl Securities	Kungsleden	2018-05-24
https://www.catcap.com/sv/analysupdrag/	Gunnebo	2019-01-16
	FastPartner	2016-08-31
	Coor	2016-05-24
	Nobina	2015-12-14
	Boule Diagnostics	2017-05-29
	Precise Biometrics	2016-10-07

	Consilium	2014-12-17
	Biovica International	2018-09-11
	GHP Specialty Care	2017-09-26
	Magnolia Bostad	2016-05-03
	Saniona	2017-11-30
	Aspire Global	2018-03-09
	Amasten Fastighet	2015-12-16
	Lammhults Design Group	2016-06-16
	Brighter	2015-12-17
	Kancera	2014-03-28
	MaxFastigheter	2017-09-18
	CLS	2016-12-19
	Redwood Pharma	2018-04-05
	Cortus Energy	2013-09-12
	Hanza Holding	2015-03-10
	Absolicon Solar Collector	2017-10-26
	Net Trading Group NTG	2018-01-15
	Savosolar Oyj	2015-10-15
	VA Automotive	2017-01-26
	Immunicum	2017-11-27
	A1M Pharma	2015-09-10
	AdderaCare	2018-02-14
	TargetEveryOne	2017-04-21
	MyTaste	2017-10-18
	Three Gates	2018-02-23
	SpectraCure	2016-12-12
	Miris Holding	2015-06-04
	Peptonic Medical	2015-11-26
	CombiGene	2016-12-19
Redeye	THQ Nordic	2017-06-29
https://www.redeye.se/universe	Stillfront	2016-12-06
	Lagercrantz Group	2015-04-29
	Mycronic	2012-10-04
	Invisio Communication	2009-06-15
	Cherry	2011-02-08
	Fortnox	2018-12-18
	Remedy Entertainment	2018-11-20
	Orexo	2008-08-08
	Redbet	2008-03-03
	Enea	2012-04-03
	Sdiptech	2018-11-19
	Bredband2	2008-11-27
	G5 Entertainment	2017-06-08
	Aspire Global	2018-06-08
	Opus Prodox	2008-06-12

	Systemair	2009-09-17
	ZetaDisplay	2017-03-22
	Christian Berner Tech Trade	2019-03-05
	Funcom	2019-01-28
	Beijer Electronics Group	2019-03-25
	Talkpool	2017-11-13
	Verisec	2015-06-10
	Arise	2011-10-24
	Railcare Group	2018-12-17
	Smart Eye	2017-09-11
	myTaste	2016-03-08
	Sensys Gatso	2009-04-07
	Genovis	2012-04-18
	AVTECH	2015-01-28
	Senzime	2015-02-05
	Westpay	2015-03-05
	Heliospectra	2016-01-11
	Orphazyme	2018-06-27
	Waystream Holding	2016-05-03
	Powercell	2015-09-17
	Sivers IMA	2018-06-13
	Nuevolution	2017-03-30
	ÅAC Microtec	2018-05-08
	Bong	2008-09-10
	Xspray Pharma	2018-03-21
	Clavister	2017-06-12
	Image Systems	2018-04-13
	Acconeer	2018-10-17
	Targovax	2017-01-26
	Gapwaves	2018-03-15
	SciBase	2017-03-31
	Karolinska Development	2018-06-28
	Starbreeze	2018-02-06
	XMReality	2017-11-21
	Episurf Medical	2018-04-17
	Bioinvent	2012-11-12
	Neonode	2016-09-12
	Fingerprint Cards	2016-04-18
	Spago Nanomedical	2014-05-16
	Isofol Medical	2017-10-25
	Immunicum	2013-11-07
	Cantargia	2016-10-07
	Anoto	2014-10-13
	Alzinova	2019-01-23
	Respiratorius	2014-07-21

	Annexin Pharmaceuticals	2018-09-27
	LIDDS	2015-07-09
	Idogen	2018-06-08
	Eurocine Vaccines	2012-06-05
Introduce	Allgon	2019-03-21
https://www.introduce.se/	Artificial Solutions	2019-03-22
	Dome Energy	2019-03-12
	Crown Energy	2018-12-19
	Future Gaming Group	2018-05-14
	Ovzon	2019-01-28

Appendix B – Jarque-Bera test for normality

Figure 6 Histogram over CAR for event period

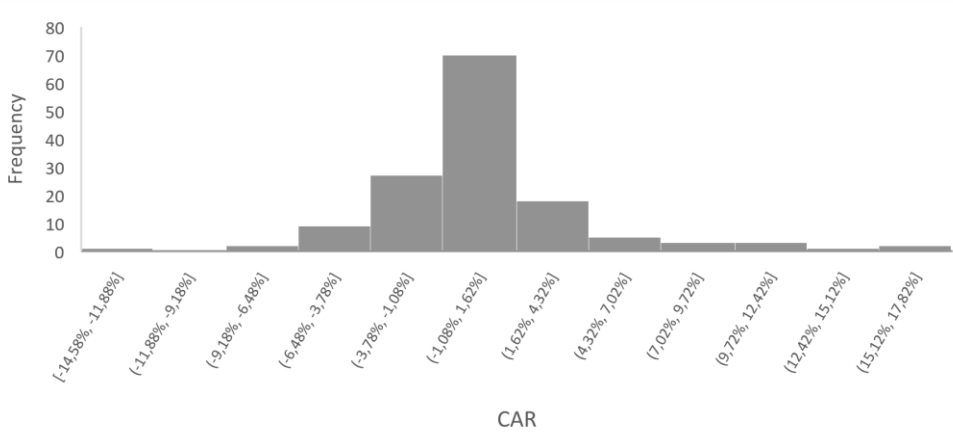


Figure 6 show the distribution of the CAR for the event period for all 5781 observations. Financial data is seldom normally distributed, and this histogram indicate non-normality with a high peak at the mean and fatter tails than normal.

To test for normality, the Jarque-Bera test is conducted. The test statistic is calculated as:

$$JB = N \left[\frac{S^2}{6} + \frac{(K-3)^2}{24} \right] \tag{11}$$

where S is the skewness and K is the kurtosis of the distribution. The result is shown in Table 6A.

Table 6 Jarque-Bera test for event window observations

Observations	5781
Excess kurtosis	6.97
Skewness	0.34
χ^2	11807.67
χ^2 p-value	0.00

The excess kurtosis and skewness are significantly different from those of a normal distribution at a 1%-level. It is therefore possible to reject the hypothesis that the data is normally distributed. Due to the high number of observations, the central limit theorem applies meaning that if the observations are identically and independently distributed, the sum of these are asymptotically normal (Wooldridge, 2013).

Appendix C – Event study based on the constant mean return model

Table 7 The result from the event study for all firms with the constant mean return model

Window	$\overline{\text{CAR}}$	$\text{Var}(\overline{\text{CAR}})$	t-statistic	p-value
-20 to -1	2.80%	0.00028	1.66	0.101
0 to +1	2.35%	0.00001	6.08	0.000***
+2 to +20	1.04%	0.00027	0.63	0.327

* = $P \leq 0.05$, ** = $P \leq 0.01$, *** = $P \leq 0.001$

Table 8 The result from the event study for the large banks with the constant mean return model

Window	$\overline{\text{CAR}}$	$\text{Var}(\overline{\text{CAR}})$	t-statistic	p-value
-20 to -1	6.75%	0.00053	2.95	0.005**
0 to +1	1.76%	0.00003	3.35	0.001***
+2 to +20	1.37%	0.00050	0.61	0.330

* = $P \leq 0.05$, ** = $P \leq 0.01$, *** = $P \leq 0.001$

Table 9 The result from the event study for the smaller firms with the constant mean return model

Window	$\overline{\text{CAR}}$	$\text{Var}(\overline{\text{CAR}})$	t-statistic	p-value
-20 to -1	1.34%	0.00044	0.64	0.325
0 to +1	2.57%	0.00002	5.33	0.000***
+2 to +20	0.91%	0.00042	0.45	0.361

* = $P \leq 0.05$, ** = $P \leq 0.01$, *** = $P \leq 0.001$