Stockholm School of Economics
Department of Finance
Bachelor Thesis in Finance

Does it Pay to Read the Newspaper?

- An Analysis of News' Impact on Stock Prices

According to the Efficient Market Hypothesis stock prices should be affected by the release of new information. In this paper we analyse the effect of newspapers on stock prices provided that the newspapers do not have access to private information. To find an answer to this question, a random sample of stocks from OMX Stockholm Stock Exchange have been chosen. Stock data has been gathered together with articles about the stocks in the sample. The articles have been classified as positive, neutral and negative. That information have been plugged in a set of variables and then regressed with the daily abnormal returns of the stocks. Empirical data shows that newspapers have an overall significant effect on stock's abnormal returns and therefore over stock prices. The conclusion is that the significant effect might come from the fact that newspapers help to overcome information asymmetries between management and stock holders.

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1. INTRODUCTION

Information is the key ingredient in the financial markets and the factor that makes the stock prices change. This entails that the channels from which we get the information are of immense importance. Even though press releases are the main source for information about companies, media is the key channel for supplying the information to current and potential investors.

Recently, one can see an increased interest by companies to control the publicity about them. It is a difference between the information a company wants their stakeholders to get and the information that is delivered in the newspapers' articles. The amount of money spent on reducing this difference is rapidly increasing. According to PRECIS, the trade organization for PR agencies in Sweden, the sales volume of the Swedish PR industry has grown with in average 13.7 % per year since 1994. (PRECIS)

The news papers, on the other hand, are very keen to take credit if companies they have written positively about are successful in the stock market afterwards. This since it can be argued that it strengthens the credibility of the news paper and demonstrates the skills of the journalists. Another interpretation could be that the article in itself is the reason for the success in the stock market. If a journalist writes positively about a company followed by an increase in the stock price, and the increase is due to the publication, the article tends to be a self-fulfilling prophecy rather than a skilful prediction.

Previous studies about media and public companies focuses on buy- and sell recommendations. One example is Canes and Lloyd-Davies who finds evidence that stock recommendations has an impact on abnormal returns of a stock. (Canes & Lloyd-Davies, 1978) A stock recommendation has, unlike the current news reporting, a very clear message. Since it tells the reader to buy, sell or retain a share it makes it very straightforward to examine its effect on the stock price. However, since stock recommendations only represents a limited part of all the news published about a company there is limited opportunity for using the result to discuss broader questions dealing with the situation described above: How much power is in the hands of the journalists? If the power is considerable, which implications does that have? Are publicists a major source of power

over the financial markets? Is this power limited to create shocks in the short-run or does it have long-run consequences? Are the fast growing PR industry an indication of an increasing power of media?

In this thesis we will try to shed light on some of these questions by executing a quantitative study. *The study examines if news, written in a positively, neutral or negative manner about a company, have a significant impact on the abnormal returns of the stocks on the publication day given that the newspapers do not have access to private information.* Unlike most previous studies, news from continuous reporting is used.

1.1 Purpose

The purpose of this study is to examine if the information in an article about a company, published in a printed Swedish newspaper, has any impact on the price of a certain company´s stock on the publication day.

1.2 Delimitations

- We analyse news articles from six different newspapers. In order to get the articles most relevant for all types of stock owners we have chosen six newspapers from two different segments. Dagens Nyheter, Svenska Dagbladet and Dagens Industri have been chosen since they have a large scope and are printed daily. Affärsvärlden, Veckans Affärer and Privata Affärer are chosen since we think they are relevant papers with focus on stocks and financial markets.
- The study is limited to a random selection of ten companies from each of three size lists (Large Cap, Mid Cap, Small Cap) of the Nasdaq Stockholm OMX. This makes totally 30 companies.
- The study is limited to news published during the period of January 1, 2005 to December 31, 2009.
- We have only taken into account articles naming the company names in the introduction. That might constrain the number of news.
- We only look at the short run effect, in other words the effect of publications during the publication day.

1.3 Outline

In this section the reader gets an indication of what the thesis is all about. In *Section 2* we will present some theories that will be used in the analysis, both financial theories like Efficient Market Hypothesis and communication theories. In *Section 3* we will serve some background related to the topic and provide an overview of previous studies that deals with related topics. In *Section 4* we will describe our data material and how we did collect and classify it. In *Section 5* we give the reader a review of the statistical methodology we have used when performing our research. In *Section 6* we will present the result of our empirical study. Our analysis will be presented in *Section 7.* Finally, *Section 8* provides the primary conclusions of the thesis and suggestions for further research. Here we also bring up some critique of why our results may not hold.

2. THEORETICAL FRAMEWORK

The research question of this paper has connections to several well known financial theories. Some of those are essential for the understanding of the analysis of this paper which is the reason why they will be presented briefly. The financial theories that will be described are the Efficient Market Hypothesis, the Principal Agent Theory and Price Pressure Hypothesis. There use will be mainly to explain abnormal returns, fluctuation in liquidity and the effects of information. We will also give a review of some theories from the field of communication research, which is related to our study.

2.1 Efficient market hypothesis

The Efficient Market Hypothesis (EMH) is about asset pricing and the effect of information on asset prices. The main assumptions of the theory are "fair" pricing of assets and the random walk phenomenon. With "fair" pricing it is meant that given all available information, the price of a certain asset is the right price. This comes from the fact that arbitrage opportunities should not exist in a market where all participants have access to the same information upon the asset valuation is based. The random walk phenomenon is what happens to the price of a certain asset when new information is released. As said before, the valuation of a certain asset is influenced by the available information; that includes possible future events. New information will therefore affect the value of the asset in a certain way depending on the kind of information (if it is positive or negative). That kind of information has to come randomly since if it was predictable it would already be incorporated in the current value of the asset. Because of that, asset prices move randomly when new information is revealed. When that happens, the market adjusts rapidly into a new equilibrium (new "fair" price) that takes the new information into account. (Fama, 1970)

There are three versions of the Efficient Market Hypothesis: weak form, semi-strong form and strong form. What differs between those versions is the assumption of what kind of information that is already incorporated in the value of a certain asset. According to the weak form, all information that can be derived from analysis of historical trade statistics of a certain asset such as prices and trade volumes is already accounted for in the current price of the asset. This implies that no profits can be made with trading strategies based on historical data analysis. (Fama, 1970)

The semi-strong form implies in addition to the information assumptions of the weak form that fundamental data and other public information about the company is already accounted for in the price of the asset. Examples of such information are annual reports, press releases, news articles, quality of management of the company, patents and development forecasts. This information can usually be accessed easily by investors. That is the reason why investment strategies based on public information should not provide any abnormal returns over time. (Fama, 1970)

The most extreme version of the Efficient Market Hypothesis is the strong form. According to this form, all possible information, both public and private, is accounted for in the price of a certain asset. As an example, this implies that insider information is already accounted for in the price. The reason is that individuals having access to private information will trade and push the equilibrium in such a way that the new price of the asset will reflect the publicly unknown information. In this extreme case most research about a certain asset to construct an investment strategy will not gain any abnormal returns. According to Fama, this form should be regarded as a benchmark against which deviations from market efficiency can be judged rather than as a description of reality. (Fama, 1970)

2.2 Principal Agent Theory

According to this theory there is an information asymmetry between the principal and the agent. The principal can be an investor with a stake in a company and the agent can then be the manager of that company. What is special about the relation is that the agent is supposed to make something on behalf of the principal in exchange for some kind of reward, often monetary. According to Ross, a viable assumption is that both the principal and the agent have utility functions they try to maximize. However, a problem arises when there are situations when the agent maximizes his utility function by taking decisions that are not optimal for the principal. (Ross, 1973) To avoid this, the principal can chose to design a certain system that assures that the interest of the agent coincide with the interest of the principal or the principal can set up a remuneration system that rewards decisions that are convenient for the principal. The latter solution gives rise to a cost that is regarded as the agency cost which the principal wants to minimize. The solution is to try to solve the agency problem in the first way; make the interest of the agent to coincide with the interest of the principal. Furthermore, there is as said before an information asymmetry; the agent often

knows more than the principal. This might lead to decisions made by the agent that are good for him, but not optimal for the principal that the principal cannot affect since he is not aware of them. Therefore, when designing a system to overcome agency problems and minimize agency costs one must take into account that the system should also act to diminish the amount of asymmetric information. This can be through an efficient reporting system. (Baker, Jensen, & Murphy, 1987)

2.3 Price-pressure hypothesis

In the market, for example the stock market, there is always a certain amount of stocks on trade. The reason for the exchange is not necessarily always coupled to new information but can represent attempts to rebalance portfolios or get cash for consumption. When a larger block holder wants to sell or buy a larger stake or when a group of investors for some reason wants to sell or buy stocks a trading pressure is created since the normal trading volumes are over passed. According to Scholes, in the case of a sale of a large stake, other market participants require, in the absence of new information, a lower price in order to accept to buy the offered stocks. Since there is an obvious excess supply, a lower price is thought to induce market participants to buy the stocks due to their current higher return. The higher return comes from that given the current information the stock is worth a certain price since that assures a certain amount of future cash flows. If the stock can be bought at a discount, then the return of the stock will be higher. The price divergence works the same the other way around; if someone wants to buy a large stake, then a premium must be offered to convince stockholders to sell. (Scholes, 1972)

In general, this divergence from the "fair" price is the essence of the Price Pressure Hypothesis. According to this theory, asset prices might diverge temporally from the efficient price due to fluctuation in the liquidity of the asset; no new information is coupled to these movements. This theory is thought as a complement to the efficient market hypothesis. (Scholes, 1972)

2.4 Communication theory

In the field of communication theory there are some theories relevant for this study.

2.4.1 Media effects

Media effect is theories about how mass media affect their audience, and their way to think and behave, in different ways. The last decade, the field of media effect has emerged by pending between different beliefs about the way media impact on their audience. The early theorists argued that media has a very strong influence. They meant that media had the power to shape opinions and beliefs, change habits of life and mould behaviours, all according to the will of the person controlling the media.

These ideas were followed by a contradicting view having less belief in the strong influence of media. For example when the sociologist Joseph Klapper in 1960 gave a summary of previous research he concluded that 'mass communication does not ordinarily server as a necessary cause of audience effects, but rather functions through a nexus of mediating factors'. Another related conclusion was the *Selective Exposure Theory* stating that a person prefer to be exposed to articles supporting their current views.

However, this weak confidence in the influence of media was later criticised. This since it was accused to focus too much on short-term effects on individuals rather than having a broader view.

The most recent research on media effects can be seen as a compromise between the power of media and the power of individuals to choose their beliefs. It is described as a continuous negotiation between the media and its audience. The process is also strongly influenced by the social context of the receiver. (McQuail, 2005)

3. LITERATURE AND BACKGROUND

There is little previous research on how general news reporting about companies impact on their share price. The more is written about how a buy- or sell recommendation, published in a newspaper, affects the share price of a company. Here we will give a review of the international and Swedish research in the topic.

3.1 International research about stock recommendations

There have been done many international studies about the effect of stock recommendations on abnormal returns. The intention of these has been to test if the Efficient Market Hypothesis holds. Early studies of the topic could not find that stock recommendations have any impact on the stock prices, and hence are of no value for the investors (examples are: Diefenback (Diefenback, 1972) and Logue and Tuttle (Logue & Tuttle, 1973)). However, these studies were performed using recommendations made by brokerage houses rather than journalists.

Canes and Lloyd-Davies is the first study that uses stock recommendations written by journalists and published in a newspaper to test their impact on the price of a stock. Recommendations from the "Heard on the Street" column in The Wall Street Journal are used in the study. In addition to testing if there is a significant effect the study also tests if there is any difference between buy and sell recommendations and if a possible effect is reversed later on or if it is permanent. Canes and Lloyd-Davies find that stock prices do adjust when recommendations are revised but that information is not immediately fully reflected in the stock price, if given to a limited number of investors. (Canes & Lloyd-Davies, 1978)

Liu, Smith and Syed verify the result by Canes and Lloyd-Davies by making a similar study but with updated data. In addition to this they also find that there is a small effect on the stock price the days prior to the publication day and that if a recommendation focuses on one company at a time the impact is even larger. The study cannot find evidence for any difference between buy and sell recommendations. (Liu, Smith, & Syed, 1990)

These studies have been followed by a number of modified studies which confirm that recommendations generate abnormal returns. For example; Beneish, who continue to test

the "Heard on The Street" column but also controls for confounding releases. (Beneish, 1991) Huth and Maris, whose study on "Heard on The Street" is made with data from a "bull" market period, also taking into account differences between small and large companies finding that firm size is important only for negative comments. (Huth & Maris, 1992) Another analysis has been made by Barber and Loeffler who looked at stock reactions following publication of a recommendation in the column "Dartboard" in *Wall Street Journal*. (Barber & Loeffler, 1993)

However, more recent studies has shown that for long-term traders there is no abnormal return associated with a strategy where an investor is trading based on the information in published stock recommendations. Examples are Mathur and Waheed who analysed stock price reactions to the "Inside Wall Street" column in *Business Week* and Liang who analysed stock price reactions to the "Dartboard" in *Wall Street Journal* finding that an investor who follows the recommendations over a 6 month holding period will lose 3.8% on average on a risk-adjusted basis. (Mathur & Waheed, 1995) (Liang, 1999)

3.2 Swedish research about stock recommendations

There have been a few similar studies made with Swedish data and they confirm the impact found in most of the international studies. Lidén uses recommendations in printed Swedish media (Affärsvärlden, Aftonbladet, Finanstidningen, Göteborgsposten, Privata Affärer and Veckans Affärer) to study stock price reactions. As a support for the price pressure theory the study found that buy recommendations has an effect on the publication day but the effect is reversed after 20 days. Although, sell recommendations has a significant lasting effect as well, something that supports the information hypothesis which means that the news actually adds new information to investors and the effect is lasting. Lidén also concludes that recommendations written by journalists have a larger effect than recommendations written by analysts. This could be explained by that analysts usually hand their information over to clients before publishing which would partially include the information in the price before the publication day. (Lidén, 2001)

In the light of that the Internet has increased the availability of information. Bratsberg and Larsson tested the hypothesis that the market is more efficient today (2003-2007) than before the IT revolution (1991-1995). The study is performed with recommendations by

journalists published in the Swedish newspapers Veckans Affärer and Affärsvärlden and they confirm Lidén's result. However, any difference between the periods could not be proved. (Bratsberg & Larsson, 2007)

4. DATA

4.1 Stock data

In order to make the analysed topic manageable, the analysis has been restricted to a random subsample of the stocks listed in Stockholm Stock Exchange. Taking ten stocks from each list; large cap, mid cap and small cap will give a total sample of 30 stocks which should be regarded as representative for the entire population since they are chosen randomly. The daily prices of the stocks were gathered from the Nasdaq Stockholm OMX, the official site of Stockholm Stock Exchange. (Nasdaq) The period ranges from 2005-01-01 to 2009-12-31. The data is corrected for splits. It is important to note that some of the chosen stocks have been listed in the stock exchange during a shorter period than the analysed period. To adapt data to a viable format, the daily prices have been converted into daily returns.

In order to be able to analyse the fluctuation of trading volume, data about that was also gathered for all analysed stocks. The trading volumes where then converted into daily percentage changes so we could be able to analyse the change in asset liquidity.

Press releases from the companies where gathered from the database Affärsdata. (Affärsdata) A dummy variable was created to denote the dates when there was a press release.

The list of chosen stocks is:

Large Cap	Mid Cap	Small Cap
Tele2 A	Sectra B	FeelGood
Trelleborg B	Niscayah Group B	Rörvik Timber B
Electrolux B	Haldex	AcadeMedia B
Stora Enso R	SWECO B	Rejlerkoncernen B
SEB A	IFS B	HMS Networks
Kinnevik B	Biovitrum	Artimplant B
Lindab B	HiQ International	Midelfart Sonesson B
Lundbergsföretagen B	Unibet Group	Coastal Contacts
Swedish Match B	Duni	XANO B
Husqvarna B	Betsson B	Svolder B

4.2 Market portfolio data

In our analysis, in order to create abnormal returns, we need to have an estimate of the market portfolio. The index OMX Stockholm All Share has been chosen as a proxy for the market portfolio. This index mimics the market since it contains all the listed stocks with their real weight. (Nasdaq) The index numbers where converted into daily returns to fit the rest of the data.

4.3 Newspapers

First, the most important thing is to find out which relevant newspapers are the biggest in the Swedish media market. To make the analysis manageable, primarily the most essential newspapers have been picked. Using a report about coverage from the trade organisation Tidningsstatistik we have identified the following newspapers as the most essential:

Newspaper	Average Coverage 2005-2009 (readers)
Dagens Nyheter – Ekonomi (DN)	885 600
Svenska Dagbladet – Näringsliv (Svd)	490 800
Dagens Industri (DI)	400 000
Privata Affärer (PA)	251 800
Veckans Affärer (VA)	115 600
Affärsvärlden (A)	112 200

(Tidningsstatistik AB, 2010)

The last newspapers, PA, VA and A, though they have a more limited coverage than the first ones, they have been chosen since they are specialized in business which implies that their readers in a larger extent are active on the market.

4.4 Collecting and classifying the news

After chosen the six most essential printed newspapers, articles about the chosen stocks were taken from the database Affärsdata. In order to improve the accuracy of the search, only the articles naming the company name in the introduction where chosen. The reason is that we wanted to avoid analysing articles that did not have the company as its main topic.

4.4.1 Classification factors

The articles where read and classified as positive, neutral and negative based on the kind of content. The classification was partly based on some basic assumptions that are listed in the

Appendix 1. Those assumptions are based on corporate finance theory, but also on common sense. For example, if a company gets a new important customer it is unequivocally positive and there is no reason for further analysis. Most of the pre-decided classifications are of this kind. For the kind of news where there is any uncertainty about if the news is positive, negative or neutral we have made a classification based on corporate finance theory. To do this, we have used the book *Financial Markets and Corporate Strategy,* by Grinblatt and Titman, to examine what the essence of the theories and empirical evidence reveals. (Grinblatt & Titman, 2008) For example, if a company increase the debt rate we make the conclusion that it is neutral since capital structure does not affect the firm value according to the Miller-Modigliani theorem. (Modigliani & Miller, 1958) The most important thing with the classification list was to achieve a uniform classification of the news.

4.4.2 Linguistic analysis

To give a more accurate classification, the "mood" of the article was taken into account looking at the kind of words used and the formulation of the information. E g neutral news reported in a positive and emotive way where classified as positive since investors reading the very same article would probably perceive that information as positive as well.

5. METHODOLOGY

Our research question makes it straightforward to design a test to test the effect of news articles on stock prices. The null hypothesis is that the stock prices do not move significantly due to the content of the news articles on the publication day. Naturally, the alternative hypothesis is that there is a significant effect, in other words, abnormal returns of stocks can be explained significantly by published articles. The test can be summarized in the following equations:

$$H_0: \quad \delta_P = \delta_0 = \delta_N = 0$$
$$H_1: \quad \delta_P \neq 0, \quad \delta_N \neq 0$$

Coefficients for the dummy variables for news articles:

$$\delta_P : Positive \quad \delta_0 : Neutral \quad \delta_N : Negative$$

As can be seen, the neutral variable is taken into account to control if there are some fixed publicity effects. If there are no publicity effects, then the coefficient of the neutral dummy variable should be insignificant.

5.1 Statistical analysis

In order to capture the newspapers' effect on the stock prices, data must be handled in a certain way. First, abnormal returns (AR) where created for the stocks subtracting the daily returns with the daily changes in the market portfolio, in our case OMX Stockholm All Share index. As can be seen, we have used a simplification of the CAPM relation to compute the abnormal returns; alpha was assumed to be zero and beta for all stocks was assumed to be 1. The reason for that is that we else would have to use the same data twice, one time for the estimation of the stock's alpha and beta and a second time for our analysis. Since the beta value is used for small amounts (daily returns) the assumption might not give too biased results. It is important to know that the average value of the beta for all stocks is one; some of the companies in our set have higher betas and others have lower, but the effect should be limited in the cross-sectional set since the market have beta one. The procedure to compute the abnormal returns is: (Wooldridge, 2009)

$$R_n = \frac{P_n - P_{n-1}}{P_{n-1}}$$

$$AR_n = R_n - E\left(R_n | R_{Market}\right)$$

$$E\left(R_n | R_{Market}\right) = \alpha + \beta \cdot R_{omxallshare} \quad \alpha = 0 \quad \beta = 1$$

$$P = clo\sin g \; price$$

When the daily abnormal returns have been calculated, the dummy variables for the news from the different news providers where merged to three dummy variables; one positive, one neutral and one negative. Then, all data was merged into one document containing two panel variables to distinguish the companies. One panel variable tells which company it is and the other panel variable tells on which list the company is listed.

Since data is in panel form, we have run fixed effects regressions where the panel variable is the company identification variable. In that way, the average effect of the news on the stock price can be measured at the same time one solves the endogeneity problem since the effect of every certain firm is captured by the intercept.

One problem with this approach is that there are official press releases that affect the stock price. If a certain article is published the very same day, it is hard to know if the effect on the stock price comes from the official release or the news article. To solve this issue, we have used two methods. The first one was to incorporate the dummy variable for the press releases in the regression. The second method was to drop all observations where there was an official press release and then run the regression using only the news article dummy variables. Our regression models can be described with the following equations:

With the press release dummy:

$$\Delta(AR)_{it} = \alpha + \delta_P \cdot \Delta(POS)_{it} + \delta_0 \cdot \Delta(NEU)_{it} + \delta_N \cdot \Delta(NEG)_{it} + \delta_{press\_release} \cdot \Delta(PRESS) + \Delta u_{it}$$

$$i = 1,2,3...29,30 \quad company \; identifica \; tion$$

$$t = time \; period$$

$$\alpha = fixed \; effects$$

(Wooldridge, 2009)

The second regression, done after that the observations with press releases has been dropped is:

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$$\Delta(AR)_{it} = \alpha + \delta_P \cdot \Delta(POS)_{it} + \delta_0 \cdot \Delta(NEU)_{it} + \delta_N \cdot \Delta(NEG)_{it} + \Delta u_{it}$$

(Wooldridge, 2009)

Since these equations describe fixed effects regressions, the capital deltas in both equations describe that it is the difference of the dummies (observation at time t minus observation at time t-1) that is regressed with the difference in abnormal returns. (Wooldridge)

To analyse newspapers' effect on liquidity of the stocks, we have run a regression where the dependent variable is the daily percentage change in trading volume and the independent variables are the news dummies.

$$\Delta(VOL)_{it} = \alpha + \delta_P \cdot \Delta(POS)_{it} + \delta_0 \cdot \Delta(NEU)_{it} + \delta_N \cdot \Delta(NEG)_{it} + \Delta u_{it}$$
$$VOL : daily\ percentage\ change\ in\ volume$$

The aim of this regression is to test if articles affect stock liquidity since that can be used to get alternative explanations to the price fluctuation of stock prices.

All the fixed effects regression has been done in four different settings to compare if there are effects that can be derived from the belonging to a certain list in the stock exchange. The regressions are one for all stocks in the sample and one for each list (large, mid and small cap).

6. EMPIRICAL RESULTS

From the different regressions we have got results which are presented in the tables below. The first table contains the results from the abnormal return regressions and the second table contains the result of the trading volume regressions. There are four different lists: All stocks (All), Large Cap (LC), Mid Cap (MC) and Small Cap (SC). The observations with no drop contain a coefficient for the press releases (PR).

6.1 Abnormal return fixed effects regressions

Condition		Positive News			Neutral News			Negative News			PR		
Drop	List	δ_P	t-val.	p-val.	δ_0	t-val.	p-val.	δ_N	t-val.	p-val.	δ_{PR}	t-val.	p-val.
No	All	.00475	5.26	0.000	-.00016	-0.15	0.878	-.00406	-3.76	0.000	.00189	2.77	0.006
Yes	All	.00456	4.63	0.000	.00022	0.19	0.846	-.00359	-3.15	0.002	-	-	-
No	LC	.00182	1.86	0.062	.00012	0.12	0.908	-.00372	-3.33	0.001	.00043	0.56	0.576
Yes	LC	.00093	0.87	0.385	.00039	0.34	0.737	-.00324	-2.81	0.005	-	-	-
No	MC	.00738	4.46	0.000	-.00493	-1.69	0.091	-.00698	-1.94	0.053	.00404	3.45	0.001
Yes	MC	.00822	4.61	0.000	-.00466	-1.46	0.144	-.00546	-1.36	0.175	-	-	-
No	SC	.02786	4.78	0.000	.00891	1.12	0.265	-.00148	-0.23	0.821	.00167	0.87	0.384
Yes	SC	.02751	4.58	0.000	.00997	1.19	0.233	-.00260	-0.36	0.715	-	-	-

6.2 Volume change fixed effects regressions

Condition		Positive News			Neutral News			Negative News			PR		
Drop	List	δ_P	t-val.	p-val.	δ_0	t-val.	p-val.	δ_N	t-val.	p-val.	δ_{PR}	t-val.	p-val.
No	All	-.13145	-0.47	0.638	-.47369	-0.91	0.361	-.70250	-3.59	0.000	.81722	1.68	0.093
Yes	All	.01668	0.05	0.956	-.27338	-0.43	0.666	-.78299	-4.13	0.000	-	-	-
No	LC	-.16732	-0.55	0.583	-.48798	-0.83	0.408	-.61779	-3.05	0.002	.04870	0.39	0.694
Yes	LC	-.07714	-0.23	0.821	-.32661	-0.44	0.658	-.61445	-2.87	0.004	-	-	-
No	MC	-.06805	-0.10	0.924	-.17556	-0.35	0.728	-.74945	-1.05	0.292	1.7229	2.24	0.025
Yes	MC	.06865	0.09	0.927	-.04315	-0.08	0.936	-1.4006	-3.68	0.000	-	-	-
No	SC	.39253	0.38	0.701	.14799	0.05	0.957	-1.8547	-2.31	0.021	.90059	0.52	0.605
Yes	SC	.69510	0.66	0.508	.25162	0.09	0.932	-1.7565	-2.01	0.044	-	-	-

In the tables above, all dark green fields denote significant coefficients at five percent significance level. The yellow fields denote coefficients significant at ten percent significance level. The joint result for all stocks is that abnormal returns are significantly affected by both the positive and the negative news dummy variables. The affect of press releases is positive and significant. Regarding trade volumes for all stocks, the only significant effect is the one of negative news. Press releases do have an effect, but it is only significant at ten percent level.

When looking at the change in traded volumes, there is an obvious pattern that trading volumes go down significantly when negative news are published, that is true for all lists. However, no significant impact could be found for the neutral and positive news on trading volume.

When analysing data we have had two approaches to correct for the effect of the press releases. Looking at the results above one can see that for the abnormal return regressions, the significance level of the coefficients tend to decrease when the observations with press releases are dropped rather than taken into account in the regression with an extra dummy variable. That do not seems to happen with the volume change regressions.

7. ANALYSIS

Our analysis is based on the fact that news are digested by the market quite immediately. That makes it possible to assume that the entire effect of certain information is shown during the very same day. This assumption is based on empirical observations which have showed that it takes five minutes for stock prices to adjust to new information. (Bodie, Kane, & Marcus, 2008) Below, we will analyse the effect of newspapers on stock prices using our empirical findings.

7.1 Impact of press releases

Looking at our results, one can see that there is a positive effect of press releases on stock price. It is important to stress that our variable for the press releases do not make any difference between positive, negative and neutral press releases. However, the overall effect is positive which might imply that the reported information in the press releases overall is positive: in other words, the positive information from the companies out weights the negative information. One probable explanation why positive news might dominate the reports from the companies is that management is eager to give a positive picture of the company and that problems are portrayed in a positive way. It can be that a certain issue is described as a challenge for success rather than as a real issue. Overall one can say that stock prices move when new information is released, exactly as it is stated in the Efficient Market Hypothesis. On average, every time there is a press release, the abnormal returns of the stocks go up by 0.19 percentage points.

7.1.1 The effect on different lists

The effect of press releases is not so clear when looking at every single list on the stock exchange. In large cap, press releases do not have any significant effect on stock prices. One possible explanation is that the distribution of positive and negative news is more even in larger companies and in that way the overall effect of our press release variable is logically not different from zero. The effect on mid cap is significant; stocks' abnormal return go up on average by 0.4 percentage point if there is a press release. However, that effect is insignificant for small cap. One possible reason for why there are some differences in significance is that the companies in mid cap probably get more attention than the

companies in small cap. In that way the market responds more rapidly to press releases from mid cap companies than to press releases from small cap companies.

7.2 Impact of newspapers

For our entire sample, we got the result that newspapers do impact abnormal returns significantly, both in a positive and a negative way. The neutral variable was added to the regression to control for the publicity effect; if stock prices go up just because they get attention. As can be seen in the results, that variable got an insignificant coefficient which implies that there probably is no publicity effect.

7.2.1 Overall impact

The interesting parts of these results are the coefficients for the positive and the negative news. Our results show that the stocks' abnormal returns go up on average by 0.5 percentage points when there is a positive publication and go down on average by 0.4 percentage points when there is a negative publication. Both results are very significant. This is an interesting result since that shows that the stock market actually move due to publications. That should not be the case according to the Efficient Market Hypothesis since stock prices should only be affected by new information. So why do this happen? Looking at the situation from an agency problem perspective, there might be an explanation. According to principal agent theory there is an information asymmetry between the agent and the principal. In our case, the agent is the management of the company and the principal are all stock holders. Logically, management has much more information about the company than the stock holders who are supposed to make their decisions with the information that the management wishes to share. Every single investor might have their own thoughts about the company and will judge it according to that. Information that is not available for that judgment will be replaced by assumptions and expectations. If a newspaper publishes an article about a company, this article might influence the judgment of the investors since the thoughts of the journalist are revealed. Trusting the good reputation of the newspaper and/or the competence of the journalist, a larger group of investors might revaluate or confirm their judgment about the company. This might lead to action; to buy or sell. In our case, good news might confirm the positive expectations of investors or make investors aware of the good situation and in that way lead to the realization of the expectations on the stock market. The same should be true for the negative news. In this way, one can say

that newspapers help investors to overcome some part of the information asymmetry since the expectation of the majority should not diverge too much from the real truth, especially if there is a possibility that someone in the information network have access to more information about the company than the average investor. This interpretation, where expectations affect the investor's reception of the news article, is also consistent with the Selective Exposure Theory since it is built upon the thought that an investor is more likely to be affected by news supporting his present views which in turn depend on the real information available in the market.

7.2.2 Large cap effects

If the effect of the newspapers is analysed for every single list the results are a bit diverse. Looking at large cap, the positive effect of newspapers is weak being significant only at the ten percent level. On the other hand, the negative news has a significant effect on abnormal returns. One possible explanation is that the large companies are good at reporting their positive news and the investors are therefore not easily surprised by analyses made by journalists. However, the negative news can give a significant effect since journalists in this case really have the role to open investors' eyes for uncomfortable information that management in the company has been unclear about. Exactly as stated before, newspapers help to overcome information asymmetries but also help to interpret negative, but ambiguous information from the companies.

7.2.3 Mid Cap effects

In mid cap the positive news has a positive significant effect. However, the negative news has a weak effect on the abnormal returns. Looking at the results one can see that the absolute effect on abnormal returns is bigger for mid cap companies than for companies in all shares and large cap. This is logical since companies in mid cap get less publicity and are less known than companies in large cap. Information published about them makes a big difference for investors.

7.2.4 Small Cap effects

Small cap contains the smallest and least known companies in our sample. Among these stocks, newspapers do only have a significant effect on positive publications. Negative publications give rise to insignificant coefficients. The absolute value of a positive publication is high; the abnormal return increases by 2.7 percentage points which is the highest

observed effect. This might come from the fact that the companies are quite unknown and that the information provided by the newspapers really matter for the valuation. Here, the effect of overcoming the information asymmetries and getting a "second opinion" about the company is strong.

Now, we have analysed the results from the regressions where the press releases where taken into account as an extra variable. If the same analysis is done with our second method where we drop all observations where there is a press release, we get a bit different results. Something that happens is that the significance of the coefficients tends to decrease. One reason for that is that there are a considerable number of observations where there is a press release at the same time there is a news publications. The loss of observations due to the drop might lead to such a smaller sample that the significance of the population decreases. Because of that, the method where we account for the press release in the regression should be regarded as more accurate. Because of that we will not have any further discussion about the results with the method where observations are dropped.

7.3 Impact on volume

According to the Price Pressure Hypothesis, stock prices might deviate temporary from their efficient price due to changes in liquidity. This makes it possible to assume that newspapers might affect stock prices through the affect on liquidity since shifts in demand and supply of the stock in the short run leads to increases and decreases in the price. To check this effect, regressions where made to see if there is a relation between trading volumes and published news. As can be seen in our results the overall effect is that positive and neutral news give insignificant effects at the same time negative news significantly affects trading volumes: the daily change in trade decreases by 70 percentage point during days where there is a negative publication. The result is the opposite than the one that would be expected according the Price Pressure Hypothesis which predicts an increase in trade when there is a move in the short run supply and demand of the stock. One possible explanation why liquidity might decrease when negative news are published is that the information creates an uncertainty in the market. Buyers do not want to bid higher prices since they believe the price might be too high and sellers might not be willing to sell at a lower price since they want some kind of further confirmation about the situation; you do not want to realize a loss

that can be avoided by just waiting. The result of those two effects is that the liquidity decreases.

8. SUMMARY AND CONCLUSIONS

8.1 Conclusion

In the analysis of the data we have seen that the changes in abnormal returns cannot be explained according to the Price Pressure Hypothesis. Instead, we have found empirical proofs that newspapers have a significant effect on stocks' abnormal returns. The effect is though not completely uniform for all different lists within our data, but the overall effect should be regarded as strongly significant. This leads to the conclusion that newspapers have certain power over the stock market. This holds if our assumption about the absence of private information among newspapers holds. The effect of newspapers can partly be explained using principal agent theory where newspapers are thought to diminish the information asymmetries and in that way make the valuation of the company more accurate. Though, it is important to stress that the effects we have found prevail during a short period of time. The question whether the publications gives rise to long run effects goes beyond the scope of this paper.

8.2 Critique

There are some issues that have to be discussed since those issues might be good arguments to question the validity and reliability of our results. When doing empirical research it is important to analyse and in that way be aware of the validity and reliability of the used method. The validity says if we have succeeded to measure the right thing, in our case the effect of newspapers on stock prices. Reliability says if we have used the proper methods to measure the effect in a correct and reliable way. (Thurén, 2007)

8.2.1 Validity

One of our basic assumptions is that newspapers do not provide any new information since they are assumed not to have access to private information. All the new information is instead provided by the company itself through the publication of press releases. According to the Efficient Market Hypothesis, only new information should affect the value of a stock. Given that, news on the newspapers should not affect the stock prices significantly. Controlling for the press releases and assuming that newspapers do not have access to not publicly known information, we have analysed if there is an extra effect on stock prices that can be derived from publications on newspapers. That analysis might be invalid if the

newspapers actually have access to private information since that might imply that the effect on stock prices comes from the fact that the information is new, rather than it is published on a newspaper. If that is the case, our results might be invalid since then we are only measuring the effect of new information and not the effect of newspapers.

8.2.2 Reliability

All the data concerning the publications was analysed and typed manually. The most essential part of this process is the classification of the news. This process is also the one where there might be some questions regarding the reliability. One obvious flaw is that the news might be endogenous; during a good period for the stock the newspapers could write positive news and in that way it is hard to address the real effect of newspapers. Another problem is the classification; there is a risk that we did not classify the news properly and consistently and in that way the news variables could therefore be biased. These two issues might lead to the fact that the data might not be reliable and the results might therefore be invalid.

8.3 Further research

During the time we have been analyzing this topic we have found some interesting questions that lies beyond the scope of our paper but which could be targeted for future research. For example, it would be interesting to analyse the long run effects of publications having an event study approach. It could also be interesting to know if the effect of newspapers changes if there are considerable block holders with much power in the company. The opposite is also interesting; to analyse the effect of newspapers in companies lacking strong block holders since those are exposed to the risk of a hostile takeover by active funds – "corporate raiders".

Finally we have to admit that it would be interesting to extend our research in such a way that the entire Stockholm Stock Exchange can be covered. The outcome of that research might give more accurate results than our current analysis has given.

9. Bibliography

Affärsdata. (u.d.). Hämtat från Affärsdata: http://www.ad.se/startpage.php 04 2010

Baker, G. P., Jensen, M. C., & Murphy, K. J. (1987). Compensation and Incentives: Practice vs. Theory. *The Journal of Finance* , 593-616.

Barber, B. M., & Loeffler, D. (1993). The Dartboard Column: Second-Hand Information and Price Pressure. *Journal of Financial and Quantitative Analysis 28(2)* , 273-284.

Beneish, M. D. (1991). Stock Prices and the Dissemination of Analysts' Recommendation. *The Journal of Business, 64(3)* , ss. 393-416.

Bodie, Kane, & Marcus. (2008). *Investments. 7:th Ed.* McGraw-Hill.

Bratsberg, E., & Larsson, M. (2007). *Informationsflödets inverkan på marknadseffektiviteten En studie av aktierekommendationers kurspåverkan över tid.* Studentuppsats, Handelshögskolan i Stockholm.

Canes, M., & Lloyd-Davies, P. (1978). Stock Prices and the Publication of Second-Hand Information. . *Journal of Business* , 51 (1), 43-56.

Diefenback, R. (1972). How good is institutional brokerage research. *Financial Analyst Journal* , 54–60.

Fama, E. F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance* , 383-417.

Grinblatt, M., & Titman, S. (2008). *Financial Markets and Corporate Strategy 3rd edition.* Berkshire: McGraw Hill.

Huth, W., & Maris, B. A. (1992). "Large and Small firm stock price response to "Heard on the street" recommendations". . *Journal of Accounting, Auditing & Finance, 7 (1)* .

Liang, B. (1999). Price Pressure: Evidence from the "Dartboard" Column. *Journal of Business 72(1)* , 119-134.

Lidén, E. (2001). *Essays on the information and conflicts of interest in stock recommendations.* Göteborg: Göteborg Universitet.

Liu, P., Smith, S. D., & Syed, A. A. (1990). Stock Price Reactions to The Wall Street Journal's Securities Recommendations. *The Journal of Financial and Quantitative Analysis* , 399-410.

Logue, D., & Tuttle, D. (1973). Brokerage houses investment advises. *The Financial Review 8* , 38–54.

Mathur, I., & Waheed, A. (1995). Stock price reactions to securities recommended in Business Week's inside Wall Street. *The Financial Review 30* , 583–604.

McQuail, D. (2005). *McQuail's Mass Communication Theory 5th edition.* Cornwall, Great Britain: SAGE Publications.

Modigliani, F., & Miller, M. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *American Economic Review 48 (3)* , 261–297.

Nasdaqomxnordic. (n.d.). Retrieved 03 17, 2010, from Nasdaqomxnordic: http://www.nasdaqomxnordic.com/historiska_kurser/

PRECIS. (u.d.).

Ross, S. A. (1973). The Economic Theory of Agency: The Principal's Problem. *The American Economic Review* , 134-139.

Scholes, M. S. (1972). The Market for Securities: Substitution Versus Price Pressure and the Effects of Information. *The Journal of Business* , 179-211.

STATA corp. (n.d.). *STATA*. Retrieved 05 19, 2010, from STATA Support Q&A: http://www.stata.com/support/faqs/stat/xtreg2.html

Thurén, T. (2007). *Vetenskapsteori för nybörjare.* Malmö: Liber AB.

Tidningsstatistik AB. (2010). *Upplage- och räckviddsutveckling 2000-2009.* Stockholm: Tidningsstatistik AB.

Wooldridge, J. M. (2009). *Introductory Econometrics - A Modern Approach, Forth Ed.* South-Western Cengage Learning.

10. APPENDICES

10.1 Appendix 1: List of classification factors

Event	Classification	Source
Financial Calendar	neutral	-
acquisition	positive	(Grinblatt & Titman, 2008) p. 707
cooperation	positive	-
get license	positive	-
invitation to annual stockholders meeting	neutral	
increased turnover	positive	-
increase EBITDA	positive	-
introduction of new product	positive	-
stock repurchase	positive	(Grinblatt & Titman, 2008) p. 708
dividend	positive	(Grinblatt & Titman, 2008)
stock split	neutral	-
successful acquisition	positive	-
gain a considerable customer	positive	-
information about company product	neutral	-
lower profit	negative	-
new market investment	positive	-
acknowledge market investment	positive	-
divest operation	negative	-
go-ahead signal from authority	positive	-
special product offers	neutral	-
retiring chairman of the board	positive	(Grinblatt & Titman, 2008) p. 630
retiring CEO	positive	(Grinblatt & Titman, 2008) p. 630
exit market	negative	-
new issue	negative	(Grinblatt & Titman, 2008) p. 707
to sue a company	positive	-
to be sued	negative	-
spin off to focus operations	positive	-
inauguration of new essential facility	positive	-
increase in debt	neutral	(Modigliani & Miller, 1958)
new CEO or top executive	neutral	-
move operations offshore	positive	-
sell real estate	neutral	-
block holder decreases stake	negative	(Grinblatt & Titman, 2008)p. 675
strike	negative	-
pay remuneration	negative	-
corporate raider in company	positive	(Grinblatt & Titman, 2008)