Insider Trading in Germany –
Do Corporate Insiders Exploit Inside Information?

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Abstract.

Our study analyzes a large sample of transactions carried out by corporate insiders reported to the German regulatory authority *BaFin* in the period July 1, 2002 to April 30, 2005 employing event study methodology. In particular, we focus on the question whether corporate insiders exploit inside information while trading in their company's stock. Therefore we use a distinct property of German law, i.e. company's obligation to reveal inside information through ad-hoc news disclosures, to link trading of insiders to their foreknowledge of important corporate news. We find strong evidence that insiders exploit inside information as they earn above average profits by front-running on subsequent news disclosures. Furthermore, looking at the type of insider, we find that members of the supervisory board (directors) and the group of other insiders (basically family members of senior managers and directors) profit substantially from exploiting inside information. In contrast, members of the executive board (senior managers) can be largely exculpated from exploiting inside information as they realize below average returns with their rare front-running transactions.

Keywords: insider trading, inside information, §15a WpHG, German stock market, regulation of financial markets

JEL Classification: G11, G14, G30

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1. Introduction

The question whether corporate insiders exploit inside information while trading in their company's stock attracts the attention of academia and the public alike.[1] Moreover, the answer to this question is also crucial for regulatory authorities, since on a capital market there is a loser for each winner. In particular, if corporate insiders exploit inside information, high profits received by corporate insiders reduce the returns of all other uniformed traders (including the market maker). Thus, a well developed capital market requires an effective insider regulation to protect uninformed investors. Our study basically addresses three questions. First, we analyze whether corporate insiders earn abnormal profits while trading in their company's stock. Second, we use a distinct property of German law, i.e. the companies' obligation of companies to reveal inside information through ad-hoc news disclosures, to examine whether profits realized by corporate insiders seem to be due to the exploitation of inside information or not. Finally, we explore which group of insiders is most active in exploiting inside information: the one which is best informed about a company's prospects (i.e., senior managers) or the one which is probably least closely watched by the regulator (i.e., family members of senior managers and directors).

Today, insider regulations prohibit the exploitation of inside information on capital markets in nearly all developed countries. In Germany, §14 WpHG (Security Trading Act) prohibits the exploitation and transmission of inside information. According to German law, inside information can be described as any specific information which is not subject to public knowledge and which, if it became publicly known, would likely have a significant effect on the stock price of the respective company (§13 WpHG). Moreover, §15 WpHG requires an immediate public disclosure (ad-hoc announcement) of any inside information (as defined in §13 WpHG) by the respective company. As corporate insiders (i.e., senior managers, directors and their family members) are particularly suspected to possess and exploit inside information, due to their superior

[1] In 2005, according to its annual report, the German regulatory authority *Bundesanstalt für Finanzdienstleistungsaufsicht* (*BaFin)* investigated 54 cases related to suspected insider trading. E.g., several managers at DaimlerChrysler were suspected to exploit inside information prior to the resignation of the former CEO Jürgen Schrempp (*Handelsblatt*, August 29, 2005). However, the probably most prominent suspicion was about the former Co-CEO of the European Aeronautic Defence and Space Company (EADS), Noël Forgeard, who sold together with his children stocks and stock options for a seven digit profit just a few weeks before EADS disclosed severe difficulties in the production of the airplane A380 (*Handelsblatt*, June 21, 2006).

knowledge about company's prospects, §15a WpHG additionally requires companies to report and publish corporate insiders' transactions in their company's stock. Particularly, since July 1, 2002, corporate insider transactions have to be reported to the regulatory authority, the *Bundesanstalt für Finanzdienstleistungsaufsicht* (*BaFin*)[2], which monitors whether transactions were based on the exploitation of inside information.

Trading activities of corporate insiders have been subject to a large number of studies. One strand of literature focuses on the announcement day of insider transactions and explores if uninformed outsiders can benefit by mimicking insider transactions (e.g., Jaffe (1974); Seyhun (1986); Rozeff and Zaman (1988); Bettis et al. (1997); and Fidrmuc et al. (2006)). Remarkably, the literature finds that even uninformed outsiders can earn abnormal profits using publicly available information, at least when transaction costs are ignored. This indicates that outsiders can earn significant abnormal profits by mimicking insider transactions. Betzer and Theissen (2005), Klinge et al. (2005) and Stotz (2006) confirm these results for the German market.

Another strand of literature, however, is motivated by the question whether corporate insiders exploit inside information obtaining abnormal profits by trading in company's stock (e.g., Lorie and Niederhoffer (1968); Jaffe (1974); Finnerty (1976); Seyhun (1986); Eckbo and Smith (1998); Jeng et al. (1999); and Lakonishok and Lee (2001)). The literature documents that insiders earn high abnormal profits while trading in company's stocks.[3] Although most of the early work routinely attributed abnormal profits to the exploitation of private and therefore inside information, a final assessment is anything but trivial. On the one hand, profits of insiders could indeed originate in the exploitation of inside information. On the other hand, profits documented for corporate insiders could be caused solely by outsiders who blindly mimic the trades of insiders in a herd-like manner, even though the insiders traded on publicly available information. Therefore, more recent studies have tried to link trading of insiders to their foreknowledge of important corporate events, including bankruptcy (Seyhun and Bradley (1997)), dividend initiations (John and Lang (1991)), seasoned equity offerings (Karpoff and Lee (1991)), stock repurchases (Lee et al. (1992)), takeover bids (Seyhun

[2] Section 2 of this paper discusses the definition of corporate insiders as well as the regulation and reporting requirements for insider trades more in detail.

[3] A differing result is reported by Eckbo and Smith (1998).

(1990)) and earnings announcements (Elliott et al. (1984); Noe (1999); and Ke et al. (2003)). These studies basically find that insiders trade upon forthcoming corporate news. Thus, the evidence suggests that insiders exploit inside information. Unlike the cited studies which focus on a particular type of corporate news disclosure exclusively, Givoly and Palmon (1985) analyze the connection between insider trading and a large variety of news reports published in the *Wall Street Journal* subsequent to the insider trading day. They conclude that insiders do not seem to exploit inside information as their profits are not associated with the disclosure of specific news. Although the cited studies investigate the connection between insider trading and important corporate events, they have a decisive shortcoming. They are not able to link insider trading to a formal definition of inside information.

Our paper contributes to the literature in several ways. First, distinct from most studies on insider trading which focus on capital markets with a long history of insider regulation like Anglo-Saxon markets, we analyze the German market and thus provide evidence for a market with a relatively new legislation.[4] Second, unlike prior studies which were unable to link insider trading to a formal definition of inside information, the fact that in Germany any inside information has to be disclosed via an ad-hoc news announcement offers a unique opportunity to evaluate whether corporate insiders exploit inside information. Third, the attitude to exploit inside information may differ between different types of insiders. In Germany, three different groups of insiders have to report their trading records to the *BaFin*. Members of the executive board (senior managers), which are involved in day-to-day business operations, are obliged to report their transactions to the *BaFin*. In addition, trading of members of the supervisory board (directors), which are usually not involved in day-to-day business operations, is also supervised by the *BaFin*. Last, the group of other insiders, which mainly consists of family members of senior managers and directors, have to reveal their trading in company's stock. To the best of our knowledge, the question whether the group of insiders which is best informed about company's prospects (i.e., senior managers) or the group which is probably least closely watched by the regulator (i.e., other insiders) is most active in exploiting inside information, is basically unexplored. Finally, our results

[4] Please note that until July 1, 2002 corporate insiders in Germany did not have to reveal trades in company's stock.

yield important implications for an improved supervision and enforcement of German insider law.

With respect to our first research question which deals with the profitability of insider transactions, our results indicate that corporate insiders in Germany are able to identify profitable and unprofitable investment situations and thus realize substantial profits by trading in company's stock. Considering a 20-day period subsequent to the trading day, stocks traded by insiders are associated with significant cumulative abnormal returns (CARs): 3.76% for purchases and –1.37% for sales. Concerning our second research question, we find that insiders as a group are engaged in the exploitation of inside information on the buy side as they earn exceptionally high profits with those transactions which are shortly succeeded by an ad-hoc news disclosure of the respective company. With respect to our third research question, we document directors to be most active in purchasing prior to ad-hoc news disclosures. In contrast, senior managers are less active in front-running on corporate news as they rarely purchase company's stock prior to an ad-hoc news disclosure. Finally and most importantly, we show that directors and the group of other insiders earn exceptionally high profits with their purchases which front-run on corporate news disclosures and thus seem to exploit inside information extensively. In contrast, senior managers can be largely exculpated from exploiting inside information, since they realize below average profits with transactions succeeded by a corporate news disclosure.

The remainder of this paper is structured as follows. Section 2 describes the legal background of insider trading in Germany whereas section 3 addresses the database, provides some descriptive statistics and discusses the methodology. Section 4 presents the results concerning our three research questions. Finally, section 5 concludes.

2. Legal Background

Since 1934, rule 10b-5 of the Security Exchange Act prohibits the exploitation of inside information by corporate insiders in the US. A corresponding framework for the German capital market was passed as late as in 1994. Since then, §14 WpHG (Security Trading Act) prohibits the exploitation of inside information as well as its transmission to a third party. Moreover, §15 WpHG requires exchange traded firms to disclose any inside information immediately to the public (ad-hoc announcement). Before disclosing the information, the firm has to notify the management of the stock exchanges as well as the supervisory authority *BaFin*. Firms usually use special service providers which transmit the information to the market to fulfill these obligations.

Since July 1, 2002, it is not only prohibited to corporate insiders to trade on inside information, but they also have to publish and report trades in securities of their company. According to §15a WpHG, members of the executive board, members of the supervisory board of exchange listed companies as well as their family members are obliged to report transactions in companies' securities to their company and to the German financial supervisory authority *BaFin*, which monitors whether the transaction was based on the exploitation of inside information. Trading activities have to be reported without delay. Additionally, the firm has to publish the report on its web site or in a financial newspaper. Unlike in the US or UK, transactions carried out by former board members and large shareholders are not covered by the German insider law and therefore do not have to be reported. Furthermore, no report is required if the total amount of all transactions in a 30-day period does not exceed 25,000 €. In 2004, §15a was amended. Since October 30, 2004, persons discharging managerial responsibilities are also obliged to report their transactions. The reporting period for trading activities was specified to occur within five business days. The lower limit, which does not require a disclosure, was also reduced to 5,000 € per person in a calendar year. Furthermore, companies are now required to maintain lists of persons which have access to inside information (§15b WpHG).

3. Data and Methodology

3.1. DATA AND DESCRIPTIVE STATISTICS

Our empirical analysis covers insider transactions in German stocks between July 1, 2002 and April 30, 2005, which were reported to the *BaFin*. For each observation the respective database provided by the *BaFin* contains the company's name, the *International Securities Identification Number* (*ISIN*) of the reporting company, the name and type of the reporting insider (e.g., a member of the executive board), the trading and announcement day, the kind of transaction (e.g., a purchase of a stock), the number of securities traded, the stock price at which the transaction was executed, and the publishing media.

To check and complement the database we match the information contained in the original database with statements from the company's annual reports and information published on the company's web site and other financial web sites.[5] The *Deutsche Gesellschaft für Ad-hoc Publizität* (*DGAP*) and *euro-adhoc* are the main providers which transmit ad-hoc news to the market. We use their databases to identify ad-hoc news releases subsequent to the trading day. Data on stock returns we extract from *Datastream*.

As our study focuses on the German legislation and the German market we only cover trades in stocks with a German *ISIN* (*DE-ISIN*). The original database contains 6,328 transactions carried out by insiders in 416 different firms. In a first step, we exclude duplicate and incomplete entries as well as transactions connected with derivates, stock options, security lending, changes in the capital structure, and take-over bids. In addition, transactions among insiders, which are rather driven by strategic, liquidity or tax reasons, are also excluded. In 1,577 cases the database includes two or more transactions of the same insider in the same stock on a given day. This is the case if an insider trades more than once on the same day or if the broker executes the order in two or more pieces. We aggregate these partial executions and multiple trades of the same individual in the same security on a given day. Furthermore, we exclude 136 observations due to incomplete return data. Finally, in 125 cases firms disclose ad-hoc news on the transaction day itself. As mentioned before, we use ad-hoc news disclosures to link insider trading to a potential exploitation of inside information. As we do not have information about the exact trading time, we could not determine whether the corporate insider traded prior to the respective ad-hoc news disclosure. Thus, these transactions were excluded from the sample. *Table I* shows the generation of our final sample which consists of 3,079 insider transactions in 351 different firms. Thereof, 767 transactions in the final sample are succeeded by a subsequent ad-hoc news disclosure in the following 20 trading days.

[5] E.g., www.finanzen.net, www.insiderdaten.de.

[Insert Table I about here]

Table II shows that the number of transactions on the buy and sell side is rather balanced. In particular, purchases account for about 54% of all insider trades (1,643 out of 3,079). With respect to the insider's position, we find members of the executive board and members of the supervisory board to trade most frequently. Members of the executive board (members of the supervisory board) account for 831 (579) purchases and 535 (569) sales transactions. They correspond to about 44% (37%) of all transactions. Consequently, the group of other insiders trades least frequently. Besides, the group of other insiders is the only group where the number of sales (332) exceeds the number of purchases (233).

[Insert Table II about here]

In total, insiders traded stocks for more than 1.86 € billion. Interestingly, although they trade least frequently, the group of other insiders trade the highest volumes accounting for almost 40% of the total trading volume. In particular, their median (mean) transaction volume of 61,619 € (1,306,823 €) is above the average. Senior managers and directors trade smaller volumes. The median (mean) transaction volume for senior managers accounts for 27,935 € (401,423 €) whereas the respective number for directors is 22,500 € (501,975 €). We also find that transaction volumes for purchases are on average smaller than for sales. The median (mean) transaction volume for sales of 57,484 € (957,600 €) is more than three times larger than the volume for purchases 18,071 € (296,927 €). Consequently, although the number of sales is lower than the number of purchases, sales account for 74% of the total trading volume. Moreover, all groups of insiders are net sellers.

As in most empirical studies the distribution of firm size is skewed. The mean market capitalization of a traded firm is 1,868 € million and thereby highly exceeds the median market capitalization which equals 44 € million. Moreover, the group of other insiders does not only trade higher volumes. They also trade in bigger companies. In particular, the median (mean) market capitalization in which the group of other insiders trades equals 172 € million (3,522 € million).

3.2. METHODOLOGY

The purpose of our study is to measure the short-term profits of insiders which trade in their company's stock. In accordance with most studies on insider trading, we measure these profits in an event study framework. Concretely, we measure abnormal returns, i.e., returns that deviate from the normal return, subsequent to the insider trading day by applying standard event-study methodology outlined by MacKinlay (1997). For each transaction, calendar time is converted to event time by defining the day on which the insider executed the transaction as event day [0]. The estimation period encompasses the period from [-199] to [-21], whereas the period from [-20] to [+20] is defined as the event period.

Abnormal returns for any given point in time and stock are defined as the difference between realized[6] and normal returns. In order to estimate these expected normal returns, we choose the market model as surveyed by Brown and Warner (1985). First, for raw returns of each traded stock, we estimate OLS parameters in the estimation period while using the value-weighted *CDAX* as the independent variable. This index consists of the entire universe of stocks traded on the Frankfurt Stock Exchange. Within the context of the market model, the normal return on each day in the event period is defined as the return of the *CDAX*, adjusted by the estimated OLS parameters. To calculate the market reaction for more than one day we cumulate abnormal returns for the respective period.

In order to test for statistical significance of abnormal returns (ARs) and cumulative abnormal returns (CARs) we apply the traditional *t*-test based on Brown and Warner (1985). Since this method has shown to be sensitive to asymmetrically distributed returns and event-induced increases in variance (e.g., Brown and Warner (1985); and Boehmer et al. (1991)), we also employ the nonparametric rank test based on Corrado (1989) to test for robustness. This type of test is correctly specified independently from the skewness of cross-sectional distribution of abnormal returns.

[6] To calculate realized returns, we download the data type *RI* from *Datastream* which includes adjustments for dividends and stock splits.

Furthermore, it is less affected by event-induced increases in variance compared to parametric tests.

4. Empirical Results

4.1. INSIDER PROFITS

First, we address the question whether corporate insiders do earn abnormal returns by trading in their company's stock. *Table III* displays cumulative abnormal returns for distinct periods prior and subsequent to the insider trading day for purchases and sales separately. It shows that corporate insiders actually do earn abnormal returns with their transactions.

[Insert Table III about here]

Looking at the immediate stock price reaction associated with purchases, we find a moderate but positive CAR[0;+1] of 0.25%, a return which is statistically significant according to the parametric *t*-test. However, this immediate price reaction does not offer economically significant profits to insiders. Nevertheless, cumulative abnormal returns for longer periods are both statistically (according to the parametric *t*-test and the nonparametric rank test by Corrado) as well as economically significant. E.g., the cumulative abnormal return for the 20-day period following the trading day CAR[0;20] offers a decent 3.76% profit for the average insider transaction on the buy side. Interestingly, from the perspective of the efficient market hypothesis, the price reaction is strikingly slow. In particular, after a period of five trading days subsequent to the insider transaction, only about 36% of the total increase within the 20-day event window is incorporated in stock prices (1.36% compared to 3.76%). The respective fraction for the ten-day period is about 58% (CAR[0;+10] equals 2.19%), an almost linear adjustment to the cumulative abnormal return at the end of the event window. The rather slow adjustment in stock prices might be explained by legal aspects. As discussed before, corporate insiders have to announce their trading records to the regulatory authority *BaFin* shortly after they have executed their order. Our data reveals that the median (mean) time period between the trading and the announcement day is three (ten) trading days for purchases. Thus, since insider transactions are closely followed by many investors, it may trigger a wave of transactions in the same direction by outsiders, thereby generating abnormal returns subsequent to the trading day. In addition, news releases by the company or reports issued by financial analysts, for instance, might impact stock prices subsequent to the insider's trading day as well.[7]

With respect to sale transactions, a different picture emerges. The immediate price reaction CAR[0;+1] shows to be positive with 0.57%. Thus, stock prices do not reflect the negative information immediately. However, if one looks at the 20 trading days after the transaction, stocks sold by insiders drop by -1.37%. Although this moderate decline in stock prices does not necessarily yield economically significant profits for insiders when direct and indirect transactions costs are taken into account (see, e.g., Keim and Madhavan (1998); Berkowitz and Logue (2001)), for the different components of transaction cost), the cumulative abnormal return is statistically significant according to the parametric *t*-test as well as the non-parametric rank test by Corrado (1989).

The finding that insiders realize greater profits with their purchases than with their sales is also documented in the literature.[8] Unlike purchases, which are primarily motivated by the desire to realize profits, sales might be triggered by other considerations. First, basically only sales are motivated by diversification objectives and therefore might be non information-driven. For instance, many senior managers are strongly invested with their human capital in their firm and often have large holdings of company's stock. In addition, senior managers are increasingly compensated by stock option programs which allocate a substantial part of their personal wealth to their firm. As a consequence, the decision to sell a stock might be triggered by the desire to adjust portfolio weights to the optimal, or at least to a more balanced level. This rationale can be supported by our data. Insiders sell stocks after substantial price increases. In particular, insiders sell stocks which yield a highly significant positive CAR[-20;-1] of 8.91% in the 20 trading days prior to the insider trading day. As a substantially increased stock price of the firm, ceteris paribus, increases the respective portfolio

[7] Please note that the finding of a slow price adjustment is documented in several other studies. See, (e.g., Givoly and Palmon (1985), Seyhun (1986), Bettis et al. (1997), Jeng et al. (2003) for the US; Friederich et al. (2002) for the UK; and Klinge et al. (2005) and Stotz (2006) for Germany).

[8] See, (e.g., Bettis et al. (1997); Lakonishok and Lee (2001); and Jeng et al. (2003) for the US; Friederich et al. (2002) for the UK; and Betzer and Theissen (2005) for Germany. Differing results are found by, e.g., Seyhun (1986), Givoly and Palmon (1985), Klinge et al. (2005), and Stotz (2006)).

weight in the insider's portfolio considerably, selling company's stock might help to readjust the respective risk exposure to the prior level. Second, another non information-driven reason which is more prevalent for sales than for purchases is liquidity. If a corporate insider wants to buy a new mansion or Learjet, she might prefer to sell some corporate stocks, especially if they recently went up in prices. Moreover, sales may be motivated by tax considerations.

Interestingly, although this issue is somewhat beyond the scope of our paper, insiders are amazingly good at identifying turning points as they buy (sell) at the end of downward (upward) movements and at the beginning of upward (downward) movements of company's stock price. In particular, we find corporate insiders to follow contrarian strategies. *Table III* displays a negative abnormal return CAR[-20;-1] of highly significant -1.10% in the 20 trading days prior to the purchase. For sales, the tendency to act as a contrarian investor is even more pronounced. As mentioned before, we find that the average stock sold by an insider yields a highly significant positive CAR[-20;-1] with 8.91%. The finding that corporate insiders act as contrarian investors is well documented in the literature (e.g., Lakonishok and Lee (2001); Friederich et al.°(2002); and Stotz°(2006)).

4.2. DO INSIDERS EXPLOIT INSIDE INFORMATION?

A decisive prerequisite to answer the question whether corporate insiders exploit inside information is the identification of those transactions which may exploit inside information. In an ideal world one could directly observe the information set of an insider at the transaction day. Unfortunately, in reality this information is basically unobservable. Thus, one has to find an observable proxy for inside information. Probably the best way to identify trades which are likely to be based on inside information formally, is to link corporate insider trading to ad-hoc news disclosures subsequent to the insider trading day. As mentioned before, German firms are required to disclose any inside information to the public via an ad-hoc announcement. Those ad-hoc announcements deal with corporate events which are likely to have a significant effect on the stock price like, e.g., changes in the executive board structure, earnings announcements, and merger activities. Thus, insider trading prior to ad-hoc news disclosures is a first indication for the exploitation of inside information, since corporate insiders are likely to know at least the tendency of the ad-hoc news prior to their disclosure. For instance, it is hard to believe that a senior manager is not continuously informed about the performance of her firm or is not involved in and informed about takeover proceedings.

However, companies disclose specific ad-hoc news like quarterly earnings on a rather regular basis. Thus, some ad-hoc announcements might not contain unexpected news. Consequently, not every transaction prior to an ad-hoc news disclosure necessarily exploits inside information. Two scenarios have to be distinguished in order to detect the exploitation of inside information. On the one hand, if insiders exploit inside information by front-running on ad-hoc news disclosures, they should, ceteris paribus, earn higher profits with those transactions compared to the remaining transactions without a subsequent ad-hoc news disclosure. On the other hand, if insiders do not exploit inside information while trading prior to news disclosures, the profits of transactions with subsequent ad-hoc news disclosure should be similar to profits of transactions without subsequent news disclosure. As a consequence, we feel confident to accuse insiders of exploitation of inside information if transactions of insiders, which are succeeded by an ad-hoc news disclosure of the respective company in the subsequent 20 trading days, are associated with higher profits compared to the remaining transactions without an ad-hoc news disclosure. In the following, we will refer to those transactions as unethical or illegal.

Table IV displays cumulative abnormal returns for several periods subsequent to the insider trading day for purchases and sales separately. The first vertical panel addresses transactions with a subsequent ad-hoc news disclosure in the mentioned period. The second panel addresses transactions without a subsequent ad-hoc news disclosure and the third vertical panel displays the difference in means between the first two panels.

[Insert Table IV about here]

With respect to purchases, we find that 403 of the total 1,643 purchases are succeeded by an ad-hoc news disclosure, representing a fraction of almost 25%. Remarkably, those 403 transactions yield substantially higher profits for insiders compared to the remaining transactions. In particular, corporate insiders earn an abnormal profit of 5.05% within the 20 trading days after they front-run on ad-hoc news disclosures. For transactions without a subsequent ad-hoc news disclosure, we document a respective value of mere 3.34%. Moreover, the difference in mean profits between trades which front-run on corporate news disclosure and the remaining transactions without a subsequent ad-hoc news disclosure is statistically significant on the 10%-level starting with CAR[0;+5] onward. Thus, we find strong evidence for the exploitation of inside information according to our definition. Corporate insiders as a group purchase companies' stocks in an unethical way.

Concerning sales, results are quite similar. The fraction of sales which is succeeded by an ad-hoc news disclosure is about 25%. Again, the profits associated with those transactions are considerably higher for all analyzed periods. However, the differences in means between transactions with and without subsequent news disclosure are statistically insignificant. In consequence, the evidence that corporate insiders exploit inside information while selling company's stock is less solid than for purchases. Despite the lack of statistical significance, e.g., the CAR[0;+20] is almost double the magnitude for sales which front-run on subsequent news releases compared to the remaining transactions.

4.3. WHICH TYPE OF INSIDER EXPLOITS INSIDE INFORMATION?

In this section we want to investigate which type of corporate insider is particularly engaged in exploiting inside information. To put things differently, we want to figure out if it is primarily the group of members of the executive board, the group of members of the supervisory board or the group of other corporate insiders which tend to trade in an unethical manner. *Table V* displays for each group of insiders the group-specific fraction of trades with a subsequent ad-hoc news disclosure separately. In addition, the respective fraction for the total sample as well as the difference between the fractions for the group and for the total sample are displayed in the table. *Panel A* shows the respective statistics for purchases, whereas *Panel B* refers to sales.

[Insert Table V about here]

As far as purchases are concerned, senior managers are less often engaged in transactions which are succeeded by corporate news. The fraction of purchases with a subsequent ad-hoc news disclosure is only 19.86% compared to the average of the total sample which shows to be 24.56%. In addition, the binomial test indicates on a statistically significant level that senior managers find themselves more frequently in the group of transactions without ad-hoc news disclosures. A different picture emerges for directors. With respect to trading prior to ad-hoc news disclosures, 32.12% of the purchases carried out by directors front-run on corporate news. Moreover, the binomial test strongly suggests that directors trade more frequently prior to ad-hoc news disclosures. Finally, the group of other insiders is not predominantly engaged in trading prior to ad-hoc news. In contrast to the findings for purchases, we do not find any group of insiders to be particularly engaged in trading prior to ad-hoc news disclosure on the sell side.

As mentioned before, insider trading prior to ad-hoc news disclosures becomes ultimately a problem for the regulator and the functionality of the market when insiders realize superior profits with those transactions. Thus, *Table VI* shows cumulative abnormal returns for transactions with and transactions without subsequent ad-hoc news disclosures for each group of insiders separately. Thereby, *Panel A* shows the respective statistics for purchases, whereas *Panel B* refers to sales.

[Insert Table VI about here]

For purchases, we find that senior managers do not seem to be engaged in unethical insider trading. Not only do they trade less frequently prior to ad-hoc news releases; senior managers also realize profits below average. Particularly, the CAR[0;+20] equals 2.39% for purchases with subsequent news disclosures in the 20 trading days after the trading day, whereas senior managers obtain 4.45% with transactions which were not succeeded by ad-hoc news disclosures. However, from a statistical point of view, the difference in means of -2.06% is not statistically different from zero. A very different picture emerges when we look at directors' purchases. In addition to their significantly higher trading frequency prior to ad-hoc news releases, they obviously trade on valuable information. E.g., the CAR[0;+20] for front-running purchases equals 6.57%, whereas the transactions without ad-hoc news disclosures result in a mere profit of 1.89%. Moreover, the difference in means between both types of purchases is highly statistically significant, indicating that directors trade on inside information. We get a similar result concerning the group of other insiders. Even though other insiders do not frequently front-run on corporate news, they do realize exceptional profits with those transactions. In particular, they realize CAR[0;+20] of 8.05% with front-running purchases. A handsome profit compared to the respective 2.36% they earn with their remaining transactions. The difference in means between both transaction types is also highly statistically significant.

Regarding sales transactions, we find no specific group of insiders to be severely engaged in exploiting inside information. Although we predominately find the profits associated with sales which front-run on corporate news to be higher for all groups of insiders, differences in means of abnormal returns are not statistically significant. Again, this result could be driven by the fact that selling company's stock does not have to be information-driven, but can be triggered by diversification, liquidity and tax considerations.

To sum up, we can conclude that senior managers do not seem to exploit inside information. They seem to be aware that the public and the regulator monitor their trading records very carefully. Thus, they refrain from trading prior to ad-hoc news disclosures. And even if they do so, the information content of the subsequent ad-hoc news release seems to be quite negligible. In contrast, directors do not seem to fear the scrutiny of the regulator as they do not only purchase company's stock quite frequently prior to ad-hoc news releases but they also seem to front-run on extremely valuable inside information. A similar result applies to the group of other insiders. They also seem to exploit inside information. In contrast, the evidence for sales transactions is less clear-cut. Profits for sales which front-run on corporate news disclosure are predominately smaller than those for purchases and statistically insignificant for all types of insiders

5. Concluding Remarks

Our study analyzes a large sample of corporate insider transactions reported to the German supervisory authority *BaFin* in the period July 1, 2002 to April 30, 2005 using event study methodology. In particular, we focus on the question whether corporate insiders exploit inside information while trading in company's stock. Our findings reveal that corporate insiders are able to identify profitable investment situations in their firms. E.g., they earn a profit of almost four percent in the 20 trading days after they purchased company's stock. Furthermore, we find strong evidence that corporate insiders are engaged in the exploitation of inside information as they earn above average profits by front-running on corporate news. Finally, looking at the type of insider, we find that members of the supervisory board (directors) and the group of other insiders (basically family members of senior managers and directors) are the ones which trade in an unethical manner as they profit largely by exploiting inside information while front-running on corporate news. In contrast, members of the executive board (senior managers) can be exculpated from exploiting inside information as they realize below average returns with their rare front-running transactions.

Admittedly, our database might not be the ideal sample to study illegal insider trading. This is because intentional and offensive trading on inside information is not very likely to be reported to the supervisory authority. Therefore, it is alarming that we find evidence that insiders exploit inside information in those transactions which they consider to be unproblematic and thus report. Surprisingly, until now, the regulatory authority has done very little to enforce the law and thus to assure that insiders do not trade on inside information. Our results, however, strongly suggest to watch trading records of corporate insiders more closely; especially those trades which are shortly succeeded by an ad-hoc news announcement. Particularly, those insiders (e.g. the group of other insiders) who are not in the spotlight of the public or the financial press do not seem to fear the scrutiny of the regulator as they extensively trade on inside information. Therefore, the *BaFin* should intensify its monitoring activities as well as its ability to impose sanctions to ensure market transparency and integrity of the German capital market. Otherwise, a continuation of illegal insider trading could compromise the functionality of the German capital market. Nevertheless, we also see the ball in the court of the firms themselves. They have to protect their insiders from allegations, justified or unjustified, by establishing voluntary commitments like blackout periods or trading bans prior to specific corporate news announcements.

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Table I: Description of sample

This table displays the number of transactions reported to the *BaFin* as well as the necessary corrections to obtain the final sample.

Type of Transaction	Number of Transactions
Insider Transactions reported to the BaFin	7,543
Transactions in Foreign Corporations Dual Listed in Germany	*-1,215*
Insider Transactions in German Corporations	6,328
Duplicate and Incomplete Entries	*-104*
Transactions concerning	
Stock Options and Derivatives	*-633*
Security Lending and Donation	*-115*
Capital Structure	*-246*
Take-Over-Bids (acc. WpÜG)	*-145*
Others	*-34*
Transactions among Insiders	*-134*
Partial Execution and Multiple Transactions on a Given Day	*-1,577*
Incomplete or No Return Data	*-136*
News Disclosure at Transaction Day	*-125*
Insider Transactions in the Final Sample	3,079
Insider Transactions in the Final Sample with News Disclosure	767
Insider Transactions in the Final Sample without News Disclosure	2,312

Table II: Descriptive statistics

This table presents descriptive statistics. In particular, information about the number of transactions, the mean (median) value of transactions and the mean (median) market capitalization of traded firms are displayed for the entire sample (all transactions) as well as for purchases and sales separately.

	Purchases	Sales	All Transactions
Number of Traded Firms	241	250	351
Number of Transactions			
Total	1,643	1,436	3,079
Members of Executive Board	831	535	1,366
Members of Supervisory Board	579	569	1,148
Other Insiders	233	332	565
Mean Value of Transactions (in €thousand)			
Total	296,927	957,600	605,055
Members of Executive Board	95,737	876,235	401,423
Members of Supervisory Board	406,822	598,801	501,975
Other Insiders	741,392	1,703,647	1,306,823
Median Value of Transactions (in €thousand)			
Total	18,071	57,484	29,513
Members of Executive Board	17,171	72,000	27,935
Members of Supervisory Board	12,000	39,082	22,500
Other Insiders	48,504	77,206	61,619
Mean Market Capitalization (in €million)			
Total	2,319	1,351	1,868
Members of Executive Board	2,507	413	1,687
Members of Supervisory Board	1,198	1,341	1,269
Other Insiders	4,436	2,880	3,522
Median Market Capitalization (in €million)			
Total	43	53	44
Members of Executive Board	35	55	43
Members of Supervisory Board	43	38	43
Other Insiders	202	171	172

Table III: Cumulative abnormal returns for purchases and sales

This table reports mean cumulative abnormal returns for distinct periods prior and subsequent to the day of insider trading [0]. ***, **, * indicate statistical significance at the 1%-, 5%-, 10%-level (two-tailed test) according to the parametric *t*-test based on Brown and Warner (1985). $^{+++}$, $^{++}$, $^{+}$ indicate statistical significance at the 1%-, 5%-, 10%-level according to the nonparametric rank test based on Corrado (1989).

	Purchases (N = 1643)				Sales (N = 1436)			
	Mean			SD	Mean			SD
CAR[-20;-1]	-1.10%	***	+++	16.65	8.91%	***	+++	29.08
CAR[0;1]	0.25%	**		6.00	0.57%	***	+	8.43
CAR[0;5]	1.36%	***	+++	10.53	0.32%			13.28
CAR[0;10]	2.19%	***	+++	14.47	-0.69%	*	++	16.17
CAR[0;20]	3.76%	***	+++	18.64	-1.37%	**	+++	23.85

Table IV. Cumulative abnormal returns, by ad-hoc news disclosure after transaction

This table displays mean cumulative abnormal returns for distinct periods subsequent to the day of insider trading [0] separated by whether ad-hoc news were disclosed during the 20 trading days subsequent to the transaction. ***, **, * indicate statistical significance at the 1%-, 5%-, 10%-level (two-tailed test) according to the parametric *t*-test based on Brown and Warner (1985). $^{+++}$, $^{++}$, $^{+}$ indicate whether the mean cumulative abnormal returns of the subgroups are statistically different at the 1%-, 5%-, 10%-level according to the two-sample *t*-test.

Panel A. Purchases (N = 1643)			
	Transactions with News Disclosure N = 403	Transactions without News Disclosure N = 1240	Differences in Means
CAR[0;1]	0.16%	0.28% **	-0.12%
CAR[0;5]	2.19% ***	1.10% ***	1.09% +
CAR[0;10]	3.33% ***	1.81% ***	1.52% +
CAR[0;20]	5.05% ***	3.34% ***	1.71% +
Panel B. Sales (N = 1436)			
	Transactions with News Disclosure N = 364	Transactions without News Disclosure N = 1072	Differences in Means
CAR[0;1]	0.27%	0.68% ***	-0.41%
CAR[0;5]	-0.27%	0.52%	-0.79%
CAR[0;10]	-1.35% *	-0.47%	-0.88%
CAR[0;20]	-2.05% **	-1.14% *	-0.91%

Table *V*. Distribution of transactions with subsequent ad-hoc news disclosure, by type of insider

This table reports the distribution of purchases and sales for the total sample and for different types of insider separately. (1) displays for the respective group of insiders the fraction of the number of purchases with a subsequent news disclosure to the total number of purchases by the respective group. Accordingly, (2) gives the respective numbers for the total sample. E.g. the fraction of 24.56% for purchases is calculated as the number of purchases with a subsequent news disclosure (403) divided by the total number of purchases (1643). ***, **, * indicate statistical significance at the 1%-, 5%-, 10%-level according to the binomial test.

Panel A. Purchases (N = 1643)			
	Members of Executive Board	Members of Supervisory Board	Other Insiders
Percentage of Purchases with News in Group (1)	19.86%	32.12%	22.32%
Percentage of Purchases with News in Total Sample (2)	24.56%	24.56%	24.56%
(1) - (2)	-4.70% ***	7.56% ***	-2.24%

Panel B. Sales (N = 1436)			
	Members of Executive Board	Members of Supervisory Board	Other Insiders
Percentage of Sales with News in Group (1)	24.11%	25.13%	27.71%
Percentage of Sales with News in Total Sample (2)	25.35%	25.35%	25.35%
(1) - (2)	-1.24%	-0.22%	2.36%

Table *VI*. Cumulative abnormal returns, by type of insider and subsequent ad-hoc news disclosure

This table displays mean cumulative abnormal returns for distinct periods subsequent to the day of insider trading [0] separated by whether ad-hoc news were disclosed during the 20 trading days subsequent to the transaction and by type of insider. ***, **, * indicate statistical significance at the 1%-, 5%-, 10%-level (two-tailed test) according to the parametric *t*-test based on Brown and Warner (1985). $^{+++}$, $^{++}$, $^{+}$ indicate whether the mean cumulative abnormal returns of the subgroups are statistically different at the 1%-, 5%-, 10%-level according to the two-sample *t*-test.

Panel A. Purchases

	Members of Executive Board			Members of Supervisory Board			Other Insiders		
	News N = 165	No News N = 666	Difference in means	News N = 186	No News N = 393	Difference in means	News N = 52	No News N = 181	Difference in means
CAR[0;1]	-0.36%	0.42% **	-0.78%	0.48%	-0.01%	0.49%	0.67%	0.41%	0.26%
CAR[0;5]	0.75%	1.52% ***	-0.77%	3.17% ***	0.51%	2.66% ++	3.23% ***	0.79% *	2.44% +
CAR[0;10]	1.35%	2.52% ***	-1.17%	4.76% ***	0.87%	3.89% +++	4.49% ***	1.25% **	3.24%
CAR[0;20]	2.39%	4.45% ***	-2.06%	6.57% ***	1.89% **	4.68% ++	8.05% ***	2.36% ***	5.69% +++

Panel B. Sales

	Members of Executive Board			Members of Supervisory Board			Other Insiders		
	News N = 129	No News N = 406	Difference in means	News N = 143	No News N = 426	Difference in means	News N = 92	No News N = 240	Difference in means
CAR[0;1]	0.65%	0.89% ***	-0.24%	-0.19%	0.53%	-0.72%	0.44%	0.59%	-0.15%
CAR[0;5]	-0.64%	0.62%	-1.26%	0.64%	0.98%	-0.34%	-1.15%	-0.48%	-0.67%
CAR[0;10]	-1.13%	-0.16%	-0.97%	-0.51%	-0.14%	-0.37%	-2.97% ***	-1.58% **	-1.39%
CAR[0;20]	-2.74% *	-1.22%	-1.52%	-1.79%	-0.15%	-1.64%	-1.49%	-2.76% ***	1.27%