ECONSTOR
Make Your Publications Visible.

A Service of

ZBW Leibniz-Informationszentrum Wirtschaft
Leibniz Information Centre for Economics

Betzer, André; Theissen, Erik

Working Paper

Sooner or later: delays in trade reporting by corporate insiders

CFR working paper, No. 08-06

Provided in Cooperation with:
Centre for Financial Research (CFR), University of Cologne

Suggested Citation: Betzer, André; Theissen, Erik (2008) : Sooner or later: delays in trade reporting by corporate insiders, CFR working paper, No. 08-06, University of Cologne, Centre for Financial Research (CFR), Cologne

This Version is available at:
https://hdl.handle.net/10419/41378

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

WWW.ECONSTOR.EU

Mitglied der Leibniz-Gemeinschaft

CFR-Working Paper No. 08-06

Sooner or Later: Delays in Trade Reporting by Corporate Insiders

A. Betzer • E. Theissen

centre for financial research
Look deeper

Sooner or Later

Delays in Trade Reporting by Corporate Insiders*

August 2008

André Betzer
University of Bonn

Erik Theissen**
University of Bonn

Abstract: Until October 2004 corporate insiders in Germany were required to report trades in the shares of their firm "without delay". In practice substantial reporting delays were common. We show that the delays are systematically related to the characteristics of the firm. Delays are longer in widely-held firms and in firms using German accounting standards. This suggests that managers of these firms are less responsive to the informational requirements of the capital market. We further find that abnormal returns after the reporting date of an insider trade are independent of the reporting delay. This implies that prices are distorted in the period between the trading and the reporting date. This is a strong point in favor of regulation requiring and enforcing immediate disclosure of insider trades.

JEL classification: G14, G30, G32

Keywords: Insider trading, directors' dealings, accounting standards

* We thank an anonymous referee, Jorge Farinha, participants of the 2007 annual meeting of the European Financial Management Association in Vienna and seminar participants at the university of Tübingen for valuable comments.

** André Betzer, University of Bonn, email: andre.betzer@uni-bonn.de; Erik Theissen, University of Bonn, Centre for Financial Research (Cologne) and Center for Financial Studies (Frankfurt), email: theissen@uni-bonn.de.

1. Introduction

Corporate insiders arguably know more about the prospects of their firm than the capital market. Consequently, most countries have adopted regulation that requires corporate insiders to report their trades and, in some cases, prohibits trading.[1] Several empirical studies have documented that stock prices react to the announcement of insider trades, thereby substantiating the claim that corporate insiders possess superior information.[2]

Regulation in different countries differs with respect to the time allowed for the reporting of trades. In the US, insider trades had to be reported no later than the 10th day of the month following the trade. The Sarbanes-Oxley act now requires reporting within two days after the trade. Corporate insiders in the UK are required to report their transactions no more than five business days after the trading day.[3] Several other countries (e.g., Australia, Austria, Sweden) have also adopted a five day reporting requirement. In Germany, trades had to be reported "without delay" until October 2004 and within five business days since then. Canada allows for a 10 day delay and Malaysia for a 14 day delay. In Switzerland, trades have to be reported until the fourth business day of the month after the month in which the trade occurred as long as the total trading volume in the calendar month does not exceed 100,000 Swiss Francs. Once that threshold is reached each additional trade has to be reported within two business days.

These international differences and the recent changes in regulation in some countries lead to the question of whether the time allowed for reporting insider trades matters. There are sev-

---

1 Zhang (2001) develops a model in which it is optimal that corporate insiders are allowed to trade in shares of their firm but are required to report these trades.

2 Examples include the studies by Jaffe (1974) and Lakonishok and Lee (2001) for the US, Bajo and Petracci (2004) for Italy, Fidrmuc et al. (2006) for the UK and Betzer and Theissen (2007) for Germany. Datta and Iskandar-Datta (1996) find that prices of corporate bonds also react to the announcement of stock trades by corporate insiders.

3 In addition, corporate insiders in the UK are not allowed to trade in the two months preceding final or interim earnings announcements and in the month prior to quarterly earnings announcements.

eral reasons why it might matter. As already mentioned, several empirical papers have concluded that share prices react to the reporting of insider trades. This implies that the market is unable to infer the full information content of the trade on the trading day. Consequently, prices are distorted in the period between the trading and the reporting day, thereby impairing the informational efficiency of the market. Further, a corporate insider possessing superior information may intend to execute more than one trade. If delayed reporting is feasible the insider may delay the reporting of the earlier trades until she has completed all transactions. Such a practice will obviously be to the disadvantage of the counterparties to the trades.

The present paper is the first to analyze the determinants and implications of reporting delays. We provide empirical evidence from Germany. Here, until October 2004, trades had to be reported "without delay". This prescription is imprecise and subject to interpretation. We show that substantial reporting delays exist. We continue by analyzing whether there are any regularities with respect to the reporting delays. We find that delays are smaller for insider sales than for purchases, and that delays have generally decreased over time. Insiders in widely held firms report their trades with longer delays than do insiders in firms with a controlling shareholder. As managers in widely held firms are likely to be subject to lower levels of control by the owners of the firm they may be less responsive to the information requirements of the owners and the capital market in general.

We further find that insiders in firms adopting international accounting standards report their trades faster than insiders in firms using German accounting standards. In our interpretation, this result implies that corporate officers in firms adopting international accounting standards are more open towards the capital market and its desire for transparency. In a certain sense, then, these firms appear to have developed a culture that is more responsive to the needs of investors in financial markets.

In order to address the issue of market efficiency we relate the reporting delays to the cumulative abnormal returns (CARs) after the announcement day. We find that the CARs are independent of the reporting delays. This implies that, even with more time between the trading and the reporting date, the market does not learn the information conveyed by the announcement of the trade. Consequently, prices are distorted when the reporting of insider trades is delayed. This result is a strong point in favor of regulation requiring and enforcing immediate disclosure of insider trades.[4] Our empirical findings thus lend support to the theoretical prediction in Huddart et al. (2001). They use an extension of Kyle's (1985) sequential auction equilibrium to show that information is reflected more rapidly in prices when insiders have to disclose their trades.[5]

Our paper is related to previous research on insider trading, most notably to research investigating into the price reactions to insider trades. We are not aware, however, of any previous research focusing on reporting delays.[6] The remainder of the paper is organized as follows. In section 2 we describe the legal framework in Germany as well as our data set. In section 3 we analyze the determinants of the reporting delays. Section 4 is devoted to the relation between reporting delays and informational efficiency. Section 5 offers a summary and derives the implications of our results.

---

[4] The argument in favor of regulation requiring immediate disclosure follows from the beneficial effects of accurate and timely disclosure (see e.g. section 2.1 in the survey by Leuz and Wysocki 2008). These benefits are likely to outweigh the costs of disclosure to the firm which are arguably low in the case considered here.

[5] Hu and Noe (2001) argue that managerial insider trading may be a substitute for explicit managerial compensation. In this case there may be benefits (e.g., a better alignment of the interests of owners and managers) that outweigh the cost associated with distorted prices.

[6] Seyhun (1986, p. 207) reports delays but neither seeks to analyze their determinants, nor investigates into the impact of delayed reporting on market efficiency. Etebari et al. (2003), relying on data from New Zealand, compare insider trades by large shareholders (which had to be disclosed immediately) to those of directors (which were disclosed in the firm's annual report) and find that the latter are more profitable. They do not attempt to control for the different characteristics of the trades in the two subsamples, and they use the trading day (rather than the disclosure date) as their event date.

2. Legal Background and Data

Germany was very slow in adopting regulation on trading by corporate insiders. An amendment to the Securities Trading Act (Wertpapierhandelsgesetz) that required them to report their trades became effective as late as July 1, 2002.[7] Members of the executive board, members of the supervisory board[8] and their family members have to report trades in shares and other equity-related securities of their company. Board members of firms with exchange-listed subsidiaries also have to report trades in shares of the subsidiary. Former board members and large shareholders are not required to report their trades.

Trades have to be reported both to the company and to the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin)[9], the German analogue to the SEC. During our sample period, trades had to be reported "without delay" when the total transaction volume within a 30 day window exceeds € 25,000.[10] In our empirical analysis we only include trades for which this immediate reporting requirement applies. We thus include i) all trades larger than € 25,000 and ii) trades smaller than or equal to € 25,000 only if the aggregated volume of trades by the same insider in the preceding 30 days surpasses € 25,000. As an example, consider an insider buying shares worth € 20,000 on April 15 and shares worth € 10,000 on May 10. Initially (i.e., on April 15) the first trade does not have to be reported. However, upon execution of the second trade *both* trades have to be reported. We only include the second trade in our analysis because only this trade has to be reported without delay.

---

[7] Prior to that date corporate insiders were only subject to the Securities Trading Act's general prohibition of trading on private information.

[8] German listed firms are typically incorporated as "Aktiengesellschaft" and have a two-tier board. The members of the executive board manage the day-to-day operations of the firm, the members of the supervisory board appoint and monitor the members of the executive board. More detailed descriptions of corporate governance in Germany can be found in Goergen and Renneboog (2003) and Rieckers and Spindler (2004).

[9] The Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) is the federal authority charged with the surveillance of securities trading. It was created in 2002 when three formerly independent institutions [the Bundesaufsichtsamt für das Kreditwesen (banking surveillance), the Bundesaufsichtsamt für das Versicherungswesen (surveillance of the insurance industry) and the Bundesaufsichtsamt für den Wertpapierhandel (surveillance of securities trading)] were merged.

[10] In October 2004 new rules became effective. Trades now have to be reported within five business days whenever the total volume in a calendar year exceeds € 5,000.

The report has to contain the trading date, information on the position of the trader within the company, the security traded, the trade size, and the price. The company has to publish the trade information. This usually happens by way of posting the information on the company's web site.

Certain exemptions from the reporting requirement exist. Securities obtained as a part of the remuneration (e.g. stock options) do not have to be reported. When stock options are exercised, however, the purchase of the shares has to be reported. Further, the rules do not apply to firms that are only traded over the counter.[11]

Sanctions for late filing were modest during our sample period. Corporate insiders filing late faced a fine of up to € 50,000. In the years 2002-2004 the BaFin examined a total of 230 cases. In nine cases corporate insiders were convicted of violating the reporting requirements and had to pay fines of up to € 20,000. Given these modest sanctions it comes as no surprise that late filings were quite common.[12] The objectives of our paper are to a) analyze *who* files late, and b) to investigate into the consequences that late filings have for the informativeness of prices.

The BaFin maintains a database of all insider trades that have been reported. It contains information about the company name and ISIN code, the trading date and the reporting date, the security traded, the transaction type (purchase or sale), the transaction volume and the price, and the name and the function of the person reporting the trade (executive board member, supervisory board member or other person subject to the trade reporting requirement). Our empirical analysis is based on this database. It covers the period from July 1st 2002 to June 30th 2004. A total of 4,272 transactions by insiders in firms listed on a German exchange have been reported in this period.

[11] There is an OTC segment on German exchanges termed "Freiverkehr". Listing requirements are generally low in this segment.

We complement the data on insider transactions with supplementary data obtained from various sources. By matching the names given in the BaFin database with information on the composition of the executive and supervisory boards provided in Hoppenstedt Aktienführer,[13] we identify transactions initiated by the chairman of either the executive or the supervisory board. We further collect data on the ownership structure of the firm from Hoppenstedt Aktienführer. It lists all investors with a stake of at least 5% of the shares outstanding. Data on (dividend-adjusted) daily closing prices is obtained from Datastream. We collect information on the publication dates of annual reports, intermediate reports and quarterly earnings announcements from Bloomberg, Datastream, and corporate web sites. Finally, we obtain information on the accounting standards by checking the annual report of the fiscal year preceding the insider trade.

In 163 cases the entries in the BaFin database are incomplete, e.g. because a trade is not characterized as being a purchase or a sale. We drop the corresponding observations from the sample. The data set contains 15 trades among insiders, i.e., transactions in which one insider is the buyer and another insider is the seller. The most likely reason for these transactions is the transfer of stocks between spouses, or between executives and their children, possibly for tax reasons. We drop the corresponding observations because these transactions arguably do not constitute a signal to the market. In 42 cases the same person reports more than one equal-sized trade in the same security and at the same price on the same day. We interpret these observations as duplicates and drop all but one from the sample. In cases in which the reported trading or reporting date falls on a weekend or a holiday we replace the date with the date of the first subsequent business day. In 15 cases the reporting date as it appears in the BAFin database is prior to the trading day. We correct the dates after cross-checking the data

[12] Late filing also occurs in other countries. In a recent paper, Betzer et al. (2007) show that in a (pre-Sarbanes-Oxley) US sample containing more than 360,000 trades more than 18% of the trades were reported late.

[13] The Hoppenstedt Aktienführer is a yearly publication providing detailed information (e.g., ownership structure, board composition, balance sheet information) on German listed firms.

with other sources. Finally we discard 178 observations because the available stock price data is insufficient to conduct an event study with an event window of 41 days and an estimation window of 180 days.

We aggregate all trades in the shares of a given firm that were executed by the same corporate insider on the same day. The aggregated transactions are treated as one trade. The (net) transaction volume is taken to be the sum of the volumes of the individual trades. If the net transaction volume is positive [negative], we classify the aggregated transaction as a purchase [sale]. The details of the sample selection procedure are documented in Table 1.

<Table 1.>

The final dataset consists of 1,977 observations (972 purchases and 1,005 sales). Table 2. presents descriptive statistics. The average trade size is close to € 1 million (corresponding to slightly more than 1% of the value of shares outstanding), with sales on average being larger than purchases. The trade size distribution is heavily skewed. The median trade size is about € 70,000 (0.06% of the value of shares outstanding) and is, again, larger for sales than for purchases. Members of the executive board and the CEO in particular account for the largest number of trades. The average trade size, on the other hand, is larger for trades initiated by members and, in particular, the chairman of the supervisory board.

<Table 2.>

In the introduction we noted that insiders may execute a series of trades and delay the reporting of the earlier trades until they have completed all transactions. Panel C of Table 2 provides evidence that this behavior is not uncommon. We sort all sample trades into two categories, namely single trades and trades which are part of a series. A trade is classified as a single trade if it is not followed by another trade by the same insider before it is reported. A trade is part of a series if it is either followed by another trade by the same insider before it is reported, or if it is preceded by another trade by the same insider that has not yet been reported.

The results reported in Table 2 indicate that 38.3% of all trades (370 out of 972 purchases and 387 out of 1,005 sales) are part of a series of trades. We do not know whether these serial trades were executed in the intention to strategically exploit superior information. However, they certainly have the potential to impose losses on the counterparties to the trades as compared to a situation in which each insider trade is reported immediately.

3. What Determines the Delays - Empirical Results

As noted in the previous section trades had to be reported "without delay" during our sample period. The law was not specific as to what exactly that meant. In practice, substantial reporting delays occurred, as is documented in Table 3. About 25% of the insider trades are reported on the trading day or the subsequent day. Another 48.3% of the trades are reported between 2 and 7 days after the trade, 12.9% are reported in the second week after the trade, 6.9% are reported in the third or fourth week after the trade and the remaining 6.2% of the trades have reporting delays of more than 30 days. The mean reporting delay is 13.1 days, the median delay is 4 days. The separate figures for insider purchases and sales also shown in Table 3 reveal that purchases are reported with longer delays than sales. The difference is statistically significant.

Some trades are reported with extreme delays (the maximum reporting delay in our sample is 442 days). These extreme observations are likely to be outliers and may bias our results. In order to assure the robustness of our results we repeat our complete analysis after exclusion of observations with delays exceeding 30 days.

<Table 3.>

The figures in Table 3 reveal that substantial reporting delays exist, and that there is considerable variation in the reporting delays. Whether this variation is systematic is one of the ques-

tions we now turn to. To this end we sort the sample into groups according to the following variables:

- Trade size, measured in Euro (below / above mean[14]),
- firm size, measured by the market value of equity (below / above median),
- trading date (first versus second half of sample period),
- the ownership structure, measured by a variable indicating whether the firm has an individual shareholder owning more than 25% of the voting equity (closely-held firms) or not (widely held firms),
- the accounting standards (either German or IFRS / IAS / US GAAP),
- the position of the insider within the firm.

For each partition of the sample we report average delays for all trades and separate values for purchases and sales. We repeat the analysis after exclusion of observations with a delay in excess of 30 days.

The results are presented in Table 4. Smaller trades and trades by insiders in smaller firms tend to be reported with longer delays. "Early" trades (those trades that occurred in the first half of our sample period, i.e., between July 1, 2002 and June 30, 2003) are also reported with longer delays. This indicates that the reporting delays have generally decreased over time.

We do find evidence that trades in widely held firms are reported with longer delays. Managers in widely held firms are likely to be subject to lower levels of control by the owners of the firm. This, in turn, may make them less responsive to the information requirements of the owners and the capital market in general. A related argument may explain why trades (and purchases in particular) by insiders in firms using German accounting standards are reported

[14] We split the sample at the mean rather than at the median because the trade size variable is heavily skewed. Splitting the sample at the median instead yields qualitatively similar results.

with longer delays. German accounting standards are not tuned to the information requirements of the capital market[15] and firms using German accounting standards may therefore be less willing to provide investors in financial markets with timely and accurate information.

The position of the insider within the firm appears to matter. When comparing the reporting delays of five groups of insiders (the CEO, other members of the executive board, the chair of the supervisory board, other members of the supervisory board, and other traders) the ANOVA F-statistic for the null hypothesis of no differences in means indicates rejection of the null in three cases.

<Table 4.>

The univariate analysis presented thus far does not take into account the interdependences between the explanatory variables. We therefore now turn to a regression analysis. The dependent variable is the reporting delay. As noted earlier, there are outliers in the sample that may bias the results. We therefore estimate five versions of the model:

- a simple linear model,
- a linear model where observations with delays in excess of 30 days are excluded,
- a winsorized model in which delays in excess of 30 days are set to 30 days,
- a log model in which the dependent variable is the log of 1 plus the delay[16],
- a probit model in which the dependent variable is a binary variable taking on the value one if the delay is more than 7 days and zero otherwise. The cutoff value of 7 calendar days corresponds to 5 business days. This, in turn, is the maximum delay allowed according to the new regulation that became effective in October 2004.

[15] See e.g. Leuz and Wüstemann (2004, p. 475), who conclude that "[t]he evidence ... suggests that the level of public disclosure is lower in Germany and that financial statements in Germany are generally less informative than those of UK or US firms".

[16] We add 1 to the delays because there are many observations with a zero delay. The log model puts less weight on extreme observations.

The univariate analysis has shown that the reporting delays for purchases and sales differ. We therefore include a dummy variable identifying insider sales on the right-hand side. The results in Table 4 further suggest that reporting delays have decreased over time We account for this decrease by including a dummy variable which identifies trades executed in the second half of the sample period.

We further include the size of the insider trade (measured by the relative volume, the transaction volume expressed as a percentage of the number of shares outstanding) and firm size (measured by the log of the market value of equity) as independent variables. Finally, we include dummy variables for widely-held firms, for firms using international accounting standards (IFRS/IAS or US GAAP) and dummy variables for trades by the chair and members of both the executive and the supervisory board among the set of explanatory variables.[17]

<Table 5.>

The results are shown in Table 5. Our earlier finding that insider sales are reported with shorter delays is confirmed. The coefficient on the dummy variable identifying insider sales is significantly negative in four out of the five models. We also confirm the previous finding that reporting delays have decreased over time.

Reporting delays are not systematically related to trade size. There is some evidence that trades by insiders in larger firms are reported with shorter delays. The respective coefficient is significantly negative in two cases.

[17] Insiders wishing to execute more than one trade may deliberately delay the reporting of the first trade in order to increase the profitability of their trades. We would, therefore, expect to find longer reporting delays when a trade is followed by other trades prior to being reported. We construct a multiple-trade dummy variable that identifies these cases. Including this variable yields a significantly positive coefficient while not materially affecting the results presented in the text. We do not report the results including the multiple-trade dummy for two reasons. First, a trade that is followed by another trade before it is reported can, by definition, not have a zero reporting delay. Therefore, we are likely to find a positive coefficient on the multiple trade dummy. Second, assume reporting delays are random and, in particular, are independent from subsequent trades by the same insider. Now consider a trade that is, by chance, reported with a long delay. This trade has a larger probability of being followed by a second trade by the same insider before it is reported. In the regression we may therefore find a positive relation between the multiple-trade dummy and the reporting delays. This relation, however, would be spurious.

Trades by insiders in firms that adopt international accounting standards are reported with shorter delays. The coefficient is negative and significant at the 1% level in all five models. Also consistent with our previous findings, trades by insiders in widely-held firms are reported with longer delays. All five coefficients are positive and four are significant at the 1% level.

With respect to the identity of the trader there is weak evidence that trades by the chair and members of the executive board and the chair of the supervisory board are reported with shorter delays whereas those of other members of the supervisory board are reported with longer delays.

In summary, the regression results are fully consistent with the univariate results presented earlier. Most importantly, the finding that both the ownership structure of the firm and the accounting standards matter is confirmed. The results thus support our conclusion that widely-held firms and firms applying German accounting standards are less responsive to the informational requirements of investors, analysts and other market participants.

4. Reporting Delays and Informational Efficiency

Several empirical papers have concluded that share prices react to both the occurrence of an insider trade itself and to the reporting of the trade.[18] This implies that the market is unable to infer the full information content of the trade on the trading day. Consequently, prices are distorted in the period between the trading and the reporting date. Longer reporting delays will thus impair market efficiency. It may, however, be the case that the market learns some of the information even without reporting of the insider trade. If this is the case, reporting day abnormal returns will be smaller for insider trades that are reported with longer delays.

To address this issue empirically we first conduct a standard event study. We use the CDAX performance index, a value-weighted, broad-based index calculated by Deutsche Börse AG, to estimate market model expected returns over a 180 day estimation window ending 20 days prior to the day on which the insider trade was reported.[19] We define the reporting date of the insider trade as the event day and then calculate cumulative abnormal returns over a 20 day event windows starting on the event day. The results are presented in the first two columns of Table 6. Consistent with the results of previous papers we find that the reporting of insider trades is associated with significant cumulative abnormal returns (CARs). Share prices rise after the reporting of insider purchases (the $CAR_{0,20}$ amounts to 2.40%) and they decline after insider sales (the CAR amounts to -2.63%).

<Table 6.>

In a second step we test whether the magnitude of the CARs depends on the reporting delays. In order to do so we sort the observations into two groups - those with a reporting delay of

[18] See Chang and Suk (1998), Lakonishok and Lee (2001), Fidrmuc et al. (2006) and Betzer and Theissen (2007).

[19] When the reporting delay exceeds 20 days, the estimation window includes the trading date. This may lead to biased estimation of the market model parameters. We addressed this potential problem in two ways. First, we re-estimated our model (and the subsequent cross-sectional analysis) after excluding all observations with a delay in excess of 20 days. Second, we replaced the market-model adjustment by simple index-adjustment in our event study. Results were similar to those reported in the text and are thus omitted from the paper.

seven days or less, and those with a delay of eight or more days. We do not find significant differences between the groups. The reporting day $CAR_{0,20}$ of purchases with short reporting delays is 1.90%. The corresponding value for insider purchases reported with long delays is *larger*, amounting to 3.59%. The t-statistic of 1.60 indicates that the difference just falls short of being significant at the 10% level. The difference between the CARs for insider sales with short and long reporting delays is much smaller. The cumulative abnormal returns amount to -2.67% and -2.50%, respectively, and the difference is far from being significant.

These results indicate that the magnitude of the abnormal return after the announcement day does not decrease when the trade is reported with a longer delay. It thus appears that the market does not learn the information conveyed by the announcement of the insider trade. Consequently, reporting delays have a negative impact on the information content of prices.

The univariate analysis conducted thus far does not take into account that the reporting day CARs may depend on variables we have not considered. Previous research (e.g. Fidrmuc et al. 2006, Betzer and Theissen 2007) has uncovered that the CARs are related to the characteristics of the insider trade, the characteristics of the firm, and the position of the insider within the firm. We therefore now turn to a multivariate regression analysis in which we control for these variables.

The dependent variable is the $CAR_{0,20}$[20]. The CAR for sales is multiplied by -1. This allows us to pool the data for purchases and sales. In order to allow for different CARs for purchases and sales we include a dummy variable identifying insider sales on the right-hand side. We also include a measure of the size of the insider trade (the trade size as a percentage of the number of shares outstanding), a measure of firm size (the log of the market value of equity), a measure of the firm's profitability (the return on equity), a measure of leverage (the ratio of debt to total assets) and dummy variables identifying widely-held firms and firms adopting

international accounting standards. The informational hierarchy hypothesis posits that trades by insiders who are more involved with the day-to-day operations of the firm (and who therefore have better access to information) have larger price impacts. We therefore also include dummy variables identifying the position of the insider within the firm. Finally, Betzer and Theissen (2007) have shown that insider trades prior to earnings announcements have larger price impacts.[21] We take this into account by including a dummy variable (denoted "pre-announcement period") that identifies insider trades executed in the 60 days prior to an annual or interim earnings announcement or in the 30 days prior to a quarterly earnings announcement.[22]

The variable of prime impact is the reporting delay. We estimate five versions of the model. Model 1 is the base model. In model 2 we exclude all observations with delays larger than 30 days. Model 3 uses a winsorized variable, i.e., delays in excess of 30 days are set to 30. Model 4 measures the delay by the log of 1 plus the delay, and model 5 includes a dummy variable taking on the value 1 if the delay is larger than 7 days. The results of all five models are reported in Table 7.

Reporting day abnormal returns appear to be equal for insider purchases and sales. They are, if anything, negatively related to the size of the insider trade and to the size of the firm. CARs are significantly negatively related to firm profitability and to our measure of leverage. Trades by insiders in widely-held firms and by insiders in firms using international accounting standards are associated with higher CARs.[23] Trades by the CEO, by ordinary members of the

---

[20] To check the robustness of our results we re-estimated all models using the $CAR_{0,10}$ and the $CAR_{0,1}$ instead. The results are qualitatively similar but R^2s are considerably lower and some variables lose significance.

[21] See also Hillier and Marshall (2002) on this issue.

[22] We obtained the data on earnings announcement dates from Bloomberg, Datastream, and company web sites. The choice of the 60 and 30 day windows is motivated by the fact that trades within two months prior to annual or interim earnings announcements and trades within one month prior to a quarterly earnings announcement are prohibited under UK regulation.

[23] The result that trades reported by insiders in firms using international accounting standards have higher CARs is inconsistent with the notion that international accounting standards are more informative. If they were more informative, we should expect informational asymmetries between insiders and the capital market

executive board and by the chair of the supervisory board tend to have higher CARs than those by members of the base group (family members and other persons required to report their trades). Trades by the CEO appear to have a smaller price impact than trades by other members of the executive board. This result is inconsistent with the informational hierarchy hypothesis. Insider trades executed prior to earnings announcements have higher CARs. These results are consistent with those found in the literature, most notably those in Betzer and Theissen (2007).

<Table 7.>

The coefficient on the delay variable is insignificant in all models and is positive in four out of five models. The results thus support our earlier finding that the cumulative abnormal returns after the reporting date do not decrease when a trade is reported with a longer delay. Consequently, market prices are distorted in the period between execution and reporting of the trade. This result is a strong point in favor of a regulation requiring and enforcing immediate disclosure of insider trades.

5. Summary and Conclusion

Until October 2004 corporate insiders in Germany were required to report trades in the shares of their firm "without delay". In practice substantial delays were common. In the present paper we analyze both the determinants and the consequences of these reporting delays.

We find trading patterns that are consistent with the strategic use of private information. Corporate insiders frequently execute a series of trades before any of the trades of the series is reported. In our sample 38.3% of all trades are part of a series. This trading pattern is obviously to the disadvantage of the counterparties to the trades - with immediate reporting of

to be lower in firms adopting international accounting standards. In this case, however, we would expect smaller CARs for these firms.

each insider trade the second and later trades of a series would have occurred at more favorable prices.

When analyzing the determinants of the reporting delays we find that the delays are systematically related to the characteristics of the firm. In particular, delays are longer in widely-held firms and in firms using German accounting standards. These results suggest that managers of these firms are less responsive to the informational requirements of the capital market.

Abnormal returns after the reporting date of an insider trade are independent of the reporting delay. This implies that prices are distorted in the period between the trading and the reporting date. Consequently, and consistent with the theoretical predictions in Huddart et al. (2001), regulation that requires and enforces immediate publication of insider trades will increase the informational efficiency of prices.

References:

Bajo, E. and B. Petracci (2004), 'Do What Insiders DO: Abnormal Performances After the Release of Insiders' Relevant Transactions', *Working Paper*, University of Bologna.

Betzer, A., D. Metzger and E. Theissen (2007), 'Strategic Trading by Corporate Insiders', Working Paper, University of Bonn and London School of Economics.

Betzer, A. and E. Theissen (2007), Forthcoming. 'Insider Trading and Corporate Governance - The Case of Germany', *European Financial Management*.

Chang, S., and D. Suk (1998), 'Stock Prices and the Secondary Dissemination of Information: The Wall Street Journal's 'Insider Trading Spotlight' Column', *Financial Review,* Vol. 33, No. 3, pp. 115-128.

Datta, S. and M. Iskandar-Datta (1996), 'Does Insider Trading Have Information Content for the Bond Market?', *Journal of Banking and Finance, Vol.* 20, No. 3 pp. 555-575.

Etebari, A., A. Tourani-Rad and A. Gilbert (2003), 'Profitability of Insider Trading: New Zealand Evidence', *University of Auckland Business Review,* Vol. 5, No. 2, pp. 1-15.

Fidrmuc, J., M. Goergen and L. Renneboog (2006) 'Insider Trading, News Releases and Ownership Concentration', *Journal of Finance,* Vol. 61, No. 6, pp. 2931-2973.

Goergen, M. and L. Renneboog (2003), 'Why Are the Levels of Control (So) Different in German and U.K. Corporations? Evidence from Initial Public Offerings', *Journal of Law, Economics, & Organization,* Vol. 19, No. 1, pp. 141-175.

Hillier, D. and A. Marshall (2002), 'The Market Evaluation of Information in Directors' Trades', *Journal of Business Finance and Accounting,* Vol. 29, No. 1-2, pp. 77-110.

Huddart, S., J. Hughes and C. Levine (2001), 'Public Disclosure and Dissimulation of Insider Trades', *Econometrica,* Vol. 69, No. 3, *pp.* 665-681.

Hue, J and T. Noe (2001), 'Insider Trading and Managerial Incentives', *Journal of Banking and Finance,* Vol. 25, No. 4, pp. 681-716.

Jaffe, J. (1974), 'Special Information and Insider Trading', *Journal of Business,* Vol. 47, No. 3, pp. 410-428.

Kyle, A. (1985), 'Continuous Auctions and Insider Trading', *Econometrica,* Vol. 53, No. 6, pp. 1315-1336.

Lakonishok, J. and I. Lee (2001), 'Are Insider Trades Informative?', *Review of Financial Studies,* Vol. 14, No. 1, pp. 79-111.

Leuz, C. and J. Wüstemann 2004, 'The role of accounting in the German financial system' in: J. Krahnen and H. Schmidt (eds.), *The German financial system* (Oxford University Press), pp. 450-477.

Leuz, C. and P. Wysocki 2008, 'Economic Consequences of Financial Reporting and Disclosure Regulation: A Review and Suggestions for Future research', Working Paper, University of Chicago and MIT.

Rieckers, O. and G. Spindler (2004), 'Corporate Governance: Legal Aspects', in J. Krahnen and R. Schmidt (eds.), *The German Financial System*. Oxford: Oxford University Press.

Seyhun, N. 1986. 'Insiders' Profits, Costs of Trading, and Market Efficiency', *Journal of Financial Economics,* Vol. 16, No. 2, pp. 189-212.

Zhang, G. (2001), 'Regulated Managerial Insider Trading as a Mechanism to Facilitate Shareholder Control', *Journal of Business Finance and Accounting,* Vol. 28, No. 1-2, pp. 35-62.

Table 1. Sample selection

Reason for exclusion	Nr. of observations excluded	Remaining Data
Initial number of observations		4,272
For 163 cases the entries for the transaction type (buy or sell) are missing and the missing information could not be retrieved from the company's homepage or other sources.	163	4109
Intra-insider trades (one insider sold, another - e.g. the spouse - bought)	15	4094
If transactions on the same day are similar in the amount and the price traded we recognized the transactions as duplicate and deleted one of these transactions.	42	4052
We aggregate the transactions the same insider made on the same day and present those as one transaction with the net amount traded and the weighted average transaction price.	1352	2700
Transactions whose transaction dates or announcement dates were not covered by sufficient price data in order to conduct the event study with an event window of 41 days and an estimation window of 180 days.	178	2522
We only include trades for which the immediate reporting requirement applies. We thus include i) all trades larger than € 25,000 and ii) trades smaller than or equal to € 25,000 only if the aggregated volume of trades by the same insider in the preceding 30 days surpasses € 25,000. All other trades are dropped from the sample.	545	1977

This table describes the composition of the final data set. The first column provides a record of all reasons that led us to exclude observations from the sample. The second column shows the number of excluded observations and the third column shows the number of remaining observations.

Table 2. Descriptive Statistics

Panel A. Transaction size

		All transactions	Purchases	Sales
Number of observations		1,977	972	1,005
Size, €	mean	969,540.25	549,050.17	1,376,628.26
	median	69,243.00	41,913.50	131,407.50
Size, percent of shares outstanding	mean	1.02%	0.64%	1.39%
	median	0.06%	0.04%	0.09%

Panel B. Transactions by position of insider

	Purchases			Sales		
	#	mean size, €	median size, €	#	mean size, €	median size, €
CEO	193	266,751.87	50,000.40	153	1,802,323.14	196,740.00
Other members of executive board	331	154,545.12	39,200.00	330	1,098,820.64	148,500.00
Head of supervisory board	82	137,902.02	38.259.25	71	3,829,027.44	86,670.00
Other members of supervisory board	263	1,099,134.91	32,950.00	259	853,562.28	86,825.00
Others	103	1,268,532.15	73,580.00	191	1,313,271.93	154,751.20

Panel C. Serial trades

Purchases		Sales	
single trades	trades in series	single trades	trades in series
602	370	618	387

The table presents descriptive statistics. Panel A contains descriptive statistics on the trades in our sample while Panel B shows the number and average size of trades initiated by insiders holding different positions within the firm. Panel C shows the number of single trades (defined as a trade that is not followed by another trade by the same insider before it is reported) and the number of trades that are part of a series (where a series is defined as a string of trades by the same insider which are executed on different days and are reported after the last trade of the series is executed).

Table 3. Reporting Delays

	All transactions		Purchases		Sales	
	number	percent	number	percent	number	percent
0 days	194	9.81	74	7.61	120	11.94
1 day	316	15.98	155	15.95	161	16.02
2-7 days	954	48.25	455	46.81	499	49.65
8-14 days	254	12.85	130	13.37	124	12.34
15-30 days	137	6.93	79	8.13	58	5.77
> 30 days	122	6.17	79	8.13	43	4.28
total	1,977		972		1,005	
Mean, days	13.07		19.18		7.17	
t-statistic				5.97		
Median, days	4.00		5.00		4.00	
z-statistic				4.55		

The table shows the reporting delays (defined as the number of days between the trading date and the reporting date) for the insider trades in our sample. Columns 1 and 2 report figures for all transactions, columns 3 and 4 (5 and 6) show figures for insider purchases (insider sales). Only trades which, according to the law, had to be reported are included.

Table 4. Determinants of Reporting Delays - Univariate Analysis

	All trans-actions		Purchases		Sales	
	all	D≤30	all	D≤30	all	D≤30
small trades (below mean)	14.05	5.51	19.97	5.88	7.50	5.11
large trades (above mean)	5.56	3.55	5.47	4.08	5.59	3.39
t-statistic	2.67*	4.98*	1.66	2.13*	1.54	4.03*
small firms (below median)	15.69	5.71	22.37	5.96	7.77	5.42
large firms (above median)	10.45	4.86	15.26	5.55	6.68	4.32
t-statistic	2.59*	3.34*	1.78	1.04	1.16	3.35*
early trades (July 2002 - June 2003)	18.41	5.75	22.99	5.97	8.52	5.29
late trades (July 2003 - June 2004)	7.72	4.82	10.45	5.33	6.55	4.60
t-statistic	5.31*	3.69*	2.91*	1.51	1.95*	1.95*
widely-held firms (n = 605 / 312 / 373)	22.81	5.34	40.33	5.29	8.16	5.37
closely-held firms (n = 1,292 / 660 / 632)	7.91	5.25	9.19	5.98	6.58	4.49
t-statistic	7.08*	0.33	7.52*	1.60	1.64	2.60*
German reporting standards (n = 571 / 355 / 216)	22.58	6.05	31.14	6.78	8.53	4.94
IAS or US-GAAP (n = 1,406 / 617 / 789)	9.21	4.98	12.31	5.24	6.79	4.78
t-statistic	6.03*	3.79*	4.61*	3.76*	1.52	0.40
Chair executive board (n = 346 / 193 / 153)	8.04	5.30	10.22	6.09	5.29	4.35
Other member executive board (n = 661 / 331 / 330)	10.23	5.19	14.11	6.16	6.34	4.22
Chair supervisory board (n = 153 / 82 / 71)	8.44	4.32	9.84	4.09	6.83	4.57
Other member supervisory board (n = 523 / 263 / 260)	23.14	5.72	37.52	5.81	8.60	5.63
Other traders (n = 294 / 103 / 191)	9.88	5.21	12.89	5.17	8.26	5.24
ANOVA F-statistic	9.17*	1.94	8.30*	2.35	1.74	3.39*

We sort the sample into groups according to the variables listed in the first column. Only insider trades which, according to the law, had to be reported are included. For each partition of the sample we report average delays for all trades (columns 2 and 3) and separate values for purchases (columns 4 and 5) and sales (columns 6 and 7). We repeat the analysis after exclusion of observations with a delay in excess of 30 days. An "*" indicates significance at the 5% level.

Table 5. Determinants of Reporting Delays - Regression Results

	linear	linear, D>30 excluded	winsorized	Log (D+1)	Probit
Constant	19.700*** (5.05)	7.789*** (13.75)	10.307*** (13.03)	2.142*** (20.66)	-0.283** (-2.26)
Dummy sales	-7.549*** (-5.14)	-0.674** (-2.49)	-1.092*** (-2.80)	-0.198*** (-3.81)	-0.103 (-1.51)
Year 2	-8.336*** (-4.60)	-0.561** (-2.04)	-1.518*** (-3.82)	-0.157*** (-2.96)	-0.289*** (-4.24)
Volume (relative)	-9.959 (-1.01)	-1.745 (-0.51)	-3.140 (-0.85)	-0.706 (-1.19)	-0.288 (-0.36)
Log (Market cap.)	0.734 (1.61)	-0.211*** (-3.50)	-0.167** (-2.07)	-0.013 (-1.18)	-0.021 (-1.57)
International acc. std.	-13.493*** (-4.80)	-0.830*** (-2.79)	-2.079*** (-4.86)	-0.349*** (-6.01)	-0.220*** (-3.15)
Widely held	16.491*** (5.80)	0.367 (1.43)	1.897*** (4.83)	0.314*** (5.67)	0.262*** (3.98)
CEO	-2.078 (-0.89)	-0.452 (-1.00)	-1.040* (-1.70)	-0.160** (-1.96)	-0.083 (-0.74)
Chair sup. board	-1.191 (-0.37)	-1.507*** (-3.10)	-2-211*** (-3.10)	-0.255** (-2.44)	-0.250* (-1.73)
Executive board	-2.045 (-0.90)	-0.390 (-1.00)	-1.131** (-2.05)	-0.182** (-2.46)	-0.087 (-0.88)
Sup. board	10.149*** (3.68)	0.016 (0.04)	0.771 (1.26)	0.139* (1.74)	0.157 (1.55)
R2 (adj.)	0.084	0.029	0.063	0.077	0.034

The table reports the results of a regression of the reporting delays on the explanatory variables listed in column 1. Column 2 reports the results of the baseline linear model. Alternative specifications exclude observations where the delay exceeds 30 days (column 3), winsorize the dependent variable at 30 (column 4), use the log of one plus the delay as the dependent variable (column 5) or use a dummy variable that takes on the value 1 if the delay is larger than 7 calendar days and zero otherwise as the dependent variable (column 6). Only transactions that, according to the law, had to be reported are included. t-values are given in parentheses and are based on heteroscedasticity-consistent standard errors. Asterisks *, ** or ***denotes significance at the 10% (5%, 1%) level.

Table 6. Announcement Day CARs and Reporting Delays - Univariate Analysis

	$CAR_{0,20}$	t-statistic	$CAR_{0,20}$ D ≤ 7	$CAR_{0,20}$ D > 8	t-statistic
Pooled	2.518%	6.78 ***	2.309%	3.113%	0.95
Purchases	2.402%	4.96 ***	1.900%	3.592%	1.60
Sales	-2.630%	-4.69 ***	-2.667%	-2.500%	0.12

The table reports cumulative abnormal returns (CARs) from a standard event study. The event date is the reporting date of an insider trade. The first line presents results from a pooled sample that includes both purchases and sales. CARs for sales have been multiplied by (-1). Lines 2 and 3 report separate results for purchases and sales, respectively. Column 1 reports results for all trades. Column 2 reports the t-statistic for a test of the mean against zero. Columns 3 and 4 report the CARs for trades that have been reported with a delay of 7 or less days and 8 or more days, respectively. The last column reports the t-statistic for a test of equality of the means. Asterisks *, ** or ***denotes significance at the 10% (5%, 1%) level..

Table 7. Announcement Day CARs and Reporting Delays - Regression Results

	Delay measured by				
	Delay	Delay; D>30 excl.	Delay winsorized	Log(D+1)	Delay-Dummy
Constant	-0.013 (-0.61)	-0.025 (-1.06)	-0.014 (-0.63)	-0.022 (-0.95)	-0.016 (-0.76)
Dummy sales	0.005 (0.69)	0.006 (0.81)	0.006 (0.75)	0.007 (0.88)	0.006 (0.81)
Volume (relative)	-0.232 (-1.54)	-0.257* (-1.66)	-0.231 (-1.53)	-0.227 (-1.48)	-0.230 (-1.50)
Log (Market cap.)	-0.002 (-0.85)	-0.003 (-1.27)	-0.002 (-0.83)	-0.002 (-0.77)	-0.002 (-0.81)
Return on equity	-0.001*** (-3.35)	-0.001*** (-3.16)	-0.001*** (-3.37)	-0.001*** (-3.40)	-0.001*** (-3.37)
Debt ratio	-0.042** (-2.29)	-0.045** (-2.40)	-0.043** (-2.34)	-0.046** (-2.48)	-0.044** (-2.42)
Widely held	0.044*** (5.27)	0.052*** (6.00)	0.043*** (5.37)	0.042*** (5.14)	0.043*** (5.34)
International accounting standards	0.013* (1.86)	0.019*** (2.62)	0.014** (1.97)	0.016** (2.24)	0.015** (2.08)
CEO	0.036** (2.25)	0.034** (2.05)	0.036** (2.25)	0.037** (2.30)	0.036** (2.28)
Executive board	0.057*** (4.31)	0.064*** (4.60)	0.057*** (4.27)	0.058*** (4.33)	0.058*** (4.34)
Chair sup. board	0.066*** (3.07)	0.071*** (3.17)	0.066*** (3.05)	0.068*** (3.12)	0.067*** (3.12)
Sup. board	0.016 (1.08)	0.023 (1.47)	0.015 (1.07)	0.015 (1.02)	0.015 (1.04)
Pre-announcement period	0.025*** (3.31)	0.034*** (4.48)	0.024*** (3.31)	0.024*** (3.19)	0.024*** (3.25)
Delay (see column head for details)	-0.003 (-0.74)	0.001 (1.08)	0.009 (0.19)	0.005 (1.49)	0.011 (1.31)
R^2 (adj.)	0.057	0.074	0.057	0.058	0.058

The table reports the results of a regression of the reporting day CARs on the explanatory variables listed in column 1. The CARs are obtained from a standard event study. The event window is [0; 20]. The five models differ in the way the dependent variable "delay" is specified. Model 1 includes the raw data. Model 2 excludes observations where the delay exceeds 30 days. Model 3 uses a winsorized variable where values in excess of 30 are set to 30. Model 4 uses the logarithm of 1 plus the delay. The last model includes a dummy variable that takes on the value one if the delay is larger than 7 days and zero otherwise. Only transactions that, according to the law, had to be reported are included. t-values are given in parentheses and are based on heteroscedasticity-consistent standard errors. Asterisks *, ** or ***denotes significance at the 10% (5%, 1%) level.*

cfr/working paper series

centre for financial research
Look deeper

CFR working papers are available for download from **www.cfr-cologne.de**.

Hardcopies can be ordered from: centre for financial research (CFR), Albertus Magnus Platz, 50923 Koeln, Germany.

2008

No.	Author(s)	Title
08-06	A. Betzer, E. Theissen	Sooner Or Later: Delays in Trade Reporting by Corporate Insiders
08-05	P. Linge, E. Theissen	Determinanten der Aktionärspräsenz auf Hauptversammlungen deutscher Aktiengesellschaften
08-04	N. Hautsch, D. Hess, C. Müller	Price Adjustment to News with Uncertain Precision
08-03	D. Hess, H. Huang, A. Niessen	How Do Commodity Futures Respond to Macroeconomic News?
08-02	R. Chakrabarti, W. Megginson, P. Yadav	Corporate Governance in India
08-01	C. Andres, E. Theissen	Setting a Fox to Keep the Geese - Does the Comply-or-Explain Principle Work?

2007

No.	Author(s)	Title
07-16	M. Bär, A. Niessen, S. Ruenzi	The Impact of Work Group Diversity on Performance: Large Sample Evidence from the Mutual Fund Industry
07-15	A. Niessen, S. Ruenzi	Political Connectedness and Firm Performance: Evidence From Germany
07-14	O. Korn	Hedging Price Risk when Payment Dates are Uncertain
07-13	A. Kempf, P. Osthoff	SRI Funds: Nomen est Omen
07-12	J. Grammig, E. Theissen, O. Wuensche	Time and Price Impact of a Trade: A Structural Approach
07-11	V. Agarwal, J. R. Kale	On the Relative Performance of Multi-Strategy and Funds of Hedge Funds
07-10	M. Kasch-Haroutounian, E. Theissen	Competition Between Exchanges: Euronext versus Xetra
07-09	V. Agarwal, N. D. Daniel, N. Y. Naik	Why is Santa so kind to hedge funds? The December return puzzle!
07-08	N. C. Brown, K. D. Wei, R. Wermers	Analyst Recommendations, Mutual Fund Herding, and Overreaction in Stock Prices
07-07	A. Betzer, E. Theissen	Insider Trading and Corporate Governance: The Case of Germany
07-06	V. Agarwal, L. Wang	Transaction Costs and Value Premium

No.	Author(s)	Title
07-05	J. Grammig, A. Schrimpf	Asset Pricing with a Reference Level of Consumption: New Evidence from the Cross-Section of Stock Returns
07-04	V. Agarwal, N.M. Boyson, N.Y. Naik	Hedge Funds for retail investors? An examination of hedged mutual funds
07-03	D. Hess, A. Niessen	The Early News Catches the Attention: On the Relative Price Impact of Similar Economic Indicators
07-02	A. Kempf, S. Ruenzi, T. Thiele	Employment Risk, Compensation Incentives and Managerial Risk Taking - Evidence from the Mutual Fund Industry -
07-01	M. Hagemeister, A. Kempf	CAPM und erwartete Renditen: Eine Untersuchung auf Basis der Erwartung von Marktteilnehmern

2006

No.	Author(s)	Title
06-13	S. Čeljo-Hörhager, A. Niessen	How do Self-fulfilling Prophecies affect Financial Ratings? - An experimental study -
06-12	R. Wermers, Y. Wu, J. Zechner	Portfolio Performance, Discount Dynamics, and the Turnover of Closed-End Fund Managers
06-11	U. v. Lilienfeld-Toal, S. Ruenzi	Why Managers Hold Shares of Their Firm: An Empirical Analysis
06-10	A. Kempf, P. Osthoff	The Effect of Socially Responsible Investing on Portfolio Performance
06-09	R. Wermers, T. Yao, J. Zhao	The Investment Value of Mutual Fund Portfolio Disclosure
06-08	M. Hoffmann, B. Kempa	The Poole Analysis in the New Open Economy Macroeconomic Framework
06-07	K. Drachter, A. Kempf, M. Wagner	Decision Processes in German Mutual Fund Companies: Evidence from a Telephone Survey
06-06	J.P. Krahnen, F.A. Schmid, E. Theissen	Investment Performance and Market Share: A Study of the German Mutual Fund Industry
06-05	S. Ber, S. Ruenzi	On the Usability of Synthetic Measures of Mutual Fund Net-Flows
06-04	A. Kempf, D. Mayston	Liquidity Commonality Beyond Best Prices
06-03	O. Korn, C. Koziol	Bond Portfolio Optimization: A Risk-Return Approach
06-02	O. Scaillet, L. Barras, R. Wermers	False Discoveries in Mutual Fund Performance: Measuring Luck in Estimated Alphas
06-01	A. Niessen, S. Ruenzi	Sex Matters: Gender Differences in a Professional Setting

2005

No.	Author(s)	Title
05-16	E. Theissen	An Analysis of Private Investors´ Stock Market Return Forecasts
05-15	T. Foucault, S. Moinas, E. Theissen	Does Anonymity Matter in Electronic Limit Order Markets
05-14	R. Kosowski, A. Timmermann, R. Wermers, H. White	Can Mutual Fund „Stars“ Really Pick Stocks? New Evidence from a Bootstrap Analysis
05-13	D. Avramov, R. Wermers	Investing in Mutual Funds when Returns are Predictable

No.	Author(s)	Title
05-12	K. Griese, A. Kempf	Liquiditätsdynamik am deutschen Aktienmarkt
05-11	S. Ber, A. Kempf, S. Ruenzi	Determinanten der Mittelzuflüsse bei deutschen Aktienfonds
05-10	M. Bär, A. Kempf, S. Ruenzi	Is a Team Different From the Sum of Its Parts? Evidence from Mutual Fund Managers
05-09	M. Hoffmann	Saving, Investment and the Net Foreign Asset Position
05-08	S. Ruenzi	Mutual Fund Growth in Standard and Specialist Market Segments
05-07	A. Kempf, S. Ruenzi	Status Quo Bias and the Number of Alternatives - An Empirical Illustration from the Mutual Fund Industry –
05-06	J. Grammig, E. Theissen	Is Best Really Better? Internalization in Xetra Best
05-05	H. Beltran, J. Grammig, A.J. Menkveld	Understanding the Limit Order Book: Conditioning on Trade Informativeness
05-04	M. Hoffmann	Compensating Wages under different Exchange rate Regimes
05-03	M. Hoffmann	Fixed versus Flexible Exchange Rates: Evidence from Developing Countries
05-02	A. Kempf, C. Memmel	On the Estimation of the Global Minimum Variance Portfolio
05-01	S. Frey, J. Grammig	Liquidity supply and adverse selection in a pure limit order book market

2004

No.	Author(s)	Title
04-10	N. Hautsch, D. Hess	Bayesian Learning in Financial Markets – Testing for the Relevance of Information Precision in Price Discovery
04-09	A. Kempf, K. Kreuzberg	Portfolio Disclosure, Portfolio Selection and Mutual Fund Performance Evaluation
04-08	N.F. Carline, S.C. Linn, P.K. Yadav	Can the Stock Market Systematically make Use of Firm- and Deal-Specific Factors when Initially Capitalizing the Real Gains from Mergers and Acquisitions
04-07	J.J. Merrick, Jr., N.Y. Naik, P.K. Yadav	Strategic Trading Behavior and Price Distortion in a Manipulated Market: Anatomy of a Squeeze
04-06	N.Y. Naik, P.K. Yadav	Trading Costs of Public Investors with Obligatory and Voluntary Market-Making: Evidence from Market Reforms
04-05	A. Kempf, S. Ruenzi	Family Matters: Rankings Within Fund Families and Fund Inflows
04-04	V. Agarwal, N.D. Daniel, N.Y. Naik	Role of Managerial Incentives and Discretion in Hedge Fund Performance
04-03	V. Agarwal, W.H. Fung, J.C. Loon, N.Y. Naik	Liquidity Provision in the Convertible Bond Market: Analysis of Convertible Arbitrage Hedge Funds
04-02	A. Kempf, S. Ruenzi	Tournaments in Mutual Fund Families
04-01	I. Chowdhury, M. Hoffmann, A. Schabert	Inflation Dynamics and the Cost Channel of Monetary Transmission

centre for financial research
cfr/university of cologne
Albertus-Magnus-Platz
D-50923 cologne
Fon +49(0)221-470-6995
Fax +49(0)221-470-3992
kempf@cfr-cologne.de
www.cfr-cologne.de