

Identifying Profitable Insider Transactions

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Abstract

This study examines long-term excess returns subsequent to directors' dealings announcements between January 2002 and December 2009 from 17 Western European countries. Excess returns are adjusted with equally weighted portfolios which are size and sector neutral. Our main findings show that long-term positive (negative) excess returns exist after insider purchase (sell) transactions. Moreover, we introduce a simple technique to detect the most informative directors' dealings where each transaction is categorized as a "low", "medium" or "high conviction" trade. Based on this categorization, out-of-sample "high conviction" insider purchases generate an average 12-month excess return of 20.94%, while "medium conviction" purchases generate 1.32% and "low conviction" purchases generate -3.40%.

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Insider trading is mostly associated with illegal transactions based on material nonpublic information by corporate insiders. However, trades by insiders in their company's stocks – so-called directors' dealings – are perfectly legal as long as they meet certain criteria of financial regulators. The most significant criterion set up by authorities regulating directors' dealings is the timely dissemination of insider transactions to the public. In the U.S., insider trading has been regulated since 1934 by the Security Exchange Commission (SEC). Since then corporate insiders must file with the SEC a statement of ownership regarding their securities. Today all insider transactions are published as Form 4 filings on the SEC's website and are easy accessible to the public.¹ In Europe, legal insider trading was not regulated until the 1970s. Moreover, each European country regulated directors' dealings differently with regard to the definition of an insider or insider transaction. The implementation of the Market Abuse Directive 2003/6/EC in 2004 brought a change to the irregular and inconsistent reporting of directors' dealings in Europe. Since then, all European member states are required to use certain standards with regard to the regulations of directors' dealings. Although there are still differences in reporting quality across European states, directors' dealings reports became comparable across Europe.² Consequently, in the last decade a large strand of literature not only focuses on trades of U.S. but also of European corporate insiders.³ The majority of the literature provides evidence that corporate insiders outperform the markets or that outsiders are able to profit from insiders by mimicking their strategies (Bettis et al., 1997; Lakonishok and Lee, 2001; Fidrmuc et al., 2006; Betzer and Theissen, 2009; Dardas and Güttler, 2011). A remarkable aspect in most insider studies is that a simple data filtering technique is applied to detect highly informative transactions. Specifically, noise transactions such as option exercise or tax-related transactions are eliminated until a clean data set of plain vanilla buys and sells remains. The remaining trades are then defined as informative transactions and used for further analysis. While this method is essential and has proven successful in the literature, we claim that outside investors need to go beyond this to find the most informative transactions. This is because even from a clean data set of plain vanilla buy and sell insider transactions we cannot expect that each transaction has the same information content. Thus, in

¹ <http://www.sec.gov/cgi-bin/browse-edgar>.

² See Dardas and Güttler (2011).

³ See Del Brio et al., 2002; Bajo and Petracchi, 2006; Zingg et al., 2007; Aussenegg and Ranzi, 2008; Betzer and Theissen, 2009, 2010.

this paper we provide a simple and practical approach how outsiders can detect the most informative (or high conviction) insider transactions. The detection of high conviction trades is hardly addressed in the previous literature. The only remarkable exception is a study by Giamouridis et al. (2008), who investigate long-term effects in the U.K. market and provide a method to filter the most informative transactions. They find that outsiders are able to generate an annualized average return of between 15.5 and 21.5% in medium to high conviction trades.

This paper extends the above literature by focusing on long-term profitability and exploitation of directors' dealings in European stock markets. It contributes in three distinctive ways to the existing literature. First, the study focuses on a pooled country data sample including 17 Western European countries, namely Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the U.K. Second, excess returns are adjusted in a portfolio-based approach. This is a deviation from the standard approach of studying insider trading in an event study framework with market-model or market-adjusted excess returns. Third, we provide a simple method which demonstrates how outsiders can detect the most informative directors' dealings transactions to create long-term investment strategies.

The rest of the paper is organized as follows. Section I describes the data and methodology. Section II analyzes the excess returns and derives the multivariate regression model. Section III analyzes the multivariate results and derives a method to detect high conviction trades, while Section IV concludes.

I. Data and Methodology

Data Pre-Selection, Excess Return Calculation, Data Filtering

Our data on European directors' dealings covers insider transactions between January 2002 and December 2009 from 17 different Western European countries. The initial dataset contains a total of 157,974 transactions which are aggregated on a daily basis. Specifically, multiple transactions by the same insider on the same day are netted to one purchase or sell transaction.⁴ An important aspect of our study is the method used to calculate excess returns. Specifically, a practical portfolio approach

⁴ Whenever we speak of "transactions" we refer to netted daily transactions by the same insider unless stated otherwise.

is employed to calculate excess returns, rather than a market index. We apply this method to calculate excess returns for the following reasons. Previous literature indicates that excess returns are highest after insider transactions in small capitalization firms.⁵ This is because small firms are followed less closely by analysts and therefore insider transactions in small firms have a higher information content. Moreover, Aboody and Lev (2000) as well as Dardas and Güttler (2011) showed that the industry sector is a significant factor in explaining cross-sectional variation in stock returns after insider trade announcements. For instance, insider transactions are most informative in R&D-intense sectors such as health care, which is due to the uncertainty of the outcomes in many R&D projects. Therefore, the calculation method of the excess returns in this study incorporates firm size as well as sector effects. In particular, each quarter all firms from the entire stock universe are ranked according to their market capitalization (mcap).⁶ Based on this rank, firms which rank in the 90th percentile are defined as “large caps”, firms which rank between the 90th and 70th percentile as “mid caps”, firms which rank between the 70th and 30th percentile as “small caps”, and the remaining as “micro caps”. Thus, each quarter four portfolios are created according to the firm’s market capitalization. Furthermore, each quarter ten subportfolios within each mcap portfolio are constructed which are based on industry sectors.⁷ This results in a total of forty equally-weighted portfolios at the beginning of each quarter. Table I presents the total number of transactions and firms which fall into each of the forty portfolios during the entire observation period. Since our study focuses on the exploitation of directors’ dealings we exclude all stocks which belong to the “micro caps” portfolios. Since the average mcap value of these portfolios is 38 million euros, we believe that most stocks in these portfolios are too illiquid to be considered for exploitation. The exclusion of these stocks results in a total number of 136,577 transactions. In addition, we apply numerous filters to produce a dataset which contains only plain vanilla purchase and sell transactions. First we eliminate all transactions which are not made in equities and/or are not regular purchase or sell transactions. These filters reduce the initial dataset to

⁵ See for example Lakonishok and Lee (2001).

⁶ The stock universe includes all listed stocks from each country in our data sample with a few exceptions. To ensure liquidity and avoid noise from penny stocks, we exclude stocks which have less than 15 quotes per month, which quote at less than 0.1 GBP or less than 1.00 for non-GBP currencies. Moreover, all stock with missing industry sectors or market capitalization values is excluded.

⁷ Sector categorization is provided by Compustat and includes the following sectors: *Healthcare*, *Energy*, *Materials*, *Industrials*, *Consumer Discretionary*, *Consumer Staples*, *Financials*, *IT*, *Telecom*, *Utilities*.

105,139 transactions. Second, we exclude remuneration-related transactions, exercises, tax obligations, transfers between insiders and subscriptions. We also remove all transactions which were traded in the OTC market. Moreover, we exclude transactions with an aggregated daily volume which is below 1,000 euros, since these low volumes create unnecessary noise. These filters reduce our initial dataset to 77,247 transactions. Finally, we also exclude transactions by large shareholders and financial firms as well as legal entities which are not controlled by a natural person who is considered a corporate insider. Similar to Dardas and Güttler (2011), we group the remaining insiders into three classes according to their importance in making strategic decisions within their company.

- *Insider class A:* CEO, deputy CEO, CFO, COO, president, chairman (also non-executive), and similar corporate positions, as well as respective family members.
- *Insider class B:* Divisional/regional CEO, CEO of subsidiary, vice-president, non-executive vice-chairman, chief information officer, chief scientific officer, officer, managing director, executive director, company secretary, group director, upper management, and similar corporate positions, as well as respective family members.
- *Insider class C:* Non-executive board member, (non-executive) director, supervisory board member, board of auditors, lower-class executive (sales director, technical manager, etc.), upper management of subsidiaries, former CEO/executive/board member, divisional/regional director, and similar corporate positions, as well as respective family members.

After applying all of the above filters and due to incomplete return data for some observations, a clean dataset of 65,913 daily aggregated transactions is produced, which constitutes 42% of the original dataset. Daily share returns, book values, sector categorization, market capitalizations and shares outstanding are obtained from Compustat. All transactions and fundamental values are converted into euros for non-Eurozone countries using the respective daily exchange rate from Compustat. Panel I of Table II shows the numbers and volumes of insider transactions between 2002 and 2009 from our final dataset. For 2008 as well as 2009 there is a noticeable decrease in trading

activity by corporate insiders. This can be explained by a general decrease in trading activity during this time period due to the subprime crisis. Panel II of Table II gives an overview of trade volumes categorized by the insider classes described above. In general, Panel II reports lower total median and mean volumes for purchase than for sell transactions. This asymmetric volume pattern between purchases and sales is typical for insider transactions and consistent with previous literature.⁸ An explanation for this unequal size distribution is that large sell transactions are often liquidations of remuneration packages, which are large proportions of the total income of insiders. Purchase transactions, excluding remuneration-related purchases such as stock option exercises, however, are private investments, which are relatively small fractions of the total income of insiders. It is also remarkable that for both transaction types the largest mean transaction volumes are reported for insider class C. The main reason is that insider class C includes supervisory board members. Supervisory board seats are often held by large shareholders who tend to make large block transactions (Dardas and Güttler (2011)).⁹

Methodology

We calculate a stock's excess return by subtracting the average returns of all stocks in a portfolio from the return of the stock with insider trading which belongs to that respective portfolio. As event trigger, we use the day after the announcement day of the insider transaction(s). For instance, if an insider trade was reported in a large capitalization financial firm, we subtract the performance of this stock from the equally-weighted portfolio which includes all stocks in the large cap financial firms portfolio. We measure mean excess returns across all stocks with insider trading for 12 and 3 months prior to as well as 1, 3, 6 and 12 months subsequent to the day after the announcement day. To test whether mean excess returns are different from zero we apply the test statistic based on Barber and Lyon (1997). At a later stage of the paper we perform multivariate cross-sectional regressions on the 12-month excess returns. We use these regression models to calculate expected returns for in- as well

⁸ See Lakonishok and Lee (2001) for the U.S., Fidrmuc et al. (2006) for the U.K. and Dardas and Güttler (2011) for Europe (incl. the U.K.).

⁹ In this study large shareholders are considered as insiders as long as they are natural persons and not legal entities.

as out-of-sample periods. Based on these expected returns we employ a simple technique which groups insider transactions into “high”, “medium” or “low conviction” trades.

II. Mean Excess Returns after Insider Trade Announcements

Univariate Results of Excess Returns

Due to information asymmetries between insiders and other market participants we expect stock price inclines after insider purchase announcements and declines after insider sell announcements. Panel I of Table III presents mean excess returns after announcements of insider purchase transactions. The mean excess returns reported in Panel I rise continuously subsequent to insider trade announcements across all observation windows. This clearly indicates that (European) insiders are able to predict long-term returns of their company’s stocks. Another interesting observation is that the mean excess return for 12 months prior to the insider trade announcement is positive while the mean excess return for 3 months prior to the announcements is negative. A possible explanation is that insiders generally purchase stocks in companies which outperform the market in the long-run but which decline in the short-run. Panel II of Table III reports the results for sell transactions. Mean excess returns after sell transactions are close to 0 across all observation windows subsequent to the trade announcement. Consequently, these results do not give a strong indication that announcements of insider sell transactions predict long-term stock returns. However, the 12-month mean excess return prior to the announcement is 21.57%, while the 3-month excess return prior to the announcement is 6.37%. These exceptionally high results demonstrate that insiders are able to identify peaks in stock prices and sell stocks which have soared in the past. These results are also consistent with previous literature which identifies corporate insiders as contrarian investors.¹⁰ Moreover, the predictability of returns after insider sell transactions seems to be shorter than after purchase transactions. For purchase transactions the highest mean excess return is reported after 12 months, while for sales the lowest mean excess return is reported after 3 months. This clearly demonstrates that insider sell transactions do have a substantially lower information content than insider purchase transactions.

¹⁰ See also Lakonishok and Lee (2001), Friederich et al. (2002), Fidrmuc et al. (2006).

Determinates of Excess Returns

The previous section demonstrated that positive excess returns exist after insider purchases. In this section we want to investigate which determinates explain the long-term mean excess returns after insider trade announcements. In order to identify these determinates we employ OLS multivariate regression models to predict the 12-month (3-month) mean excess returns for purchases (sales).¹¹ We perform the cross-sectional multivariate regressions on all transactions between January 2002 and December 2008. We explicitly define this time frame as our in-sample period.¹² Due to unequal characteristics and results for purchase and sell transactions we use a slightly different model for each transaction type. The models include insider, transaction as well as firm-specific variables which are described below.¹³

- *CEO; CFO; Insider class A; Insider class B; Insider class C*: To control for variation in cross-sectional returns by insiders from different corporate levels, we construct dummy variables for the CEO and CFO position as well as each insider class (*Insider class A* excluding the CEO/CFO position). *Insider class B* is the reference category. Hence, negative coefficients for *CEO, CFO, Insider class A and Insider class C* indicate higher excess returns after transactions performed by a class B insider. In fact, previous studies have shown that insiders belonging to class B generally outperform top insiders from class A, especially in the U.K. and Germany.¹⁴ An explanation is that top-level insiders are closely watched by regulatory authorities and news media. Consequently, these insiders do not want to attract attention by earning large profits with their company's stocks.
- *Transaction value decile*: Due to an increased information content of large transactions relative to small transactions, we expect higher excess returns after announcements of large insider transactions. Thus we include the variable *transaction value decile*, which is a deciled

¹¹ We have chosen to use the highest (lowest) significant results for purchases (sales) reported in Table III as dependent variables in our models.

¹² Note that we do not regress over the entire observation period but only over the in-sample period.

¹³ Since our excess return adjustment is mcap and sector neutral we do not include variables which control for either in the regression model.

¹⁴ See Fidrmuc et al. (2006), Dymke and Walter (2008), Dardas and Güttler (2011).

score variable. Specifically, *transaction value decile* is calculated based on the euro values invested by the insider relative to all insider transactions from the month of the transaction and the previous 11 months.¹⁵

- *Transaction count 24m*: We expect lower information content in announcements of transactions by insiders who trade more frequently. For instance, some insiders trade on a monthly basis. These types of transactions are most likely remuneration or share plan related. Consequently, we do believe that such types of transactions have a lower information content. We construct *transaction count 24m* by taking the natural logarithm of all transactions made by the same insider over 24 months prior to the announced transaction.
- *Book-to-market decile*: According to Lakonishok and Lee (2001), insiders tend to purchase stocks which are cheap according to the book-to-market value. Thus, we include the variable *Book-to-market decile*, which is a deciled score variable. It is calculated from the end-of-quarter book-to-market values of the stock universe prior to the transaction announcement.¹⁶
- *Prev. 3 months/ Prev. 12 months*: The univariate results prior to the insider transaction announcements presented in Panel I of Table III give reason to believe that insiders purchase stocks that generally outperform the market in the long-run but which decline in the short-run. To account for this contrarian investment style of insiders we include the relative performance of the stock 3 months as well as 12 months prior to the announcement.
- *Buy consensus 6 months* (only for purchase transactions): Multiple purchases (sales) by several insiders in the same firm will give a stronger signal to the market than a single transaction by one insider. Thus we construct the dummy variable *Buy consensus 6 months*

¹⁵ Similar to Giamouridis et al. (2008) we use a decile score variable for transaction size because it has several advantages over absolute euro values for modeling expected returns. First, transaction sizes are directly comparable across all countries on a scale from 1 to 10. Second, the input variables for the multivariate regression model do not vary too much by using a scaled measure.

¹⁶ A deciled score of 1 indicates an undervalued stock, and a deciled score of 10 indicates an overvalued stock.

which is set to 1 whenever more than four purchase transactions occur within 6 months prior to the respective purchase announcement.

- *Sell consensus 6 months* (only for sell transactions): *Sell consensus 6 months* is set to 1 whenever more than four sell transactions occur within 6 months prior to the respective sell announcement.

III. Results

Multivariate Regression

Table IV reports the result from the cross-sectional multivariate regression on the 12-month excess return for purchase as well as the 3-month excess return for sell transactions. For purchase transactions, the *CEO* and the *Insider class C* coefficients are significantly negative. The *CFO* as well as the *Insider class A* coefficients are also negative, but not significantly different from zero. These results indicate that stocks purchased by high-level insiders excluding the CEO generate higher excess returns than those by other insiders. Another interesting result is the *transaction value decile* coefficient for purchases, which is not significantly different from zero. This observation indicates that an increase in transaction size is not necessarily correlated to higher returns. A possible explanation is that very large transactions might lead to a dominating role of an insider and consequently be interpreted as bad news by investors. Moreover, Friederich et al. (2002) suggest that medium-size trades are most informative since insiders try to avoid large transactions simply not to attract the attention of other market participants. For sell transactions, however, the coefficient is significantly negative at the 10-percent level. Furthermore, the significantly negative *insider transaction count 24m* coefficient illustrates that excess returns are lower after purchase transactions by insiders who trade more frequently. The negative *prev. 3 months* and the positive *prev. 12 months* coefficients for purchase transactions confirm the assumption from the univariate results that insiders tend to purchase stocks which outperform in the long-run but underperform in the short-run. Finally, the results for the *buy consensus* as well as *sell consensus* coefficients indicate that multiple trades by different insiders in the same direction lead to higher excess returns.

Detecting High Conviction Trades

Based on the results of the multivariate regression described above, we determine which directors' dealings have the highest conviction and lead to highest excess returns. Even after applying several data filters it cannot be assumed that all insider transactions carry the same information for outsiders. It is more than likely that even in a clean data sample some insider transactions are more relevant to outsiders than others. To locate these highly informative or so-called "high conviction" transactions we apply a similar method as introduced by Giamouridis et al. (2008). We first state the hypothesis that stocks with the highest expected returns (subsequent to insider transaction) are those for which directors' dealings have the highest conviction (Giamouridis et al. 2008). We obtain the expected returns by solving the multivariate regression for each transaction from the model reported in Table IV. However, we calculate the expected returns not only for the in-sample but also for the out-of-sample period. We derive from these expected returns whether insider transactions are high, medium or low conviction. Specifically, we separately rank the expected returns for purchases and sales into deciles, where the highest deciles include stocks with the highest expected returns. A purchase (sell) transaction is defined as "high conviction" when the expected return of the stock ranks in the top (last) two deciles. A purchase as well as sell transaction is defined as "medium conviction" when the expected return of the stock ranks in the following six deciles. Finally, a purchase (sell) transaction is defined as "low conviction" when the expected return of the stock ranks in the last (top) two deciles. It is noteworthy that for sell transactions the opposite categorization for "high conviction" versus "low conviction" directors' dealings is used. This is because stocks subsequent to "high conviction" insider sell transactions are expected to have negative excess returns and stocks after "low conviction" insider sell transactions to have positive excess returns. For the out-of-sample period, which spans between January and December 2009, the same (expected return) cut-off points are used as in the in-sample period to categorize "medium conviction" transactions. All out-of-sample purchase transactions with a stock's expected return above the "medium conviction" level are defined as "high conviction". All out-of-sample purchase transactions with a stock's expected return below the

“medium conviction” level are defined as “low conviction”.¹⁷ For out-of-sample sell transactions the same logic is applied. In a final step the mean excess returns are calculated for each transaction and conviction type. Table V presents the results for the 1-, 3-, 6- and 12-month mean excess returns as categorized by the conviction types described above. Moreover, Table VI presents the 12-month (3-month) excess mean returns as categorized by conviction type and year. Our model seems to work exceptionally well for insider purchase transactions for the in-sample as well as the out-of-sample period. However, for out-of-sample sell transactions the model fails to separate insider transactions according to the conviction levels. These results indicate that finding highly informative insider purchase transactions is relatively simple compared to finding highly informative sell transactions. This can be explained by the fact that insiders have many motives to sell their company’s stocks, such as for liquidity or portfolio diversification reasons. Consequently, there is more noise in insider sell transactions, which makes it difficult to detect the most informative transactions. Thus, in the next sections we direct our focus solely on purchase transactions.

Subsamples of High Conviction Stocks

The above results suggest that even with simple linear methods it is possible to separate high conviction from low conviction insider (purchase) transactions. As a robustness check we investigate the performance of several subsamples of stocks with high conviction purchase signals. Specifically, we create subsamples by employing the above-described expected return model on directors’ dealings announcements in the out-of-sample period. If a directors' dealing is identified as high conviction we include the underlying stock in the sample and measure its 12-month excess return. It is noteworthy that for some stocks multiple purchase signals exist within the 12-month holding period. If this is the case, we include the stock only once in each sample to avoid overlaps. We create the subsamples based on the following criteria:

- *All*: All stocks with high conviction purchase signals are included on the day after the announcement day.

¹⁷ The categorization of out-of-sample trades according to the in-sample medium conviction level is necessary to avoid any look-ahead bias.

- *Value*: All stocks with a book-to-market ratio above 1 and high conviction purchase signals are included on the day after the announcement day.¹⁸
- *Large Cap*: All stocks with an mcap above 1 billion euros and high conviction purchase signals are included on the day after the announcement day.¹⁹
- *3M-Loser*: All stocks with negative 3-month performance prior to the announcement and high conviction purchase signals are included on the day after the announcement day.

Figure I illustrates the average mean returns relative to the day after the announcement day for the purchase subsamples described above. An interesting observation is that value stocks generate the highest average 12-month mean excess return (34.09%), while large cap stocks generate the lowest 12-month mean excess return (7.86%). Consequently, insider transaction announcements seem to be extraordinarily predictive in “cheap” stocks. These results are also consistent with previous literature.²⁰ The relatively low performance of the large cap stock sample can be explained by the lower information content of directors’ dealings in large capitalization firms.

IV. Summary and Conclusions

In this paper, we investigate long-term excess returns of stocks from 17 Western European countries subsequent to insider transaction announcements. The excess returns are adjusted in a portfolio-based approach which is size and sector neutral. We employ a multivariate expected return model to detect the most informative and relevant directors’ dealings announcements. The results from this study are twofold. First, substantial long-term excess returns exist in European stocks after insider transactions. Second, even after applying multiple data filters not all insider transactions can be taken

¹⁸ The book-to-market value from the quarter prior to the directors’ dealings announcement being applied.

¹⁹ The mcap value from the quarter prior to the directors’ dealings announcement being applied.

²⁰ See for example Lakonishok and Lee (2001) and Giamouridis et al. (2008).

as highly informative or “high conviction”. Therefore, to obtain the best results in mimicking insider trading strategies it is necessary to filter high conviction transactions. However, we have shown that even with simple statistical methods it is possible to successfully detect most informative purchase transactions. For sell transactions, however, our expected return model fails to detect high conviction transactions. Thus, future research might concentrate on creating an expected return model which successfully filters highly informative insider sell announcements. Moreover, an expected return model could be constructed which not only uses purchases but simultaneously incorporates sell signals from corporate insiders.

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Table I
Equally-Weighted Size and Sector Portfolios – Initial Data Sample

This table shows the number of transactions and firms which fall into each of the equally-weighted size and sector portfolios between January 2002 and December 2009. *Mcap Size* is based on the mcap rank of all firms from the entire universe. Sector categorization is based on Compustat. All portfolios are adjusted quarterly and used for the calculation of excess rerun.

Sector		Mcap Size			
		Large	Mid	Small	Micro
Average Mcap Size in mill. euros		22,639	1,645	265	38
Energy	Transactions	1,588	2,260	1,984	407
	Firms	21	68	130	62
Materials	Transactions	3,157	3,166	3,222	1,355
	Firms	54	105	166	124
Industrials	Transactions	6,249	9,850	13,124	4,221
	Firms	79	273	491	287
Consumer Disc.	Transactions	3,198	8,079	9,384	3,274
	Firms	72	218	417	277
Consumer Stap.	Transactions	3,852	2,424	3,114	1,075
	Firms	41	57	116	53
Health Care	Transactions	1,589	2,282	4,515	1,935
	Firms	29	73	188	144
Financials	Transactions	13,711	10,292	11,497	2,568
	Firms	142	298	448	216
IT	Transactions	1,740	2,567	8,368	6,201
	Firms	17	88	379	449
Telecom.	Transactions	1,208	544	442	140
	Firms	23	17	23	18
Energy	Transactions	1,988	675	508	221
	Firms	35	35	28	19

Table II
European Directors' Dealings – Final Data Sample

This table shows (net) purchases and sales by year and insider class for 17 European countries between January 2002 and December 2009.

Insider class A: CEO, deputy CEO, CFO, COO, president, chairman (also non-executive), and similar corporate positions, as well as respective family members.

Insider class B: Divisional/regional CEO, CEO of subsidiary, vice-president, non-executive vice-chairman, chief information officer, chief scientific officer, officer, managing director, executive director, company secretary, group director, upper management, and similar corporate positions, as well as respective family members.

Insider class C: Non-executive board member, (non-executive) director, supervisory board member, board of auditors, lower-class executive (sales director, technical manager, etc.), upper management of subsidiaries, former CEO/executive/board member, divisional/regional director, and similar corporate positions, as well as respective family members.

Panel I: Insider Transactions by Year							
	Purchases			Sales			Firms
	N	Value (euros)	Shares	N	Value (euros)	Shares	N
2002	242			162			100
Average		434,033	14,019		1,658,438	93,224	
Total (mill.)		105	3		269	15	
2003	780		780	491			328
Average		237,936	65,593		1,209,852	141,918	
Total (mill.)		186	51		594	70	
2004	1,410			1,157			555
Average		609,844	145,112		1,280,310	152,433	
Total (mill.)		860	205		1,480	176	
2005	3,600			3,582			1,222
Average		851,844	81,170		1,150,348	111,725	
Total (mill.)		3,070	292		4,120	400	
2006	6,937			5,807			1,772
Average		1,097,799	63,469		1,336,733	109,004	
Total (mill.)		7,620	440		7,760	633	
2007	10,515			6,212			2,096
Average		853,404	96,972		1,618,823	150,586	
Total (mill.)		8,970	1,020		10,100	935	
2008	13,184			2,745			1,920
Average		306,970	60,550		1,298,631	209,485	
Total (mill.)		4,050	798		3,560	575	
2009	6,124			2,965			1,491
Average		195,104	46,657		767,994	121,507	
Total (mill.)		1,190	286		2,280	360	

Panel II: Insider Transactions by Insider Class between 2002 and 2009						
	Purchases			Sales		
	N	Value (euros)	Shares	N	Value (euros)	Shares
Insider A	19,366			8,912		
Mean		649,519	83,013		1,523,132	183,339
Median		51,700	6,550		181,936	8,342
Total (mill.)		12,600	1,610		13,600	1,630
Insider B	8,136			7,040		
Mean		146,011	21,351		405,969	39,180
Median		16,675	2,000		51,987	4,000
Total (mill.)		1,190	174		2,860	276
Insider C	15,290			7,169		
Mean		803,237	85,938		1,909,998	175,105
Median		35,994	5,000		108,300	6,126
Total (mill.)		12,300	1,310		13,700	1,260

Table III
Mean Excess Returns after Insider Trade Announcements

This table reports mean excess returns for stocks after insider transaction announcements from 17 European countries between January 2002 and December 2009. Excess returns are adjusted in a portfolio-based approach according to market capitalization and industry sector. The observation sample includes large, mid and small cap portfolios, which are further separated into 10 subportfolios according to industry sectors. For a detailed portfolio categorization see Table I.

	Previous 12 months	Previous 3 months	1-month	3-month	6-month	12-month
Panel I: Purchases						
N	41,262	42,792	42,792	42,792	42,792	42,792
Mean	2.72%	-2.37%	0.79%	1.50%	2.93%	4.31%
t-statistic	12.70	-26.04	15.12	16.23	19.30	17.97
Panel II: Sales						
N	22,483	23,121	23,121	23,121	23,121	23,121
Mean	21.57%	6.37%	-0.14%	-0.39%	-0.34%	0.18%
t-statistic	51.58	50.31	-2.51	-3.71	-2.03	0.68

Table IV
Multivariate Cross-Sectional Regression

This table shows the multivariate cross-sectional OLS regression with 12-month (3-month) excess return as dependent variable for the in-sample period, between January 2002 and December 2008 for purchase (sell) transactions. Insiders are categorized into several groups (for detailed categorization see Table II): *CEO*, *CFO*, *Insider class A* (top-level executives excluding the CEO and CFO), *Insider class B* (mid-level executives) and *Insider class C* (low-level and non-executives). Insider positions/classes are dummy variables, and *Insider class B* is the base category. *Transaction value decile* is a deciled score variable which is calculated based on the euro values invested by the insider relative to all insider transactions from the previous 11 months. *Insider transaction count 24m* is the aggregated number of transactions by one insider within 24 months prior to the announcement day. *Insider buy (sell) consensus 6 months* is set to 1 whenever more than four purchase (sell) transactions occur within 6 months prior to the respective purchase (sell) announcement. *Book to market* is a deciled score variable calculated from all end-of-quarter book-to-market values prior to the announcement day. *, **, *** indicate significance at the 10, 5, and 1% level, respectively.

	Purchases	Sales
CEO	-0.0392*** (-3.973)	0.0020 (0.374)
CFO	-0.0115 (-0.723)	0.0063 (0.834)
Insider class A	-0.0059 (-0.772)	0.0041 (1.301)
Insider class C	-0.0398*** (-5.654)	0.0067** (2.302)
Transaction value decile	0.0007 (0.664)	-0.0009** (-2.150)
Transaction count 24m	-0.0059*** (-3.392)	0.0033*** (3.810)
Book-to-market decile	-0.0092*** (-9.826)	-0.0030*** (-6.792)
Prev. 3 months	-0.1196*** (-6.976)	0.0429*** (5.950)
Prev. 12 months	0.0915*** (13.770)	0.0085*** (4.019)
Buy consensus 6 months	0.0496*** (9.773)	
Sell consensus 6 months		-0.0048** (-2.031)
Constant	0.0952*** (9.803)	0.0123*** (3.047)
		0.0020
N	35157	19541
R-squared	0.012	0.009

Table V
Excess Returns after Insider Transaction Categorized by Conviction

This table reports excess returns relative to the respective insider trade announcement. “Conviction” is derived from a cross-sectional regression on the 12-month (3-month) excess return in the in-sample period for purchase (sell) transactions. For purchases (sales) “High conviction” relates to the top (last) 2 expected return deciles, “Medium” to the next 6 and “Low” the last (top) 2 deciles.

	Conviction	N	1-month	t-statistic	3-month	t-statistic	6-month	t-statistic	12-month	t-statistic
All Purchases										
(In-sample)	High	7,031	1.45%	10.88	3.62%	16.15	7.67%	19.61	14.43%	20.45
	Medium	21,094	0.75%	10.67	0.93%	8.16	1.73%	9.87	2.97%	10.54
	Low	7,032	0.07%	0.70	-0.07%	-0.30	-0.82%	-2.65	-1.62%	-3.42
All Purchases										
(Out-of-sample)	High	1,225	2.59%	5.38	9.09%	10.05	22.41%	12.19	20.94%	8.45
	Medium	3,484	0.92%	4.14	1.94%	4.54	2.96%	3.76	1.32%	1.14
	Low	1,396	0.56%	1.66	1.99%	3.11	1.25%	1.24	-3.40%	-2.07
All Sales										
(In-sample)	High	3,909	-0.66%	-5.02	-2.17%	-9.54	-2.37%	-7.01	-1.71%	-3.20
	Medium	11,724	-0.22%	-3.13	-0.11%	-0.80	0.29%	1.29	0.63%	1.79
	Low	3,908	0.93%	5.95	2.39%	8.79	3.93%	9.20	5.41%	8.72
All Sales										
(Out-of-sample)	High	582	-0.14%	-0.28	-2.46%	-2.59	-4.09%	-3.03	-2.65%	-1.16
	Medium	1,735	-0.33%	-1.47	-2.88%	-7.05	-4.47%	-6.75	-5.83%	-5.85
	Low	625	-1.10%	-1.95	-2.28%	-2.54	-8.13%	-6.81	-8.23%	-3.89

Table VI**12-Month Excess Returns after Insider Transaction Categorized by Conviction and Year**

This table reports the 12-month (3-month) excess return relative to the respective insider purchase (sale) announcement categorized by years. “Conviction” is derived from a cross-sectional regression on the 12-month (3-month) excess return in the in-sample period for purchase (sell) transactions. For purchases (sales) “High conviction” relates to the top (last) 2 expected return deciles, “Medium” to the next 6 and “Low” the last (top) 2 deciles.

Year	Conviction	Purchases			Sales		
		N	Mean	t-statistic	N	Mean	t-statistic
2002	High	41	3.35%	0.56	53	-6.64%	-3.42
	Medium	136	-2.17%	-0.76	90	4.69%	2.56
	Low	61	4.91%	1.12	19	4.97%	1.92
2003	High	92	9.06%	1.64	124	-1.38%	-1.30
	Medium	427	6.34%	3.40	283	-1.60%	-2.08
	Low	254	5.83%	1.86	78	-2.06%	-1.15
2004	High	289	7.24%	3.39	250	-1.45%	-2.16
	Medium	777	3.86%	3.23	688	-0.49%	-1.16
	Low	335	-7.55%	-4.21	211	-0.68%	-0.56
2005	High	712	12.41%	7.66	661	-2.08%	-3.86
	Medium	1,986	2.26%	2.21	2,155	0.05%	0.18
	Low	693	-7.55%	-4.21	640	5.24%	6.22
2006	High	1,422	32.99%	17.83	1,098	-1.91%	-4.82
	Medium	3,814	7.61%	10.01	3,289	-0.10%	-0.42
	Low	1,378	-7.56%	-5.69	1,134	0.77%	1.58
2007	High	2,220	3.13%	4.44	1,180	-1.94%	-4.88
	Medium	5,897	0.35%	1.06	3,601	0.59%	1.98
	Low	1,824	0.29%	0.43	1,271	3.86%	8.91
2008	High	2,255	15.82%	10.13	543	-3.37%	-4.13
	Medium	8,057	2.67%	5.21	1,618	-1.77%	-4.31
	Low	2,487	1.25%	1.69	555	0.76%	1.17
2009 (out-of-sample)	High	1,224	20.96%	8.45	582	-2.46%	-2.59
	Medium	3,482	1.35%	1.17	1,735	-2.88%	-7.05
	Low	1,394	-3.31%	-2.02	624	-2.26%	-2.51

Figure I

12-Month Excess Returns after Insider Transaction between Jan 09 and Dec 10

This figure illustrates the average mean returns relative to the day after the announcement day for the following subsamples:

All: All stocks with high conviction purchase signals are included on the day after the announcement day.

Value: All stocks with a book-to-market ratio above 1 and high conviction purchase signals are included on the day after the announcement day.

Large Cap: All stocks with an mcap above 1 billion euros and high conviction purchase signals are included on the day after the announcement day.

3M-Loser: All stocks with negative 3-month performance prior to the announcement and high conviction purchase signals are included on the day after the announcement day.

