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DECODING INSIDE INFORMATION

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ABSTRACT

Using a simple empirical strategy, we decode the information in insider trades. Exploiting the fact that insiders trade for a variety of reasons, we show that there is predictable, identifiable "routine" insider trading that is not informative for the future of firms. Stripping away these routine trades, which comprise over half the entire universe of insider trades, leaves a set of information-rich "opportunistic" trades that contains all the predictive power in the insider trading universe. A portfolio strategy that focuses solely on opportunistic insider trades yields value-weight abnormal returns of 82 basis points per month, while the abnormal returns associated with routine traders are essentially zero. Further, opportunistic trades predict future news and events at a firm level, while routine trades do not.

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Price setters and regulators share a common challenge: how to sift through the multitude of information events that bombard securities markets each day, and determine which events contain viable information, and which do not. Price setters in these markets must ascertain which of these events, and what parts of their contents, have insight into firm value. Regulators, on the other hand, must work to ensure that information flow in the capital markets is "timely, comprehensive and accurate."[1]

A class of information events that is especially difficult to decipher is the trading activity of corporate insiders. Insiders are a unique class of traders as they, by definition, have favored access to private information about the given firm. Because of this preferential access, insiders are subject to increased scrutiny, regulation, and restrictions regarding their trading activities.

Another unique aspect of insiders is that they often receive a large proportion of their stakes in firms through non-market transactions (e.g. stock grants). Through initial ownership, stock grants, and other market transactions, insiders' firm stockholdings are often a non-trivial percentage of their wealth. Thus personal liquidity and diversification motives, in addition to signaling and regulatory issues, will affect the timing and nature of insider trades, making it more difficult for price setters to interpret any given insider trade as informative or not.

The detection of illegal insider trading, meanwhile, presents an even higher hurdle: the U.S. Securities and Exchange Commission (SEC) must demonstrate

[1] From the U.S. Securities and Exchange Commission website: http://www.sec.gov/about/whatwedo.shtml#intro.

that a person "trades a security while in possession of material nonpublic information in violation of a duty to withhold the information or refrain from trading."[2] The rash of high-profile insider trading cases in recent years, notably the government's investigation into the Galleon Group in late 2009--the largest hedge fund insider trading case in U.S. history--indicates that the SEC continues to expend substantial resources trying to address this difficult problem.

In this paper we provide a new framework for thinking about detection and information flow in the capital markets. Using a simple, novel approach, we decode the information in insider trades, showing that there is predictable, identifiable "routine" insider trading that is not informative for the future of firms. Classifying trades in this way allows us to strip away these uninformative signals, leaving information-rich "opportunistic" trades that contain all of the predictive power for future firm news, events, and returns.

Our analysis rests on the simple idea that insiders, while possessing private information, trade for many reasons. For example, routine sells by insiders are commonplace in the market, and can be driven by diversification or liquidity reasons, with the insider wanting to signal that he is not trading on information about the firm (e.g., Bill Gates). Routine buys, on the other hand, may occur after an insider receives a bonus; since bonuses are often paid out in the same month each year, and since insiders often receive discount plans on their company stock (and hence are more likely to buy the stock), insider buying in the same calendar month is common and often uninformative. Thus if one can classify these

[2] From the U.S. Securities and Exchange Commission website: http://www.sec.gov/about/whatwedo.shtml#intro.

trades ex-ante that are routine trades (and so less informative), one can better identify the *true* information that insiders contain and thus develop a richer understanding of firm-level asset prices.

To better understand our approach, consider the following example from our sample.[3] Moonburst is a large, publicly traded firm, which in 1994 operated in over 40 states, and employed more than 30,000 people. The firm had a number of insiders. In particular, two of these insiders were actively trading, but in much different ways. In Figure 1, we illustrate what the trades of both of these insiders looked like from January 1994 to June 1996. The first insider (the routine trader), traded consistently over the time period, routinely trading in each and every month. The second insider (the opportunistic trader), who also happens to be the CFO of Moonburst, traded much differently. Her trades came at very selective times, as can be seen in Figure 1.

Not only do the trades of the opportunistic trader appear to contain much more information for prices, they also have predictive ability over future news. For instance, following the June 1996 trade of the opportunistic trader, there were 15 news announcements in the subsequent month. These news articles highlighted the important company announcement that it would be delaying its earnings announcement for the given quarter, and speculated as to why. This large number of news was accompanied with a -10.0% return in the month. These patterns regarding the predictability of news announcements are true throughout the lives of these Moonburst routine and opportunistic traders. In sum, the trades of the opportunistic trader predict over twice as many news announcements as the trades

[3] The name of the firm and the dates involved have been disguised.

of routine traders. What is important to note here is that both the opportunistic and routine traders were trading in their respective manners throughout their entire trading histories, so one could *predictably identify* these traders as either opportunistic or routine traders *before* the period we have shown here. We exploit this ability to predictably classify insiders into these two classes of traders throughout the paper.

Had one taken the naïve strategy of replicating all insider trades, one would have sold short Moonburst each month over this two and a half year period and made an average monthly return of -2.5% (as the monthly return was +2.5%). If, on the other hand, one were to use the fact that different insider behavior conveys different information, in a potentially predictable way, one could have sold short in only the months when the opportunistic insider sold, and made an average of 10.9% during these trading months (or roughly 70 bp per month over the full two and a half years).

In this paper we demonstrate that the above example of Moonburst represents a much more systematic pattern across the entire universe of corporate insiders and publicly traded firms. We are able to systematically and predictably identify insiders as either opportunistic or routine traders throughout our sample period (1986-2007). Further, an attractive feature of our approach is that our classification scheme essentially divides the insider trading universe in half, with roughly 45% of all trades originating from opportunistic traders, and 55% of all trades originating from routine traders. We show that the abnormal returns associated with routine traders are essentially zero, indicating that our approach is able to weed out more than half the universe of insider trades, and specifically the

half that has no predictive power for future returns or firm news. Meanwhile, the half that remains contains *all* the predictive power in the insider trading universe.

Our empirical strategy for identifying routine traders is simple. For each insider, we analyze her past trading history, and look for consistent patterns in the timing of trades. Specifically, we define a routine trader as an insider who placed a trade in the same calendar month for at least a certain number of years in the past. We then define opportunistic traders as everyone else, i.e. those insiders for whom we cannot detect an obvious discernible pattern in the past timing of their trades. We thus designate all insiders as either routine traders or opportunistic traders at the beginning of each calendar year, based on their past history of trades, and then look to see how they trade from that point onwards.

We show that focusing only on the trades of opportunistic traders allows us to weed out uninformative signals and identify a set of information-rich trades that are powerful predictors of future firm returns, news, and events. For example, a long-short portfolio that exploits *solely* the trades of opportunistic traders (opportunistic buys minus opportunistic sells) earns value-weight abnormal returns of 82 basis points per month (9.8 percent annualized, t=2.15), and equal-weight abnormal returns of 180 basis points per month (21.6 percent annualized, t=6.07). Meanwhile, a portfolio that mimics the behavior of routine traders (routine buys minus routine sells) earns value-weight returns of -20 basis points per month (t=-0.57), and equal-weight returns of only 43 basis points per month (t=1.73). Finally, we demonstrate that an alternate approach for identifying routine trading—focusing on trade-level patterns *within* a given insider, and thus allowing a given insider to be both routine and opportunistic at different times—yields

similar inferences regarding the predictive power of routine versus opportunistic trades.

Importantly, we show that over half of the improvement in predictive power gained by focusing on opportunistic trades comes from the superior performance of opportunistic sells relative to routine sells; this is in contrast to much of the literature (see Jeng et al. (2003) for a discussion), which generally finds weak evidence on the profitability of insider sales. Further, we find that the returns to these opportunistic trades continue to rise for roughly six months following the opportunistic trading month, and then level off, exhibiting no future reversal. Thus, it appears that the information being conveyed through the trades of opportunistic insiders has lasting implications for firm values.

We also examine if the *number* of trades of a given type (i.e., the strength of the signal) conveys incremental information above and beyond the mere knowledge that a particular type of trade took place. We find that this is the case: the abnormal future returns of a firm are significantly higher the more opportunistic buys occur, and significantly lower the more opportunistic sells occur. In terms of magnitude, a one-standard deviation increase in the number of opportunistic buys predicts an increased abnormal return of 35 basis points per month in the following month (t=4.56), while a one-standard deviation increase in the number of opportunistic sells results in a 29 basis point lower abnormal return (t=4.97). In contrast, a similar move in the number of routine trades (both buys and sells) at a firm has statistically insignificant and near zero predictive power for future returns.

Next we explore the mechanism at work behind our findings by analyzing

firm-level news and events, as well as opportunistic trading after SEC news releases regarding illegal insider trading. If opportunistic trades truly do contain important information for the future of the firm, we might expect to see this revealed in future news and events related to the firm. We find that the trades of opportunistic insiders show significant predictive power for future news about the firm, while trades by routine insiders do not. Meanwhile, consistent with the idea that opportunistic traders dampen their trading activity when the potential costs of illegal insider trading increase, we find that the fraction of traders who are opportunistic in a given month is negatively related to the number of recent news releases by the SEC regarding illegal insider trading cases. Further, we examine which types of opportunistic insiders execute trades before information events, and find evidence that local insiders, who we might expect to be more informed ex-ante, have opportunistic trades that are especially informative for future information events.

Lastly, we perform a variety of robustness checks to verify that our results are not concentrated in certain types of stocks, or at certain specific times. We show that our main result that opportunistic trades are more informative than routine trades holds for both large stocks and small stocks, both heavily-traded stocks and lightly-traded stocks, and both inside and outside explicit "blackout" periods.

The remainder of the paper is organized as follows. Section I of the paper provides a brief background and literature review, while Section II describes our data on insider transactions, as well as the other data we use in the paper. Section III provides the main results on the performance of opportunistic traders versus

routine traders. Section IV explores the mechanism behind the predictive power of opportunistic trades, and Section V provides robustness checks. Section VI concludes.

I. The setting

The trades of corporate insiders are among the most widely scrutinized activities in the stock market each day. Regulators, investment managers, media members, and academics continually parse these trades for signs of illicit behavior, and for signals about a company's future prospects. Not surprisingly, the widespread interest in insider trading has spawned a large empirical literature, most of which examines the cross-sectional return forecasting ability of insider trades aggregated at the firm level. By contrast, our focus is on the individual insiders themselves and their past trading records, and as such our approach tries to isolate predictable variation in the informativeness of insider trades by identifying which insiders are likely to be trading on information and which are not.

Numerous papers study the cross-sectional variation of future stock returns as a function of past insider-trading activity. Many of these articles (see, for example, Lorie and Niederhoffer (1968), Jaffe (1974), Seyhun (1986, 1998), Rozeff and Zaman (1988), Lin and Howe (1990), Bettis, Vickery, and Vickery (1997) and Lakonishok and Lee (2001)) focus on the abnormal returns to firms in relation to various metrics of firm-level insider trading frequency over well-defined periods. Seyhun (1998) summarizes this evidence and reports that several different trading

rules lead to profits.[4] Similarly, Jeng et al. (2003) take a performance-evaluation perspective and find that insider purchases earn abnormal returns of more than 6% per year, while insider sales do not earn significant abnormal returns.

Also relevant to our findings are a series of papers, many in the accounting literature, that examine insider trading around/before various types of firm events. For example, with respect to future earnings news, Piotroski and Roulstone (2005) show that insider trades reflect both contrarian beliefs and superior information about future cash flow realizations, while Ke, Huddard and Petroni (2003) demonstrate that insiders trade before significant accounting disclosures as much as two years prior to the disclosure.[5] In related work, Kahle (2000) finds that the long-run performance after seasoned equity offerings is significantly related to measures of insider trading, while Clarke, Dunbar, and Kahle (2001) provide evidence consistent with insiders exploiting windows of opportunity by trying to issue overvalued equity. Finally, Jagolinzer (2009) focuses on a small sample of insiders who publicly disclose 10b5-1 plans (these plans came into existence in late 2000 and permit an insider to pre-specify her buys and sells on a given firm); he finds that insiders initiate sales plans before bad news and terminate sales plans before good performance.[6] However, Sen (2008) examines these same plans and finds no significant difference in stock price performance surrounding the initiation

[4] A related strand of the literature (see, for example, Seyhun (1988, 1992, 1998) and Lakonishok and Lee (2001), among others) studies insiders' ability to forecast the time series of aggregate stock returns, a subject we do not explore in this paper. See also Fernandes and Ferreira (2009) for cross-country evidence on insider trading laws and stock price informativeness.

[5] See also Fidrmuc, Goergen, and Renneboog (2006), and Elliott, Morse, and Richardson (1984) for other evidence of insiders trading around news events.

[6] Our evidence pre-dates the existence of these plans: e.g., in unreported results we find very similar differential performance of opportunistic versus routine trades before 2000, suggesting that our results are not driven by trades in these plans.

or termination of the plans.

II. Data

The data in this study are collected from several sources. Our primary data on insider trades are drawn from the Thomson Reuters insider filings database. Section 16a of the Securities and Exchange Act of 1934 requires that open-market trades by corporate insiders be reported to the Securities and Exchange Commission (SEC) within 10 days after the end of month in which they took place.[7] Corporate insiders include officers with decision-making authority over the operations of the firm, all board members, and beneficial owners of more than 10% of a company's stock. These reports, filed on the SEC's Form 4, contain information about each insider transaction and about each insider's relationship to the firm.[8] Our data are drawn from these Form 4 filings for the period January, 1986 to December, 2007. Our analysis focuses on open-market purchases and sales by insiders, and hence we exclude options exercises and private transactions. We merge our insider transaction data with firm-level data from CRSP/Compustat, including monthly stock returns, market capitalization figures, and book-to-market ratios.

For our tests involving insider trades before news announcements, we extract headline news data from various newswires using the Factiva web interface. First, we use the CRSP monthly stock name file to identify all company names of CRSP firms between 1989 and 2007. We then select all the Dow Jones Newswires,

[7] This 10-day deadline was later changed to a 2-day deadline in 2002. The median delay between trade date and report date over our entire 22 year sample is 3 days.
[8] See Jeng et al. (2003) for details on data issues with Form 4.

as well as other newswires, that are available on Factiva. For each stock on the CRSP tape we extract all the news events where the firm's name (or any of the names if multiple names exist for a given stock) is mentioned in either the headline or in the lead paragraph. We restrict the search to news items in English containing at least 5 words. We exclude republished news and recurring pricing or market data. For every news item we retain the headline, the release date, the release time, the word count and the data source. The final sample includes 2,956,862 headlines for 12,455 stocks between the years 1989 to 2000. The reason we include news data only up to 2000 is that Factiva had a structural break in their indexing system in that year, and hence from 2000 onwards indexed many fewer firms in the news articles in its data.

Table I presents summary statistics for our sample. This table presents an overview of the Thomson Reuters insiders database, as well as the subset of the data for which we can define the "routine" and "opportunistic" traders that feature in our analysis. As noted earlier, routine trades are made for a variety of reasons. For example, routine sells by insiders are often driven by diversification or liquidity reasons, with the insider wanting to signal that he is not trading on information about the firm (e.g., Bill Gates). Routine buys, on the other hand, may occur after an insider receives a bonus; since bonuses are generally paid out in the same month each year, and since insiders often receive discount plans on their company stock (and hence are more likely to buy the stock), insider buying in the same calendar month is common and often uninformative.

We require an insider to make at least one trade in each of the three preceding years in order to define her as either an opportunistic or a routine

trader. Specifically, we define a routine trader as an insider who placed a trade in the same calendar month for at least three consecutive years.[9] We then define opportunistic traders as everyone else, i.e. those insiders for whom we cannot detect an obvious discernible pattern in the past timing of their trades. We thus designate all insiders as either routine traders or opportunistic traders at the beginning of each calendar year, based on their past history of trades, and then look to see how they trade from that point onwards. All subsequent trades that are made *after* we classify each insider as either routine or opportunistic are then placed into one of two buckets: a) "routine trades" (i.e., all trades made by routine traders), and b) "opportunistic trades" (i.e., all trades made by opportunistic traders).

Note that this simple algorithm for identifying routine buying or selling by insiders is clearly a noisy proxy for actual routine trading; our strategy will not perfectly and correctly classify each and every insider trade. But the essence of our approach is that on average, trades made for information reasons are less likely to be regular in their timing, and trades made for liquidity and diversification reasons are more likely to be regular in their timing. We have experimented with more refined measures (with similar and often stronger results),[10] but these simple measures are sufficient to illustrate our main point. Also, as noted above, if we alter our classification scheme in order to exploit trade-level patterns within a given insider--and thus allow a given insider to be both routine and opportunistic

[9] We have experimented with different back-windows (one, two, three, four, and five years) of past trading in the same calendar month. We find similar results in both magnitude and significance for all windows. We show the results from the mid-point of these trading back-windows (i.e., three years of past trading) throughout the paper.

[10] For instance, we have tried a more stringent definition of routine based on both identical past calendar month *and* identical past trade size, and again find similar results.

at different times--we again find similar results on the relative predictive power of routine versus opportunistic trades; these results are described in Section III.

Table I indicates that by implementing our routine trade identification assumptions (e.g., requiring three years of past insider transactions), our final sample is about one-third the size of the entire sample of insider transactions. Panel A shows that our sample is tilted towards bigger stocks, and slightly towards growth stocks (i.e., lower book-to-market ratios). We can also see this in Figure 2. Specifically, from Figure 2, our insider sample has fewer micro-cap stocks (smallest decile) and roughly twice the percentage of largest decile stocks as compared to the CRSP universe. Panel B of Table I shows that the insiders we include in our sample have a somewhat higher average number of trades (4.8 buys to 2.4, and 8.2 sells to 4.1) relative to all insiders.[11]

We have verified that our sample is representative of the larger universe of all insider trades in terms of the percentage of insider buys and sells (24% buys in the entire sample, 25% in our sample) and in terms of the overall return predictability of insider buys and insider sells. For example, the difference in profitability of a value-weight long-short portfolio that goes long insider buys and short insider sells, in our sample versus the overall sample, is only 21 basis points per month and is statistically insignificant (t=0.83). Table A1 in the Appendix presents further evidence on the profitability of insider trades, by splitting the insider universe into young versus old companies (where the cutoff for young companies is 3 years since the IPO). Table A1 shows that there is no statistical

[11] Note that the average number of trades only includes trades made *after* we classify an insider as opportunistic or routine. All insiders in our sample have at least three more years worth of trades that we use to classify insiders, but do not use in our subsequent tests.

difference in the profitability of insider trades in young versus old companies; thus we are not imposing any bias in our sample by focusing more often on insider trades made in large companies.[12]

We classify roughly 64% of insider purchases and 52% of insider sales as routine trades; hence 36% of insider purchases and 48% of insider sales are classified as opportunistic trades. Overall, trades made by routine traders comprise 55% of the total sample, while trades made by opportunistic traders represent 45% of the total sample. This roughly 50/50 split in the data, coupled with our subsequent results showing that all the predictive power (in terms of future firm returns and news) is concentrated among the opportunistic trades, suggests that our identification procedure is able to weed out a set of uninformative signals that makes up more than half the universe of insider trades.

Table II presents correlation coefficients for the main variables that feature in our analysis. The number of insider sells, and particularly routine sells, is higher for larger firms and growth firms, while the number of insider buys, and particularly opportunistic buys, is higher for smaller firms and value firms. Consistent with the past literature, insiders are contrarian, buying after low past returns (measured over the prior 12 months) and selling after high past returns.

III. Results: Performance of Opportunistic Trades versus Routine Trades

In this section we examine the future stock return predictability of insider

[12] We have also verified (in Table A2 in the Appendix) that there is no statistical difference in the profitability of "young" versus "old" insiders (where youth is measured by years of trading history for a given insider--"old" insiders are those with more than 3 years of trading history).

transactions. The goal of our approach is to identify, out of the tens of thousands of insider trades made each year, which trades are truly informative. To do so we implement our routine trade classification, and then analyze the stock return performance of routine trades versus opportunistic trades.

Our first tests employ regressions of one-month-ahead stock returns on indicators for routine and opportunistic trades. We run pooled regressions with standard errors clustered at the firm level; we also include month fixed effects where indicated. In addition, we include controls for well-known determinants of stock returns, such as size (log of market capitalization), (log) book-to-market ratio, one-month lagged returns, and cumulative past returns from month t-12 to t-2.

Table III presents these regression results. Columns 3 and 6 illustrate the main result of the paper: both opportunistic buys and opportunistic sells are strong predictors of future returns, while routine buys and sells are not. For example, the coefficient on opportunistic buys in column 3 indicates that opportunistic buys yield an incremental 90 basis points (t=4.64) in the following month relative to all insider trades. Meanwhile, routine buys yield only 14 additional basis points (t=0.81). The difference in the coefficients on opportunistic buys and routine buys (=76 basis points) is statistically significant (F-test=10.07, p-value=0.002).[13] The results for sells are similar: Column 6 shows that opportunistic sells earn an additional -78 basis points (t=5.67), while routine sells earn +4 additional basis points (t=0.24). Again, this difference between opportunistic sells and routine sells

[13] The test of equality of routine and opportunistic coefficients is based on the point estimates and the robust covariance matrix of the estimates (clustered at the firm level).

is large (=-82 basis points) and statistically significant (F-test=29.30, p-value=0.000).

Columns 7-9 of Table III present similar results, but with all four dummy variables (*Opportunistic Buy*, *Routine Buy*, *Opportunistic Sell*, *Routine Sell*) included in the same regression. Consistent with the results in Columns 1-6, these tests indicate that opportunistic trades are informative for future returns, while routine trades are not. In Column 9, the difference in coefficients between opportunistic buys and routine buys is 77 basis points (F-tests=10.32, p-value=0.001), and the difference in coefficients between opportunistic sells and routine sells is 81 basis points (F-test=28.87, p-value=0.000).

Overall, the combined differences in the coefficients between opportunistic trades and routine trades in Table III translate into an increase of 158 basis points per month in the predictive ability of opportunistic trades relative to routine trades.[14] Additionally, our results demonstrate that over half the improvement in predictive power gained by focusing on opportunistic trades comes from the superior performance of opportunistic sells relative to routine sells; as noted earlier, this is in contrast to much of the literature (see Jeng et al. (2003) for a discussion), which often struggles to find evidence that insider sales predict lower future returns.

We have also experimented with an alternate, trade-level measure of "routine" and "opportunistic," rather than the insider-level measure used so far. This measure allows a given trader to have both routine and opportunistic trades; e.g., a given trader may be dubbed routine after having three straight January

[14] From column 9, the difference is 158 bp [=(57-(-20)-(-67-14)].

trades, but in this alternate setup we only dub his subsequent January trades as routine trades, and categorize his trades in all other months as opportunistic. And also, an opportunistic trader can have routine trades if he establishes a routine in any given calendar month. In Appendix Table A3, Column 3 shows that the spread between opportunistic and routine buys using this trade-level measure (analog of Column 3 in Table III) is again large and significant (=94 basis points, F-test=8.39, p-value=0.0038), while Column 6 indicates that the spread between opportunistic and routine sells (analog of Column 6 in Table III) is also again large and significant (=94 basis points, F-test=15.99, p-value=0.0001). These results demonstrate that our identification of informed insider trading is robust to slight changes in the classification procedure.

Next we analyze the returns of portfolios formed according to our routine trade classification scheme. These provide a further test of the predictive ability of opportunistic versus routine trades. To construct our portfolios, we identify opportunistic and routine trades each month, and then form opportunistic buy, opportunistic sell, routine buy, and routine sell portfolios containing these stocks. We then hold these stocks over the month *following* these insider trades; at the end of the month, we rebalance the portfolios based on new insider trades. Although the official SEC regulation was a requirement to report by the tenth day of the following month (which was then changed to 2 days after the trade date in 2002), nearly all of the trades in our sample were reported to the SEC within a few days of the trade (median of 3 days over the entire sample), so we are confident

they were available at portfolio formation here.[15] We compute both equal- and value-weight portfolios, and report the results in Table IV.

Table IV reports raw portfolio returns, as well as risk-adjusted portfolio returns (alphas) for the CAPM, Fama-French three-factor model, the Carhart (1997) four-factor model, and the five-factor model including a liquidity factor, as well as DGTW characteristic-adjusted returns.[16] Table IV shows that a portfolio strategy that focuses solely on the trades made by opportunistic traders earns large and significant returns, while a strategy that follows the trades of routine traders does not. For example, the equal-weight portfolio that goes long opportunistic buys and short opportunistic sells earns a five-factor alpha of 180 basis points per month (t=6.07), or over 21.6% per year, while the portfolio that goes long routine buys and short routine sells earns a only marginally significant 43 basis points per month (t=1.73).

The bottom half of Table IV reveals a similar pattern for value-weight returns. While the spread between routine buys and routine sells is actually *negative* when using value-weight returns, the spread in five-factor alphas between opportunistic buys and opportunistic sells is a positive and significant 82 basis

[15] Given that the actual required reporting date for insiders is the 10th of the following month, in the Appendix Table A4 we re-run all the results from Table III, but this time using returns from the 11th day of day 1+1 to the 10th day of month t+2 in our tests (rather than from the 1st day of month t+1 to the last day of month t+1), and the results are virtually identical to those in Table III, meaning that our results are not sensitive to the timing convention we employ here; this finding also demonstrates that our results are fully tradable in real-time.

[16] Daniel and Titman (1997, 1998) suggest that characteristics can be better predictors of future returns than factor loadings. Following Daniel, Grinblatt, Titman, and Wermers (1997), we subtract from each stock return the return on a portfolio of firms matched on market equity, market-book, and prior one-year return quintiles (a total of 125 matching portfolios). These 125 portfolios are reformed every month based on the market equity, M/B ratio, and prior year return from the previous month. The portfolios are equal weighted and the quintiles are defined with respect to the entire CRSP universe in that month. We term these abnormal returns DGTW characteristic-adjusted returns.

points per month (t=2.15), or 9.8% per year. Thus our predictability evidence is not limited to smaller firms, as in some prior studies that use insider trading data (see Lakonishok and Lee (2001) for a discussion). Further, these results again demonstrate that all of the return predictability in the insider universe is concentrated within the trades of opportunistic traders.

In Figure 3 we plot event-time returns based on the portfolios out to twelve months, to illustrate the longer-term performance of opportunistic trades relative to routine trades. Figure 3 indicates that the twelve-month event-time return on a value-weight four-leg spread portfolio (=[Opportunistic Buy-Opportunistic Sells]-[Routine Buys-Routine Sells]) is roughly 4%; for the equal-weight four-leg spread portfolio, the twelve-month event-time return is roughly 8%. In both cases, returns continue to rise for the first six months, and then level off, exhibiting no future reversal. This suggests that the information being conveyed through the trades of opportunistic insiders has a lasting impact on firm value.

Taken as a whole, the findings in Table IV and Figure 3 corroborate our earlier regression results, and provide economically and statistically significant evidence that insider trades by opportunistic traders are much more informative than insider trades by routine traders.

Next we investigate the impact of trade clustering on the relative performance of opportunistic trades and routine trades, under the hypothesis that the *number* of a given type of trade (i.e., the strength of the signal) may convey incremental information above and beyond the mere knowledge that a particular type of trade took place. Specifically, instead of using a simple indicator variable on the right-hand side of our regressions to identify the execution of any routine or

opportunistic trades, we now use the actual number of each type of trade as our independent variable and run the same predictive regressions as before.

Table V demonstrates that the (natural log of the) number of opportunistic buys is strongly positively related to future returns. To get an idea of the magnitude of this effect, the coefficient estimate in Column 3 (=0.66, t=4.56) implies that a one-standard deviation increase in the log number of opportunistic buys (=0.54) per month translates to higher future returns of 35 basis points per month. Meanwhile, the number of routine buys in a given trading month is unrelated to future returns, suggesting that insider buying intensity is a poor predictor of returns when those trades are of the routine variety. Columns 4-6 reveal an analogous result for opportunistic sells. The coefficient in Column 6 (=-0.31, t=4.97) implies that a one-standard deviation increase in the log number of opportunistic sells (=0.93) translates to a decrease in future returns of 29 basis points per month. By contrast, the number of routine sells is uninformative for future returns. And again when we include all of the routine and opportunistic variables together in a single regression (in Columns 7-9), the results are the same.[17]

Collectively our results in Tables III-V indicate that opportunistic trades, and the intensity of these trades, are informative for future returns, while routine trades are not. These findings suggest that the ability to predictably classify insiders into either routine or opportunistic traders, using our simple empirical

[17] Note that we have also run all tests in Tables III and V using Fama-MacBeth regressions, as well as pooled regressions with month and firm fixed effects, and the results are very similar. For instance, the analog of the full specification in Table V, Column 9 using a Fama-MacBeth estimation gives buy and sell coefficients of 0.70 (t=3.72) and -0.40 (t=-2.86), and using month and firm fixed effects gives coefficients of 0.56 (t=2.46) and -0.21 (t=2.23).

strategy, allows one to focus in on the half of the insider universe that contains all the informative trades.

IV. Mechanism

In this section we examine information events and the timing of insider transactions. Our goal is to explore the mechanism behind the large return predictability that we observe following opportunistic trades.

We start by examining whether opportunistic trades are more likely than routine trades to precede important information events for the firm. To do so, we run panel regressions of firm-level information events (available from 1989-2000) on the number of opportunistic trades and the number of routine trades. The information events we examine are: headline news events about the firm, sell-side analyst research releases about the firm (i.e., annual and quarterly earnings forecast revisions, as well as buy/sell recommendation changes), and important management disclosures about the firm (SEO announcements and merger announcements).[18] We use the number of firm-level information events in a given category in a given month as our left-hand side variable, and control for the general level of news about the firm on the right-hand side (using, for example, the number of information events last month, and the average number of information events over the prior six months). As in Tables III and V, we also control for firm-level measures of size, book-to-market, and past returns.

Table VI shows that opportunistic trades are predictive of future information

[18] We exclude other firm events such as earnings announcements and dividend announcements that are often pre-scheduled far in advance and subject to explicit insider trading blackout periods.

events at the insider's firm, while routine trades are not. This result holds across all information events, holds for a variety of sub-categories, and holds whether or not we control for the general level of news about a firm. For example, in Column 3 of Table VI, where we use the sum of all information events as the left-hand side variable, the coefficient on the number of opportunistic trades is positive (=0.03) and significant (t=2.78), while this same coefficient for routine trades is insignificant. To get an idea of the magnitude of this effect, a one-standard deviation increase in the number of opportunistic trades translates into 1.0 more total information events in the following month for the firm; the average number of total information events per firm per month is 4.8 (median=5), so this effect implies a percentage increase of around 20% in the number of important events following these opportunistic trades.

Looking specifically at firm news, Columns 4-6 show that opportunistic insider trades are strongly predictive of future headline news events. The coefficient on opportunistic trades in Column 6 (=0.03, t=3.26) implies that for a one-standard deviation move in the number of opportunistic trades, the firm experiences 1.0 more headline news events next month relative to an average of 3.3 events per month (median=3); in percentage terms this translates to a 32% to 35% increase in the number of headline news events. Finally, in the Appendix Table A5 we show that if we split the number of opportunistic insider trades into the number of opportunistic buys and sells separately, both variables predict future news. In fact, Column 6 of Table A5 indicates that opportunistic sells have somewhat more predictive power for future news than opportunistic buys, although both are significant predictors of future news. This provides additional evidence on

the power of our classification scheme to identify informative insider *sells* in particular, in contrast to much of the literature.

Next we explore the behavior of opportunistic traders in the wake of news about illegal insider trading litigation cases. Since opportunistic trades predict future firm-level returns, as well as future firm-level news, it is plausible that opportunistic traders might be especially sensitive to the potential costs and penalties associated with illegal insider trading. We test this idea by regressing the fraction of insiders trading in a given month who are opportunistic on recent SEC releases regarding litigation cases against illegal insider trading. Specifically, the dependent variable we examine is the number of opportunistic insiders trading in month t+1 divided by the number of all insiders trading in month t+1, and the independent variable of interest is the natural logarithm of one plus the number of SEC releases regarding litigation cases against illegal insider activity in month t. We also include control variables for the fraction of opportunistic insiders trading in month t and month t-1, the CRSP value-weight market return in month t, the standard deviation of daily market returns in month t, and various windows of past cumulative market returns (month t-3 to t-1, month t-6 to t-1, and month t-12 to t-1).

Table VII illustrates that opportunistic trading decreases significantly following recent releases from the SEC regarding illegal insider trading cases, consistent with the idea that opportunistic traders dampen their trading activity when the potential costs of illegal trading increase. Specifically, the coefficient on the number of SEC releases in Column 7 is -0.015 (t=2.41).

Finally, we explore our results in even greater depth by analyzing which *types*

of opportunistic insiders are especially informed about future news events. We explore this idea in Table VIII by adding a series of additional explanatory variables to the specifications we employ in Columns 1-3 of Table VI, where we use the total number of information events as our dependent variable. Specifically, in addition to the number of opportunistic trades, we add independent variables equal to: a) the number of opportunistic trades by local insiders (where local is defined as residing in the same state as the firm's corporate headquarters), b) the number of opportunistic trades by senior insiders (where senior is defined as either the CEO, CFO, or Chairman of the Board), c) the number of opportunistic trades by inside/non-independent directors,[19] and d) the number of opportunistic trades by outside/independent directors (where independent directors are identified using the "role-code" variable in the Thomson database).[20]

Table VIII provides modest evidence consistent with the idea that informed opportunistic insiders trade more before information events than other opportunistic insiders. Specifically, the first column of Table VIII indicates that the number of opportunistic trades by local insiders is positively related to the total number of firm-level information events in the following month. The magnitude of the coefficient in Column 1 (=0.03, t=2.85) implies that for a one-standard deviation move in the number of opportunistic trades by locals, the firm experiences 1.0 additional information events next month (so a roughly 20% increase, with an average of 4.8 and median of 5). By contrast, comparing these to

[19] Note that not all insiders are necessarily directors. The class of insiders includes non-directors, inside directors, and outside directors.

[20] We have also examined the characteristics of opportunistic versus routine traders in a logit framework. Their characteristics are, by and large, remarkably similar; e.g., the percentage of insiders that are local, independent, or senior, are not reliably different across the two groups.

the opportunistic trades of the other classes of insiders in Columns 2-4, and especially in the full specification of Column 5, we find no significant difference in the explanatory power between the opportunistic trades of independent directors, senior insiders, or inside directors. Given the evidence in Ravina and Sapienza (2009) that the difference in the profitability of insider trades by executives relative to those by independent directors is quite small, these results may not be surprising.

V. Robustness

In this section we perform a series of additional tests in order to evaluate the robustness of our findings. The goal is to verify that our results are not concentrated in certain types of stocks, or at certain specific times. To do so, we examine a variety of subsamples, such as large stocks versus small stocks, stocks heavily-traded by insiders versus stocks lightly-traded by insiders, and finally trades made only during specific times (such as inside or outside explicit "blackout" windows).

Table IX presents tests for these various subsamples. The regressions are performed identically to Table III, where future one-month returns are regressed on the dummy variables *Opportunistic Buy, Routine Buy, Opportunistic Sell,* and *Routine Sell*, plus a series of control variables. Columns 1 and 2 (3 and 4) include only stocks in the top (bottom) half of the market capitalization distribution, where market cap is measured in December of the prior year. These results show that opportunistic trades (both buys and sells) predict returns for both large stocks

and small stocks, while routine trades (both buys and sells) are uninformative for both large and small stocks.

Next we explore if insider trading intensity (see Seyhun (1998) and Lakonishok and Lee (2001)) is related to our findings. Specifically, Columns 5 and 6 (7 and 8) include only stocks in the top (bottom) half of the distribution of fraction of shares outstanding traded by insiders in the prior year. Again we find that both opportunistic buys and sells are strongly predictive of future returns for both high- and low-intensity stocks. Meanwhile, routine sells do not predict future returns for high- or low-intensity stocks. Routine buys exhibit marginal predictability, but only for high-intensity stocks, and with only roughly a third the magnitude of the opportunistic buys.

Finally, we explore if our results are concentrated inside (or outside) explicit "blackout" windows. Blackout windows are times during which insiders are allegedly prohibited from trading in their company's stock. Although these windows vary by firm (see Bettis, Coles, and Lemon (2000)), many firms explicitly allow insider trading solely during the month following a quarterly earnings announcement (e.g., trading days +3 to +24 after an earnings release). Note that in our data we do observe frequent trading outside this post-earnings (+3 to +24 day) trading window for many firms, but this stringent window is a time during which insider trading is unambiguously permitted by many firms. Hence, exploring the behavior of opportunistic versus routine traders inside and outside this window allows us to assess the impact (if any) of blackout windows on our findings.[21]

[21] We have experimented with a variety of other definitions for blackout windows, and the results are similar to those presented here.

Columns 9 and 10 include only those trades that are unambiguously permitted, i.e., trades made within the post-earnings (+3 to +24) trading window, while also excluding any trades that occur up to 30 days before an M&A announcement; Columns 11 and 12 explore the remaining "blackout window" trades. We find that during both blackout and non-blackout periods, opportunistic buys (and sells) are strong predictors of future returns. In contrast, routine trades (buys and sells) have no predictive power for future returns during either blackout or non-blackout periods.

Overall, the results in Table IX indicate that opportunistic trades are much more informative than routine trades for a variety of subsamples: large stocks, small stocks, heavily-traded stocks, lightly-traded stocks, and inside and outside pre-defined blackout windows.

VI. Conclusion

In this paper we employ a simple empirical strategy to decode the information in insider trades. Our analysis rests on the basic premise that insiders, while possessing private information, trade for many reasons, and that by identifying ex-ante those trades that are routine (and hence uninformative), one can better isolate the true information that insiders contain about the future of firms. Using simple definitions of routine trades, we are able to systematically and predictably identify insiders as either opportunistic or routine traders throughout our sample. We show that stripping away the uninformative signals of routine traders leaves a set of information-rich opportunistic trades that are powerful predictors of future

firm returns, news, and events. An advantage of our approach is that it weeds out roughly half the universe of insider trades, and specifically the half that has no predictive power for future returns or firm news. Meanwhile the half that remains contains *all* the predictive power in the insider trading universe.

We show that while the abnormal returns associated with routine traders are essentially zero, a portfolio strategy that instead focuses solely on opportunistic insider trades yields value-weight (equal-weight) abnormal returns of 82 basis points per month (180 basis points per month). Similarly, in a regression context the combined differences in the coefficients between opportunistic trades and routine trades translate into an increase of 158 basis points per month in the predictive ability of opportunistic trades relative to routine trades. Further, this effect increases with the strength of the opportunistic signal: the more opportunistic buys (sells) there are on a given firm, the more pronounced are the positive (negative) future returns. By contrast, we find no relation between the number of routine trades and future returns.

In exploring the mechanism at work behind our identification and return results, we demonstrate that trades by opportunistic insiders predict future firm news and future firm events, while trades by routine insiders do not. Further, we find that opportunistic traders decrease their trading activity in the wake of increases in the number of news releases by the SEC regarding illegal insider trading cases, consistent with the idea that opportunistic traders are sensitive to the potential costs of illegal insider trading. Finally, we find evidence that some classes of opportunistic insiders that we might expect to be more informed ex-ante (such as local insiders) have trades that are especially informative for future

information events.

Collectively our results suggest that it is possible to identify, out of the tens of thousands of insider trades made each year, which trades are truly informative. More generally, decoding the true information in other activities in the market, such as the trades made by banks or institutional investors, would help price setters, market regulators, and all active participants in securities markets develop a clearer picture of the information environment that helps form asset prices.

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Figure 1: Moonburst Example

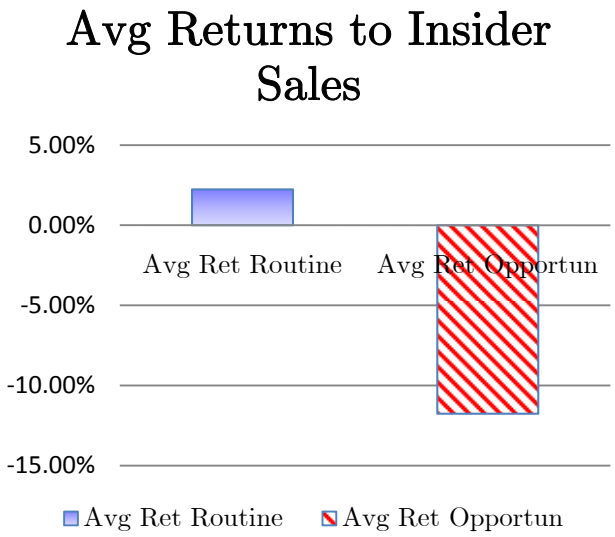
Below are a table and figures for the Moonburst firm from our sample. The table contains Opportunistic and Routine insider sell trades over a period of two and a half years, and also the returns in the months following the trades. Also contained in the table are full-sample averages of returns following Opportunistic and Routine insider trade sales, and the average number of news events in the months following Opportunistic and Routine sales. The accompanying graphs show the full-sample average of returns to insider sells and news following insider sell trades. The firm's name and trade dates have been disguised.

Insider Trade Month	Opportunistic Sells	Routine Sells	Return Next Month
Jan-94		1	12.2%
Feb-94		1	4.5%
Mar-94		1	-13.2%
Apr-94		1	2.0%
May-94	1	1	-11.9%
Jun-94		1	14.1%
Jul-94		1	8.6%
Aug-94		1	-9.8%
Sep-94		1	0.3%
Oct-94		1	-0.8%
Nov-94		1	8.5%
Dec-94		1	12.7%
Jan-95		1	7.9%
Feb-95		1	-1.1%
Mar-95		1	3.4%
Apr-95		1	2.5%
May-95		1	5.4%
Jun-95		1	1.8%
Jul-95		1	3.5%
Aug-95		1	-1.8%
Sep-95		1	12.1%
Oct-95		1	12.4%
Nov-95		1	-3.1%
Dec-95		1	3.3%
Jan-96		1	0.9%
Feb-96		1	7.8%
Mar-96		1	-2.4%
Apr-96		1	9.9%
May-96		1	-4.5%
Jun-96	1	1	-10.0%

Avg Ret Following Routine Sells	2.5%
Avg Ret Following Opportunistic Sells	-10.9%

Full Sample for Moonburst

Avg Ret Following Routine Sells	2.2%
Avg Ret Following Opportunistic Sells	-11.8%
Avg News Following Routine Sells	2.71
Avg News Following Opportunistic Sells	5.67



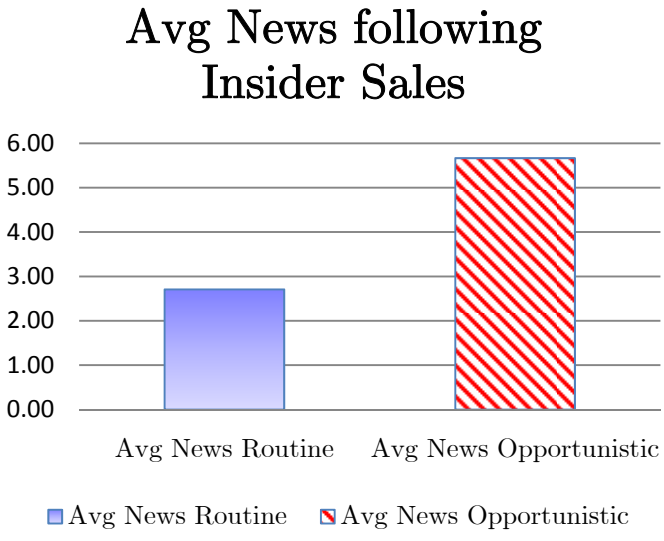


Figure 2: Size distribution

This figure plots the distribution of market capitalization of the opportunistic and routine trade sample. Every calendar month we assign stocks to size deciles using NYSE breakpoint. We plot the % of stocks in each size bin between 1989 and 2007.

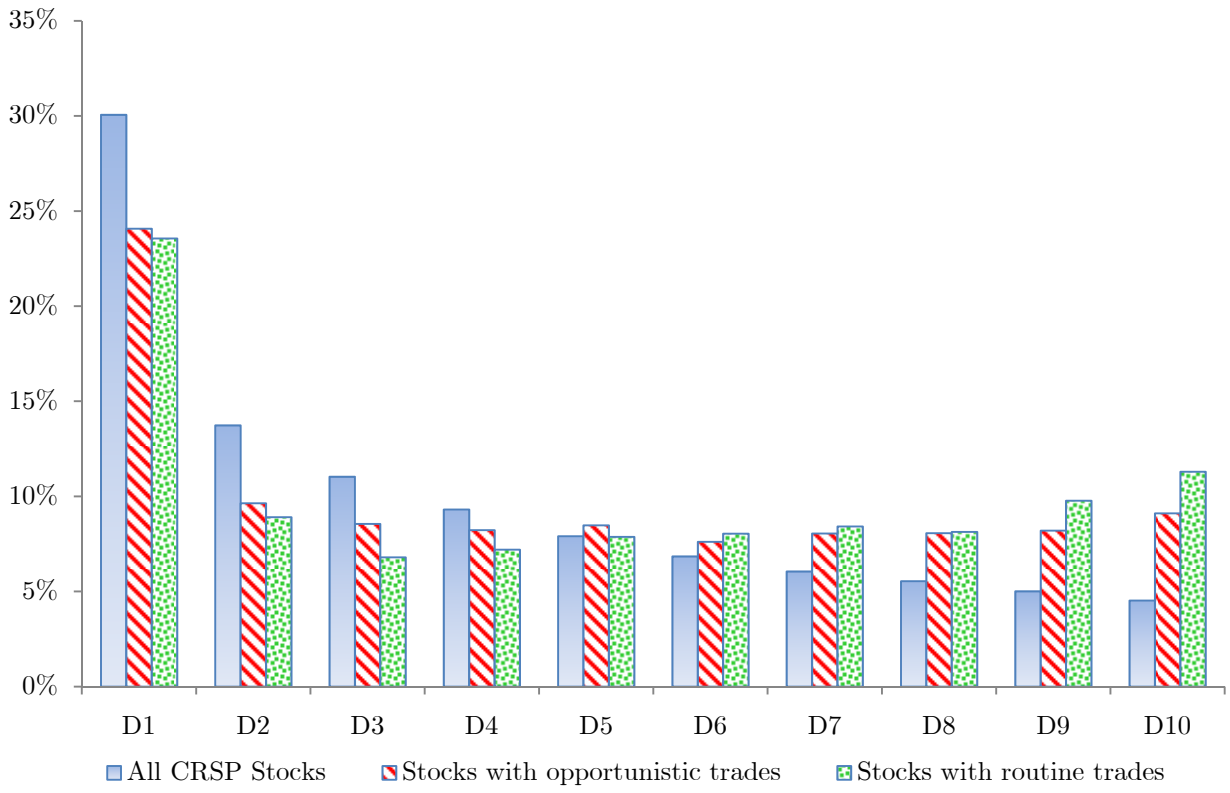


Figure 3: Returns to Opportunistic Trades, Event-time Returns

This figure shows the event-time returns to portfolios that follow the trades of opportunistic and routine insiders from 1989 to 2007. Opportunistic trades are defined as in Table I, as are routine trades. This figure presents the difference in performance following opportunistic versus routine buys (dashed line), opportunistic versus routine sells (dotted line), and of the buy-sell, opportunistic-routine spread portfolio (solid line), over 12 months following portfolio formation.

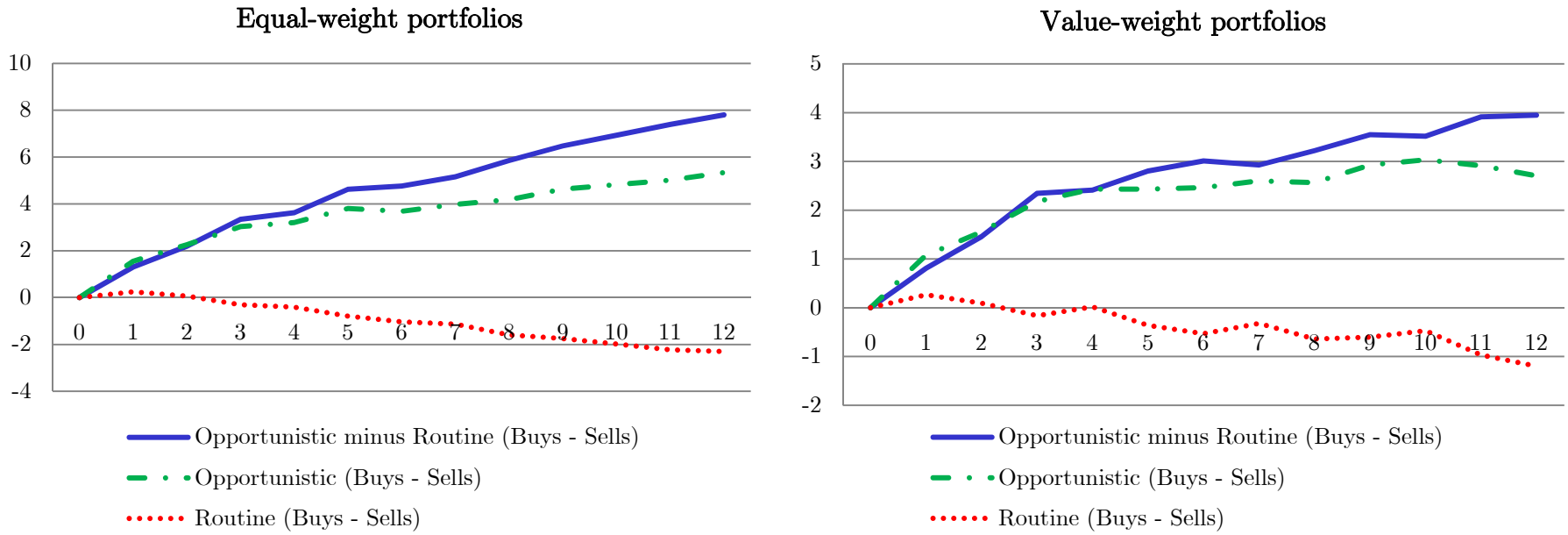


Table I: Summary Statistics

This table presents an overview of the sample we use in this paper, for which we can define programs (Opportunistic Universe), compared to the entire TFN Insiders database (Insider Universe), between 1989 and 2007. Each year, the opportunistic universe is that universe of insiders who have at least one trade in each of the preceding 3 years (so that routine traders and opportunistic traders can be defined). Panel A presents firm-level characteristics, with all numbers being full sample averages (medians), except for # of unique companies, which is the total number of unique companies over the entire sample period. Size is defined as the market capitalization of the firm in millions of dollars. Book-to-markets that are negative, or greater than 100 (likely mistakes in the data) are excluded from the data. Panel B presents insider-level characteristics for both the Opportunistic Universe and the Insider Universe. Trades over the last three years are used to characterize insiders as either routine or opportunistic traders. All subsequent trades that are made *after* we classify each insider as either routine or opportunistic are then placed into one of two buckets: a) "routine trades" (i.e., all trades made by routine traders), and b "opportunistic trades" (i.e., all trades made by opportunistic traders).

Panel A: Firm-Level Characteristics

	Opportunistic Universe		Insider Universe	
	Average	Median	Average	Median
Size	3274	330	1604	117
Size percentile	63.95%	69.57%	52.38%	53.93%
Book-to-market	0.66	0.47	0.84	0.55
Book-to-market percentile	42.52%	39.18%	47.47%	45.43%
# buys/ company	21.10	2	31.45	15
# sells/ company	68.89	6	59.17	20
# of unique companies	5493		15276	

Panel B: Insider-Level Characteristics

	Opportunistic Universe		Insider Universe	
	Average	Median	Average	Median
# buys/ insider	4.79	0	2.35	1
Buy trade size (bps)	16.62	1.94	14.93	1.61
% all buys that are routine	64.44%			
% all buys that are opportunistic	35.56%			
# sells/ insider	8.24	1	4.06	1
Sell trade size (bps)	13.15	3.00	25.59	3.72
% all sells that are routine	52.02%			
% all sells that are opportunistic	47.98%			
# companies/ insider	2.23	2	2.29	2
% all trades that are routine	54.81%			
% all trades that are opportunistic	45.19%			

Table II: Correlation Between Routine and Opportunistic trades, 1989–2007

Pearson correlation coefficients are calculated over all months and over all available stocks for the following variables. # Opportunistic Buys is the number of opportunistic buys for the given firm and month, and # Routine Buys is the number of routine buys in the given firm in the given month. These variables are defined analogously for sells. Log(Size) is the log of market capitalization as of the end of the previous calendar month. Log(B/M) the log of the book-market ratio, which is the market value of equity divided by Compustat book value of equity. The timing of B/M follows Fama and French (1993) and is as of the previous December year-end. RET is the return in the prior 12 months before the month of trading for the given firm and month.

	# Opportunistic Buys	*# Routine Buys*	*# Opportunistic Sells*	*# Routine Sells*	*Log(Size)*	*Log(B/M)*	*RET*
# Opportunistic Buys	1	-0.001	-0.029	-0.016	-0.079	0.066	-0.024
# Routine Buys		1	-0.017	-0.008	-0.039	0.011	0.002
# Opportunistic Sells			1	0.001	0.101	-0.059	0.015
# Routine Sells				1	0.111	-0.091	0.005
Log(Size)					1	-0.436	0.122
Log(B/M)						1	-0.118
RET							1

Table III: Performance of Routine and Opportunistic Trades

This table reports pooled regressions of returns on indicators of routine and opportunistic trades in the prior month. The dependent variable in each is future one-month returns (RET). Routine and opportunistic trades are defined as in Table I. Opportunistic Buy is a categorical variable equal to one if there were any opportunistic buys on a given firm in the prior month, and zero otherwise. Routine Buy is a categorical variable equal to one if there were any routine buys on a given firm in the prior month, and zero otherwise. Opportunistic Sell and Routine Sell are defined equivalently for insider sales. Size and BM are the natural logarithms of the firm characteristics of market equity and book-to-market of the given firm. Past Returns are the return of the given firm over the prior sixth month period. Month fixed effects (Month) are included where indicated. Standard errors clustered at the firm level. *t*-statistics are shown below the estimates, and 1%, 5%, and 10% statistical significance are indicated with ***,**, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Opportunistic Buy	1.45***	1.02***	0.90***				0.68***	0.65***	0.57**
	(8.22)	(5.24)	(4.64)				(2.80)	(2.60)	(2.30)
Routine Buy	0.87***	0.30*	0.14				0.09	-0.08	-0.20
	(5.54)	(1.73)	(0.81)				(0.37)	(-0.32)	(-0.84)
Opportunistic Sell				-1.44***	-0.95***	-0.78***	-1.14***	-0.75***	-0.67***
				(-11.11)	(-6.65)	(-5.67)	(-5.69)	(-3.64)	(-3.37)
Routine Sell				-0.58***	-0.02	0.04	-0.30	0.16	0.14
				(-4.19)	(-0.13)	(0.24)	(-1.49)	(0.77)	(0.69)
Size		-0.22***	-0.20***		-0.23***	-0.20***		-0.22***	-0.20***
		(-5.19)	(-4.55)		(-5.38)	(-4.70)		(-5.20)	(-4.56)
BM		0.36***	0.37***		0.37***	0.38***		0.37***	0.38***
		(3.13)	(3.30)		(3.26)	(3.42)		(3.23)	(3.40)
Past Month Returns		-0.03***	-0.05***		-0.03***	-0.05***		-0.03***	-0.05***
		(-4.00)	(-6.09)		(-3.93)	(-6.03)		(-3.90)	(-6.01)
Past Year Returns		0.005***	0.01***		0.005***	0.01***		0.01***	0.01***
		(3.68)	(4.71)		(3.81)	(4.80)		(3.82)	(4.79)
Fixed Effect			Month			Month			Month
Number of observations	52444	48460	48460	52444	48460	48460	52444	48460	48460

Table IV: Portfolio Returns to Routine and Opportunistic Trades

This table shows the returns to buy and sell portfolios that follow the routine and opportunistic trades in our opportunistic universe from 1989-2007. Opportunistic and routine trades are defined as in Table I. A firm is included in the opportunistic buy portfolio, for example, in month (t+1) if any of its insiders placed an opportunistic buy on the firm in month t. At the end of the month (t+1), we rebalance the portfolios based on new insider trades. Below are the monthly returns to these opportunistic and routine buy and sell portfolios in percentages, shown for both equal and value weighting. Panel A shows results for equal-weighted portfolios, while Panel B shows results for value-weighted portfolios. *t*-statistics are shown in parentheses, and 1%, 5%, and 10% statistical significance are indicated with ***,**, and *, respectively.

Panel A: Equal weights	Opportunistic Buys	Routine Buys	L/S Buys	Opportunistic Sells	Routine Sells	L/S Sells	Opportunistic (Buys-Sells)	Routine (Buys-Sells)
Average returns	2.33	1.65	0.68	0.77	1.41	-0.63	1.55	0.25
Standard dev.	4.95	4.06	3.03	5.97	6.01	2.64	4.91	4.67
CAPM alpha	1.51***	0.92***	0.59***	-0.30	0.32	-0.61***	1.81***	0.60**
	(5.89)	(4.34)	(2.98)	(-1.31)	(1.44)	(-3.47)	(5.86)	(2.25)
Fama-French alpha	1.20***	0.64***	0.56***	-0.21	0.43***	-0.65***	1.41***	0.20
	(5.49)	(3.78)	(2.74)	(-1.34)	(2.72)	(-3.60)	(5.04)	(0.87)
Carhart alpha	1.45***	0.82***	0.63***	-0.19	0.38**	-0.57***	1.64***	0.44*
	(6.82)	(4.92)	(3.03)	(-1.18)	(2.32)	(-3.11)	(5.86)	(1.89)
DGTW Char Adj	1.24***	0.40**	0.83***	-0.27**	0.42***	-0.69***	1.51***	-0.02
	(4.99)	(2.00)	(3.39)	(-2.09)	(2.75)	(-4.52)	(4.98)	(-0.06)
5-Factor alpha	1.58***	0.87***	0.70***	-0.23	0.45***	-0.67***	1.80***	0.43*
	(7.03)	(5.00)	(3.18)	(-1.30)	(2.59)	(-3.48)	(6.07)	(1.73)
Panel B: Value weights	Opportunistic Buys	Routine Buys	L/S Buys	Opportunistic Sells	Routine Sells	L/S Sells	Opportunistic (Buys-Sells)	Routine (Buys-Sells)
Average returns	1.79	1.27	0.52	0.72	1.00	-0.29	1.08	0.27
Standard dev.	5.96	5.02	5.27	5.70	6.16	2.92	5.88	5.97
CAPM alpha	0.87***	0.45*	0.42	-0.34*	-0.09	-0.25	1.22***	0.55
	(2.88)	(1.73)	(1.20)	(-1.73)	(-0.39)	(-1.29)	(3.14)	(1.44)
Fama-French alpha	0.64**	0.18	0.46	-0.08	0.28	-0.36	0.72**	-0.09
	(2.16)	(0.75)	(1.27)	(-0.46)	(1.35)	(-1.83)	(2.06)	(-0.29)
Carhart alpha	0.52*	0.09	0.43	-0.09	0.17	-0.26	0.62*	-0.07
	(1.73)	(0.37)	(1.16)	(-0.50)	(0.80)	(-1.29)	(1.71)	(-0.22)
DGTW Char Adj	0.57**	0.26	0.31	-0.18	0.06	-0.24	0.75**	0.21
	(2.35)	(1.26)	(1.04)	(-1.29)	(0.31)	(-1.46)	(2.48)	(0.72)
5-Factor alpha	0.72**	0.09	0.63	-0.10	0.29	-0.39*	0.82**	-0.20
	(2.27)	(0.34)	(1.61)	(-0.49)	(1.32)	(-1.84)	(2.15)	(-0.57)

Table V: Impact of the Number of Routine and Opportunistic Trades

This table reports panel regressions of returns on continuous measures of the number of routine and opportunistic trades in the prior month. The dependent variable in each is future one-month returns (RET). Routine and opportunistic trades are defined as in Table I. Number of Opportunistic Buys is equal to the natural logarithm of one plus the number of opportunistic buys in the given firm for the prior month (so is equal to zero if there were zero trades). Number of Routine Buys is equal to the natural logarithm of one plus the number of routine buys in the given firm for the prior month (so is equal to zero if there were zero trades). Number of Opportunistic Sells and Number of Routine Sells are defined equivalently for insider sales. Size and BM are the natural logarithms of the firm characteristics of market equity and book-to-market of the given firm. Past Returns are the return of the given firm over the prior sixth month period. Month fixed effects (Month) are included where indicated. All standard errors are adjusted for clustering at the firm level, and t-stats using these clustered standard errors are included in parentheses below the coefficient estimates; 1%, 5%, and 10% statistical significance are indicated with ***,**, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Number of Opportunistic Buys	0.95***	0.74***	0.66***				0.67***	0.61***	0.59***
	(6.77)	(4.97)	(4.56)				(4.52)	(3.97)	(3.93)
Number of Routine Buys	0.39***	0.10	0.01				0.14	-0.02	-0.05
	(4.09)	(0.92)	(0.12)				(1.37)	(-0.16)	(-0.43)
Number of Opportunistic Sells				-0.63***	-0.43***	-0.31***	-0.49***	-0.35***	-0.25***
				(-10.29)	(-6.75)	(-4.97)	(-7.36)	(-5.21)	(-3.70)
Number of Routine Sells				-0.24***	0.01	0.07	-0.12*	0.07	0.12
				(-3.64)	(0.17)	(0.97)	(-1.75)	(0.99)	(1.64)
Size		-0.24***	-0.20***		-0.24***	-0.22***		-0.22***	-0.20***
		(-5.43)	(-4.71)		(-5.66)	(-5.17)		(-5.18)	(-4.71)
BM		0.39***	0.39***		0.40***	0.42***		0.38***	0.39***
		(3.39)	(3.52)		(3.49)	(3.69)		(3.31)	(3.51)
Past Month Returns		-0.03***	-0.05***		-0.03***	-0.05***		-0.03***	-0.05***
		(-4.05)	(-6.14)		(-4.00)	(-6.10)		(-3.92)	(-6.04)
Past Year Returns		0.00***	0.01***		0.00***	0.01***		0.01***	0.01***
		(3.67)	(4.71)		(3.73)	(4.75)		(3.82)	(4.79)
Fixed Effect			Month			Month			Month
Number of observations	52444	48460	48460	52444	48460	48460	52444	48460	48460

Table VI: Opportunistic Trades and the Arrival of Information

This table reports panel regressions of information events on the number of routine and opportunistic trades in a company in the prior month. The dependent variables in the regressions are: in Columns 1-3, a proxy for firm information environment using the number of news, annual and quarterly earnings forecast revisions, recommendation changes, SEO and M&A activities (All Firm Info), in Columns 4-6, solely the number of news (News). The main independent variables of interest are the Number of Opportunistic Trades and the Number of Routine Trades, defined as in Table V. Lag 1 Month News is equal to the number of information events (for each respective specification of information events) observed for the given firm in the prior month, while Lag 6 Month News is defined equivalently for information events of the firm in the 6 months prior to last month. Past Month Returns and Past 6 Month Returns are defined equivalently for returns, while Size is described in Table II. Month fixed effects (Month) are included where indicated. All standard errors are adjusted for clustering at the firm level, and t-stats using these clustered standard errors are included in parentheses below the coefficient estimates; 1%, 5%, and 10% statistical significance are indicated with ***,**, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Type of Information:	*All Firm Info*	*All Firm Info*	*All Firm Info*	*News*	*News*	*News*
Number of Opportunistic Trades	0.20***	0.03***	0.03***	0.21***	0.03***	0.03***
	(5.77)	(2.72)	(2.78)	(5.69)	(2.90)	(3.26)
Number of Routine Trades	0.12***	-0.00	0.02	0.12***	0.01	0.01
	(3.11)	(-0.11)	(1.33)	(2.88)	(0.46)	(1.04)
Size		0.10***	0.03***		0.03***	0.02***
		(16.49)	(8.01)		(5.28)	(4.96)
BM		-0.04***	-0.01		-0.03***	-0.01
		(-3.16)	(-1.58)		(-3.51)	(-1.46)
Past Month Returns		-0.00*	0.00***		-0.00	0.00***
		(-1.76)	(2.86)		(-0.78)	(3.98)
Past Year Returns		0.00	0.00		0.00	0.00
		(0.75)	(1.15)		(1.42)	(1.13)
Past Month News		0.58***	0.22***		0.73***	0.28***
		(38.68)	(19.33)		(54.36)	(18.83)
Past 6 Month News			0.46***			0.39***
			(54.89)			(65.79)
Fixed Effect		Month	Month		Month	Month
Number of observations	22071	20198	20198	22071	20198	20198

Table VII: SEC Activity and Opportunistic Trading

This table reports regressions of the fraction of insiders trading in a given month who are opportunistic on recent SEC releases regarding litigation cases against illegal insider trading. The dependent variable is the number of opportunistic insiders trading in month t+1 divided by the number of all insiders trading in month t+1. The independent variable of interest is equal to the natural logarithm of one plus the number of SEC releases regarding litigation cases against illegal insider activity in month t. We also include control variables for the fraction of opportunistic insiders trading in month t and month t-1, the CRSP value-weight market return in month t, the standard deviation of daily market returns in month t, and various windows of past cumulative market returns (month t-3 to t-1, month t-6 to t-1, and month t-12 to t-1). t-stats based on robust standard errors are included in parentheses below the coefficient estimates; 1%, 5%, and 10% statistical significance are indicated with ***,**, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Num SEC Releases$_t$	-0.019***	-0.012**	-0.013**	-0.014**	-0.014**	-0.014**	-0.015**
	(-2.65)	(-1.99)	(-2.17)	(-2.26)	(-2.24)	(-2.35)	(-2.41)
Fraction Insiders$_t$		0.588***	0.390***	0.357***	0.352***	0.323***	0.249***
		(8.77)	(4.77)	(4.21)	(4.15)	(3.84)	(3.00)
Fraction Insiders$_{t-1}$			0.336***	0.352***	0.347***	0.320***	0.241***
			(4.59)	(4.90)	(4.74)	(4.28)	(3.07)
Market Return$_t$				0.182**	0.158	0.132	0.089
				(2.04)	(1.39)	(1.34)	(0.95)
StdMarketRet$_t$				0.192	0.382	0.761	1.384
				(0.21)	(0.38)	(0.73)	(1.44)
Market Return$_{t-3,t-1}$					0.033		
					(-0.48)		
Market Return$_{t-6,t-1}$						0.079*	
						(1.67)	
Market Return$_{t-12,t-1}$							0.116***
							(3.76)
Number of observations	147	147	147	146	146	146	146

Table VIII: Which Opportunistic Traders Are the Most Informed?

This table reports panel regressions of information events on the number of opportunistic trades by various insider types in a company in the prior month. The dependent variable in the regressions is a proxy for the firm information environment using the number of news, annual and quarterly earnings forecast revisions, recommendation changes, SEO and M&A activities. The main independent variables of interest are the Number of Opportunistic Trades, as defined in Table VI, for various types of insiders. The types of insiders we consider are: Local Insiders (defined as insiders that reside in the same state as their firm's headquarters), Senior Officers of the firm (defined as CEO, CFO, or Chairman of the Board), Inside Directors, and Independent Directors of the firm. Lag 1 and Lag 6 Month News are defined as in Table IV. Month fixed effects (Month) are included where indicated. All standard errors are adjusted for clustering at the firm level, and t-stats using these clustered standard errors are included in parentheses below the coefficient estimates; 1%, 5%, and 10% statistical significance are indicated with ***,**, and *, respectively.

	(1)	(2)	(3)	(4)	(5)
Opportunistic Trades by Local Insiders	0.03***				0.03**
	(2.85)				(2.22)
Opportunistic Trades by Independent Directors		0.02			0.01
		(1.50)			(0.41)
Opportunistic Trades by Senior Insiders			0.01		0.00
			(0.96)		(-0.11)
Opportunistic Trades by Inside Directors				0.01	0.01
				(0.60)	(0.52)
Trades by Routine Insiders	0.01	-0.00	0.01	0.00	0.01
	(0.93)	(-0.04)	(0.53)	(0.39)	(0.51)
Size	0.03***	0.03***	0.03***	0.03***	0.03***
	(7.92)	(7.03)	(7.93)	(7.93)	(7.01)
BM	-0.01*	-0.02*	-0.01*	-0.01*	-0.02*
	(-1.71)	(-1.90)	(-1.79)	(-1.83)	(-1.74)
Past Month Returns	0.00***	0.00***	0.00***	0.00***	0.00***
	(2.93)	(2.69)	(3.06)	(3.09)	(2.50)
Past Year Returns	0.00	0.00	0.00	0.00	0.00
	(1.12)	(1.08)	(1.18)	(1.20)	(1.02)
Past Month News	0.22***	0.22***	0.22***	0.22***	0.22***
	(19.21)	(15.63)	(19.08)	(19.10)	(15.77)
Past 6 Month News	0.46***	0.49***	0.46***	0.46***	0.49***
	(54.90)	(36.40)	(54.77)	(54.78)	(36.58)
Fixed Effect	Month	Month	Month	Month	Month
Number of observations	20198	12221	20198	20198	12221

Table IX: Robustness Checks

This table reports pooled regressions of returns on indicators of routine and opportunistic trades in the prior month. The dependent variable in each is future one-month returns (RET). Routine and opportunistic trades are defined as in Table I. Opportunistic Buy is a categorical variable equal to one if there were any opportunistic buys on a given firm in the prior month, and zero otherwise. Routine Buy is a categorical variable equal to one if there were any routine buys on a given firm in the prior month, and zero otherwise. Opportunistic Sell and Routine Sell are defined equivalently for insider sales. Size and BM are the natural logarithms of market equity and book-to-market of the given firm. Columns 1 and 2 (3 and 4) include only stocks in the top (bottom) half of the market capitalization distribution, where market cap is measured in December of the prior year. Columns 5 and 6 (7 and 8) include only stocks in the top (bottom) half of the distribution of fraction of shares outstanding traded by insiders in the prior year. Columns 9 and 10 (11 and 12) include only those trades made within (outside) a 21-day trading window (+3 to +24 days) after an earnings announcement, while also excluding (including) any trades that occur up to 30 days before an M&A announcement. Month fixed effects (Month) are included where indicated. Standard errors clustered at the firm level. *t*-statistics are shown below the estimates, and 1%, 5%, and 10% statistical significance are indicated with ***,**, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Large Stocks		Small Stocks		High Intensity Stocks		Low Intensity Stocks		Non-Blackout Only		Blackout Only	
Opportunistic Buy	0.55**		0.80***		1.27***		0.56**		1.28***		0.85***	
	(2.31)		(2.78)		(4.14)		(2.36)		(3.81)		(3.69)	
Routine Buy	0.08		-0.01		0.46*		-0.17		0.34		0.14	
	(0.37)		(-0.05)		(1.69)		(-0.80)		(1.25)		(0.70)	
Opportunistic Sell		-0.55***		-0.83***		-1.13***		-0.39**		-0.99***		-0.78***
		(-3.44)		(-3.29)		(-5.45)		(-2.13)		(-4.43)		(-4.65)
Routine Sell		0.11		0.11		-0.03		0.07		-0.21		0.08
		(0.62)		(0.37)		(-0.14)		(0.36)		(-0.90)		(0.45)
Size	-0.08	-0.08	-0.50***	-0.50***	-0.24***	-0.25***	-0.15***	-0.15***	-0.11	-0.11*	-0.22***	-0.23***
	(-1.34)	(-1.43)	(-3.54)	(-3.50)	(-3.10)	(-3.28)	(-2.73)	(-2.78)	(-1.57)	(-1.72)	(-4.27)	(-4.43)
BM	0.40***	0.43***	0.23	0.22	0.34**	0.37**	0.39**	0.39**	0.37*	0.39**	0.40***	0.42***
	(3.06)	(3.27)	(1.26)	(1.18)	(2.14)	(2.33)	(2.44)	(2.41)	(1.94)	(2.04)	(3.10)	(3.22)
Past Month Returns	-0.03***	-0.03***	-0.06***	-0.06***	-0.05***	-0.05***	-0.06***	-0.06***	-0.03***	-0.03***	-0.06***	-0.06***
	(-2.87)	(-2.77)	(-5.62)	(-5.61)	(-4.45)	(-4.38)	(-4.46)	(-4.43)	(-2.84)	(-2.81)	(-6.60)	(-6.57)
Past Year Returns	0.01***	0.01***	0.00**	0.00**	0.01***	0.01***	0.01	0.01	0.01***	0.01***	0.01***	0.01***
	(4.98)	(5.06)	(2.21)	(2.30)	(4.69)	(4.81)	(1.39)	(1.41)	(2.63)	(2.65)	(3.35)	(3.42)
Fixed Effect	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month
Number of observations	26543	26543	21927	21927	26345	26345	22115	22115	17594	17594	36605	36605

Appendix Tables:
Decoding Inside Information

Table A1: Portfolio Returns to Insider Trades, Young Versus Old Companies

This table shows the returns to insider buys and insider sells in young companies (those insider trades that are made within three years of the company's first appearance in CRSP) and old companies (those insider trades that are made three or more years after the company's first appearance in CRSP). A firm is included in the buy (sell) portfolio in month (t+1) if any of its insiders bought (sold) on the firm in month t. At the end of the month (t+1), we rebalance the portfolios based on new insider trades. Below are the monthly returns to and alphas on these buy and sell portfolios, in percentages, shown for both equal (in Panel A) and value weighting (in Panel B). *t*-statistics are shown in parentheses, and 1%, 5%, and 10% statistical significance are indicated with ***,**, and *, respectively.

	Young Companies			Old Companies			Young Minus Old		
Panel A: Equal weights	Buys	Sells	Buys-Sells	Buys	Sells	Buys-Sells	Buys	Sells	Buys-Sells
Average returns	1.73	0.56	1.17	1.95	0.75	1.20	-0.21	-0.18	-0.03
Standard dev.	6.55	8.07	3.45	5.27	5.34	2.27	2.94	4.11	3.02
CAPM alpha	0.91***	-0.38	1.29***	1.20***	-0.04	1.24***	-0.29	-0.34	0.05
	(3.62)	(-1.28)	(6.70)	(6.37)	(-0.28)	(9.22)	(-1.68)	(-1.48)	(0.28)
Fama-French alpha	0.95***	-0.19	1.14	1.04***	-0.11	1.15***	-0.09	-0.08	-0.01
	(4.61)	(-1.04)	(6.82)	(7.34)	(-1.51)	(8.92)	(-0.64)	(-0.45)	(-0.09)
Carhart alpha	1.28***	0.05	1.22***	1.31***	-0.10	1.41***	-0.03	0.15	-0.19
	(6.70)	(0.31)	(7.22)	(10.45)	(-1.36)	(12.74)	(-0.22)	(0.89)	(-1.14)
	Young Companies			Old Companies			Young Minus Old		
Panel B: Value weights	Buys	Sells	Buys-Sells	Buys	Sells	Buys-Sells	Buys	Sells	Buys-Sells
Average returns	0.96	0.74	0.22	1.07	0.64	0.42	-0.11	0.10	-0.21
Standard dev.	6.67	8.53	4.47	4.95	4.77	2.25	4.58	5.63	4.64
CAPM alpha	0.10	-0.25	0.34	0.29***	-0.14**	0.43***	-0.20	-0.11	-0.09
	(0.43)	(-0.81)	(1.33)	(2.55)	(-2.35)	(3.18)	(-0.73)	(-0.34)	(-0.34)
Fama-French alpha	0.22	0.05	0.17	0.23**	-0.11*	0.33**	0.00	0.16	-0.16
	(1.13)	(0.22)	(0.73)	(2.03)	(-1.87)	(2.56)	(-0.01)	(0.68)	(-0.60)
Carhart alpha	0.21	-0.04	0.26	0.35***	-0.15***	0.50***	-0.14	0.11	-0.24
	(1.05)	(-0.19)	(1.04)	(3.20)	(-2.59)	(3.97)	(-0.58)	(0.46)	(-0.90)

Table A2: Portfolio Returns to Insider Trades, Young Versus Old Insiders

This table shows the returns to buys and sells of young insiders (those insider trades that are made within three years of a given insider's first trade in the database) and of old insiders (those insider trades that are made three or more years after a given insider's first trade in the database). A firm is included in the buy (sell) portfolio in month (t+1) if any of its insiders bought (sold) on the firm in month t. At the end of the month (t+1), we rebalance the portfolios based on new insider trades. Below are the monthly returns to and alphas on these buy and sell portfolios, in percentages, shown for both equal (in Panel A) and value weighting (in Panel B). *t*-statistics are shown in parentheses, and 1%, 5%, and 10% statistical significance are indicated with ***,**, and *, respectively.

	Young Insiders			Old Insiders			Young Minus Old		
Panel A: Equal weights	Buys	Sells	Buys-Sells	Buys	Sells	Buys-Sells	Buys	Sells	Buys-Sells
Average returns	1.95	0.65	1.30	1.98	0.83	1.14	0.00	-0.18	0.17
Standard dev.	5.70	6.18	2.59	5.53	5.44	3.22	2.15	1.84	2.08
CAPM alpha	1.17***	-0.20	1.36***	1.26***	0.09	1.19***	-0.02	-0.22*	0.18
	(5.67)	(-1.04)	(9.11)	(5.24)	(0.51)	(5.80)	(-0.15)	(-1.89)	(1.33)
Fama-French alpha	1.08***	-0.15	1.23***	1.08***	0.02	1.08***	0.03	-0.15	0.16
	(6.78)	(-1.73)	(9.17)	(5.37)	(0.22)	(5.48)	(0.24)	(-1.43)	(1.19)
Carhart alpha	1.38***	-0.10	1.48***	1.46***	0.02	1.47***	0.03	-0.08	0.10
	(9.93)	(-1.14)	(12.64)	(8.07)	(0.17)	(8.36)	(0.20)	(-0.79)	(0.72)
	Young Insiders			Old Insiders			Young Minus Old		
Panel B: Value weights	Buys	Sells	Buys-Sells	Buys	Sells	Buys-Sells	Buys	Sells	Buys-Sells
Average returns	1.09	0.58	0.52	1.09	0.70	0.32	-0.02	-0.18	0.21
Standard dev.	5.21	5.04	2.79	4.94	4.72	3.15	2.87	1.43	3.09
CAPM alpha	0.30**	-0.22**	0.52***	0.37**	-0.02	0.35	-0.04	-0.17	0.18
	(2.38)	(-2.45)	(3.09)	(2.20)	(-0.28)	(1.73)	(-0.25)	(-1.87)	(0.89)
Fama-French alpha	0.26**	-0.13	0.39**	0.31*	0.03	0.23	-0.02	-0.15	0.17
	(2.07)	(-1.63)	(2.43)	(1.86)	(0.38)	(1.22)	(-0.13)	(-1.61)	(0.84)
Carhart alpha	0.40***	-0.23***	0.64***	0.49***	-0.04	0.49***	-0.03	-0.19	0.22
	(3.25)	(-3.07)	(4.22)	(3.03)	(-0.49)	(2.64)	(-0.18)	(-2.11)	(1.05)

Table A3: Performance of Routine and Opportunistic Trades, Trade-Level Classification

This table reports pooled regressions of returns on indicators of routine and opportunistic trades in the prior month. The dependent variable in each is future one-month returns in month t+1 (RET). To define routine trades, we investigate insiders' trading patterns in the three preceding years. If an insider traded a stock in the same calendar month in three consecutive years, all trades he or she made subsequently in the same month are labeled as routine and trades made in a different month are labeled opportunistic. If an insider traded in three consecutive years, but no trades were made in the same month in these three years, all subsequent trades of that insider are labeled as opportunistic as well. Opportunistic Buy is a categorical variable equal to one if there were any opportunistic buys on a given firm in the prior month (month t), and zero otherwise. Routine Buy is a categorical variable equal to one if there were any routine buys on a given firm in the prior month (month t), and zero otherwise. Opportunistic Sell and Routine Sell are defined equivalently for insider sales. Size and BM are the natural logarithms of the firm characteristics of market equity and book-to-market of the given firm. Past Returns are the return of the given firm over the prior sixth month period. Month fixed effects (Month) are included where indicated. Standard errors clustered at the firm level. t-statistics are shown below the estimates, and 1%, 5%, and 10% statistical significance are indicated with ***,**, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Opportunistic Buys	1.29***	0.77***	0.65***			
	(8.01)	(4.39)	(3.79)			
Routine Buys	-0.44**	-0.21	-0.29			
	(-2.48)	(-1.14)	(-1.57)			
Opportunistic Sells				-1.33***	-0.77***	-0.63***
				(-8.70)	(-4.66)	(-3.84)
Routine Sells				0.53***	0.44***	0.31**
				(3.77)	(3.06)	(2.29)
Size		-0.23***	-0.20***		-0.24***	-0.21***
		(-5.50)	(-4.76)		(-5.60)	(-4.83)
BM		0.38***	0.38***		0.39***	0.39***
		(3.35)	(3.47)		(3.42)	(3.52)
Past Month Returns		-0.03***	-0.05***		-0.03***	-0.05***
		(-4.28)	(-6.31)		(-4.30)	(-6.33)
Past Year Returns		0.00***	0.01***		0.00***	0.01***
		(3.69)	(4.72)		(3.70)	(4.72)
Fixed Effect			Month			Month
Number of observations	52444	48460	48460	52444	48460	48460

Table A4: Performance of Routine and Opportunistic Trades, Waiting Until 11th Day of Following Month

This table reports pooled regressions of returns on indicators of routine and opportunistic trades in the prior month. The dependent variable in each is future one-month returns, computed from the 11th day of the month subsequent to when insiders trade (i.e., month t+1) to the 10th day of the following month (i.e., month t+2). Routine and opportunistic trades are defined as in Table I. Opportunistic Buy is a categorical variable equal to one if there were any opportunistic buys on a given firm in the prior month (month t), and zero otherwise. Routine Buy is a categorical variable equal to one if there were any routine buys on a given firm in the prior month (month t), and zero otherwise. Opportunistic Sell and Routine Sell are defined equivalently for insider sales. Size and BM are the natural logarithms of the firm characteristics of market equity and book-to-market of the given firm. Past Returns are the return of the given firm over the prior sixth month period. Month fixed effects (Month) are included where indicated. Standard errors clustered at the firm level. t-statistics are shown below the estimates, and 1%, 5%, and 10% statistical significance are indicated with ***,**, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Opportunistic Buy	1.43***	1.05***	1.00***			
	(7.86)	(5.39)	(5.26)			
Routine Buy	0.88***	0.35**	0.20			
	(6.07)	(2.20)	(1.26)			
Opportunistic Sell				-1.46***	-1.04***	-0.90***
				(-11.41)	(-7.45)	(-6.58)
Routine Sell				-0.59***	-0.11	-0.12
				(-4.24)	(-0.72)	(-0.84)
Size		-0.16***	-0.13***		-0.17***	-0.13***
		(-4.19)	(-3.34)		(-4.24)	(-3.38)
BM		0.44***	0.40***		0.44***	0.40***
		(3.93)	(3.70)		(3.97)	(3.70)
Past Month Returns		0.01	-0.01		0.01	-0.01
		(0.82)	(-1.59)		(0.89)	(-1.51)
Past Year Returns		0.00	0.00**		0.00	0.00**
		(0.64)	(2.06)		(0.76)	(2.15)
Fixed Effect			Month			Month
Number of observations	52444	48460	48460	52444	48460	48460

Table A5: Predicting News Events with Opportunistic Buys and Sells Separately

This table reports panel regressions of information events on the number of routine and opportunistic buys and sells in a company in the prior month. The dependent variables in the regressions are: in Columns 1-3, a proxy for firm information environment in month t+1 using the number of news, annual and quarterly earnings forecast revisions, recommendation changes, SEO and M&A activities (All Firm Info), in Columns 4-6, solely the number of news in month t+1 (News). The main independent variables of interest are the Number of Opportunistic Buys, the Number of Opportunistic Sells, the Number of Routine Buys, and the Number of Routine Sells, each defined as the logarithm of one plus the number of trades of a given type, made in the prior month (month t). Lag 1 Month News is equal to the number of information events (for each respective specification of information events) observed for the given firm in the prior month (month t), while Lag 6 Month News is defined equivalently for information events of the firm in the 6 months prior to last month. Past Month Returns and Past 6 Month Returns are defined equivalently for returns, while Size is described in Table II. Month fixed effects (Month) are included where indicated. All standard errors are adjusted for clustering at the firm level, and t-stats using these clustered standard errors are included in parentheses below the coefficient estimates; 1%, 5%, and 10% statistical significance are indicated with ***,**, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Type of Information:	*All Firm Info*	*All Firm Info*	*All Firm Info*	*News*	*News*	*News*
Number of Opportunistic Sells	0.26***	0.03**	0.03**	0.26***	0.03***	0.04***
	(8.18)	(2.54)	(2.37)	(7.09)	(2.85)	(3.31)
Number of Opportunistic Buys	-0.08**	0.02	0.03**	0.00	0.02*	0.02**
	(-2.49)	(1.58)	(2.40)	(0.13)	(1.69)	(2.01)
Number of Routine Sells	0.31***	0.03*	0.02	0.26***	0.02	0.02
	(6.63)	(1.72)	(1.58)	(4.49)	(1.41)	(1.33)
Number of Routine Buys	-0.11***	-0.04**	0.00	-0.05	-0.01	0.00
	(-3.17)	(-2.29)	(0.35)	(-1.50)	(-1.10)	(0.05)
Size		0.09***	0.03***		0.02***	0.02***
		(15.87)	(7.86)		(4.87)	(4.66)
BM		-0.03**	-0.01		-0.03***	-0.01
		(-2.42)	(-1.37)		(-2.93)	(-1.01)
Past Month Returns		-0.00**	0.00***		-0.00	0.00***
		(-2.02)	(2.77)		(-0.97)	(3.76)
Past Year Returns		0.00	0.00		0.00	0.00
		(0.44)	(1.12)		(1.30)	(1.09)
Past Month News		0.58***	0.22***		0.72***	0.28***
		(39.76)	(19.36)		(54.63)	(18.86)
Past 6 Month News			0.46***			0.39***
			(19.36)			(65.62)
Fixed Effect		Month	Month		Month	Month
Number of observations	22071	20198	20198	22071	20198	20198