

Are CEOs more Informative than CFOs? Empirical Evidence from Contrarian Beliefs and Superior Information

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ABSTRACT

Informativeness of CEO and CFO trades gains ground in the academic literature. The existing research on CEO and CFO trades is unable to answer whether trades made by the CEOs and CFOs are based on the superior information or contrarian beliefs, especially in the category of opportunistic and routine trades. However, the driving forces behind the informativeness of the CEOs and CFOs are unexplored. By using a sample of 88,868 CEO and CFO trades from 2,271 firms for the period of 2004-2012, this paper reveals that CEOs' opportunistic buy trades achieve greater cumulative abnormal returns than those of the CFOs, but CFOs utilize their financial expertise in rebalancing their portfolios by pursuing sale transactions, irrespective of the trade-type or trader-type, and hence, they outperform the CEOs. We show that the outperformance of the CEOs is predominantly for the superior information, but the outperformances of the CFOs reflect their financial expertise in rebalancing portfolios. We also find that contrarian beliefs lead to CEO and CFO sale transactions (routine and opportunistic), but superior information provokes opportunistic sale trades by CEOs and CFOs.

Keywords: Informativeness, CEO, CFO, Contrarian Beliefs, Superior Information, Opportunistic and Routine Trading.

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1. Introduction

Insiders, managers and members of the board of directors, are a unique class of traders who have access to more private information than outside investors. Although they communicate this superior information to outsiders and hence, share prices incorporate more information (Leland 1992), they mainly use their private information to trade profitably, especially to earn abnormal profits or for liquidity and/or to rebalance their portfolios. The existing research popularly believes that insiders trade based on superior information of earnings (Elliott, Morse and Richardson, 1984) or cash flow needs (Ke, Huddart and Petroni, 2003). The prior empirical research also emphasizes that insiders trade based on the contrarian beliefs (Seyhun, 1992; and Rozeff and Zaman, 1998). However, Piotroski and Roulstone (2005) demonstrate the evidence that insider trading is based on both contrarian beliefs and superior information of firm's future earnings innovation.

Further, Seyhun (1992) stresses that insiders are more likely to buy shares following periods of significant price declines and sell shares when price increases. However, Rozeff and Zaman (1998) demonstrate that insiders buy shares as stocks change from growth to value categories and interpret this as evidence of trading against the market's overreaction to past performance. Jiang and Zaman (2010) find strong evidence that aggregate insider trading is positively related to unexpected cash flow news and hence, conclude that insiders trade on the basis of superior information. In addition, prior studies such as Jaffe (1974), Finnerty (1976), Givoly and Palmon (1985), Seyhun (1986), Rozeff and Zaman (1988), Lin and Howe (1990), Gregory, Matatko and Tonks (1997), and Chang and Suk (1998) provide evidence that insiders trade to earn abnormal returns, even though Cohen, Malloy and Pomorski (2012) separate trading behavior of insiders as routine and opportunistic.

Further, the existing studies examine insiders' trading behavior altogether, but Wang, Shin and Francis (2012) examine the trading behavior separately, especially CEOs and CFOs trade, even though this is not unusual in the insider trading literature. Geiger and North (2006), and Jiang, Petroni and Wang (2010) exhibit that CFOs have unique influence on reported financial numbers due to their superior ability to analyze financial details of the firms. Nevertheless, CEOs' dominating behavior is evidenced in the existing literature due to their superior access to company information.

Although Wang, Shin and Francis (2012) investigate the CEO and the CFO trades separately, no attempt is made whether trades made by the CEOs and CFOs are based on the superior information or contrarian beliefs. However, there is no attempt made for identifying the driving forces behind the informativeness of the CEOs and CFOs. We use a sample of 88,868 CEO and CFO trades from 2,271 firms for the period of 2004-2012. Our results reveal that CEOs opportunistic buy trades achieve greater cumulative abnormal returns (CARs) than the CFOs, but CFOs utilize their financial expertise in rebalancing their portfolios by pursuing sale transactions, irrespective of the trade-type or trader-type, and hence, they outperform the CEOs. We also find that the outperformance of the CEOs is predominantly for the superior information, but the outperformances of the CFOs reflect their financial expertise in rebalancing portfolios. We also add that the CEOs and CFOs pursue their trades based on both superior information and contrarian beliefs, but they failed to utilize the superior information against market sentiments in short-term gains (i.e. CAR). In addition, we report that contrarian beliefs lead to CEO and CFO sale transactions (routine and opportunistic), but superior information provokes opportunistic sale trades by CEOs and CFOs.

This paper contributes to the existing research in several ways. First, this is the first study that attempts to decode the information contents of the CEOs and the CFOs. Following Cohen, Malloy and Pomorski (2012), we classify the CEOs and CFOs as routine and opportunistic². We also use trade level classification so that the same insider can have both routine and opportunistic trades. Motivated by Cohen, Malloy and Pomorski (2012), we predict that routine CEOs and CFOs or the routine trades of the CEOs and CFOs are not related to the information content but opportunistic CEOs and CFOs or the opportunistic trades of the CEOs and CFOs contain more information, hence they gain abnormal returns from their trading. We find that CEOs opportunistic buy trades achieve greater cumulative abnormal returns (CAR) than the CFOs, but CFOs utilize their financial expertise in rebalancing their portfolios by pursuing sale transactions, irrespective of the trade-type or trader-type, and hence, they outperform the CEOs. Thus this paper supplements Cohen, Malloy and Pomorski (2012).

² For each insider, we analyze his/her trading history and look for consistent patterns in the timing of trades. A routine trader is defined as an insider who placed a trade in the same calendar month for at least three consecutive years. Everyone else is defined as opportunistic trader, that is, those insiders for whom we cannot detect an obvious discernible pattern in the past timing of their trades.

Second, our paper investigates whether different types of trades (buy and sell) made by the CEOs and the CFOs are based on the superior information they have or on the basis of contrarian beliefs. We also investigate how much profits as measured by the cumulative abnormal returns (CAR) are made by the CEOs and CFOs when they trade routinely or opportunistically using superior information or contrarian beliefs/investor sentiments. We find that the CEOs and CFOs pursue their trades based on both superior information and contrarian beliefs, but they failed to utilize the superior information against market sentiments in short-term gain (i.e. CAR). The empirical results also reveal that contrarian beliefs lead to CEO and CFO sale transactions (routine and opportunistic), but superior information provokes opportunistic sale trades by CEOs and CFOs. Our paper complements Piotroski and Roulstone (2005) with regards to superior information and contrarian beliefs and Cohen, Malloy and Pomorski (2012) with regards to routine and opportunistic trades.

Finally, Wang, Shin and Francis (2012) study the market response (i.e. CAR) to the CEO and CFO buy and sale trades in the long window (e.g. 1-3 months, 4-6 months, 7-9 months and 10-12 months). Their study ignores the market response to the CEO and CFO trades (buy and sell) in the short window to see whether their trades are based on the immediate information they have and they exploit the information by gaining abnormal returns as soon as they get it. Thus, from this view point, our study supplements Wang, Shin and Francis (2012).

The rest of the paper is organized as follows: section 2 presents the research design and the data for the study. Section 3 reports our empirical results. The concluding remarks are included in section 4.

2. Research Design and Data

2.1 Research Design:

Following Fama and Franch (1992) and Wang, Shin and Francis (2012), we calculate CAR by taking the daily return of a stock, subtracting the corresponding benchmark portfolio return, and adding these daily excess returns over time after an insider trade takes place. The benchmark portfolios are constructed based on Fama and Franch (1992) 10 × 10 size and book-to-market ratios decile to control for risk factors. We use NYSE and NASDAQ size and book-to-market decile breakpoints to categorize stocks. NYSE listed firms are comparatively large firms. Since our sample has both large and small firms,

including both NYSE and NASDAQ as our benchmark allows to have more firms in the combined benchmark that represents our sample better. To calculate portfolio return and individual stock return, we follow Asparouhova, Bessembinder and Kalcheva (2010a) who introduce return-weighted (RW) portfolio return. Although traditional equal-weighted (EW) and value-weighted (VW) benchmark portfolios have been used in the literature, we do not use these measures for the following reasons: First, Blume and Stambaugh (1983) argue that microstructure noises in security prices lead to bias in measured stock returns. Asparouhova et al. (2010a) also find that return for equal-weighted portfolio is biased by the average bias in the individual returns. However, although value-weighted portfolio returns are not subject to the noise-induced bias (Asparouhova, Bessembinder and Kalcheva, 2010b), but these are dominated by a few large stocks. Second, since we have many small firms in our sample, value-weighted portfolio mean return is not suitable for our purpose. We need to use equal-weighted portfolio since we measure the average information content of the insider trades. However, return-weighted portfolio, a simple correction of the equal-weighted portfolio, eliminates the bias in equal-weighted portfolio return. Thus, we use the return-weighted portfolio return where each observed return in a portfolio is weighted by the gross (1+) return of the same security in the prior trading day. Specifically, we multiply the stock return by its prior day gross return and divide it by the average prior day gross return of the stocks in the same size and book-to-market portfolio. We follow the same procedure to eliminate the bias in the individual stock return in our sample. Abnormal return is then calculated as the difference between the daily stock return and the return of the benchmark portfolio.

2.2 Data Description and Sample Selection:

Our primary database for insider trading is 2iQr. This database includes open market purchases and sales made by different insiders. The database also includes the date of the transaction, filing date, price of the transaction, size of the transaction, type of the transaction and insider relationship to the firm. We only extract the CEO and CFO trades over the period of 2004-2012 for our research. The database includes 2,107,358 insider trades for the sample period, of which 417,482 open market transactions are made by CEO and CFO. We draw all of these open market CEO and CFO transactions. However, we exclude 2,107 transactions (0.5%) due to missing firm ISIN number. We also exclude the CEO and CFO transactions (20,924 trades) for firms having less than four years of transaction for the entire sample

period. Further, we exclude CEO and CFO trades (49,881 trades) for non-financial firms. The final sample consists of 344,570 CEO and CFO trades, which is 82.54% of the entire open market transactions of CEO and CFO for the sample period. Moreover, we consider multiple same-day buy or sale transactions by the same CEO or CFO as a single buy or sale transaction due to the assumption that these trades are motivated by the same information and therefore these trades are combined into a single data point and hence, we lose 61.21% of the original CEO and CFO transactions. The final sample consists of 88,868 trades from 2,271 firms, of which 6,042 and 2,497 are CEO and CFO purchases and 45,594 and 34,735 are CEO and CFO sales. The description of the sample is included in Table 1.

Table 1 about here

Table 2 provides the summary statistics of the insider trades in Panel A. Not surprisingly, purchase transactions of the insider trades are much lower than sale transactions. Sale transactions are also larger than purchase transactions both in dollar terms and as a percentage of the firm's market capitalization. Since insiders are offered restricted shares and options, they need to be net sellers for diversification, rebalancing or for liquidity reasons. CEO trades dominate CFO trades in terms of both purchase and sale transactions. The reason is that the compensations for the CEOs are normally larger than those of CFOs, which makes the CEOs wealthier than CFOs.

Table 2 about here.

We collect market and book values of equity, share prices, price earnings ratio, debt and dividend yield as company specific variables from Worldscope and Burea Van Dijk Orbis. We also collect firm specific variables from Worldscope and Burea Van Dijk Orbis to estimate book-to-market ratio, return on assets and debt-to-equity ratio. Panel B (Table 2) presents the descriptive statistics of the control variables. The median market value of the firm is 911 million dollar, which indicates that we have almost equal numbers of small and big cap firms in the sample. Further, the median book-to-market is 0.4256 indicating that we have almost equal number of growth and value stocks in our sample.

Panel C (Table 2) represents the summary statistics of our classification of insider traders and trades as routine and opportunistic. For each insider, we analyze his/her trading history and look for consistent patterns in the timing of trades. A routine trader is defined as an insider who placed a trade in the same calendar month for at least three consecutive years. Everyone else is defined as opportunistic trader, that

is, those insiders for whom we cannot detect an obvious discernible pattern in the past timing of their trades. We also see how they trade so that the same insider can have both routine and opportunistic trades. If an insider traded a stock in the same calendar month for at least three consecutive years, all trades he or she made in the same month for his or her entire trading history are labeled as routine and trades made in different months are labeled as opportunistic. As Panel C (Table 2) shows, in our sample we classify 13.84% of insider purchases and 31.96% insider sales as routine trades, and 86.16% of insider purchases and 68.04% of insider sales as opportunistic trades. Overall, trades made by routine traders represent 30.22% of the total sample, while trades made by opportunistic traders comprise 69.78% of the total sample, indicating that opportunistic trades dominate in our sample. Our classification of insiders as routine and opportunistic shows that 32.16% individual insiders are routine traders while 67.84% are opportunistic traders. This indicates that more insiders are opportunistic traders as well as more trades are opportunistic. Separating the insiders as CEO and CFO in our sample, Panel C (Table 2) shows that CEOs are more opportunistic traders than CFOs (69.56% for CEO while 65.96% for CFO). CEOs also trade more opportunistically (73.54%) than CFOs do (64.57%). Although CEO sale trades are more opportunistic (71.90%) than CFO sale trades (62.98%), it is interesting to see that CFO purchase trades are based more on opportunistic trading (86.66%) than CEO purchase trades (85.95%). Purchases are likely to be informed trades, whereas sales may be due to insiders' portfolio rebalancing objectives and/or liquidity needs (Wang, Shin and Francis, 2012). In short, our summary statistics indicate that CFOs are more informative than the CEOs, which, however, does not confirm that CFOs earn higher abnormal returns due to their financial expertise.

3. Empirical Results:

3.1 Cumulative Abnormal Return (CAR) in CEO and CFO Trades- Univariate Analysis

We investigate whether trades made by CFOs reveal more information about future stock returns than those by CEOs by employing cumulative abnormal return (CAR). CEO and CFO trades are separated by purchase and sale transactions and abnormal returns are cumulated over twelve months after insider trades. There are six windows in the twelve months period e.g. ± 1 days, 0-1 days, 1-3 months, 4-6 months, 7-9 months, and 10-12 months. The ± 1 days and 0-1 days windows are classified as short-term

and 1-3 months, 4-6 months, 7-9 months, and 10-12 months windows are classified as long-term. The cumulative abnormal returns (CARs) for the CEO and CFO trades (purchases and sells) are presented in Table 3 and Figure 1. The CEOs (CFOs) earn 0.78% (0.33%) mean cumulative abnormal returns for their purchase transactions in the short-term, which declines to -1.84% (-1.98%) in the long-run. However, the mean abnormal returns (cumulative) for CEO (CFO) sale transactions in the short-term are 0.04% (0.25%), which declines to -3.91% (-3.50%) in the long-term. Figure 1 depicts the distribution of CARs for CEO (CFO) purchase and sale transactions and univariate t-statistics are reported in Table 3. Both univariate test results (Table 3) and the graphical presentation (Figure 1) show that CEOs outperform CFOs for the purchase transactions, but CFOs outperform the CEOs for the sale transactions. As we are aware that trading behavior of CEOs is dominated by the superior information they have. On the other hand, CFOs utilize their expertise in trading activities. In this regard, we argue that the outperformance of the CEOs is predominantly for the superior information and the CFOs' outperformance reflects their expertise in rebalancing their portfolios.

Figure 1 & Table 3 about here

3.2 Univariate Analysis of CEO and CFO Trade Type (Opportunistic and Routine Trades):

We sort the insider trades (purchases and sells) by trade types (opportunistic vs. routine). We further sort each opportunistic and routine trade (purchase or sell) against a CEO or CFO to help ease the presentation. By following Cohen, Malloy and Pomorski (2012), we define routine trades as the trades that have been conducted in the same calendar month for at least three consecutive years in our sample period, then these trades, the prior and the subsequent trades in that calendar month of different years are all considered routine trades. But trades in other calendar months are considered opportunistic trades. The univariate analysis for the CEOs and CFOs buy trade type (both opportunistic and routine) is presented in Table 4. However, Figure 2a depicts the distribution of trade type purchases for CEOs and CFOs (both opportunistic and routine) for the entire period (short and long-term). The mean abnormal returns (cumulative) for CEO (CFO) opportunistic vs. routine purchases for the short-term are 0.82% vs. 0.50% (0.24% vs. 0.93%). However, the mean abnormal returns (cumulative) for CEO (CFO) opportunistic vs. routine purchases for the long-term are -1.79% vs. -2.16% (-1.88% vs. -2.55%). Overall, the univariate test statistics in Table 4 and the graphical presentations in Figure 2a show that opportunistic

buy trades achieve greater CARs for the entire periods and CEO trades earn more returns than the CFO trades.

Table 4 & Figure 2a about here

Table 5 presents the univariate test statistics for trade type sales (opportunistic vs. routine) for CEOs (CFOs) for the entire period (short and long-term). The mean abnormal returns (cumulative) for CEO (CFO) opportunistic vs. routine purchases for the short-term are 0.05% vs. 0.04% (0.33% vs. 0.11%). However, the mean abnormal returns (cumulative) for CEO (CFO) opportunistic vs. routine purchases for the long-term are -4.23% vs. -3.12% (-3.89% vs. -2.84%). Panel A reports the univariate test results for CEO opportunistic and routine sells. The results show that the CARs for the CEO routine sale trades outperform opportunistic sale trades both for short and long-term. However, the univariate test statistics for the CFO opportunistic and routine sells are reported in Panel B. These results confirm that opportunistic sells beat the routine sells in the short-term, but routine sells beat the opportunistic sells in the long-term. Further, panel C presents the univariate test statistics between CEO and CFO (opportunistic and routine sells). The test results confirm that CFO sales beat CEO in both short and long-term. The graphical description for CEO and CFO sales (opportunistic and routine) is presented in Figure 2b. Figure 2b indicates that CFOs clearly beat CEOs for sale transactions in both short and long-term. To sum up, the CFOs utilize their financial expertise in rebalancing their portfolios by pursuing sale transactions and hence, they outperform the CEOs both in short and long-terms.

Table 5 & Figure 2b about here

3.3 Univariate Analysis of CEO and CFO Trader Type (Opportunistic and Routine Traders):

By following Cohen, Malloy and Pomorski (2012), we again classify CEO and CFO as routine and opportunistic traders. A routine trader is defined as an insider who has a trade in the same calendar month for at least three consecutive years in our sample period. On the other hand, an opportunistic trader is defined as an insider for whom we cannot detect any discernible pattern in her trades over the sample period. Table 6 presents the univariate analysis for trader-type purchases (both opportunistic and routine) of CEO and CFO for the entire period. Figure 3a depicts the distribution of trader-type purchases for CEO and CFO (opportunistic and routine) for the entire period (short and long-term). The mean

abnormal returns (cumulative) for CEO (CFO) opportunistic vs. routine trader-type purchases for the short-term are 1.02% vs. 0.40% (0.31% vs. 0.37%). However, the mean abnormal returns (cumulative) for CEO (CFO) opportunistic vs. routine trader-type purchases for the long-term are -2.11% vs. -1.42% (-1.94% vs. -2.01%). Panel A reports the univariate analysis of the CAR for CEO trader-type opportunistic and routine purchase transactions, Panel B presents the univariate results for CFO trader-type purchase transactions, and Panel C offers a comparison between CEO and CFO trader-type CAR. In short, we show that CEOs' opportunistic buy trades (trader-type) achieve greater abnormal returns (cumulative) in the short-run, but the abnormal returns in the long-run is mixed.

Table 6 & Figure 3a about here

Table 7 presents the univariate test statistics for trader-type sales (opportunistic vs. routine) for CEOs (CFOs) for the entire period (short and long-term). The mean abnormal returns (cumulative) for CEO (CFO) opportunistic vs. routine purchases for the short-term are 0.03% vs. 0.06% (0.34% vs. 0.20%). However, the mean abnormal returns (cumulative) for CEO (CFO) opportunistic vs. routine purchases for the long-term are -4.45% vs. -3.49% (-4.63% vs. -2.91%). Panel A reports the univariate test results for CEO trader-type opportunistic and routine sells. The results show that the returns (CAR) for the CEO opportunistic sale trades outperform routine sale trades both for short and long-term. However, the univariate test statistics for the CFO trader-type opportunistic and routine sells are reported in Panel B. These results confirm that opportunistic sells beat the routine sells in the short-term, but routine sells beat the opportunistic sells in the long-term. Further, panel C presents the univariate test statistics between CEO and CFO trader-type (opportunistic and routine sells). The test results confirm that CFO sales beat CEO in both short and long-term. The graphical description for CEO and CFO sales (opportunistic and routine) is presented in Figure 3b. Figure 3b indicates that CFOs clearly beat CEOs for sale transactions in both short and long-term. To sum up, the CFOs utilize their financial expertise in rebalancing their portfolios by pursuing sale transactions and hence, they outperform the CEOs both in short and long-terms.

Table 7 & Figure 3b about here

3.4 Factors Driving Market Response to CEO and CFO Trades

We attempt to determine the key driving forces behind market response to CEO and CFO buy and sale trades. Particularly, we examine whether superior information or contrarian beliefs drive market response to CEO and CFO trades. We pursue regression analysis for CEO and CFO purchase and sale trades as well as pre-classified CEO and CFO opportunistic and routine trades (e.g. opportunistic purchases and sells, and routine purchases and sells).

Table 8 presents the regression results for the driving forces behind the market response to CEO and CFO buy and sale trades. The cumulative abnormal return (CAR) is proxied as the informativeness of the insider trade since this is the market response to insider trades. We consider CAR as our dependent variables in the multivariate analysis. Following Piotroski and Roulstone (2005) and Rozeff and Zaman (1998), we consider changes in return on assets at time $t+1$ (ΔROA_{t+1}) as the proxy for superior information and book-to-market ratio (BM) at time t as the proxy for contrarian belief. The firm-level regressors are market value (MV), debt-to-equity ratio (DE), dividend yield (DY) and price earnings ratio (PE). In addition, we consider both short-term windows (e.g. ± 1 days and (0-1) days) and long-term windows (e.g. 1-3 months, 4-6 months, 7-9 months and 10-12 months). The firm and year fixed effects are employed in the regression models.

Panel A and B report the results for CEO and CFO buy trades, panel C and D report the regression results for CEO and CFO sale trades. The coefficients for ΔROA_{t+1} are positive in both short and long windows for CEO and CFO purchase and sale transactions. The coefficients for long-windows, especially for the sale transactions are highly significant indicating that insiders pursue sale transactions on the basis of superior information and markets respond rather slowly to these trades. These results are consistent with Piotroski and Roulstone (2005). However, the coefficients for BM are negative, but only the long-windows are significant. In particular, the coefficients for CEO and CFO sale trades are highly significant. Our results also support Piotroski and Roulstone (2005) that CEOs and CFOs trade based on contrarian beliefs, but the results hold only for long-windows. The firm-level control variables are not highly significant. Overall, these results indicate that CEOs and CFOs pursue their trades based on both superior

information and contrarian beliefs, but they failed to utilize the superior information against market sentiments in short-term gain (i.e. CAR).

Insert Table 8 about here

3.5 Factors Driving Market Response to CEO and CFO Opportunistic and Routine Trades (Trade-Type)

We extend our analysis to investigate whether opportunistic and routine trades are conducted on superior information or contrarian beliefs. The CEO and CFO purchase and sale trades are also classified as opportunistic and routine (e.g. opportunistic purchases and sells, and routine purchases and sells) in this section.

Tables 9 and 10 report the regression results for the key factors determining opportunistic and routine trades. Table 9 presents the regression results for CEO and CFO routine and opportunistic buy trades, and Table 10 reports the results for CEO and CFO routine and opportunistic sale trades.

We find that the coefficients for ΔROA_{t+1} are predominantly positive for CEO and CFO buy trades, but the coefficients are hardly significant (see Table 9) indicating that CEO and CFO buy trades, either opportunistic or routine, are not induced by superior information. Conversely, Table 10 reveals different story for CEO and CFO sale trades (e.g. opportunistic and routine). We find that the ΔROA_{t+1} coefficients for long-term, both CEO and CFO sale trades (e.g. opportunistic and routine), are positive, but strongly significant for opportunistic sells (CEO and CFO) and CEO routine sells. These results illustrate that superior information provokes opportunistic sale trades by CEOs and CFOs. However, CEO routine trades are also driven by superior information.

Likewise, a similar mystery prevails while interpreting the results for BM. We find that the coefficients for BM are predominantly negative for CEO and CFO trades, both opportunistic and routine buys and sells, but the coefficients are hardly significant for buy trades (see Table 9) indicating that CEO and CFO buy trades, either opportunistic or routine, are not stimulated by contrarian beliefs. Conversely, a different story is conceded for CEO and CFO sale trades in Table 10 (e.g. opportunistic and routine). We find that the BM coefficients for long-term, both CEO and CFO sale trades (e.g. opportunistic and routine), are

negative (significant). These results demonstrate that contrarian beliefs lead to CEO and CFO sale transactions (routine and opportunistic). Nevertheless, amongst the firm-level control variables, MV and DY significantly influence market response to CEO and CFO opportunistic and routine trades.

Insert Tables 9 and 10 about here

3.6 Factors Driving Market Response to CEO and CFO Opportunistic and Routine Traders (Trader-Type)

We pursue regression analysis to determine the factors driving market response to CEO and CFO opportunistic and routine transactions on the basis of trader type, but we find the same results we report in Tables 9 and 10. The results are reported in Tables 11 and 12.

Tables 11 and 12 report the regression results for the key factors determining opportunistic and routine trades on the CEO and CFO as trader type. Table 11 presents the regression results for CEO and CFO routine and opportunistic buyer trades, but Table 12 reports the results for CEO and CFO routine and opportunistic seller trades.

We find that the coefficients for ΔROA_{t+1} are predominantly positive for CEO and CFO buy trades, but the coefficients are hardly significant (see Table 11) indicating that CEO and CFO buy trades, either opportunistic or routine, are not induced by superior information. Conversely, Table 12 reveals different story for CEO and CFO sale trades (e.g. opportunistic and routine). We find that the ΔROA_{t+1} coefficients for long-term, both CEO and CFO sale trades (e.g. opportunistic and routine), are positive, but strongly significant for opportunistic sells (CEO and CFO) and CEO routine sells. These results illustrate that superior information provokes opportunistic sale trades by CEOs and CFOs. However, CEO routine trades are also driven by superior information.

Likewise, a similar mystery prevails while interpreting the results for BM. We find that the coefficients for BM are predominantly negative for CEO and CFO trades, both opportunistic and routine buys and sells, but the coefficients are hardly significant for buy trades (see Table 11) indicating that CEO and CFO buy trades, either opportunistic or routine, are not stimulated by contrarian beliefs. Conversely, a different story is conceded for CEO and CFO sale trades in Table 12 (e.g. opportunistic and routine). We find that

the BM coefficients for long-term, both CEO and CFO sale trades (e.g. opportunistic and routine), are negative (significant). These results demonstrate that contrarian beliefs lead to CEO and CFO sale transactions (routine and opportunistic). Nevertheless, amongst the firm-level control variables, MV and DY significantly influence market response to CEO and CFO opportunistic and routine trades.

Insert Tables 11 and 12 about here

Overall, CEOs opportunistic buy trades achieve greater CARs than the CFOs, but CFOs utilize their financial expertise in rebalancing their portfolios by pursuing sale transactions, irrespective of the trade-type or trader-type, and hence, they outperform the CEOs. The outperformance of the CEOs is predominantly for the superior information, but the outperformances of the CFOs reflect their financial expertise in rebalancing portfolios. The CEOs and CFOs pursue their trades based on both superior information and contrarian beliefs, but they failed to utilize the superior information against market sentiments in short-term gain (i.e. CAR). The contrarian beliefs lead to CEO and CFO sale transactions (routine and opportunistic), but superior information provokes opportunistic sale trades by CEOs and CFOs.

4. Conclusion:

This paper investigates whether CEOs are more informative than CFOs. By analyzing 88,868 CEO and CFO trades from 2,271 firms over the period of 2004-2012, our study reveals that CEOs outperform CFOs for the purchase transactions, but CFOs outperform the CEOs for the sale transactions. We find that the outperformance of the CEOs is predominantly for the superior information, but the outperformances of the CFOs reflect their financial expertise in rebalancing their portfolios. We distinguish between opportunistic and routine trades (buy and sell) both trade-type and trader-type CEOs and CFOs and find that CEOs' opportunistic buy trades achieve greater CARs than the CFOs', but CFOs utilize their financial expertise in rebalancing their portfolios by pursuing sale transactions, irrespective of the trade-type or trader-type, and hence, they outperform the CEOs. Further, we pursue the research to identify the driving forces behind CEO and CFO trades (opportunistic and routine) and find that CEOs and CFOs perform their trades based on both superior information and contrarian beliefs, but they failed

to utilize the superior information against market sentiments in short-term gain (i.e. CAR) since the coefficients for superior information and contrarian beliefs are significant in the long-term. Nevertheless, contrarian beliefs lead to CEO and CFO sale transactions (routine and opportunistic), but superior information provokes opportunistic sale trades by CEOs and CFOs.

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Figure 1: CAR Distribution for CEO and CFO Buys

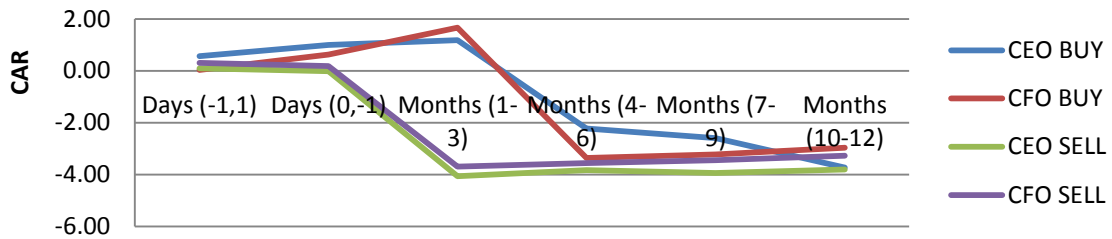


Figure 2a: CAR Distribution for Trade-type CEO and CFO Buys

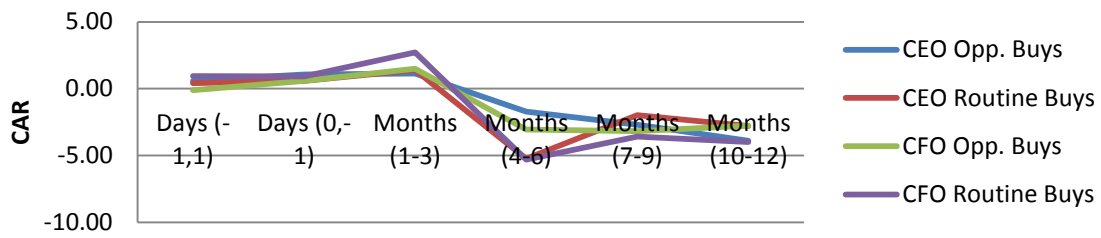


Figure 2b: CAR Distribution for Trade-type CEO and CFO Sales

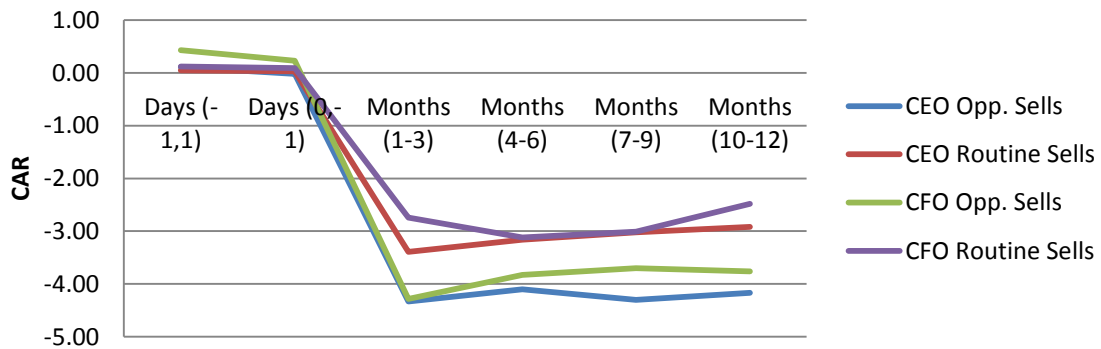


Figure 3a: CAR Distribution for Trader-type CEO and CFO Buys

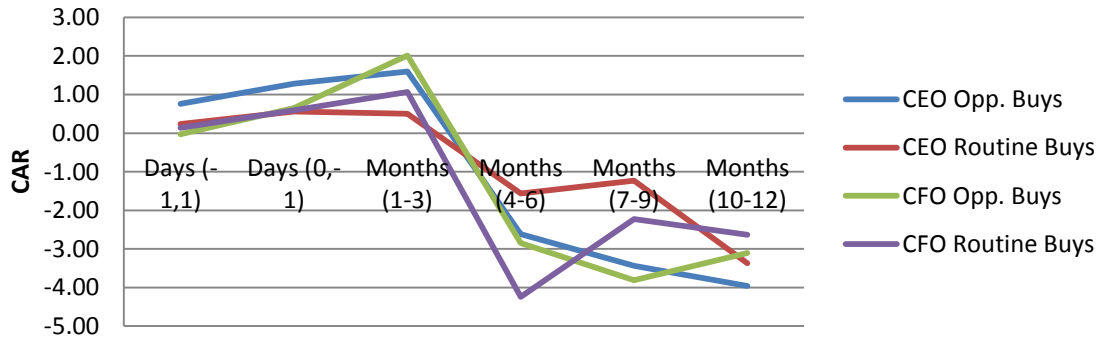


Figure 3b: CAR Distribution for Trader-type CEO and CFO Sales

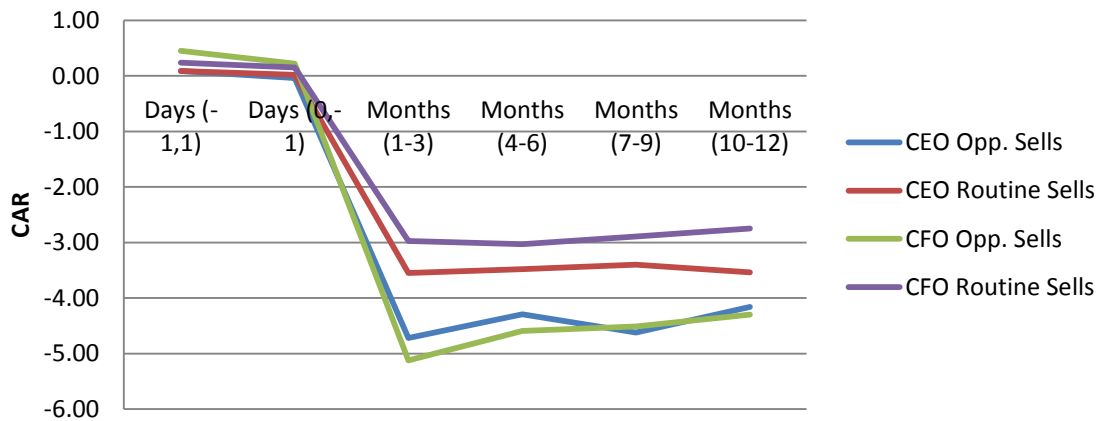


Table 1: Sample Distribution					
Sample Selection	CEO Purchases	CEO Sells	CFO Purchases	CFO Sells	Total No. Of Obs.
2iQr database (January 2004 - December 2012): Total open market transactions					2 107 358
2iQr database (January 2004 - December 2012)	23 709	274 231	6 496	113 046	417 482
CEO/CFO purchase and sale transaction: After excluding firms with missing ISIN	23 491	272 985	6 379	112 520	415 375
After excluding firms that have less than 3 years trading observations	20 131	260 225	5 501	108 594	394 451
After excluding financial firms	15 981	229 958	4 174	94 457	344 570
Final Sample (after combining multiple same-day transaction by the same insider into a single observation)	6 042	45 594	2 497	34 735	88 868

Table 2 Summary Statistics

Panel A: Insider Trades							
Variables	Insiders	N	Mean	SD	25%	Median	75%
Insider Trades by Position							
Insider purchase (shares)	CEO	6,042	47,072	952,701	707	2,966	10,000
	CFO	2,497	8,403	83,435	600	2,000	5,000
	All	8,539	35,764	802,831	700	2,500	8,741
Insider purchase amount	CEO	6,042	318,444	4,042,245	4,872	18,965	73,750
	CFO	2,497	70,443	612,594	4,562	16,360	47,010
	All	8,539	245,923	3,418,113	4,782	18,083	62,868
Insider purchase amount scaled by market capitalization	CEO	6,020	0.00069	0.00894	0.00001	0.00007	0.00023
	CFO	2,487	0.00024	0.00321	0.00001	0.00004	0.00012
	All	8,507	0.00056	0.00772	0.00001	0.00005	0.00019
Insider sales (shares)	CEO	45,594	38,581	436,175	2,000	6,562	21,010
	CFO	34,735	12,276	196,090	920	2,942	9,257
	All	80,329	27,206	353,240	1,300	4,770	15,000
Insider sales amount	CEO	45,594	1,159,198	13,575,499	39,154	163,980	628,727
	CFO	34,735	362,206	3,845,190	19,412	72,030	250,500
	All	80,329	814,571	10,542,858	27,706	112,887	430,000
Insider sales amount scaled by market capitalization	CEO	45,469	0.00160	0.19800	0.00003	0.00013	0.00040
	CFO	34,622	0.00026	0.00952	0.00001	0.00005	0.00016
	All	80,091	0.00102	0.14929	0.00002	0.00008	0.00028
Panel B: Firm-year Descriptive Statistics							
Variables		N	Mean	SD	25%	Median	75%
ΔROA_{t+1}		20,439	0.002	4.939	-0.027	0.000	0.023
BM		21,919	0.415	17.959	0.226	0.426	0.712
MV (million)		22,710	5,228.89	18,564.98	285.00	911.00	3,117.00
DE		21,414	0.328	71.380	0.009	0.352	0.927
DY		21,862	0.011	0.021	0.000	0.000	0.017
PE		16,423	0.397	1.360	0.149	0.207	0.311

Panel C					
A: Insider-Level Characteristics		B: CEO-level Characteristics		C: CFO-level Characteristics	
Average number of buys per insider	3.82	Average number of buys per CEO	4.81	Average number of buys per CFO	2.52
% all buys that are routine	13.84%	% all CEO buys that are routine	14.05%	% all CFO buys that are routine	13.34%
% all buys that are opportunistic	86.16%	% all CEO buys that are opportunistic	85.95%	% all CFO buys that are opportunistic	86.66%
Average number of sells per insider	13.99	Average number of sells per CEO	16.73	Average number of sells per CFO	11.36
% all sells that are routine	31.96	% all CEO sells that are routine	28.10%	% all CFO sells that are routine	37.02%
% all sells that are opportunistic	68.04%	% all CEO sells that are opportunistic	71.90%	% all CFO sells that are opportunistic	62.98%
Average number of trades per insider	14.31	Average number of trades per CEO	17.31	Average number of trades per CFO	11.35
% all trades that are routine	30.22%	% all CEO trades that are routine	26.46%	% all CFO trades that are routine	35.43%
% all trades that are opportunistic	69.78%	% all CEO trades that are opportunistic	73.54%	% all CFO trades that are opportunistic	64.57%
% of traders that are routine traders	32.16%	% of CEO traders that are routine traders	30.44%	% of CFO traders that are routine traders	34.04%
% of traders that are opportunistic traders	67.84%	% of CEO traders that are opportunistic traders	69.56%	% of CFO traders that are opportunistic traders	65.96%

Table 3: Distribution of CARs for CEO and CFO Buys and Sells

Panel A: CEO and CFO Buys

Terms	Periods	CEO Buy		CFO Buy		T-test (CEO vs. CFO Mean)	CEO Outperformed?	CFO Outperformed?
		N	Mean(%)	N	Mean(%)			
Short-term	Days (-1,1)	5821	0.56	2369	0.03	21.75	Y	N
	Days (0,1)	5821	1.00	2369	0.63	15.18	Y	N
Long-term	Months (1-3)	5819	1.18	2368	1.66	-19.69	N	Y
	Months (4-6)	5963	-2.22	2443	-3.36	47.46	Y	N
	Months (7-9)	5986	-2.60	2460	-3.23	26.31	Y	N
	Months (10-12)	5996	-3.73	2468	-2.97	-31.78	N	Y

Panel B: CEO and CFO Sells

Terms	Periods	CEO Sell		CFO Sell		T-test (CEO vs. CFO Mean)	CEO Outperformed?	CFO Outperformed?
		N	Mean(%)	N	Mean(%)			
Short-term	Days (-1,1)	45166	0.09	34420	0.31	-30.75	N	Y
	Days (0,1)	45166	-0.01	34419	0.18	-26.55	N	Y
Long-term	Months (1-3)	45110	-4.06	34368	-3.70	-50.28	N	Y
	Months (4-6)	45254	-3.83	34470	-3.56	-37.77	N	Y
	Months (7-9)	45204	-3.94	34423	-3.45	-68.50	N	Y
	Months (10-12)	45104	-3.81	34318	-3.28	-73.99	N	Y

Table 4: Distribution of Trade Type (Buys: CEO opportunistic and Routine and CFO Opportunistic and Routine)

Panel A: CEO Opportunistic and Routine Buys

Terms	Periods	CEO Opportunistic Buys		CEO Routine Buys		T-test (CEO opportunistic vs. CEO Routine Mean diff.)	Opportunistic Outperform Routine?	Routine Outperform Opportunistic.?
		N	Mean(%)	N	Mean(%)			
Short-term	Days (-1,1)	4988	0.58	833	0.41	4.54	Y	N
	Days (0,1)	4988	1.06	833	0.59	12.56	Y	N
Long-term	Months (1-3)	4987	1.14	832	1.41	-7.21	N	Y
	Months (4-6)	5120	-1.72	843	-5.24	94.70	Y	N
	Months (7-9)	5145	-2.70	841	-1.99	-19.09	N	Y
	Months (10-12)	5157	-3.89	839	-2.80	-29.28	N	Y

Panel B: CFO Opportunistic and Routine Buys

Terms	Periods	CFO Opportunistic Buys		CFO Routine Buys		T-test (CFO opportunistic vs. CFO Routine Mean diff.)	Opportunistic Outperform Routine?	Routine Outperform Opportunistic?
		N	Mean(%)	N	Mean(%)			
Short-term	Days (-1,1)	2046	-0.11	323	0.94	-17.54	N	Y
	Days (0,1)	2046	0.58	323	0.91	-5.51	N	Y
Long-term	Months (1-3)	2046	1.50	322	2.71	-20.18	N	Y
	Months (4-6)	2114	-3.05	329	-5.32	38.30	Y	N
	Months (7-9)	2132	-3.18	328	-3.58	6.74	Y	N
	Months (10-12)	2141	-2.78	327	-3.99	20.38	Y	N

Panel C: Univariate T-Tests (CEO vs. CFO) Trades

Terms	Periods	CEO opportunistic vs. CFO opportunistic Mean diff T-test (CEO opportunistic vs. CFO opportunistic Mean diff)	CEO Opportunistic outperform?	CEO routine vs. CFO routine Mean diff T-test (CEO routine vs. CFO routine Mean diff)	CEO Routine Outperform?
Short-term	Days (-1,1)	26.28	Y	-8.09	N
	Days (0,1)	18.28	Y	-4.88	N
Long-term	Months (1-3)	-13.71	N	-19.81	N
	Months (4-6)	51.45	Y	1.23	N
	Months (7-9)	18.64	Y	24.42	Y
	Months (10-12)	-43.17	N	18.25	Y

Table 5: Distribution of Trade Type (Sells: CEO opportunistic and Routine and CFO Opportunistic and Routine)

Panel A: CEO Opportunistic and Routine Sells							
Terms	Periods	CEO Opportunistic Sells		CEO Routine Sells		T-test (CEO opportunistic vs. CEO Routine Mean diff.)	CEO Opportunistic Outperform CEO Routine?
		N	Mean(%)	N	Mean(%)		
Short-term	(-1+1)days	32426	0.11	12740	0.05	5.74	Y
	0-1days	32426	-0.02	12740	0.03	-4.78	N
Long-term	0-3 Months	32375	-4.33	12735	-3.39	-89.87	N
	3-6 Months	32503	-4.10	12751	-3.16	-89.96	N
	6-9 Months	32457	-4.30	12747	-3.02	-122.46	N
	9-12 Months	32379	-4.17	12725	-2.92	-119.47	N
Panel B: CFO Opportunistic and Routine Sells							
Terms	Periods	CFO Opportunistic Sells		CFO Routine Sells		T-test (CFO opportunistic vs. CFO Routine Mean diff.)	CFO Opportunistic Outperform CEO Routine?
		N	Mean(%)	N	Mean(%)		
Short-term	(-1+1)days	21606	0.43	12814	0.12	27.80	Y
	0-1days	21606	0.23	12813	0.09	12.56	Y
Long-term	0-3 Months	21559	-4.28	12809	-2.74	-138.04	N
	3-6 Months	21644	-3.83	12826	-3.12	-63.72	N
	6-9 Months	21603	-3.70	12820	-3.01	-61.89	N
	9-12 Months	21523	-3.76	12795	-2.48	-114.67	N
Panel C: Univariate T-Tests (CEO vs. CFO)							
Terms	Periods	T-Test (CEO opportunistic vs. CFO opportunistic Mean diff)	CEO opportunistic outperform CFO opportunistic?	T-Test (CEO routine vs. CFO routine Mean diff)	CEO routine outperform CFO routine?		
Short-term	(-1+1)days	-36.44	N	-5.59	N		
	0-1days	-28.47	N	-4.80	N		
Long-term	0-3 Months	-5.69	N	-51.94	N		
	3-6 Months	-30.78	N	-3.20	N		
	6-9 Months	-68.33	N	-0.80	N		
	9-12 Months	-46.62	N	-35.14	N		

Table 6: Distribution of Trader Type (CEO or CFO. CEO opportunistic and Routine and CFO Opportunistic and Routine)								
Panel A: CEO Opportunistic and Routine Buys								
Terms	Period	CEO Opportunistic Buys		CEO Routine Buys		T-test (CEO opportunistic vs. CEO Routine Mean diff.)	Opportunistic outperform?	Routine outperform?
		N	Mean(%)	N	Mean(%)			
short-term	days -1,1	3 573	0.76	2 248	0.24	19.32	Y	N
	days 0,1	3 573	1.28	2 248	0.56	26.75	Y	N
Long-term	Months 1-3	3 573	1.60	2 246	0.5	40.85	Y	N
	Months 4-6	3 685	-2.62	2 278	-1.56	-39.77	N	Y
	Months 7-9	3 710	-3.44	2 276	-1.23	-83.00	N	Y
	Months 10-12	3 720	-3.96	2 276	-3.37	-22.17	N	Y
Panel B: CFO Opportunistic and Routine Buys								
Terms	Period	CFO Opportunistic Buys		CFO Routine Buys		T-test (CFO opportunistic vs. CFO Routine Mean diff.)	Opportunistic outperform?	Routine outperform?
		N	Mean(%)	N	Mean(%)			
short-term	days -1,1	1 495	-0.03	874	0.14	-3.99	N	Y
	days 0,1	1 495	0.65	874	0.59	1.41	N	N
Long-term	Months 1-3	1 495	2.01	873	1.07	22.07	Y	N
	Months 4-6	1 549	-2.85	894	-4.24	33.09	Y	N
	Months 7-9	1 559	-3.81	901	-2.23	-37.76	N	Y
	Months 10-12	1 564	-3.11	904	-2.63	-11.49	N	Y
Panel C: Univariate T-Tests (CEO vs. CFO)								
Terms	Period	T-Test (CEO opportunistic vs. CFO opportunistic Mean diff)		CEO opportunistic outperform CFO opportunistic?	T-Test (CEO routine vs. CFO routine Mean diff)		CEO routine outperform CFO routine?	
Short-term	days -1,1	25.65		Y	2.51		Y	
	days 0,1	20.45		Y	-0.75		N	
Long-term	Months 1-3	-13.31		N	-14.29		N	
	Months 4-6	7.60		Y	67.91		Y	
	Months 7-9	12.26		Y	25.41		Y	
	Months 10-12	-28.21		N	-18.82		N	

Table 7: Distribution of Trader Type (CEO or CFO. Sells: CEO opportunistic and Routine and CFO Opportunistic and Routine)

Panel A: CEO Opportunistic and Routine Sells

Terms	Period	CEO Opportunistic Sells		CEO Routine Sells		T-test (CEO opportunistic vs. CEO Routine Mean diff.)	Opportunistic outperform?	Routine outperform?
		N	Mean(%)	N	Mean (%)			
Short-term	days -1,1	19 807	0.09	25 359	0.09	0	N	N
	days 0,1	19 807	-0.04	25 359	0.02	-6.33	Y	N
Long-term	Months 1-3	19 757	-4.72	25 353	-3.55	-123.29	Y	N
	Months 4-6	19 842	-4.29	25 412	-3.48	-85.50	Y	N
	Months 7-9	19 805	-4.62	25 399	-3.4	-128.70	Y	N
	Months 10-12	19 751	-4.16	25 353	-3.54	-65.33	Y	N

Panel B: CFO Opportunistic and Routine Sells

Terms	Period	CFO Opportunistic Sells		CFO Routine Sells		T-test (CFO opportunistic vs. CFO Routine Mean diff.)	Opportunistic outperform?	Routine outperform?
		N	Mean(%)	N	Mean (%)			
Short-term	days -1,1	11 796	0,45	22 624	0.24	18.49	Y	N
	days 0,1	11 796	0,22	22 623	0.15	6.16	Y	N
Long-term	Months 1-3	11 769	-5,12	22 599	-2.97	-189.14	N	Y
	Months 4-6	11 833	-4,59	22 637	-3.03	-137.52	N	Y
	Months 7-9	11 802	-4,51	22 621	-2.89	-142.67	N	Y
	Months 10-12	11 755	-4,30	22 563	-2.75	-136.26	N	Y

Panel C: Univariate T-Tests (CEO vs. CFO)

Terms	Period	T-Test (CEO opportunistic vs. CFO opportunistic Mean diff)	CEO opportunistic outperform CFO opp.?	T-Test (CEO routine vs. CFO routine Mean diff)	CEO routine outperform CFO routine?
Short-term	days -1,1	-30.95	N	-16.40	N
	days 0,1	-22.36	N	-14.21	N
Long-term	Months 1-3	34.35	Y	-63.40	N
	Months 4-6	25.83	Y	-49.24	N
	Months 7-9	-9.46	N	-55.79	N
	Months 10-12	12.02	Y	-86.32	N

Table 8: Determinants of the Buy and Sale Trades of the CEO and CFO

This table presents the regression results for the buy and sale trades of the CEO and CFO, over our 2004 to 2012 sample period. Panel A and Panel B report the regression results of the buy trades of the CEO and CFO respectively. Panel C and Panel D report the regression results of the sale trades of the CEO and CFO respectively. The dependent variable is the cumulative abnormal return (CAR) for various windows after the CEO and CFO buy or sell stocks. The independent variables are described as follows: ΔROA_{t+1} is the future earnings innovation which is a proxy for superior information, BM is the logarithm of book-to-market ratio which is a proxy for contrarian beliefs/investor sentiment, MV is the logarithm of market value, DE is the leverage (debt-to-equity ratio), DY is the dividend yield, and PE is the price-earnings ratio. Both year and firm fixed effects are used. Standard errors are shown below the estimates in the parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% respectively.

Panel A: CEO Buy							Panel B: CFO Buy					
	CAR (days -1,1)	CAR (days 0,1)	CAR (Months 1-3)	CAR (Months 4-6)	CAR (Months 7-9)	CAR (Months 10-12)	CAR (days -1,1)	CAR (days 0,1)	CAR (Months 1-3)	CAR (Months 4-6)	CAR (Months 7-9)	CAR (Months 10-12)
Intercept	0.187* (0.10)	0.185** (0.09)	0.332 (0.40)	0.219 (0.34)	0.432 (0.33)	1.059*** (0.36)	0.230 (0.17)	0.114 (0.15)	0.157 (0.62)	0.035 (0.52)	1.319*** (0.47)	0.565 (0.51)
ΔROA_{t+1}	0.034 (0.03)	0.009 (0.03)	0.026 (0.13)	0.106 (0.11)	0.088 (0.11)	0.126 (0.12)	0.013 (0.04)	0.013 (0.03)	0.247* (0.15)	0.180 (0.13)	0.116 (0.12)	-0.064 (0.13)
BM	-0.001 (0.01)	-0.002 (0.01)	-0.082*** (0.02)	-0.032* (0.02)	-0.034* (0.02)	-0.007 (0.02)	-0.005 (0.01)	0.011 (0.01)	-0.107** (0.05)	-0.034 (0.04)	-0.072** (0.04)	-0.015 (0.04)
MV	-0.009 (0.01)	-0.010 (0.01)	-0.022 (0.03)	-0.026 (0.02)	-0.025 (0.02)	-0.080*** (0.03)	-0.020* (0.01)	-0.012 (0.01)	-0.019 (0.04)	-0.016 (0.04)	-0.051 (0.03)	-0.065** (0.04)
DE	0.004 (0.00)	0.004 (0.00)	0.014 (0.01)	-0.001 (0.01)	-0.003 (0.01)	0.013 (0.01)	0.006 (0.01)	0.008* (0.00)	0.025 (0.02)	0.011 (0.02)	-0.008 (0.01)	0.012 (0.02)
DY	-0.003 (0.00)	-0.002 (0.00)	-0.022** (0.01)	-0.022*** (0.01)	-0.013* (0.01)	-0.015* (0.01)	-0.003 (0.00)	-0.006 (0.00)	0.011 (0.02)	-0.027** (0.01)	-0.018* (0.01)	-0.012 (0.01)
PE	-4.02E-6 (0.00)	-2.47E-6 (0.00)	4.81E-6 (0.00)	-1.10E-4 (0.00)	5.40E-5 (0.00)	1.60E-5 (0.00)	-3.00E-5 (0.00)	-4.00E-5 (0.00)	-6.00E-4 (0.00)	1.81E-4 (0.00)	1.02E-4 (0.00)	2.88E-4 (0.00)
FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.714	0.669	0.675	0.705	0.656	0.627	0.769	0.731	0.733	0.755	0.747	0.723
Observations	1045	1045	1045	1072	1079	1087	765	765	765	792	802	810
Panel C: CEO Sell							Panel D: CFO Sell					
Intercept	-0.016 (0.02)	-0.003 (0.02)	-0.577*** (0.12)	-0.045 (0.12)	0.305** (0.12)	0.871*** (0.13)	-0.018 (0.03)	-0.012 (0.02)	-0.625*** (0.13)	-0.124 (0.14)	0.358** (0.14)	0.965*** (0.13)
ΔROA_{t+1}	0.001 (0.01)	-0.003 (0.00)	0.023 (0.02)	0.096*** (0.03)	0.128*** (0.03)	0.157*** (0.03)	-0.004 (0.00)	-0.007** (0.00)	0.022 (0.02)	0.046* (0.02)	0.130*** (0.02)	0.179*** (0.02)
BM	0.000 (0.00)	-0.001 (0.00)	-0.073*** (0.01)	-0.071*** (0.01)	-0.082*** (0.01)	-0.026*** (0.01)	-0.002 (0.00)	-0.002 (0.00)	-0.067*** (0.01)	-0.078*** (0.01)	-0.087*** (0.01)	-0.002 (0.01)
MV	0.001 (0.00)	0.001 (0.00)	0.032*** (0.01)	0.007 (0.01)	-0.019*** (0.01)	-0.066*** (0.01)	0.001 (0.00)	0.001 (0.00)	0.045*** (0.01)	0.010 (0.01)	-0.019*** (0.01)	-0.067*** (0.01)
DE	-1.90E-4 (0.00)	5.20E-5 (0.00)	0.001 (0.00)	0.001 (0.00)	0.000 (0.00)	-0.002 (0.00)	-3.60E-4 (0.00)	-1.20E-4 (0.00)	0.001 (0.00)	0.000 (0.00)	0.001 (0.00)	-0.004* (0.00)
DY	-1.70E-4 (0.00)	-4.10E-4 (0.00)	-0.012*** (0.00)	-0.012*** (0.00)	-0.003 (0.00)	-0.012*** (0.00)	4.16E-4 (0.00)	-2.40E-4 (0.00)	-0.015*** (0.00)	-0.011*** (0.00)	-0.006** (0.00)	-0.011*** (0.00)
PE	-1.19E-6 (0.00)	1.42E-6 (0.00)	1.60E-5 (0.00)	1.20E-5 (0.00)	3.30E-5** (0.00)	4.23E-6 (0.00)	-1.80E-6 (0.00)	-2.90E-7 (0.00)	-1.68E-6 (0.00)	2.40E-5 (0.00)	3.90E-5** (0.00)	3.80E-5*** (0.00)
FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.549	0.612	0.393	0.373	0.361	0.380	0.337	0.329	0.359	0.344	0.320	0.357
Observations	6172	6172	6175	6204	6214	6222	6764	6764	6765	6792	6799	6805

Table 9: Determinants of the Routine and Opportunistic Buy Trades of the CEO and CFO

This table presents the regression results for the routine and opportunistic buy trades of the CEO and CFO, over our 2004 to 2012 sample period. Panel A and Panel B report the regression results of the opportunistic buy trades of the CEO and CFO respectively. Panel C and Panel D report the regression results of the routine buy trades of the CEO and CFO respectively. Routine and opportunistic trades are described as follows: if a trader has a trade in the same calendar month for at least three consecutive years in our sample period, then those trades, the prior and the subsequent trades in that calendar month of different years are all considered routine trades but trades in other calendar months are considered opportunistic trades. If the trades of a trader do not follow the criterion (trading in the same calendar month for at least three consecutive years), then all of her trades are considered opportunistic trades as well. The dependent variable is the cumulative abnormal return (CAR) for various windows after the CEO and CFO buy stocks. The independent variables are described in Table 8. Both year and firm fixed effects are used. Standard errors are shown below the estimates in the parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% respectively.

<i>Panel A: CEO Buy - Opportunistic Trade</i>							<i>Panel B: CFO Buy - Opportunistic Trade</i>					
	CAR (days -1,1)	CAR (days 0,1)	CAR (Months 1-3)	CAR (Months 4-6)	CAR (Months 7-9)	CAR (Months 10-12)	CAR (days -1,1)	CAR (days 0,1)	CAR (Months 1-3)	CAR (Months 4-6)	CAR (Months 7-9)	CAR (Months 10-12)
Intercept	0.213** (0.11)	0.215** (0.09)	0.455 (0.42)	0.365 (0.36)	0.476 (0.33)	1.135*** (0.36)	0.161 (0.17)	0.116 (0.15)	0.612 (0.66)	0.295 (0.57)	1.063** (0.47)	0.394 (0.51)
ΔROA_{t+1}	0.036 (0.03)	0.012 (0.03)	0.067 (0.13)	0.116 (0.12)	0.108 (0.11)	0.065 (0.12)	0.009 (0.04)	0.014 (0.04)	0.324** (0.16)	0.223 (0.15)	0.164 (0.12)	-0.068 (0.13)
BM	-0.003 (0.01)	-0.004 (0.01)	-0.089*** (0.02)	-0.033 (0.02)	-0.028 (0.02)	-0.022 (0.02)	-0.001 (0.01)	0.014 (0.01)	-0.103** (0.05)	-0.015 (0.01)	-0.084** (0.04)	-0.033 (0.04)
MV	-0.011 (0.01)	-0.012* (0.01)	-0.030 (0.03)	-0.038 (0.02)	-0.029 (0.02)	-0.086*** (0.02)	-0.018 (0.01)	-0.010 (0.01)	-0.031 (0.05)	-0.005 (0.04)	-0.068* (0.03)	-0.062 (0.04)
DE	0.004 (0.00)	0.004 (0.00)	0.012 (0.01)	-0.001 (0.01)	-0.002 (0.01)	0.018 (0.01)	0.003 (0.01)	0.007 (0.00)	0.017 (0.02)	0.007 (0.02)	0.002 (0.02)	0.030* (0.02)
DY	-0.003 (0.00)	-0.002 (0.00)	-0.023** (0.01)	-0.023*** (0.01)	-0.014* (0.01)	-0.016** (0.01)	-0.007 (0.00)	-0.008** (0.00)	0.004 (0.02)	-0.025* (0.01)	-0.025 (0.01)	-0.005 (0.01)
PE	-5.21E-6 (0.00)	-9.72E-7 (0.00)	3.60E-5 (0.00)	-1.10E-4 (0.00)	-5.90E-5 (0.00)	-1.18E-6 (0.00)	9.54E-6 (0.00)	-6.00E-5 (0.00)	-4.60E-4 (0.00)	7.90E-5 (0.00)	-4.00E-5 (0.00)	3.16E-4 (0.00)
FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.719	0.693	0.698	0.710	0.676	0.665	0.788	0.751	0.7366	0.764	0.778	0.748
Observations	961	961	961	987	994	1002	687	687	687	711	720	727
<i>Panel C: CEO Buy - Routine Trade</i>							<i>Panel D: CFO Buy - Routine Trade</i>					
Intercept	0.705 (0.54)	0.490 (0.54)	1.515 (1.91)	0.758 (1.18)	0.771 (1.69)	0.284 (1.47)	0.876 (0.80)	0.725 (0.74)	1.717 (2.03)	-2.151 (2.00)	2.103 (2.19)	4.922* (2.75)
ΔROA_{t+1}	0.060 (0.12)	-0.040 (0.12)	-0.579 (0.43)	-0.271 (0.33)	-0.397 (0.47)	0.406 (0.41)	0.298 (0.28)	0.050 (0.26)	-2.318*** (0.71)	-0.182 (0.70)	0.233 (0.77)	-0.991 (0.96)
BM	-0.067 (0.06)	-0.056 (0.06)	-0.243 (0.20)	-0.298** (0.13)	-0.302* (0.18)	0.093 (0.16)	-0.101 (0.07)	-0.097 (0.06)	-0.227 (0.17)	-0.026 (0.17)	-0.283 (0.18)	-0.317 (0.23)
MV	-0.052 (0.04)	-0.038 (0.04)	-0.122 (0.14)	-0.046 (0.09)	-0.051 (0.13)	-0.043 (0.11)	-0.066 (0.06)	-0.056 (0.05)	-0.137 (0.14)	0.163 (0.14)	-0.064 (0.15)	-0.347* (0.19)
DE	-0.006 (0.01)	0.001 (0.01)	0.028 (0.03)	-0.035 (0.02)	-0.006 (0.03)	0.025 (0.03)	0.046 (0.03)	0.056* (0.03)	-0.015 (0.09)	-0.028 (0.09)	-0.228** (0.09)	-0.115 (0.12)
DY	0.002 (0.01)	-0.002 (0.01)	-0.015 (0.03)	0.015 (0.02)	0.003 (0.03)	-0.004 (0.03)	0.005 (0.01)	0.004 (0.01)	-0.009 (0.02)	-0.015 (0.02)	0.024 (0.02)	-0.019 (0.03)
PE	-2.00E-4 (0.00)	-2.60E-4 (0.00)	1.58E-4 (0.00)	4.01E-4 (0.00)	-2.80E-4 (0.00)	-2.70E-4 (0.00)	-2.40E-4 (0.00)	-1.30E-4 (0.00)	1.90E-4 (0.00)	0.001 (0.00)	0.001 (0.00)	-0.002* (0.00)
FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.768	0.666	0.743	0.805	0.706	0.716	0.745	0.681	0.855	0.711	0.800	0.770
Observations	150	150	150	154	154	154	121	121	121	125	126	127

Table 10: Determinants of the Routine and Opportunistic Sale Trades of the CEO and CFO

This table presents the regression results for the routine and opportunistic sale trades of the CEO and CFO, over our 2004 to 2012 sample period. Panel A and Panel B report the regression results of the opportunistic sale trades of the CEO and CFO respectively. Panel C and Panel D report the regression results of the routine sale trades of the CEO and CFO respectively. Routine and opportunistic trades are described as follows: if a trader has a trade in the same calendar month for at least three consecutive years in our sample period, then those trades, the prior and the subsequent trades in that calendar month of different years are all considered routine trades but trades in other calendar months are considered opportunistic trades. If the trades of a trader do not follow the criterion (trading in the same calendar month for at least three consecutive years), then all of her trades are considered opportunistic trades as well. The dependent variable is the cumulative abnormal return (CAR) for various windows after the CEO and CFO sell stocks. The independent variables are described in Table 8. Both year and firm fixed effects are used. Standard errors are shown below the estimates in the parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% respectively.

<i>Panel A: CEO Sell - Opportunistic Trade</i>							<i>Panel B: CFO Sell - Opportunistic Trade</i>					
	CAR (days -1,1)	CAR (days 0,1)	CAR (Months 1-3)	CAR (Months 4-6)	CAR (Months 7-9)	CAR (Months 10-12)	CAR (days -1,1)	CAR (days 0,1)	CAR (Months 1-3)	CAR (Months 4-6)	CAR (Months 7-9)	CAR (Months 10-12)
Intercept	-0.013 (0.03)	-0.023 (0.02)	-1.006*** (0.14)	-0.127 (0.14)	0.687*** (0.14)	0.465** (0.14)	-0.058* (0.03)	-0.040 (0.03)	-0.722*** (0.15)	-0.121 (0.16)	0.487*** (0.16)	0.917*** (0.15)
ΔROA_{t+1}	0.003 (0.01)	-3.90E-4 (0.00)	0.031 (0.03)	0.108*** (0.03)	0.125*** (0.03)	0.154*** (0.03)	-0.004 (0.01)	-0.011** (0.01)	0.031 (0.03)	0.071** (0.03)	0.196*** (0.03)	0.235*** (0.03)
BM	1.39E-4 (0.00)	-1.80E-4 (0.00)	-0.063*** (0.01)	-0.071*** (0.01)	-0.073*** (0.01)	-0.019 (0.01)	-0.002 (0.00)	-0.002 (0.00)	-0.064*** (0.01)	-0.077*** (0.01)	-0.072*** (0.01)	0.010 (0.01)
MV	0.001 (0.00)	0.001 (0.00)	0.039*** (0.01)	0.003 (0.01)	-0.033*** (0.01)	-0.076*** (0.01)	0.004** (0.00)	0.003** (0.00)	0.052*** (0.01)	0.010 (0.01)	-0.029*** (0.01)	-0.064*** (0.01)
DE	3.92E-4 (0.00)	4.62E-4 (0.00)	0.003 (0.00)	0.001 (0.00)	-0.001 (0.00)	-0.002 (0.00)	8.61E-6 (0.00)	1.00E-4 (0.00)	0.001 (0.00)	-1.00E-4 (0.00)	0.002 (0.00)	-0.002 (0.00)
DY	-0.001 (0.00)	-0.001 (0.00)	-0.012*** (0.00)	-0.014*** (0.00)	-0.008** (0.00)	-0.015*** (0.00)	-3.40E-4 (0.00)	-0.001** (0.00)	-0.018*** (0.00)	-0.008** (0.00)	-0.007** (0.00)	-0.007** (0.00)
PE	1.95E6 (0.00)	2.61E-6 (0.00)	1.20E-5 (0.00)	2.70E-5* (0.00)	1.90E-5 (0.00)	-6.00E-5*** (0.00)	7.41E-6 (0.00)	8.92E-6 (0.00)	1.70E-5 (0.00)	8.70E-5** (0.00)	6.70E-5 (0.00)	8.60E-5** (0.00)
FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.564	0.635	0.418	0.403	0.390	0.420	0.371	0.363	0.419	0.385	0.372	0.410
Observations	5235	5235	5237	5264	5272	5279	5336	5336	5336	5360	5366	5372
<i>Panel C: CEO Sell - Routine Trade</i>							<i>Panel D: CFO Sell - Routine Trade</i>					
Intercept	-0.022 (0.04)	-0.028 (0.03)	-0.679*** (0.19)	-0.157 (0.19)	-0.535*** (0.19)	0.501*** (0.19)	0.029 (0.04)	0.001 (0.03)	-0.758*** (0.20)	-0.252 (0.19)	0.092 (0.21)	1.092*** (0.19)
ΔROA_{t+1}	-0.013 (0.01)	-0.004 (0.01)	0.011 (0.04)	0.100** (0.04)	0.180*** (0.04)	0.222*** (0.04)	-0.006 (0.01)	-0.007 (0.01)	0.003 (0.03)	0.050 (0.03)	0.056 (0.03)	0.113*** (0.03)
BM	-2.50E-4 (0.00)	0.001 (0.00)	-0.088*** (0.02)	-0.061*** (0.02)	-0.045** (0.02)	-0.026 (0.02)	-0.003 (0.00)	-0.002 (0.00)	-0.071*** (0.02)	-0.095*** (0.02)	-0.101*** (0.02)	-0.030* (0.02)
MV	0.002 (0.00)	0.002 (0.00)	0.041*** (0.01)	0.013 (0.01)	0.037*** (0.01)	-0.040*** (0.01)	-4.30E-4 (0.00)	0.001 (0.00)	0.048*** (0.01)	0.016 (0.01)	0.003 (0.01)	-0.064*** (0.01)
DE	4.10E-5 (0.00)	4.44E-4 (0.00)	-2.80E-4 (0.00)	0.005 (0.00)	0.004 (0.00)	-0.003 (0.00)	5.60E-5 (0.00)	0.001 (0.00)	-3.00E-4 (0.00)	0.001 (0.00)	-0.003 (0.00)	-0.005 (0.00)
DY	0.001 (0.00)	4.39E-4 (0.00)	-0.016*** (0.00)	-0.021*** (0.00)	0.002 (0.00)	-0.005 (0.00)	0.001 (0.00)	-2.20E-4 (0.00)	-0.014*** (0.00)	-0.020*** (0.00)	4.11E-4 (0.00)	-0.012*** (0.00)
PE	-8.18E-6** (0.00)	-2.82E-6 (0.00)	-8.77E-6 (0.00)	-1.73E-6 (0.00)	4.20E-5** (0.00)	3.80E-5** (0.00)	-2.90E-6 (0.00)	-1.52E-6 (0.00)	8.36E-6 (0.00)	1.70E-5 (0.00)	2.80E-5 (0.00)	2.40E-5 (0.00)
FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.347	0.327	0.364	0.329	0.348	0.362	0.355	0.357	0.348	0.369	0.336	0.361
Observations	2604	2604	2605	2610	2612	2615	3376	3376	3377	3380	3381	3381

Table 11: Determinants of the Buy Trades of the Routine and Opportunistic Traders

This table presents the regression results for the buy trades of the routine and opportunistic traders, over our 2004 to 2012 sample period. Panel A and Panel B report the regression results of the opportunistic buy traders. Panel C and Panel D report the regression results of the routine buy traders. Routine and opportunistic traders are described as follows: a routine trader is defined as an insider who has a trade in the same calendar month for at least three consecutive years in our sample period. On the other hand, an opportunistic trader is defined as an insider for whom we cannot detect any discernible pattern in her trades over the sample period. The dependent variable is the cumulative abnormal return (CAR) for various windows after the CEO and CFO buy stocks. The independent variables are described in Table 8. Both year and firm fixed effects are used. Standard errors are shown below the estimates in the parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% respectively.

<i>Panel A: CEO Buy - Opportunistic Trader</i>							<i>Panel B: CFO Buy - Opportunistic Trader</i>					
	CAR (days -1,1)	CAR (days 0,1)	CAR (Months 1-3)	CAR (Months 4-6)	CAR (Months 7-9)	CAR (Months 10-12)	CAR (days -1,1)	CAR (days 0,1)	CAR (Months 1-3)	CAR (Months 4-6)	CAR (Months 7-9)	CAR (Months 10-12)
Intercept	0.149 (0.11)	0.129 (0.09)	0.065 (0.48)	0.098 (0.39)	0.493 (0.41)	1.207*** (0.42)	-0.117 (0.16)	-0.184 (0.11)	0.468 (0.81)	0.880 (0.62)	0.589 (0.54)	0.680 (0.59)
ΔROA_{t+1}	0.037 (0.04)	0.009 (0.03)	-0.056 (0.15)	0.159 (0.13)	0.038 (0.13)	0.125 (0.14)	0.012 (0.04)	0.011 (0.03)	0.287 (0.19)	0.136 (0.15)	0.209 (0.14)	-0.095 (0.15)
BM	-1.50E-4 (0.01)	-0.002 (0.00)	-0.079*** (0.02)	-0.017 (0.02)	-0.067*** (0.02)	-0.017 (0.02)	0.003 (0.01)	0.020** (0.01)	-0.093 (0.06)	-0.003 (0.05)	-0.072* (0.04)	-0.026 (0.04)
MV	-0.005 (0.01)	-0.005 (0.01)	0.000 (0.04)	-0.015 (0.03)	-0.027 (0.03)	-0.092*** (0.03)	0.004 (0.01)	0.013 (0.01)	-0.019 (0.06)	-0.047 (0.05)	-0.025 (0.04)	-0.090** (0.04)
DE	0.002 (0.00)	4.30E-4 (0.00)	0.008 (0.01)	-0.008 (0.01)	-0.003 (0.01)	0.028** (0.01)	0.002 (0.01)	0.005 (0.00)	0.022 (0.03)	0.036* (0.02)	0.009 (0.02)	0.022 (0.02)
DY	-0.004 (0.00)	-0.002 (0.00)	-0.016 (0.01)	-0.015* (0.01)	-0.009 (0.01)	-0.016* (0.01)	0.001 (0.01)	0.001 (0.00)	0.037 (0.03)	-0.009 (0.02)	-0.008 (0.02)	-0.033 (0.02)
PE	-1.00E-5 (0.00)	-1.58E-7 (0.00)	-3.00E-5 (0.00)	-9.00E-5 (0.00)	6.50E-5 (0.00)	-2.00E-5 (0.00)	-3.00E-5 (0.00)	-1.20E-4 (0.00)	-8.50E-4 (0.00)	-3.50E-4 (0.00)	1.18E-4 (0.00)	3.33E-4 (0.00)
FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.751	0.745	0.713	0.745	0.669	0.679	0.808	0.850	0.706	0.764	0.789	0.742
Observations	697	697	697	714	720	725	468	468	468	488	493	498
<i>Panel C: CEO Buy - Routine Trader</i>							<i>Panel D: CFO Buy - Routine Trader</i>					
Intercept	0.263 (0.22)	0.254 (0.22)	-1.121 (0.79)	0.381 (0.64)	1.269** (0.61)	1.256* (0.70)	0.980** (0.42)	0.883** (0.39)	0.121 (1.06)	0.345 (1.02)	1.541 (1.04)	0.480 (1.11)
ΔROA_{t+1}	0.029 (0.07)	0.011 (0.07)	0.129 (0.24)	-0.142 (0.21)	0.094 (0.20)	0.023 (0.23)	-0.007 (0.13)	-0.015 (0.12)	-0.370 (0.32)	-0.153 (0.31)	-0.346 (0.32)	-0.084 (0.34)
BM	-0.009 (0.02)	0.001 (0.02)	0.117 (0.08)	-0.079 (0.07)	-0.031 (0.06)	0.074 (0.07)	-0.063 (0.04)	-0.041 (0.04)	-0.189* (0.10)	-0.162 (0.10)	-0.065 (0.10)	0.012 (0.11)
MV	-0.021 (0.02)	-0.021 (0.02)	0.028 (0.06)	-0.051 (0.05)	-0.044 (0.04)	-0.064 (0.05)	-0.078** (0.03)	-0.072** (0.03)	-0.016 (0.07)	-0.030 (0.07)	-0.068 (0.07)	-0.050 (0.08)
DE	0.007 (0.01)	0.009 (0.01)	0.049** (0.02)	0.021 (0.02)	0.003 (0.02)	-0.009 (0.02)	0.025 (0.02)	0.019 (0.01)	0.045 (0.04)	-0.005 (0.03)	-0.053* (0.03)	-0.022 (0.03)
DY	-0.001 (0.00)	-0.004 (0.00)	-0.035** (0.02)	-0.046*** (0.01)	-0.025* (0.01)	-0.017 (0.02)	-0.004 (0.01)	-0.009 (0.01)	-0.009 (0.02)	-0.040*** (0.01)	-0.020 (0.01)	-0.005 (0.01)
PE	4.50E-5 (0.00)	-6.00E-5 (0.00)	3.62E-4 (0.00)	-3.10E-4 (0.00)	-1.30E-4 (0.00)	1.84E-4 (0.00)	7.30E-5 (0.00)	1.48E-4 (0.00)	-5.00E-5 (0.00)	0.001** (0.00)	2.49E-4 (0.00)	1.39E-4 (0.00)
FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.655	0.607	0.632	0.687	0.666	0.572	0.783	0.705	0.823	0.814	0.719	0.736
Observations	363	363	363	374	375	378	299	299	299	308	313	316

Table 12: Determinants of the Sale Trades of the Routine and Opportunistic Traders

This table presents the regression results for the sale trades of the routine and opportunistic traders, over our 2004 to 2012 sample period. Panel A and Panel B report the regression results of the opportunistic sell traders. Panel C and Panel D report the regression results of the routine sell traders. Routine and opportunistic traders are described as follows: a routine trader is defined as an insider who has a trade in the same calendar month for at least three consecutive years in our sample period. On the other hand, an opportunistic trader is defined as an insider for whom we cannot detect any discernible pattern in her trades over the sample period. The dependent variable is the cumulative abnormal return (CAR) for various windows after the CEO and CFO sell stocks. The independent variables are described in Table 8. Both year and firm fixed effects are used. Standard errors are shown below the estimates in the parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% respectively.

<i>Panel A: CEO Sell - Opportunistic Trader</i>							<i>Panel B: CFO Sell - Opportunistic Trader</i>					
	CAR (days -1,1)	CAR (days 0,1)	CAR (Months 1-3)	CAR (Months 4-6)	CAR (Months 7-9)	CAR (Months 10-12)	CAR (days -1,1)	CAR (days 0,1)	CAR (Months 1-3)	CAR (Months 4-6)	CAR (Months 7-9)	CAR (Months 10-12)
Intercept	-0.030 (0.04)	-0.024 (0.03)	-0.876*** (0.17)	-0.041 (0.17)	0.702*** (0.17)	0.505*** (0.17)	-0.044 (0.04)	-0.042 (0.03)	-0.670*** (0.20)	-0.266 (0.21)	0.656*** (0.21)	1.444*** (0.20)
ΔROA_{t+1}	0.005 (0.01)	-0.003 (0.01)	0.034 (0.04)	0.119*** (0.04)	0.109*** (0.04)	0.108*** (0.04)	-0.005 (0.01)	-0.015* (0.01)	-0.091* (0.05)	0.034 (0.05)	0.228*** (0.05)	0.335*** (0.05)
BM	0.003 (0.00)	0.001 (0.00)	-0.061*** (0.01)	-0.071*** (0.01)	-0.103*** (0.01)	-0.020 (0.01)	-3.20E-4 (0.00)	-0.002 (0.00)	-0.068*** (0.01)	-0.073*** (0.02)	-0.082*** (0.02)	-0.003 (0.01)
MV	0.003 (0.00)	0.001 (0.00)	0.030*** (0.01)	-0.002 (0.01)	-0.034*** (0.01)	-0.079*** (0.01)	0.003 (0.00)	0.003 (0.00)	0.048*** (0.01)	0.020* (0.01)	-0.040*** (0.01)	-0.099*** (0.01)
DE	0.001 (0.00)	2.65E-4 (0.00)	0.006* (0.00)	4.89E-4 (0.00)	0.002 (0.00)	-0.004 (0.00)	-4.80E-4 (0.00)	-1.50E-4 (0.00)	0.003 (0.00)	0.001 (0.00)	0.002 (0.00)	-0.004 (0.00)
DY	-0.001 (0.00)	-0.001 (0.00)	-0.014*** (0.00)	-0.015*** (0.00)	-0.006 (0.00)	-0.007 (0.00)	0.002 (0.00)	0.001 (0.00)	-0.014*** (0.01)	-0.009* (0.01)	-0.009 (0.01)	-0.007 (0.00)
PE	4.86E-6 (0.00)	8.22E-6 (0.00)	5.70E-5* (0.00)	3.00E-5 (0.00)	3.90E-5 (0.00)	1.60E-5 (0.00)	-1.00E-5 (0.00)	2.26E-6 (0.00)	-8.43E-6 (0.00)	6.40E-5 (0.00)	9.60E-5 (0.00)	1.38E-4** (0.00)
FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.655	0.733	0.467	0.450	0.443	0.464	0.443	0.443	0.471	0.442	0.418	0.497
Observations	3151	3151	3152	3169	3174	3179	2888	2888	2888	2904	2909	2913
<i>Panel C: CEO Sell - Routine Trader</i>							<i>Panel D: CFO Sell - Routine Trader</i>					
	CAR (days -1,1)	CAR (days 0,1)	CAR (Months 1-3)	CAR (Months 4-6)	CAR (Months 7-9)	CAR (Months 10-12)	CAR (days -1,1)	CAR (days 0,1)	CAR (Months 1-3)	CAR (Months 4-6)	CAR (Months 7-9)	CAR (Months 10-12)
Intercept	-0.011 (0.03)	-0.015 (0.02)	-0.674*** (0.14)	-0.186 (0.15)	-0.034 (0.15)	0.729*** (0.15)	0.020 (0.03)	0.014 (0.02)	-0.616*** (0.15)	-0.109 (0.15)	0.172 (0.15)	0.958*** (0.14)
ΔROA_{t+1}	-0.007 (0.01)	-0.006 (0.01)	-0.010 (0.03)	0.073** (0.04)	0.144*** (0.04)	0.204*** (0.04)	-0.002 (0.01)	-0.003 (0.00)	0.050* (0.03)	0.030 (0.03)	0.063** (0.03)	0.104*** (0.03)
BM	-0.002 (0.00)	-0.001 (0.00)	-0.084*** (0.01)	-0.077*** (0.01)	-0.043*** (0.01)	-0.038*** (0.01)	-0.004* (0.00)	-0.001 (0.00)	-0.070*** (0.01)	-0.087*** (0.01)	-0.118*** (0.01)	-0.012 (0.01)
MV	0.001 (0.00)	0.001 (0.00)	0.040*** (0.01)	0.016* (0.01)	0.003 (0.01)	-0.056*** (0.01)	5.00E-5 (0.00)	-0.001 (0.00)	0.042*** (0.01)	0.006 (0.01)	-0.005 (0.01)	-0.054*** (0.01)
DE	-0.001 (0.00)	9.00E-5 (0.00)	-7.00E-5 (0.00)	0.002 (0.00)	-0.001 (0.00)	-0.001 (0.00)	3.60E-4 (0.00)	-1.20E-4 (0.00)	-0.003 (0.00)	-0.001 (0.00)	-0.002 (0.00)	-0.005* (0.00)
DY	2.61E-4 (0.00)	9.91E-6 (0.00)	-0.013*** (0.00)	-0.011*** (0.00)	-0.002 (0.00)	-0.014*** (0.00)	-2.70E-4 (0.00)	-0.001* (0.00)	-0.014*** (0.00)	-0.014*** (0.00)	-2.60E-4 (0.00)	-0.013*** (0.00)
PE	-4.42E-6 (0.00)	-1.64E-6 (0.00)	-1.44E-6 (0.00)	5.84E-6 (0.00)	3.50E-5 (0.00)	2.59E-6 (0.00)	-1.39E-6 (0.00)	-2.46E-7 (0.00)	-2.30E-6 (0.00)	2.10E-5 (0.00)	2.10E-5 (0.00)	3.20E-5** (0.00)
FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.293	0.266	0.343	0.307	0.312	0.311	0.287	0.2723	0.319	0.334	0.312	0.314
Observations	3187	3187	3189	3202	3207	3211	4019	4019	4020	4032	4034	4036