

Managerial Insider Trading and Opportunism

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Abstract

This paper examines whether managers engage in opportunistic insider trading by measuring how their net open market purchases and holdings of own company stock change around acquisitions, seasoned equity offerings and share repurchases after controlling for their share and option holdings and non-informational motives for trading. On average, managers abnormally increase sales and reduce holdings around stock acquisitions and seasoned equity offerings but not around cash acquisitions and share repurchases. However the typical manager does not experience an economically significant change in ownership; more material ownership changes are limited to the subsets of the sample. These results suggest that the evidence for managerial opportunism is modest in magnitude and not pervasive in the sample.

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1.1 Introduction

Insider trading receives a substantial amount of attention from the investors, the government and the academicians alike. This is not surprising; given insider trading is widely regarded as reflecting the superior information of the insiders about the firm. Investors follow it closely hoping to earn abnormal profits. Government scrutinizes it vigorously to detect the illegal use of inside information. Academicians use it to understand the extent of informational asymmetries between the insiders and the market.

Of particular interest to academicians is the insider trades made by the managers. For example, many studies measure the information advantage of managers by calculating the abnormal changes in stock prices following managerial insider trades.¹ Others try to understand the managerial motives behind important corporate events like mergers, restructurings and stock issuances by examining the abnormal changes in managerial trading patterns prior to the

¹ See Jaffe (1974), Finnerty (1976), Seyhun (1986, 1988), Rozeff and Zaman (1988), Lin and Howe (1990), Jeng, Metrick and Zeckhauser (1999).

announcement of such plans.² Insider trades provide a unique insight into the minds of managers whose very actions create or destroy firm value.

This paper aims to understand whether managers opportunistically use private information in their insider trades after controlling for their share and option holdings and non-informational motives for trading. I look at how managers trade and change their holdings of own company stock in years when there are stock acquisitions, seasoned equity offerings (SEOs) and share repurchases. Stock acquisition and SEO announcements may signal to the market that managers think the firm is overvalued³, while share repurchases may signal the market that managers think the firm is undervalued. Indeed stock acquisitions⁴ and seasoned equity offerings⁵ tend to cluster in times of high stock market valuations, whereas share repurchases⁶ are more common in times of low market valuations. If managers are indeed timing the market in their corporate finance decisions by issuing stock when it is overvalued and repurchasing it when it is undervalued, they should do the same with their own money. Acting on their private information, they should decrease their holdings of company stock in

² Seyhun (1990b) finds increased purchases and no significant changes in sales prior to mergers and tender offers. Lee et al. (1992) find increased purchases and reduced sales prior to repurchase tender offers. Karpoff and Lee (1991) find increased sales prior to seasoned offerings of common stock.

³ If managers have more information about the true value of the firm than the market, they will want to issue new equity when they think that their stock is overvalued (Myers and Majluf, 1984).

⁴ See Nelson (1959), Andrade et al. (2001)

⁵ See Taggart (1977), Marsh (1982), Jung, Kim and Stulz (1996), and Hovakimian, Opler and Titman (2001).

⁶ See Ikenberry, Lakonishok, and Vermaelen (1995).

years when there is a stock acquisition or an SEO, while they should increase their holdings in years when there is a share repurchase. My findings point to a two-sided story: On one hand, I find that managers decrease their holdings by 8.5 percent or 7 million dollars in years when there is at least one stock acquisition, by 10 percent or 3.6 million dollars when there is at least one SEO, while they increase their holdings by 7 percent or 2 million dollars in years when there is at least one share repurchase. The percentage of managers who decrease their holdings by 35 percent or more almost doubles in years when there are only stock acquisitions or SEOs, does not change in years when there are only cash acquisitions and almost halves in years when there are only share repurchases. The distributions of net purchases and changes in holdings shift to the left when there is a stock acquisition or an SEO, does not change when there is a cash acquisition and shift to the right when there is a share repurchase. On the other hand, looking at the absolute changes in holdings reveals that the typical manager experiences a small ownership change, whereas more material ownership changes are limited to the subsets of the sample. For example the median manager-year with only stock acquisitions sees a decrease in holdings of only 1 percent or \$100,000, which is driven mainly by manager-years with only multiple stock acquisitions. These results suggest that the evidence for managerial opportunism is modest in magnitude and not pervasive in the sample.

1.2 Method and Data

1.2.1 Measures of Insider Trading

There are many insider trading measures used in the literature. For example Seyhun (1990) uses number and dollar value of shares purchased and sold to examine managerial insider trading around acquisitions, Lee (1992) uses the percentage of net buyer managers and net seller managers to examine trading before repurchases, Lee (1997) uses pure seller and pure buyer measures to examine trading before equity issues, John and Lang (1991) use aggregate number of insider purchase and sale transactions to examine trading around dividend announcements. However none of these measures control for the existing share and option holdings of the manager. Expressing trading as a percentage of share and option holdings will paint a better picture of the economic meaning and significance of those trades for the manager. I use two alternative measures of insider trading activity.⁷

The first measure is net open market purchase as a percentage of beginning of the year share and option holdings (NETPR):

$$\text{NETPR} = \frac{(\text{Open Market Purchases} - \text{Open Market Sales})_t}{(\text{Beginning share holdings} + \text{Beginning option holdings})_t}$$

⁷ I thank Kevin Murphy for suggesting these measures.

The second measure is annual percentage change in total holdings (CHNG):

$$\text{CHNG} = \frac{\Delta(\text{Share holdings})_t + \Delta(\text{Option holdings})_t}{(\text{Beginning share holdings} + \text{Beginning option holdings})_t}$$

All purchases, sales, share and option holdings are measured in terms of split-adjusted number of shares.⁸ Measuring trading and change in holdings as a percentage of share and option holdings enables me to capture the economic significance of those trades. In order to ensure that results are not driven by outliers, both NETPR and CHNG are set to fall in between -100 percent and 200 percent levels.⁹

In order to check the robustness of my findings and to better understand the economic significance of managerial trades, I also calculate the dollar value of net open market purchases (NETDLR) and change in holdings (CHNGDLR) as well as net open market purchases as a percentage of shares outstanding at the end of the year (NETSHROUT) and change in holdings as a percentage of shares outstanding at the end of the year (CHNGSHROUT) as follows:

$$\text{NETDLR} = (\text{Open Market Purchases} - \text{Open Market Sales})_t \times (\text{Stock price at the end of fiscal year})_t$$

$$\text{CHNGDLR} = (\Delta(\text{Share holdings})_t + \Delta(\text{Option holdings})_t) \times (\text{Stock price at the end of fiscal year})_t$$

⁸ Results are robust to using dollar values rather than number of shares.

⁹ Results are robust to winsorizing at 1 percent instead.

$$\text{NETSHROUT} = \frac{(\text{Open Market Purchases} - \text{Open Market Sales})_t}{(\text{Number of Shares Outstanding at the end of fiscal year})_t}$$

$$\text{CHNGSHROUT} = \frac{\Delta(\text{Share holdings})_t + \Delta(\text{Option holdings})_t}{(\text{Number of Shares Outstanding at the end of fiscal year})_t}$$

NETDLR and CHNGDLR make it easier to see the economic magnitude and importance of trades whereas NETSHROUT and CHNGSHROUT go one step further by explicitly controlling for firm size. Finally, in order to make sure my results are not driven by outliers, I winsorize these variables at the one percent level.

1.2.2 Insider Trading Sample

The insider trading sample is from Compustat's Executive Compensation Database (Execucomp). Execucomp is an annual database which reports manager-level information on managerial equity ownership, option holdings, equity grants and option grants, and option exercises starting from 1992 for the five highest paid executives in the S&P 500, the S&P MidCap 400, and the S&P SmallCap firms. However it does not report open market purchases and sales directly. Following Jenter (2005), I calculate net open market purchase for a manager in year t as follows:

$$\Delta(\text{Share holdings})_t + \Delta(\text{Option holdings})_t - \text{Options granted}_t - \text{Shares granted}_t$$

This approach requires taking first differences; therefore a manager needs to be present in the database for at least two consecutive years to be included in the sample.

Table 1.1 lists the Execucomp Sample. There are 2,014 firms, 12,626 firm-managers and 38,304 firm-manager-years from 1993 to 2000. Managers are net sellers on the open market on average during this period; NETPR has a mean of -7 percent and median of -4 percent. This corresponds to a mean net selling of 6.4 million dollars and a median net selling of 0.3 million dollars for the 1993-2000 period. Despite this, their total holdings grow at an average rate of 15 percent for the same period due to option and stock grants awarded.

Table 1.1: Insider Trading Sample

Panel A:

| Year | Number of Firms | Number of Managers | Number of Manager Years | NETPR (%) | | CHNG (%) | |
|-----------|-----------------|--------------------|-------------------------|-------------|---------------|-------------|---------------|
| | | | | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> |
| 1993 | 1,005 | 3,843 | 3,882 | -6 | -4 | 14 | 5 |
| 1994 | 1,255 | 5,068 | 5,113 | -6 | -2 | 15 | 7 |
| 1995 | 1,332 | 5,344 | 5,380 | -7 | -3 | 13 | 5 |
| 1996 | 1,389 | 5,554 | 5,578 | -6 | -3 | 16 | 7 |
| 1997 | 1,394 | 5,565 | 5,577 | -8 | -5 | 15 | 6 |
| 1998 | 1,436 | 5,732 | 5,768 | -9 | -4 | 16 | 8 |
| 1999 | 1,486 | 5,907 | 5,931 | -7 | -3 | 18 | 9 |
| 2000 | 275 | 1,075 | 1,075 | -8 | -4 | 16 | 7 |
| 1993-2000 | 2,014 | 12,626 | 38,304 | -7 | -4 | 15 | 7 |

Table 1.1 (Continued)*Panel B:*

| Year | NETDLR (\$ millions) | | CHNGDLR (\$ millions) | | NETSHROUT (%) | | CHNGSHROUT (%) | |
|-----------|-------------------------|---------------|--------------------------|---------------|------------------|---------------|-------------------|---------------|
| | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> |
| 1993 | -5.7 | -0.3 | -1.1 | 0.2 | -0.0013 | -0.0001 | -0.0003 | 0.0001 |
| 1994 | -5.4 | -0.1 | -0.9 | 0.3 | -0.0011 | -0.0001 | -0.0001 | 0.0001 |
| 1995 | -5.9 | -0.2 | -1.3 | 0.2 | -0.0015 | -0.0001 | -0.0004 | 0.0001 |
| 1996 | -6.1 | -0.2 | -0.8 | 0.3 | -0.0013 | -0.0001 | -0.0001 | 0.0002 |
| 1997 | -6.6 | -0.4 | -0.8 | 0.3 | -0.0016 | -0.0002 | -0.0002 | 0.0002 |
| 1998 | -7.4 | -0.4 | -1.5 | 0.4 | -0.0016 | -0.0002 | -0.0001 | 0.0002 |
| 1999 | -6.5 | -0.2 | -0.7 | 0.5 | -0.0014 | -0.0001 | 0.0002 | 0.0003 |
| 2000 | -9.2 | -0.3 | -2.3 | 0.3 | -0.0017 | -0.0002 | 0.0000 | 0.0003 |
| 1993-2000 | -6.4 | -0.3 | -1.0 | 0.3 | -0.0014 | -0.0001 | -0.0001 | 0.0002 |

Next I create event samples and merge them with the insider trading sample in order to examine the insider trading activity around these events.

1.2.3 Acquisition Sample

I searched the Securities Data Corporation (SDC) Platinum Mergers & Acquisitions database for completed acquisitions of domestic and foreign public, private and subsidiary companies by U.S. public acquirers from January 1993 to December 2000 where:

- Data on method of payment and deal value is available.
- Deal Value is at least 1 percent of acquirer's market value at day -3 relative to the announcement day.
- There is price and return data for the acquirer firm in the University of Chicago's Center for Research in Security Prices (CRSP) database.

- Insider Trading Data is available.

These requirements result in 4,040 usable observations. Table 1.2 shows the descriptive statistics. Median deal value is \$120 million and median relative deal value is 6 percent indicating that these acquisitions represent economically significant investments for the acquirers. Acquisitions are evenly split between public, private and subsidiary targets, although in 1999, the peak of the dot.com merger wave we see that the majority of the deals involve public targets. Method of payment is mostly pure cash.

Table 1.2: Acquisitions Sample

| Year | Number of Acquisitions | Deal Value (\$ Millions) | | Acquirer's Market Value (\$ Millions) | | Relative Size of the Deal (%) | |
|-----------|------------------------|--------------------------|---------------|---------------------------------------|---------------|-------------------------------|---------------|
| | <i>N</i> | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> |
| 1993 | 370 | 229 | 73 | 3,117 | 1,433 | 11 | 5 |
| 1994 | 451 | 291 | 91 | 3,345 | 1,407 | 14 | 5 |
| 1995 | 548 | 536 | 93 | 3,815 | 1,523 | 15 | 5 |
| 1996 | 589 | 666 | 116 | 3,939 | 1,707 | 18 | 6 |
| 1997 | 626 | 651 | 152 | 5,576 | 1,869 | 18 | 6 |
| 1998 | 699 | 1,345 | 147 | 6,500 | 2,217 | 18 | 6 |
| 1999 | 641 | 1,039 | 153 | 10,396 | 1,992 | 17 | 5 |
| 2000 | 116 | 2,827 | 149 | 22,110 | 1,872 | 14 | 5 |
| 1993-2000 | 4,040 | 803 | 120 | 6,023 | 1,736 | 16 | 6 |

Table 1.2 (Continued)

| Year | Number of Acquisitions <i>N</i> | Method of Payment (%) | | | Target Type (%) | | |
|-----------|---------------------------------------|-----------------------|----------------------|--------------|-----------------|---------------|-------------------|
| | | <i>Pure Stock</i> | <i>Pure Cash</i> | <i>Mixed</i> | <i>Private</i> | <i>Public</i> | <i>Subsidiary</i> |
| 1993 | 370 | 31 | 51 | 18 | 33 | 28 | 39 |
| 1994 | 451 | 29 | 53 | 19 | 32 | 33 | 35 |
| 1995 | 548 | 31 | 52 | 17 | 32 | 36 | 32 |
| 1996 | 589 | 28 | 51 | 21 | 32 | 32 | 35 |
| 1997 | 626 | 31 | 48 | 21 | 31 | 36 | 33 |
| 1998 | 699 | 29 | 48 | 23 | 33 | 36 | 31 |
| 1999 | 641 | 25 | 51 | 24 | 31 | 40 | 29 |
| 2000 | 116 | 32 | 47 | 22 | 41 | 31 | 28 |
| 1993-2000 | 4,040 | 29 | 50 | 21 | 32 | 35 | 33 |

1.2.4 Seasoned Equity Offerings Sample

I obtained the list of completed SEOs by U.S. companies from January 1993 to December 2000 from SDC Database using the following criteria from Kahle (2000) and Lee (1997):

- At least 50 percent of the offering must be newly issued primary shares.
- The security issue is not a combination of different classes of securities.
- The issue is not a shelf registration or rights offering.
- The security is not an REIT (SIC 6798) or closed-end mutual fund (SIC 6720–6739).
- Utilities (SIC codes 4910-4949) are excluded.
- Price and return data is available in CRSP.

- Insider Trading Data is available.

These requirements result in 191 usable observations. Table 1.3 shows the descriptive statistics for these 191 SEOs. Median proceeds for the entire 1993-2000 period is \$126 million and median relative value of proceeds is 9 percent indicating the firms in the sample raised significant amounts from SEOs.

Table 1.3: Seasoned Equity Offerings Sample

| Year | Number of SEOs <i>N</i> | Proceeds (\$ Millions) | | Relative Size of the Offering (%) | | Offering Firm's Market Value (\$ Millions) | |
|-----------|-------------------------------|---------------------------|---------------|---|---------------|--|---------------|
| | | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> |
| 1993 | 39 | 265 | 123 | 13 | 11 | 2,489 | 1,305 |
| 1994 | 21 | 174 | 89 | 11 | 10 | 9,297 | 1,126 |
| 1995 | 25 | 189 | 138 | 8 | 7 | 6,463 | 1,997 |
| 1996 | 35 | 210 | 103 | 14 | 10 | 2,617 | 1,090 |
| 1997 | 27 | 152 | 111 | 9 | 8 | 1,861 | 1,446 |
| 1998 | 14 | 317 | 165 | 9 | 8 | 10,069 | 2,122 |
| 1999 | 20 | 394 | 185 | 9 | 5 | 13,501 | 2,603 |
| 2000 | 10 | 201 | 119 | 11 | 12 | 4,610 | 1,356 |
| 1993-2000 | 191 | 233 | 126 | 11 | 9 | 5,690 | 1,499 |

1.2.5 Share Repurchase Sample

I obtained the list of completed share repurchases by U.S. companies from January 1993 to December 2000 from SDC Database using the following criteria:

- Amount paid for repurchased shares must be at least 1 percent of repurchasing firm's market value at day -3 relative to the announcement day.

- Repurchasing company is not an ADR, SBI, closed-end fund or an REIT.
- Price and return data is available in CRSP.
- Insider trading data is available.

These requirements result in 476 usable observations which are described in Table 1.4. Overall the firms in the sample repurchased significant amounts of shares with an average of \$292 million which constitutes 8 percent of their market capitalization.

Table 1.4: Share Repurchases Sample

| Year | Number of Share Repurchases <i>N</i> | Repurchase Amount (\$ Millions) | | Relative Size of the Repurchase (%) | | Repurchasing Firm's Market Value (\$ Millions) | |
|-----------|---|---------------------------------|---------------|-------------------------------------|---------------|--|---------------|
| | | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> |
| 1993 | 48 | 208 | 65 | 5 | 4 | 4,200 | 1,817 |
| 1994 | 82 | 178 | 54 | 8 | 5 | 3,067 | 918 |
| 1995 | 84 | 362 | 89 | 7 | 6 | 4,386 | 1,949 |
| 1996 | 92 | 285 | 62 | 8 | 6 | 5,290 | 1,547 |
| 1997 | 72 | 389 | 118 | 10 | 7 | 4,824 | 1,579 |
| 1998 | 53 | 357 | 89 | 9 | 7 | 5,996 | 1,020 |
| 1999 | 38 | 275 | 54 | 11 | 9 | 2,880 | 693 |
| 2000 | 7 | 66 | 11 | 6 | 4 | 980 | 498 |
| 1993-2000 | 476 | 292 | 68 | 8 | 6 | 4,390 | 1,135 |

1.2.6 Mean and Median Managerial Trading Around Events

Table 1.5 shows the mean and median values of annual net open market purchases as a percentage of beginning share and option holdings (NETPR),

percentage change in total holdings (CHNG), dollar value of net purchases (NETDLR), dollar value of changes in holdings (CHNGDLR), net purchases as a percentage of prior shares outstanding (NETSHROUT) and change in holdings as a percentage of shares outstanding (CHNGSHROUT) across manager-years with different events.

Panel A of Table 1.5 reveals that there is significantly more selling as a percentage of holdings for manager-years with only stock acquisitions compared to manager-years with no acquisitions. To the extent that manager-years with no acquisitions reflect the normal trading levels of the managers, this suggests an abnormal increase in selling for manager-years with only stock acquisitions. Mean value for NETPR is -15 percent for manager-years with only stock acquisitions compared to -6 percent for manager-years with no acquisitions. Despite this increase in net selling, managers seem to be increasing their holdings in both cases, although the increase in managerial holdings is much smaller for manager-years with only stock acquisitions; CHNG has a mean of 5 percent for manager-years with only stock acquisitions compared to 17 percent for manager-years with no acquisitions. However looking at manager-years with single and multiple stock acquisitions separately reveals that managers actually decrease their holdings in years with multiple stock acquisitions; mean and median CHNG are -1 percent and -8 percent respectively. On the other hand managerial net

**Table 1.5 : Trading Activity for manager-years with and without
Stock and Cash Acquisitions**

| <i>Panel A:</i> | | NETPR (%) | | CHNG (%) | |
|--------------------------------|----------|---------------|---------------|---------------|---------------|
| Manager-Years with: | <i>N</i> | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> |
| I. Only Stock Acquisition(s): | 2,302 | -15 | -14 | 5 | -1 |
| a. Single Stock Acquisition | 1,774 | -13 | -11 | 7 | 1 |
| b. Multiple Stock Acquisitions | 528 | -19 | -19 | -1 | -8 |
| II. No Acquisitions | 27,251 | -6 | -2 | 17 | 7 |
| III. Difference (I-II) | | -9 *** | -11 *** | -12 *** | -8 *** |
| | | | | | |
| Manager-Years with: | | | | | |
| I. Only Cash Acquisition(s): | 5,062 | -6 | -3 | 18 | 10 |
| a. Single Cash Acquisition | 4,163 | -6 | -2 | 19 | 10 |
| b. Multiple Cash Acquisitions | 899 | -8 | -4 | 15 | 9 |
| II. No Acquisitions | 27,251 | -6 | -2 | 17 | 7 |
| III. Difference (I-II) | | 0 | 0 | 2 ** | 3 *** |
| | | | | | |
| Only Stock Acquisition(s) | 2,302 | -15 | -14 | 5 | -1 |
| Only Cash Acquisition(s) | 5,062 | -6 | -3 | 18 | 10 |
| Difference | | -9 *** | -11 *** | -13 *** | -11 *** |
| <i>Panel B:</i> | | NETDLR | | CHNGDLR | |
| | | (\$ millions) | | (\$ millions) | |
| Manager-Years with: | <i>N</i> | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> |
| I. Only Stock Acquisition(s): | 2,302 | -16.1 | -2.2 | -6.9 | -0.1 |
| a. Single Stock Acquisition | 1,774 | -14.5 | -1.7 | -5.7 | 0.1 |
| b. Multiple Stock Acquisitions | 528 | -21.1 | -4.2 | -10.8 | -1.0 |
| II. No Acquisitions | 27,276 | -4.9 | -0.2 | -0.4 | 0.3 |
| III. Difference (I-II) | | -11 *** | -2 *** | -6.5 *** | -0.4 *** |
| | | | | | |
| Manager-Years with: | | | | | |
| I. Only Cash Acquisition(s): | 5,066 | -5.3 | -0.2 | 0.9 | 0.6 |
| a. Single Cash Acquisition | 4,166 | -5.2 | -0.2 | 0.6 | 0.6 |
| b. Multiple Cash Acquisitions | 900 | -5.7 | -0.4 | 2.3 | 0.7 |
| II. No Acquisitions | 27,276 | -4.9 | -0.2 | -0.4 | 0.3 |
| III. Difference (I-II) | | -0.4 | -0.1 *** | 1.3 *** | 0.3 *** |
| | | | | | |
| Only Stock Acquisition(s) | 2,302 | -16.1 | -2.2 | -6.9 | -0.1 |
| Only Cash Acquisition(s) | 5,062 | -5.3 | -0.2 | 0.9 | 0.6 |
| Difference | | -10.8*** | -1.9 *** | -7.8 *** | -0.7 *** |

Table 1.5 (Continued)

| | | NETSHROUT | | CHNGSHROUT | |
|----------------------------------|----------|-------------|---------------|-------------|---------------|
| | | ($\%$) | | ($\%$) | |
| <i>Panel C:</i> | <i>N</i> | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> |
| Manager-Years with: | | | | | |
| I. Only Stock Acquisition(s): | 2,302 | -0.0024 | -0.0005 | -0.0012 | -0.00002 |
| a. Single Stock Acquisition | 1,774 | -0.0024 | -0.0004 | -0.0011 | 0.0000 |
| b. Multiple Stock Acquisitions | 528 | -0.0027 | -0.0009 | -0.0016 | -0.00032 |
| II. No Acquisitions | 27,276 | -0.0013 | -0.0001 | 0.0001 | 0.0002 |
| III. Difference (I-II) | | -0.0012 | -0.0004 | -0.0013 | -0.0002 |
| Significance level of difference | | *** | *** | *** | *** |
| Manager-Years with: | | | | | |
| I. Only Cash Acquisition(s): | 5,066 | -0.0011 | -0.0001 | 0.0001 | 0.00023 |
| a. Single Cash Acquisition | 4,166 | -0.0011 | -0.0001 | 0.0001 | 0.0002 |
| b. Multiple Cash Acquisitions | 900 | -0.0012 | -0.0001 | -0.0001 | 0.00019 |
| II. No Acquisitions | 27,276 | -0.0013 | -0.0001 | 0.0001 | 0.0002 |
| III. Difference (I-II) | | 0.0001 | 0.0000 | 0.0000 | 0.0001 |
| Significance level of difference | | * | | | *** |
| Only Stock Acquisition(s) | 2,302 | -0.0024 | -0.0005 | -0.0012 | -0.00002 |
| Only Cash Acquisition(s) | 5,066 | -0.0011 | -0.0001 | 0.0001 | 0.0002 |
| Difference | | -0.0013 | -0.0004 | -0.0013 | -0.0003 |
| Significance level of difference | | *** | *** | *** | *** |

purchases and change in holdings are virtually the same for manager-years with only cash acquisitions and manager years with no acquisitions.

If we look at dollar values of net purchases (NETDLR) and changes in holdings (CHNGDLR) in Panel B, a similar picture emerges; managers sell and decrease their holdings more in years with only stock acquisitions compared to years with no acquisitions. Once again the increase in sales and decrease in holdings is more pronounced for manager-years with multiple stock acquisitions:

NETDLR has a mean of -21.1 and a median of -4.2 million dollars while CHNGDLR has a mean of -10.8 and a median of -1 million dollars. On the other hand managers do not seem to be significantly changing their selling and holdings for manager-years with only cash acquisitions compared to manager-years with no acquisitions. Net purchases as a percentage of prior shares outstanding (NETSHROUT) and change in holdings as a percentage of shares outstanding (CHNGSHROUT) presented in Panel C, show similar results; mean NETSHROUT of -0.0024 percent for manager-years with only stock acquisitions is almost double that for manager-years with no acquisitions, while median NETSHROUT of -0.0005 percent for manager-years with only stock acquisitions is five times that for manager-years with no acquisitions.

A similar picture emerges when we compare managerial trading in years with SEOs and in years with share repurchases in Table 1.6. Panel A of Table 1.6 shows that managers sell and reduce their holdings heavily in years when there is only an SEO; the means for NETPR and CHNG are -23 percent and -4 percent which are 16 percent and 19 percent lower than those for manager-years with no SEOs or share repurchases. On the other hand they increase their net purchases and holdings in years with only share repurchases compared to years with no SEOs or share repurchases. Panel B of Table 1.6 shows the dollar values of trading to help us better understand the economic significance of these trading patterns. On average managers sell 8 million dollars more and decrease their

Table 1.6: Trading Activity for manager-years with and without SEOs and Share Repurchases

| <i>Panel A:</i> | | NETPR (%) | | CHNG (%) | |
|------------------------------|----------|-------------------------|---------------|--------------------------|---------------|
| Manager-Years with: | <i>N</i> | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> |
| Only SEO(s) | 724 | -23 | -24 | -4 | -10 |
| No SEOs or Share Repurchases | 35,842 | -7 | -3 | 16 | 7 |
| Difference | | -16 *** | -21 *** | -19 *** | -17 *** |
| Only Share Repurchase(s) | 1,701 | -1 | 0 | 22 | 12 |
| No SEOs or Share Repurchases | 35,842 | -7 | -3 | 16 | 7 |
| Difference | | 6 *** | 3 *** | 6 *** | 5 *** |
| Only SEO(s) | 724 | -23 | -24 | -4 | -10 |
| Only Share Repurchase(s) | 1,701 | -1 | 0 | 22 | 12 |
| Difference | | -21 *** | -24 *** | -26 *** | -22 *** |
| <i>Panel B:</i> | | NETDLR (\$ millions) | | CHNGDLR (\$ millions) | |
| Manager-Years with: | <i>N</i> | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> |
| Only SEO(s) | 724 | -14.2 | -3.1 | -7.8 | -0.9 |
| No SEOs or Share Repurchases | 35,873 | -6.3 | -0.2 | -1.0 | 0.3 |
| Difference | | -8.0 *** | -2.9 *** | -6.8 *** | -1.2 *** |
| Only Share Repurchase(s) | 1,701 | -4.4 | 0.0 | 1.5 | 0.8 |
| No SEOs or Share Repurchases | 35,873 | -6.3 | -0.2 | -1.0 | 0.3 |
| Difference | | 1.9 *** | 0.2 *** | 2.5 *** | 0.5 *** |
| Only SEO(s) | 724 | -14.2 | -3.1 | -7.8 | -0.9 |
| Only Share Repurchase(s) | 1,701 | -4.4 | 0.0 | 1.5 | 0.8 |
| Difference | | -9.8 *** | -3.1 *** | -9.3 *** | -1.7 *** |

Table 1.6 (continued)

| | | NETSHROUT | | CHNGSHROUT | |
|----------------------------------|----------|-------------|---------------|-------------|---------------|
| | | (%) | | (%) | |
| <i>Panel C:</i> | <i>N</i> | <i>Mean</i> | <i>Median</i> | <i>Mean</i> | <i>Median</i> |
| Manager-Years with: | | | | | |
| Only SEO(s) | 724 | -0.0043 | -0.0017 | -0.0025 | -0.0006 |
| No SEOs or Share Repurchases | 35,873 | -0.0014 | -0.0001 | -0.0001 | 0.0002 |
| Difference | | -0.0029 | -0.0016 | -0.0024 | -0.0008 |
| Significance level of difference | | *** | *** | *** | *** |
| Only Share Repurchase(s) | 1,701 | -0.0003 | 0.0000 | 0.0009 | 0.0004 |
| No SEOs or Share Repurchases | 35,873 | -0.0014 | -0.0001 | -0.0001 | 0.0002 |
| Difference | | 0.0011 | 0.0001 | 0.0010 | 0.0002 |
| Significance level of difference | | *** | *** | *** | *** |
| Only SEO(s) | 724 | -0.0043 | -0.0017 | -0.0025 | -0.0006 |
| Only Share Repurchase(s) | 1,701 | -0.0003 | 0.0000 | 0.0009 | 0.0004 |
| Difference | | -0.0040 | -0.0017 | -0.0034 | -0.0010 |
| Significance level of difference | | *** | *** | *** | *** |

holdings by 6.8 million dollars more in years with only SEOs compared to years without SEOs or share repurchases, while they sell 1.9 million dollars less and increase their holdings by 2.5 million dollars more in years with only share repurchases compared to years without SEOs or share repurchases. Medians tell a similar story, median NETDLR and CHNGDLR are 2.9 and 1.2 million dollars lower for manager-years with only SEOs compared to manager-years without SEOs or share repurchases, while they are 0.2 and 0.5 million dollars higher for manager-years with only share repurchases compared to manager-years without SEOs or share repurchases. Mean and median NETSHROUT and CHNGSHROUT in Panel C of Table 1.6 show similar results; mean

NETSHROUT of -0.0043 percent for manager-years with only SEOs is more than three times of that for manager-years without SEOs or share repurchases, while mean NETSHROUT of -0.0003 percent for manager-years with only share repurchases is almost one-fifth of that for manager-years without SEOs or share repurchases.

Overall, these findings show that managers sell significantly (both statistically and economically) more when there are only stock acquisitions or only SEOs but not when there are only cash acquisitions or only share repurchases. Studies examining insider trading around important corporate announcements report similar findings.¹⁰ However, the decrease in managerial holdings is not as dramatic as the increase in selling; for example the median manager-year with only stock acquisitions sees a decrease in holdings of 1 percent or \$100,000, driven mainly by manager-years with multiple stock acquisitions. This suggests that economically significant changes in ownership might be limited to the subsets of the sample. Moreover, managers may trade for a variety of reasons like portfolio rebalancing and diversification after recent stock price run-ups and upon receiving option and stock grants. Firm characteristic like size and book-to-market ratio¹¹ have been shown to be related to insider trading activity. There might also be time and industry specific factors influencing

¹⁰ For example Lee et al. (1992) find increased buying and reduced selling prior to repurchase tender offers. Karpoff and Lee (1991) find increased selling prior to seasoned offerings of common stock.

¹¹ Rozeff and Zaman (1998) show that managers in growth firms tend to sell more equity than managers in value firms, i.e. they have “contrarian” views about their firms.

managers' trade decisions. Before concluding that the changes in trading patterns listed above reflect market timing by informed managers, we have to control for these non-informational motives for trading and measure the *abnormal* insider trading activity. I deal with that in the next section.

1.3 Managerial Opportunism and Abnormal Trading

In order to understand whether the managers are behaving opportunistically in their personal trades, one needs to measure the abnormal changes in the managerial trading activity around important corporate announcements. In this section I examine the abnormal managerial trading activity around acquisitions, SEOs and share repurchases.

1.3.1 Measuring Abnormal Trading

I use pooled time-series cross-section regressions as used by Jenter (2005) to control for non-informational motivations for trading. In these regressions, the unit of observation is a manager-year. All regressions include manager and firm characteristics as well as industry and time dummies to control for non-informational motives for trading. These control variables are explained in the next section. The abnormal trading is captured by the coefficients of dummy

variables which show whether the event in question took place at least once in the current year.¹²

1.3.2 Non-Informational Motives for Trading

Central to any method of measuring abnormal trading is the need to control for non-informational motives for trading. There can be mechanical reasons as to why some managers sell more: for example, managers who receive larger stock or option grants in a given period will sell more on the open market (Ofeck and Yermack (2000)). To control for this portfolio rebalancing and diversification motive, I include stock and option holdings at the beginning of the year and stock and option grants made during the year, all measured in number of shares¹³, in the regressions.

Following large increases in stock price, managers will find an increased portion of their personal wealth tied in company stock. Therefore they will be more likely to sell stock in order to diversify away from company stock. To control for this diversification motive, I include stock returns for the current year and past two years in the regressions.

Managers holding company stock are exposed to both idiosyncratic and total firm risk. Melbourek (2000) shows that managers in more risky companies tend to sell stock more aggressively. In order to control for firm risk and the

¹² Using the number of times the event occurs in the year instead of this dummy variable does not change the results qualitatively.

¹³ Using dollar values instead of number of shares do not change the results.

change in risk on trading behavior, I include past stock return volatility and change in volatility in the regressions.

It is a well documented empirical fact that managers in bigger firms sell more stock than those in smaller firms. Therefore log of total assets is included in the regressions to control for size effects.

Recent research shows that managerial trading activity is not randomly distributed among value and growth stocks. Rozeff and Zaman (1998) show that managers in growth firms tend to sell more equity than managers in value firms, i.e. they have “contrarian” views about their firms. They interpret this as evidence that the market overvalues growth stocks and undervalues value stocks. Jenter (2005) finds evidence for the contrarian nature of managerial trading even after controlling for non-information motives for trading by keeping managerial ownership levels and compensation grants constant. I include dummies for book-to-market deciles in the regressions to abstract from any book-to-market related effects.

Finally there might be industry and time specific reasons affecting insider trading. To control for these factors, industry and time dummies are included in the regressions.

1.4 Managerial Trading around Stock and Cash Acquisitions, SEOs and Share Repurchases

Next I look at how managers trade in years when there are stock and cash acquisitions, SEOs and share repurchases. Stock acquisitions and SEOs may signal to the market that managers think the firm is overvalued, while share repurchases may signal the market that managers think the firm is undervalued. The asymmetric information story tells us that the decision to issue new equity may signal new information about the true value of the firm to the market. If managers have more information about the true value of the firm than the market, they will want to issue new equity when they think that their stock is overvalued (Myers and Majluf, 1984). Conversely they will be more likely to repurchase shares or use cash to pay for acquisitions when they think their stock is undervalued. As a result, the market will react negatively to the issuance of new stock.

An extensive empirical literature shows that seasoned equity issues are associated with negative announcement returns of about -3 percent on average (Smith,1986), returns from merger announcements are about 3 percent lower when stock is used instead of cash (Andrade et al.,2001) and share repurchases are associated with 3.5 percent announcement return on average (Ikenberry, Lakonishok and Vermaelen, 1995). There is also evidence of long-run stock

return underperformance by SEO firms (Loughran and Ritter, 1995) and stock acquirers (Loughran and Vijh, 1997 and Rau and Vermaelen 1998) and high subsequent returns to share repurchases (Ikenberry, Lakonishok and Vermaelen, 1995).

Moreover, stock acquisitions¹⁴ and seasoned equity offerings¹⁵ tend to cluster in times of high stock valuations, whereas share repurchases¹⁶ are more common in times of low stock valuations. Graham and Harvey (2001) report survey evidence from 392 chief financial officers (CFO) which shows that two-thirds of CFOs agree that “the amount by which our stock is undervalued or overvalued was an important or very important consideration in issuing equity”.

If managers opportunistically time the market in their corporate finance decisions in this way, they should be doing the same with their own money: opportunistic managers should increase their open market sales and decrease their holdings of company stock around stock mergers and SEOs, while they should increase (or at least not decrease) their net purchases and holdings around cash mergers and share repurchases.

There is evidence from the insider trading literature supporting these predictions. Karpoff and Lee (1991), Lee (1997) and Kahle (2000) all find that insider sales increase relative to insider purchases before seasoned equity

¹⁴ See Nelson (1959), Andrade et al. (2001)

¹⁵ See Taggart (1977), Marsh (1982), Jung, Kim and Stulz (1996), and Hovakimian, Opler and Titman (2001).

¹⁶ See Ikenberry, Lakonishok, and Vermaelen (1995).

offerings. Lee et al. (1992) find increased buying and reduced selling prior to repurchase tender offers. Jenter (2005) finds increased managerial selling in years when there is a seasoned equity offering, after controlling for managerial ownership levels. But except for Jenter (2005) none of these studies explicitly control for share and option holdings and various non-informational motives for trading in their insider trading measures.

1.4.1 Stock Acquisitions versus Cash Acquisitions

Table 1.7 examines abnormal managerial trading around stock and cash mergers. The unit of observation is a manager-year. There are two model specifications: Dependent variables are NETPR in the first model, and CHNG in the second. The independent variables are as follows: *Stock acquirer in year (t)* is a dummy variable which is equal to one if the manager's firm is an acquirer in a stock acquisition at least once in year *t*. The dummy variables *Cash acquirer in year (t)* and *Mixed acquirer in year (t)* are defined similarly. Other independent variables include control variables which measure stock return, stock volatility, book-to-market ratio, share holdings (Execucomp data item *shrown*), option holdings (Execucomp data items *uexnumun*+ *uexnumex*), share grants (Execucomp data items *rstkgrnt/prccf*) and option grants (Execucomp data item *soptgrnt*) and firm size (*log of total assets*). Each regression includes industry

**Table 1.7: Abnormal Trading Activity around Stock and Cash Acquisitions
using NETPR and CHNG^{a, b, c, d, e}**

| Independent Variables: | NETPR (%) | CHNG (%) |
|--|--------------------|--------------------|
| Intercept | 12.0 (5.55)*** | 17.7 (5.41)*** |
| B/M-Decile | | |
| 1 (Growth) | -6.2 (4.43)*** | -7.7 (3.97)*** |
| 2 | -7.6 (5.65)*** | -10.8 (5.85)*** |
| 3 | -7.6 (5.64)*** | -8.7 (4.80)*** |
| 4 | -4.8 (3.60)*** | -8.0 (4.43)*** |
| 5 | -5.5 (4.10)*** | -8.3 (4.64)*** |
| 6 | -4.4 (3.28)*** | -5.6 (3.06)*** |
| 7 | -5.3 (3.85)*** | -4.6 (2.48)** |
| 8 | -2.3 (1.68)* | -2.5 (1.31) |
| 9 | -1.9 (1.30) | -2.8 (1.42) |
| 10 (Value) | | |
| Stock acquirer in year (t) (β_1) | -7.4 (7.85)*** | -8.5 (6.43)*** |
| Cash acquirer in year (t) (β_2) | -2.3 (2.56)** | -0.4 (0.35) |
| Mixed acquirer in year (t) | -4.9 (5.83)*** | -3.7 (3.10)*** |
| Number of shares held | 0.00002 (1.75)* | -0.00003 (1.22) |
| Unexercised unexercisable options | -0.00026 (1.63) | -0.00356 (5.31)*** |
| Unexercised exercisable options | -0.00056 (3.16)*** | -0.00266 (3.86)*** |
| Option grants during the year | -0.00061 (2.13)** | 0.01008 (3.42)*** |
| Stock grants during the year | -0.00624 (1.98)** | 0.00234 (1.26) |
| Return (t-2) | -0.9 (3.28)*** | -2.2 (5.30)*** |
| Return (t-1) | -2.3 (6.68)*** | -5.1 (11.40)*** |
| Return (t) | -2.8 (10.01)*** | -3.6 (8.29)*** |
| Volatility (t-2) | -22.2 (15.63)*** | -5.0 (2.40)** |
| Change in volatility (t-1) | -18.7 (9.89)*** | -3.9 (1.48) |
| Change in volatility (t) | -17.7 (9.89)*** | -2.7 (1.17) |
| Log of total assets | -0.6 (4.29)*** | 1.5 (6.69)*** |
| Industry dummies | Yes | Yes |
| Year dummies | Yes | Yes |
| Number of observations | 38,273 | 38,304 |
| R ² | 0.051 | 0.062 |
| F-Test for difference: | | |
| $\beta_1 = \beta_2$ | <0.00001 | <0.00001 |

Table 1.7 (Continued)

^a The unit of observation is a manager-year. In column (1) the dependent variable is NETPR, in column (2) the dependent variable is CHNG. NETPR is net open market purchase as a percentage of beginning of the year share and option holdings:

$$\text{NETPR} = \frac{(\text{Open Market Purchases} - \text{Open Market Sales})_t}{(\text{Beginning share holdings} + \text{Beginning option holdings})_t}$$

CHNG is annual percentage change in total holdings (CHNG):

$$\text{CHNG} = \frac{\Delta(\text{Share holdings})_t + \Delta(\text{Option holdings})_t}{(\text{Beginning share holdings} + \text{Beginning option holdings})_t}$$

^b The independent variables are defined as follows: stock acquirer in year (t) is a dummy variable which is equal to one if the manager's firm is an acquirer in a stock acquisition at least once in year t. The dummy variables cash acquirer in year (t) and mixed acquirer in year (t) are defined similarly. Other independent variables include control variables which measure stock return, stock volatility, book-to-market decile dummies, share holdings (Execucomp data item *shrown*), option holdings (Execucomp data items *uexnumun+uexnumex*), share grants Execucomp data items *rstkgrnt/prccf*), option grants (Execucomp data item *soptgrnt*) and log of total assets. Share holdings, option holdings, share grants and option grants are measured in terms of split-adjusted number of shares. Stock return is measured by Return (t), Return (t-1) and Return (t-2) which denote the raw stock return in years *t*, *t-1* and *t-2* respectively. Volatility is measured by volatility (t-2), change in volatility (t-1) and change in volatility (t) which measure the annualized stock return volatility for year *t-2* and the change in volatility in years *t-1* and *t*.

^c Each regression includes industry and year dummies. Industries are defined using the 20 industry definition of Grinblatt and Moskowitz (1999).

^d Coefficient estimates are reported first and robust t-statistics with clustering at the manager level second in each column. Significance levels at 1%, 5% and 10% are denoted by ***, ** and * respectively.

^e P-values for the F-tests testing the equality of the coefficients of dummy variables that show whether the firm is an acquirer in a stock or cash acquisition in year t are shown below the table.

and year dummies. In addition, I include dummy variables (not shown in the table) which measure whether there is least one acquisition with an announcement return¹⁷ lower than -5 percent, between -5 percent and +5 percent and higher than +5 percent to control for managerial trading in anticipation of the value consequences of the acquisition.

Table 1.7 shows that managers abnormally sell 7.4 percent of their holdings on the open market and decrease their total holdings by 8.5 percent in years when there is at least one stock acquisition but not in years when there is at least one cash acquisition. An F-test for the equality of coefficients (reported below the table) shows that managers sell and decrease their holdings significantly more when there is a stock acquisition compared to when there is a cash acquisition. Other variables have expected signs, consistent with Jenter (2005) I find that managers in growth firms sell more than managers in value firms. Managers with higher option holdings and stock and option grants sell more. Higher past and current stock returns and volatilities result in higher net selling.

To better understand what these abnormal trading patterns mean in economic terms, Table 1.8 runs the same regressions in Table 1.7 using dollar values of trading (NETDLR and CHNGDLR) and control variables. The only different control variables are *Dollar value of equity stake* which is shares owned

¹⁷ Announcement Return is measured as cumulative return excess of CRSP value weighted market index over the window [-2,+1] relative to the announcement day

**Table 1.8: Abnormal Trading Activity around Stock and Cash Acquisitions
using NETDLR and CHNGDLR^{a, b, c, d, e}**

| Independent Variables: | NETDLR (\$ millions) | CHNGDLR (\$ millions) |
|--|-------------------------|--------------------------|
| Intercept | 20,683 (7.70)*** | -320 (0.18) |
| B/M-Decile | | |
| 1 (Growth) | -9,042 (7.62)*** | -1,131 (1.22) |
| 2 | -4,453 (5.53)*** | 695 (1.05) |
| 3 | -3,146 (4.53)*** | 1,104 (1.95)* |
| 4 | -1,776 (3.10)*** | 1,199 (2.39)** |
| 5 | -1,482 (2.65)*** | 1,146 (2.48)** |
| 6 | -1,819 (2.50)** | 405 (0.66) |
| 7 | -711 (1.46) | 1,012 (2.42)** |
| 8 | -791 (1.76)* | 698 (1.77)* |
| 9 | 93 (0.24) | 594 (1.68)* |
| 10 (Value) | | |
| Stock acquirer in year (t) (β_1) | -8,091 (6.95)*** | -6,919 (6.57)*** |
| Cash acquirer in year (t) (β_2) | -1,856 (1.73)* | -1,189 (1.23) |
| Mixed acquirer in year (t) | -4,351 (3.32)*** | -3,485 (3.10)*** |
| Dollar value of equity stake | -0.005 (4.14)*** | -0.004 (4.05)*** |
| Intrinsic value of unexercisable options | -0.297 (2.77)*** | -0.203 (3.10)*** |
| Intrinsic value of exercisable options | -0.004 (1.17) | -0.003 (1.29) |
| Black-Scholes value of option grants | -0.593 (2.17)** | 0.331 (2.39)** |
| Dollar value of stock grants | -0.320 (3.01)*** | -0.111 (2.92)*** |
| Return (t-2) | -2,538 (6.89)*** | -2,144 (6.45)*** |
| Return (t-1) | -4,506 (8.93)*** | -3,427 (8.13)*** |
| Return (t) | -3,297 (9.17)*** | -1,968 (7.20)*** |
| Volatility (t-2) | -6,939 (5.12)*** | -2,248 (2.18)** |
| Change in volatility (t-1) | -7,732 (5.57)*** | -3,272 (2.83)*** |
| Change in volatility (t) | -9,956 (7.93)*** | -4,635 (4.46)*** |
| Log of total assets | -2,000 (7.94)*** | 437 (2.73)*** |
| Industry dummies | Yes | Yes |
| Year dummies | Yes | Yes |
| Number of observations | 38,164 | 38,164 |
| R ² | 0.18 | 0.08 |
| F-Test for difference: | | |
| $\beta_1 = \beta_2$ | <0.00001 | <0.00001 |

Table 1.8 (Continued)

^a The unit of observation is a manager-year. In column (1) the dependent variable is NETDLR, in column (2) the dependent variable is CHNGDLR. NETDLR is the dollar value of net open market purchases:

$$\text{NETDLR} = (\text{Open Market Purchases} - \text{Open Market Sales})_t \times (\text{Stock price at the end of fiscal year})_t$$

CHNGDLR is the dollar change in holdings:

$$\text{CHNGDLR} = (\Delta(\text{Share holdings})_t + \Delta(\text{Option holdings})_t) \times (\text{Stock price at the end of fiscal year})_t$$

^b The independent variables are defined as follows: stock acquirer in year (t) is a dummy variable which is equal to one if the manager's firm is an acquirer in a stock acquisition at least once in year t. The dummy variables cash acquirer in year (t) and mixed acquirer in year (t) are defined similarly. Other independent variables include control variables which measure stock return, stock volatility, book-to-market decile dummies, *Dollar value of equity stake* which is shares owned at the end of fiscal year t-1 times the stock price at the end of fiscal year t-1, *Intrinsic value of unexercisable options* and *Intrinsic value of exercisable options* (Execucomp data items *inmonun* and *inmonex*) at the end of year t-1, *Black-Scholes value of option grants* made in fiscal year t (Execucomp data item *blk_valu*), the *Dollar value of stock grants* made in year t (Execucomp data item *rstkgrnt*) and log of total assets. Stock return is measured by Return (t), Return (t-1) and Return (t-2) which denote the raw stock return in years t, t-1 and t-2 respectively. Volatility is measured by Volatility (t-2), change in volatility (t-1) and change in volatility (t) which measure the annualized stock return volatility for year t-2 and the change in volatility in years t-1 and t. All dollar amounts are in thousands of 2004 dollars.

^c Each regression includes industry and year dummies. Industries are defined using the 20 industry definition of Grinblatt and Moskowitz (1999).

^d Coefficient estimates are reported first and robust t-statistics with clustering at the manager level second in each column. Significance levels at 1%, 5% and 10% are denoted by ***, ** and * respectively.

^e P-values for the F-tests testing the equality of the coefficients of dummy variables that show whether the firm is an acquirer in a stock or cash acquisition in year t are shown below the table.

at the end of fiscal year t-1 times the stock price at the end of fiscal year t-1, *Intrinsic value of unexercisable options* and *Intrinsic value of exercisable options* (Execucomp data items *inmonun* and *inmonex*) at the end of year t-1, *Black-Scholes value of option grants* made in fiscal year t (Execucomp data item *blk_valu*) and the *Dollar value of stock grants* made in year t (Execucomp data item *rstkgrnt*). Results show that managers significantly increase their selling and decrease their holdings by 8.1 and 7 million dollars respectively in years when there is at least one stock acquisition. While there is also a 1.9 million increase in sales in years when there is a cash acquisition, the effect is much smaller and less significant statistically. Finally an F-test for the equality of the coefficients shows that managers sell significantly more in years with at least one stock acquisition compared to years with at least one cash acquisition. Measuring managerial trading by NETSHROUT and CHNGSHROUT does not change these results; Table 1.9 shows that managers increase their sales by 0.0009 percent of shares outstanding when there is at least one stock acquisition compared to just 0.0003 percent when there is at least one cash acquisition.

**Table 1.9: Abnormal Trading Activity around Stock and Cash Acquisitions
using NETSHROUT and CHNGSHROUT^{a, b, c, d}**

| | NETSHROUT(%) | CHNGSHROUT(%) |
|--|-----------------------|-----------------------|
| Independent Variables: | | |
| Intercept | -0.0019 (4.85)*** | 0.0007 (1.73)* |
| B/M-Decile | | |
| 1 (Growth) | -0.0002 (1.10) | -0.0010 (4.26)*** |
| 2 | -0.0006 (2.83)*** | -0.0012 (5.47)*** |
| 3 | -0.0005 (2.68)*** | -0.0009 (4.54)*** |
| 4 | -0.0003 (1.88)* | -0.0008 (3.97)*** |
| 5 | -0.0005 (2.45)** | -0.0008 (4.09)*** |
| 6 | -0.0002 (1.39) | -0.0005 (2.80)*** |
| 7 | -0.0002 (1.13) | -0.0004 (2.23)** |
| 8 | -0.0001 (0.46) | -0.0003 (1.52) |
| 9 | -0.0001 (0.46) | -0.0003 (1.50) |
| 10 (Value) | | |
| Stock acquirer in year (t) (β_1) | -0.0009 (4.94)*** | -0.0009 (5.01)*** |
| Cash acquirer in year (t) (β_2) | -0.0003 (1.78)* | -0.0002 (0.93) |
| Mixed acquirer in year (t) | -0.0007 (4.19)*** | -0.0006 (3.30)*** |
| Number of shares held | -0.00000001 (1.68)* | -0.00000002 (2.25)** |
| Unexercised unexercisable opt. | -0.00000012 (1.80)* | -0.00000035 (4.81)*** |
| Unexercised exercisable options | -0.00000034 (4.11)*** | -0.00000028 (3.26)*** |
| Option grants during the year | -0.00000001 (0.08) | 0.00000114 (3.42)*** |
| Stock grants during the year | -0.00000169 (7.84)*** | 0.00000035 (0.96) |
| Return (t-2) | -0.0003 (3.94)*** | -0.0003 (3.61)*** |
| Return (t-1) | -0.0006 (7.06)*** | -0.0007 (7.49)*** |
| Return (t) | -0.0006 (8.69)*** | -0.0006 (7.82)*** |
| Volatility (t-2) | -0.0030 (10.95)*** | -0.0011 (3.86)*** |
| Change in volatility (t-1) | -0.0021 (6.03)*** | -0.0009 (2.43)** |
| Change in volatility (t) | -0.0021 (5.68)*** | -0.0008 (1.97)** |
| Log of total assets | 0.0004 (14.00)*** | 0.0001 (4.08)*** |
| Industry dummies | Yes | Yes |
| Year dummies | Yes | Yes |
| Number of observations | 38,304 | 38,304 |
| R ² | 0.098 | 0.063 |
| F-Test for difference: | | |
| $\beta_1 = \beta_2$ | <0.00001 | <0.00001 |

Table 1.9 (Continued)

^a The unit of observation is a manager-year. In column (1) the dependent variable is NETSHROUT, in column (2) the dependent variable is CHNGSHROUT. NETSHROUT is net open market purchases as a percentage of shares outstanding at the end of the year:

$$\text{NETSHROUT} = \frac{(\text{Open Market Purchases} - \text{Open Market Sales})_t}{(\text{Number of Shares Outstanding at the end of fiscal year})_t}$$

CHNGSHROUT is change in holdings as a percentage of shares outstanding at the end of the year:

$$\text{CHNGSHROUT} = \frac{\Delta(\text{Share holdings})_t + \Delta(\text{Option holdings})_t}{(\text{Number of Shares Outstanding at the end of fiscal year})_t}$$

^b The independent variables are the same as those in Table 1.7 and are detailed in the note to Table 1.7.

^c Coefficient estimates are reported first and robust t-statistics with clustering at the manager level second in each column. Significance levels at 1%, 5% and 10% are denoted by ***, ** and * respectively.

^d P-values for the F-tests testing the equality of the coefficients of dummy variables that show whether the firm is an acquirer in a stock or cash acquisition in year t are shown below the table.

1.4.2 SEOs and Share Repurchases

Next I look at how managers trade around SEOs and share repurchases. Table 1.10 shows the results. The dependent variables are NETPR in column one and CHNG in column two. The control variables are the same as before, only this time I have two dummy variables, *SEO in year (t)* and *Share repurchase in year (t)* which are equal to one if there is at least one SEO or share repurchase in the current year.

Table 1.10: Abnormal Trading Activity around SEOs and Share Repurchases using NETPR and CHNG ^{a, b, c, d}

| | NETPR (%) | CHNG (%) |
|--|--------------------|--------------------|
| Independent Variables: | | |
| Intercept | 13.3 (6.11)*** | 19.2 (5.86)*** |
| B/M-Decile | | |
| 1 (Growth) | -6.9 (4.95)*** | -8.7 (4.44)*** |
| 2 | -8.2 (6.09)*** | -11.4 (6.17)*** |
| 3 | -8.2 (6.11)*** | -9.4 (5.15)*** |
| 4 | -5.2 (3.92)*** | -8.4 (4.62)*** |
| 5 | -6.0 (4.53)*** | -8.9 (4.94)*** |
| 6 | -4.9 (3.70)*** | -6.1 (3.36)*** |
| 7 | -5.8 (4.20)*** | -5.0 (2.72)*** |
| 8 | -2.6 (1.87)* | -2.8 (1.47) |
| 9 | -2.1 (1.42) | -3.0 (1.52) |
| 10 (Value) | | |
| SEO in year (t) (β_1) | -9.7 (7.38)*** | -10.0 (6.28)*** |
| Share repurchase in year (t) (β_2) | 5.4 (7.77)*** | 7.0 (6.57)*** |
| Number of shares held | 0.00002 (1.85)* | -0.00002 (1.08) |
| Unexercised unexercisable options | -0.00031 (1.90)* | -0.00363 (5.36)*** |
| Unexercised exercisable options | -0.00062 (3.56)*** | -0.00272 (3.93)*** |
| Option grants during the year | -0.00065 (2.13)** | 0.01004 (3.44)*** |
| Stock grants during the year | -0.00613 (1.94)* | 0.00252 (1.35) |

Table 1.10 (Continued)

| | | | | |
|---|--------|------------|--------|------------|
| Return (t-2) | -1.1 | (3.84)*** | -2.3 | (5.68)*** |
| Return (t-1) | -2.4 | (7.08)*** | -5.3 | (11.69)*** |
| Return (t) | -2.8 | (9.96)*** | -3.5 | (8.22)*** |
| Volatility (t-2) | -22.8 | (16.00)*** | -5.6 | (2.72)*** |
| Change in volatility (t-1) | -18.2 | (9.68)*** | -3.8 | (1.43) |
| Change in volatility (t) | -17.8 | (9.96)*** | -3.0 | (1.30) |
| Log of total assets | -0.8 | (5.37)*** | 1.4 | (6.08)*** |
| Industry dummies | Yes | | Yes | |
| Year dummies | Yes | | Yes | |
| Number of observations | 38,273 | | 38,304 | |
| R ² | 0.048 | | 0.061 | |
| F-Test for difference: $\beta_1=\beta_2$ | | <0.00001 | | <0.00001 |

^a The unit of observation is a manager-year. In column (1) the dependent variable is NETPR, in column (2) the dependent variable is CHNG. These variables are detailed in the note to Table 1.7.

^b The independent variables are defined as follows: SEO in year (t) is a dummy variable which is equal to one if the manager's firm issues seasoned equity at least once in year t. Share Repurchase in Year (t) is a dummy variable which is equal to one if the manager's firm repurchases equity at least once in year t. The rest of the independent variables are the same as those in Table 1.7 and are detailed in the note to Table 1.7.

^c Coefficient estimates are reported first and robust t-statistics with clustering at the manager level second in each column. Significance levels at 1%, 5% and 10% are denoted by ***, ** and * respectively.

^d P-values for the F-tests testing the equality of the coefficients of dummy variables that show whether the firm has an SEO or a share purchase in year t are shown below the table.

Results show that managers decrease their holdings by 10 percent in years when there is at least one SEO, while they increase their holdings by 7 percent when there is at least one share repurchase in the current year. Managers abnormally sell 9.7 percent of their holdings on the open market in SEO years compared to a 5.4 percent purchase in share repurchase years.

To get another perspective for the economic magnitude of these trades, Table 1.11 presents the regression results using NETDLR and CHNGDLR as the dependent variables and the dollar values of the control variables. Managers decrease their holdings by 3.6 million dollars in years with at least one SEO whereas they increase their holdings by 2 million dollars in years with at least one share repurchase. To do so, they abnormally sell 3.7 million dollars worth of shares on the open market in SEO years while they abnormally purchase 2 million dollars worth of shares on the open market in share repurchase years. Finally Table 1.12 shows the regression results using NETSHROUT and CHNGSHROUT as the dependent variables. In net terms, managers sell 0.0016 percent of shares outstanding in SEO years while they purchase 0.0009 percent of shares outstanding in share repurchase years.

Table 1.11: Abnormal Trading Activity around SEOs and Share Repurchases using NETDLR and CHNGDLR ^{a, b, c, d}

| Independent Variables: | NETDLR (\$ millions) | CHNGDLR (\$ millions) |
|--|-------------------------|--------------------------|
| Intercept | 22,105 (7.98)*** | 857 (0.47) |
| B/M-Decile | | |
| 1 (Growth) | -9,971 (8.19)*** | -1,881 (2.01)** |
| 2 | -5,316 (6.49)*** | 48 (0.07) |
| 3 | -3,914 (5.56)*** | 524 (0.92) |
| 4 | -2,330 (3.90)*** | 812 (1.58) |
| 5 | -2,182 (3.78)*** | 628 (1.33) |
| 6 | -2,469 (3.21)*** | -78 (0.12) |
| 7 | -1,273 (2.53)** | 608 (1.42) |
| 8 | -1,065 (2.33)** | 494 (1.23) |
| 9 | -103 (0.26) | 457 (1.27) |
| 10 (Value) | | |
| SEO in year (t) (β_1) | -3,716 (2.75)*** | -3,594 (3.04)*** |
| Share repurchase in year (t) (β_2) | 1,988 (2.62)*** | 2,023 (3.20)*** |
| Dollar value of equity stake | -0.005 (4.16)*** | -0.004 (4.07)*** |
| Intrinsic value of unexercisable options | -0.301 (2.75)*** | -0.207 (3.09)*** |
| Intrinsic value of exercisable options | -0.004 (1.15) | -0.003 (1.27) |
| Black-Scholes value of option grants | -0.608 (2.18)** | 0.319 (2.36)** |
| Dollar value of stock grants | -0.318 (3.01)*** | -0.107 (2.76)*** |
| Return (t-2) | -2,724 (7.14)*** | -2,289 (6.70)*** |
| Return (t-1) | -4,712 (9.09)*** | -3,586 (8.32)*** |
| Return (t) | -3,386 (9.15)*** | -2,031 (7.34)*** |
| Volatility (t-2) | -7,989 (5.62)*** | -3,138 (2.92)*** |
| Change in volatility (t-1) | -7,769 (5.51)*** | -3,425 (2.92)*** |
| Change in volatility (t) | -10,240 (8.01)*** | -4,934 (4.68)*** |
| Log of total assets | -2,161.3 (8.32)*** | 323.6 (1.99)** |
| Industry dummies | Yes | Yes |
| Year dummies | Yes | Yes |
| Number of observations | 38,164 | 38,164 |
| R ² | 0.17 | 0.07 |
| F-Test for differences: | | |
| $\beta_1 = \beta_2$ | 0.0002 | <0.00001 |

Table 1.11 (Continued)

^a The unit of observation is a manager-year. In column (1) the dependent variable is NETDLR, in column (2) the dependent variable is CHNGDLR. These variables are detailed in the note to Table 1.8.

^b The independent variables are defined as follows: SEO in year (t) is a dummy variable which is equal to one if the manager's firm issues seasoned equity at least once in year t. Share Repurchase in Year (t) is a dummy variable which is equal to one if the manager's firm repurchases equity at least once in year t. The rest of the independent variables are the same as those in Table 1.8 and are explained in the note to Table 1.8. All dollar amounts are in thousands of 2004 dollars.

^c Coefficient estimates are reported first and robust t-statistics with clustering at the manager level second in each column. Significance levels at 1%, 5% and 10% are denoted by ***, ** and * respectively.

^d P-values for the F-tests testing the equality of the coefficients of dummy variables that show whether the firm has an SEO or a share purchase in year t are shown below the table.

Table 1.12: Abnormal Trading Activity around SEOs and Share Repurchases using NETSHROUT and CHNGSHROUT^{a, b, c, d}

| | NETSHROUT(%) | CHNGSHROUT(%) |
|--|-----------------------|-----------------------|
| Independent Variables: | | |
| Intercept | -0.0017 (4.33)*** | 0.0009 (2.31)** |
| B/M-Decile | | |
| 1 (Growth) | -0.0004 (1.64) | -0.0011 (4.84)*** |
| 2 | -0.0007 (3.36)*** | -0.0013 (6.00)*** |
| 3 | -0.0006 (3.27)*** | -0.0010 (5.13)*** |
| 4 | -0.0004 (2.34)** | -0.0009 (4.38)*** |
| 5 | -0.0006 (3.02)*** | -0.0009 (4.65)*** |
| 6 | -0.0004 (1.98)** | -0.0006 (3.36)*** |
| 7 | -0.0003 (1.70)* | -0.0005 (2.75)*** |
| 8 | -0.0001 (0.78) | -0.0003 (1.85)* |
| 9 | -0.0001 (0.68) | -0.0003 (1.74)* |
| 10 (Value) | | |
| SEO in year (t) (β_1) | -0.0016 (5.51)*** | -0.0014 (4.96)*** |
| Share repurchase in year (t) (β_2) | 0.0009 (7.95)*** | 0.0010 (8.16)*** |
| Number of shares held | -0.00000001 (1.60) | -0.00000002 (2.17)** |
| Unexercised unexercisable opt. | -0.00000013 (1.87)* | -0.00000036 (4.87)*** |
| Unexercised exercisable options | -0.00000035 (4.18)*** | -0.00000029 (3.39)*** |
| Option grants during the year | -0.00000002 (0.14) | 0.00000114 (3.46)*** |
| Stock grants during the year | -0.00000170 (7.69)*** | 0.00000033 (0.93) |
| Return (t-2) | -0.0003 (4.23)*** | -0.0003 (3.93)*** |
| Return (t-1) | -0.0007 (7.25)*** | -0.0007 (7.73)*** |
| Return (t) | -0.0006 (8.55)*** | -0.0006 (7.68)*** |
| Volatility (t-2) | -0.0030 (11.21)*** | -0.0011 (4.12)*** |
| Change in volatility (t-1) | -0.0020 (5.72)*** | -0.0008 (2.19)** |
| Change in volatility (t) | -0.0021 (5.69)*** | -0.0008 (2.00)** |
| Log of total assets | 0.0004 (12.85)*** | 0.0001 (3.00)*** |
| Industry dummies | Yes | Yes |
| Year dummies | Yes | Yes |
| Number of observations | 38,304 | 38,304 |
| R ² | 0.095 | 0.061 |
| F-Test for differences: | | |
| $\beta_1 = \beta_2$ | <0.00001 | <0.00001 |

Table 1.12 (Continued)

^a The unit of observation is a manager-year. In column (1) the dependent variable is NETSHROUT, in column (2) the dependent variable is CHNSHROUT. These variables are detailed in the note to Table 1.9.

^b The independent variables are defined as follows: SEO in year (t) is a dummy variable which is equal to one if the manager's firm issues seasoned equity at least once in year t. Share Repurchase in Year (t) is a dummy variable which is equal to one if the manager's firm repurchases equity at least once in year t. The rest of the independent variables are the same as those in Table 1.7 and are explained in the note to Table 1.7.

^c Coefficient estimates are reported first and robust t-statistics with clustering at the manager level second in each column. Significance levels at 1%, 5% and 10% are denoted by ***, ** and * respectively.

^d P-values for the F-tests testing the equality of the coefficients of dummy variables that show whether the firm has an SEO or a share purchase in year t are shown below the table.

Taken together, regression results from stock and cash acquisitions, SEOs and share repurchases seem to suggest that there are some managers who actively time the market in their personal trades even after controlling for managerial holdings, portfolio rebalancing and diversification motives, market to book ratios, firm size and time and industry specific factors. However, as shown in Table 1.5, economically significant ownership changes around these events seem to be limited to different subsets of the sample. Hence one cannot interpret these results as reflecting the experience of a typical manager.

1.5 Running for the Exits

Evidence from the regressions showed that managers on average reduce their holdings around SEOs and stock acquisitions. However it is important to also look at the distribution of trading in order to see whether this is the result of a large number of managers trying to unload overvalued stock in an attempt to “run for the exits” or due to a small number of heavily selling managers.

For this purpose, I compare the distributions of NETPR and CHNG for manager-years with and without stock and cash acquisitions, SEOs and share repurchases.

Figures 1.1 to 1.6 show the distribution of NETPR and CHNG for manager-years with and without stock and cash acquisitions using the kernel density estimation method. Managers as a whole sell more and decrease their

holdings more in years when there are only stock acquisitions; the entire distributions of NETPR and CHNG shift to the left compared to the distributions of NETPR and CHNG in years without any acquisitions (Figures 1.1 and 1.2). A Kolmogorov-Smirnov test confirms this by rejecting the null hypothesis of the equality of the two distributions at better than 1 percent level. Comparing the distributions of NETPR and CHNG for manager-years with only stock and with only cash acquisitions in Figures 1.5 and 1.6 paints a similar picture; when there is a stock acquisition, managers collectively sell more than when there is a cash acquisition and the two distributions are significantly different from each other at better than 1 percent level.

Figure 1.1: Distribution of NETPR for manager-years with only stock acquisitions and for manager-years with no acquisitions

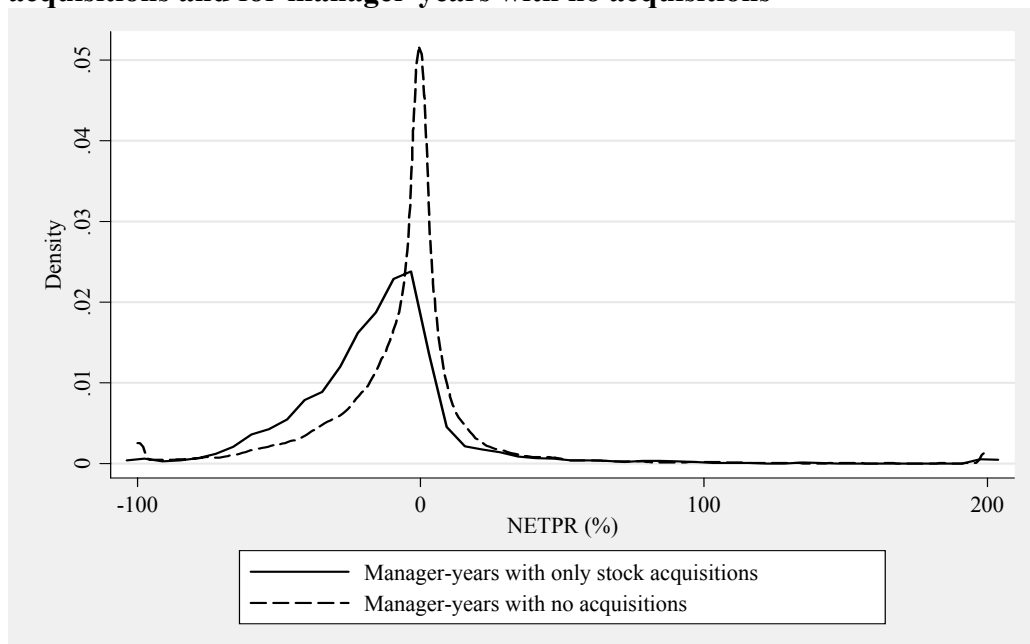


Figure 1.2: Distribution of CHNG for manager-years with only stock acquisitions and for manager-years with no acquisitions

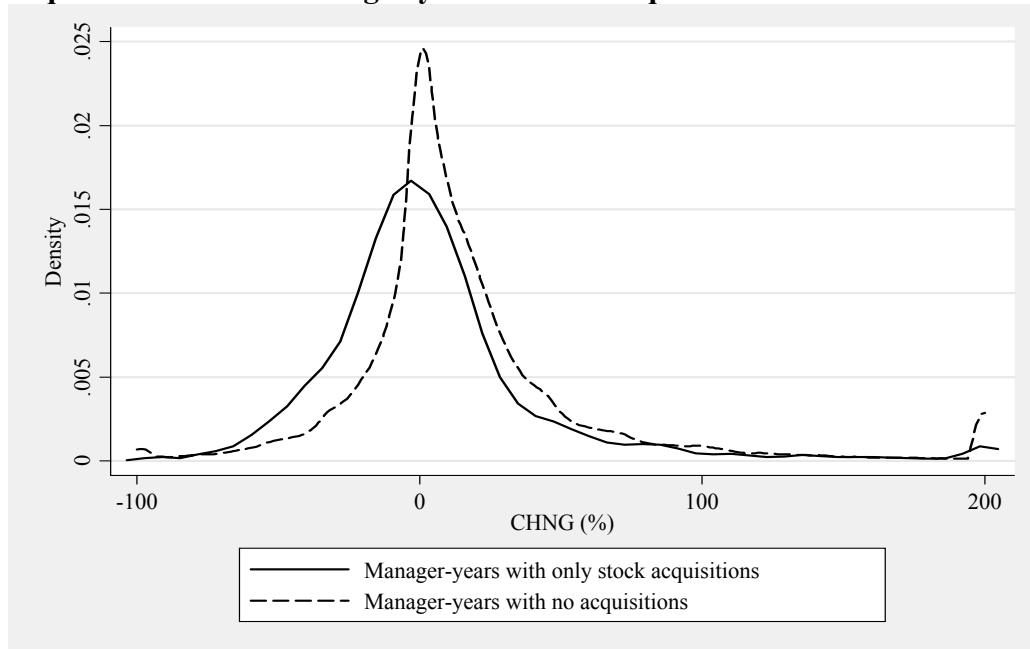


Figure 1.3: Distribution of NETPR for manager-years with only cash acquisitions and for manager-years with no acquisitions

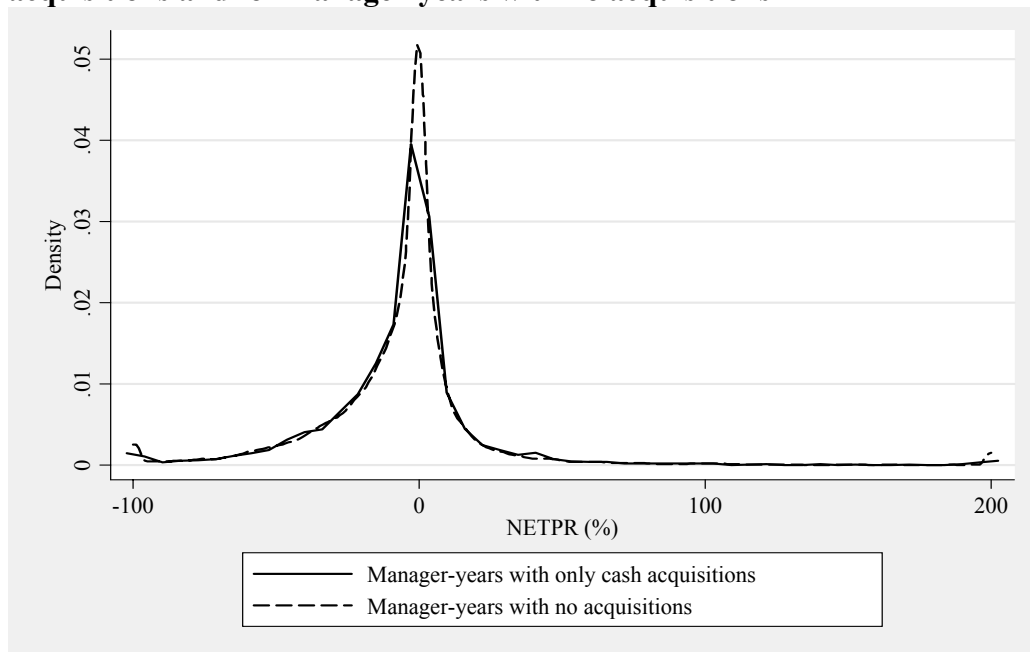


Figure 1.4: Distribution of CHNG for manager-years with only cash acquisitions and for manager-years with no acquisitions

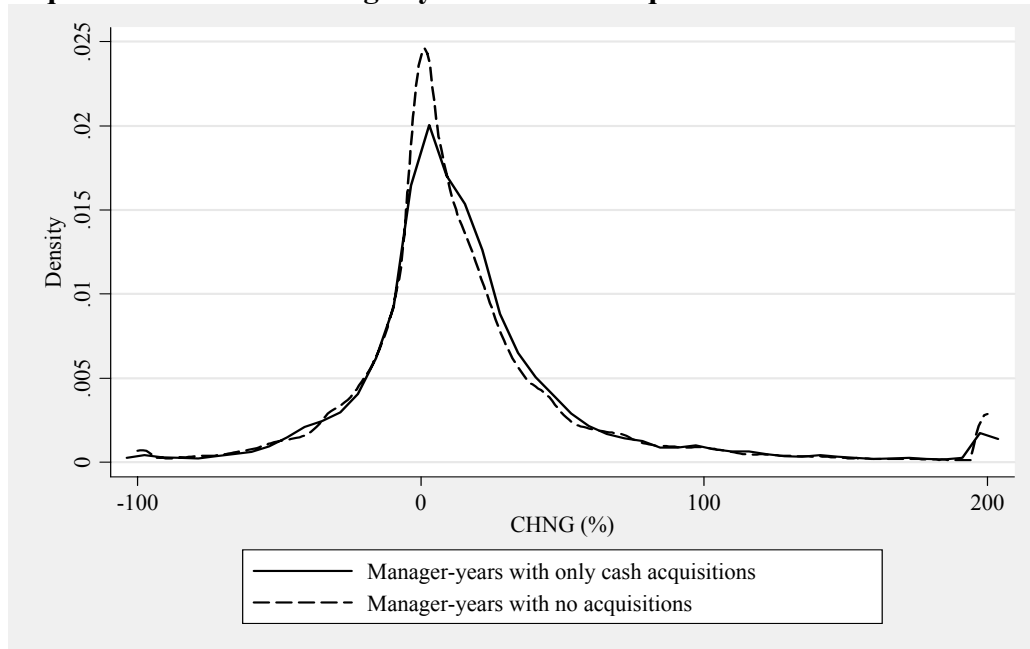


Figure 1.5: Distribution of NETPR for manager-years with only stock acquisitions and for manager-years with only cash acquisitions

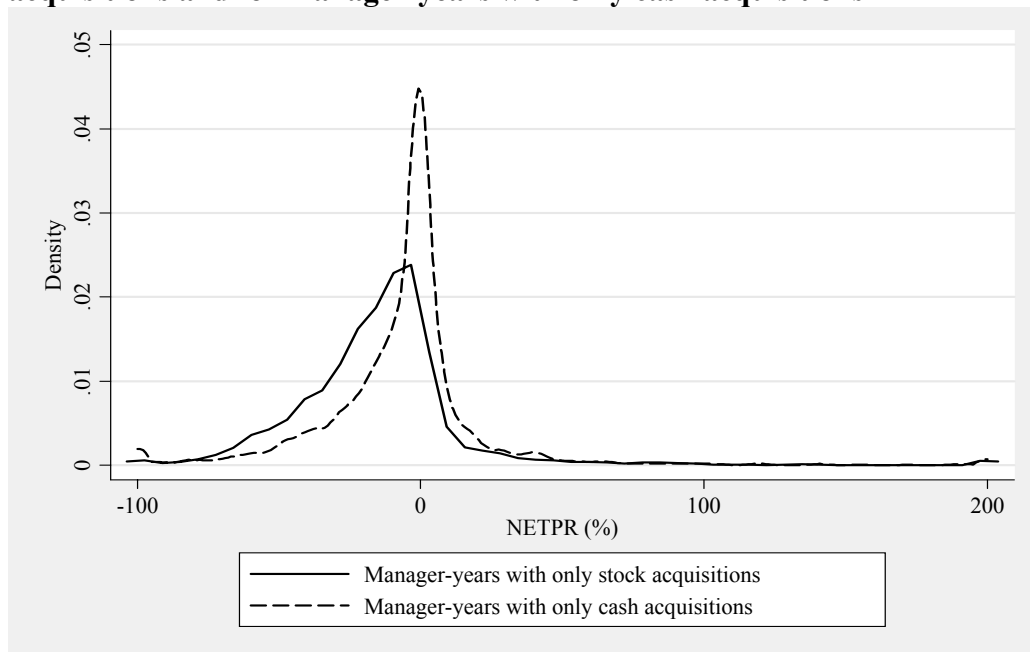
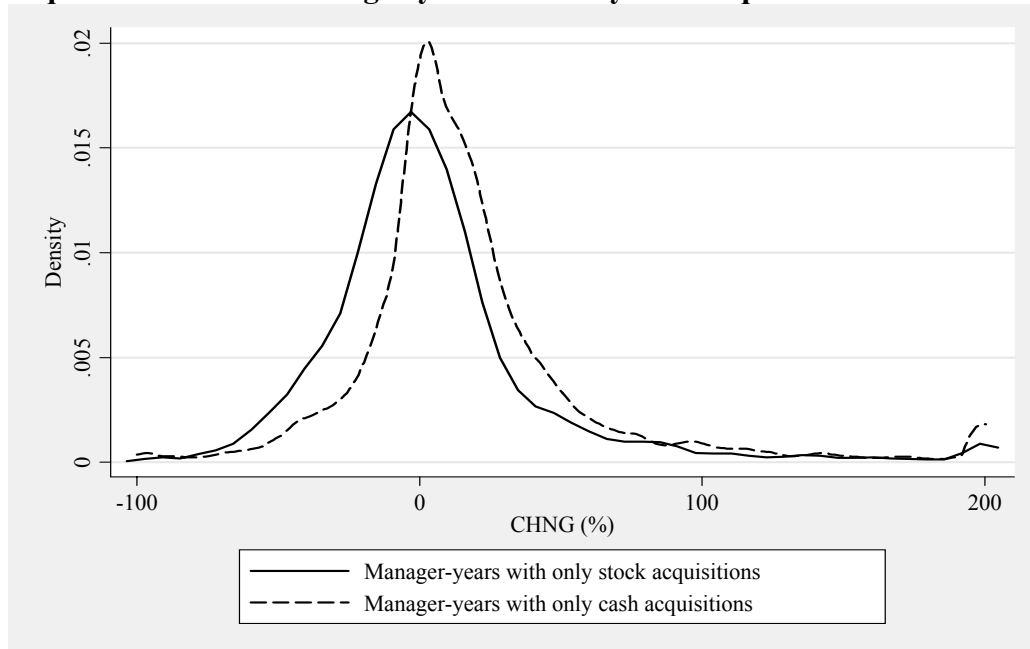


Figure 1.6: Distribution of CHNG for manager-years with only stock acquisitions and for manager-years with only cash acquisitions



Figures 1.7 to 1.12 show the distribution of NETPR and CHNG for manager-years with and without SEOs and share repurchases. The distributions shift to the left for manager-years with only SEOs compared to manager-years without SEOs or share repurchases (Figures 1.7 and 1.8) and the difference in distributions is significant. Conversely Figures 1.9 and 1.10 show that the distributions of NETPR and CHNG for manager-years with only share-repurchases shift to the right indicating higher net purchases and increases in holdings for manager-years with only share repurchases. Finally a comparison of NETPR and CHNG distributions for manager-years with only SEOs and with only share repurchases

Figure 1.7: Distribution of NETPR for manager-years with only SEOs and for manager-years with no SEOs or share repurchases

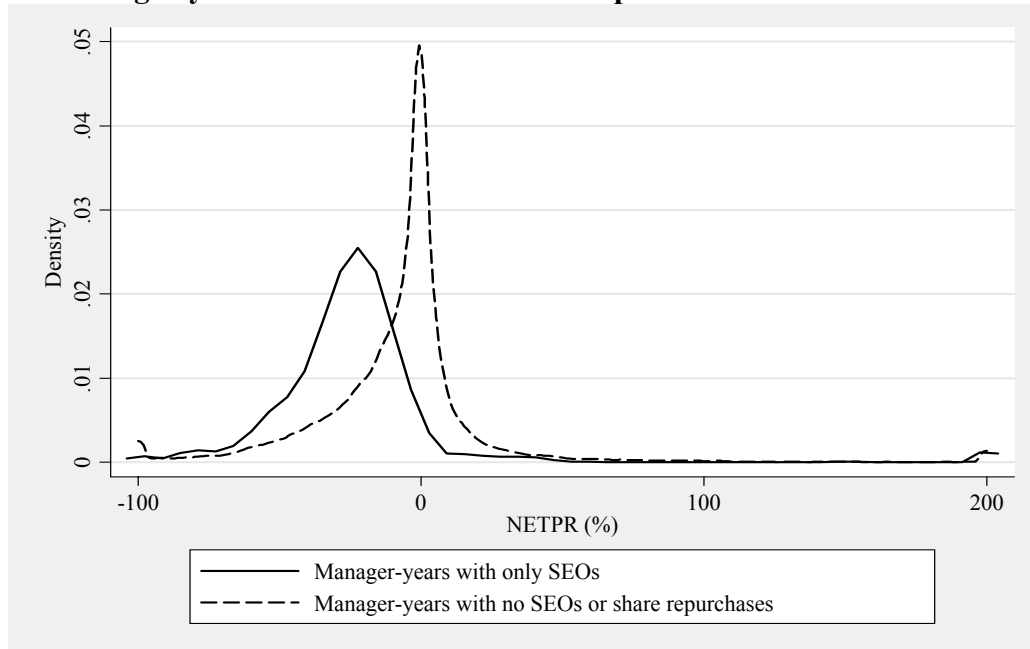


Figure 1.8: Distribution of CHNG for manager-years with only SEOs and for manager-years with no SEOs or share repurchases

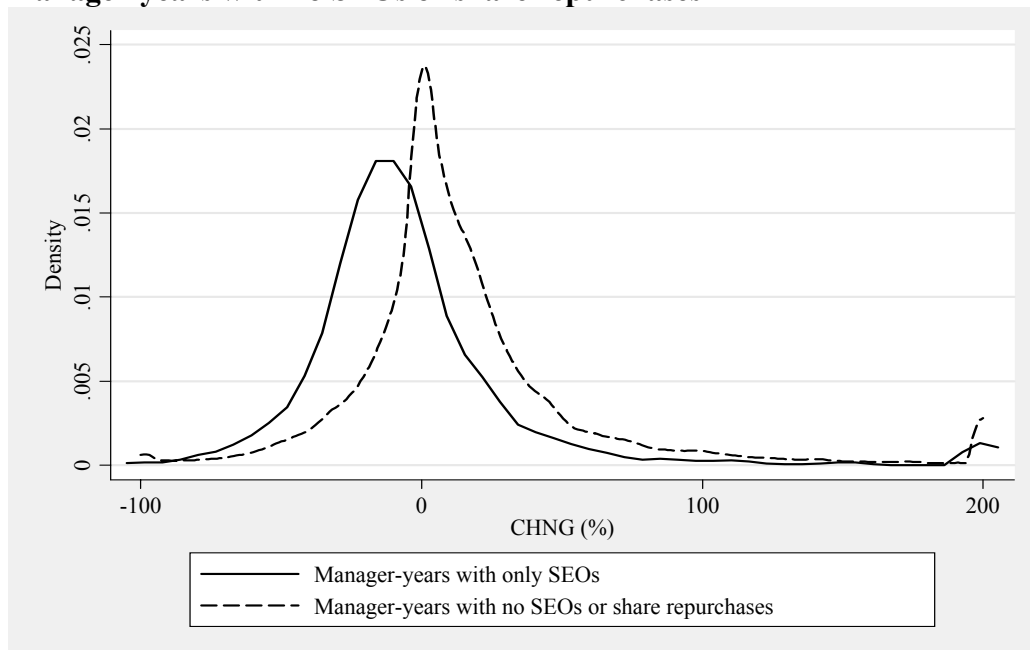


Figure 1.9: Distribution of NETPR for manager-years with only share repurchases and for manager-years with no SEOs or share repurchases

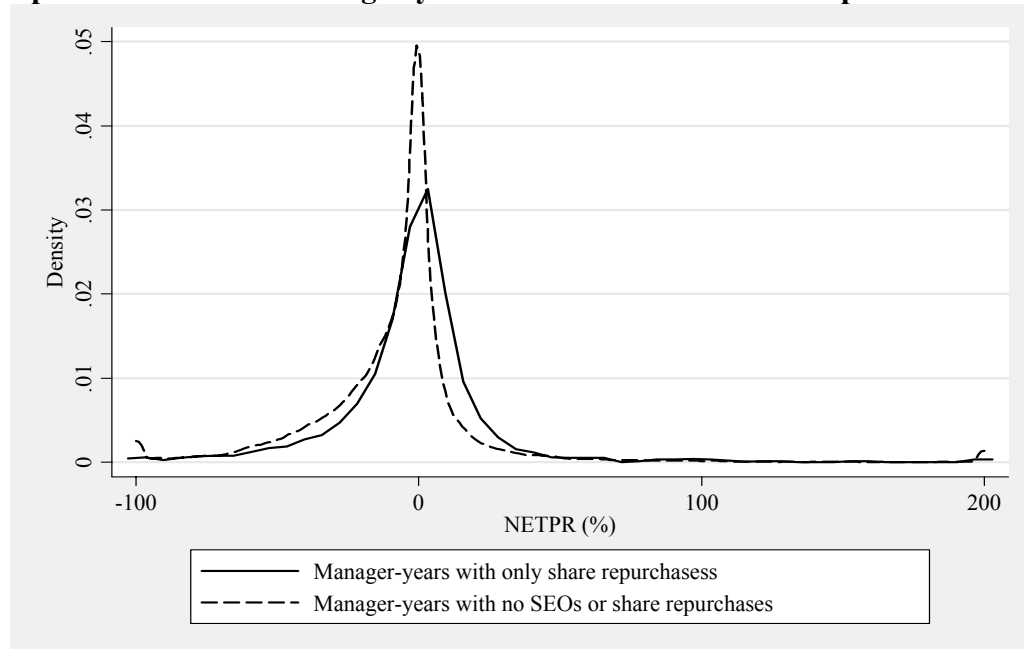


Figure 1.10: Distribution of CHNG for manager-years with only share repurchases and for manager-years with no SEOs or share repurchases

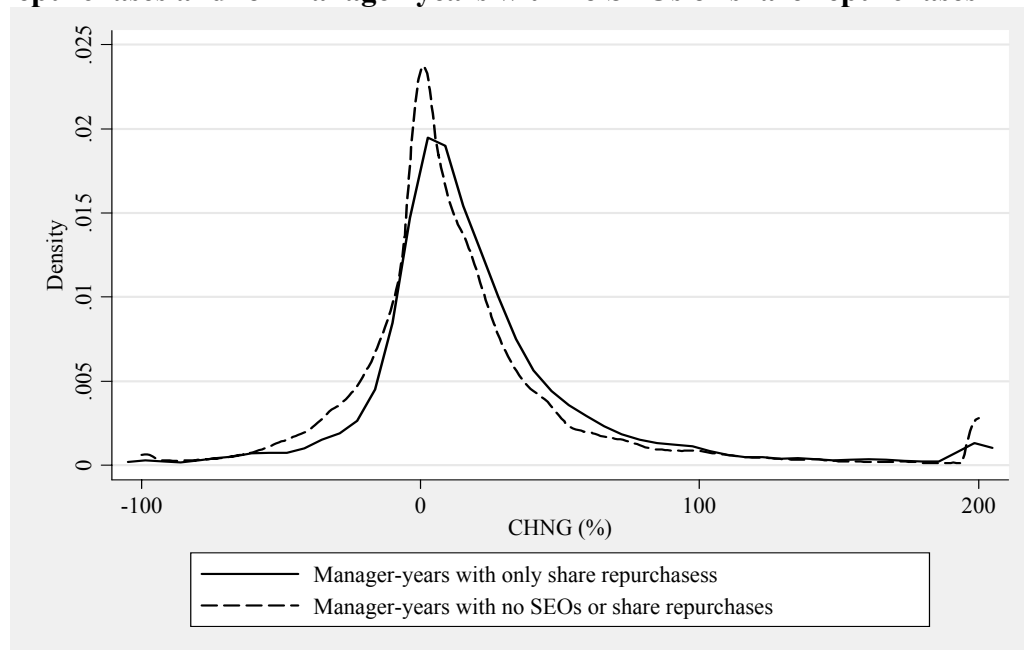


Figure 1.11: Distribution of NETPR for manager-years with only SEOs and for manager-years with only share repurchases

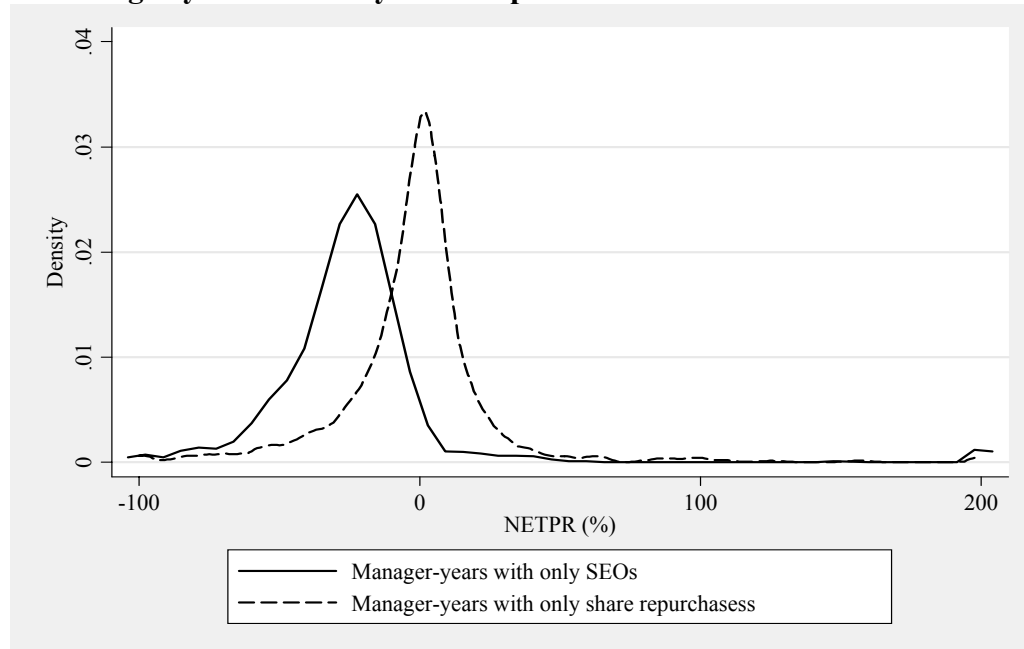
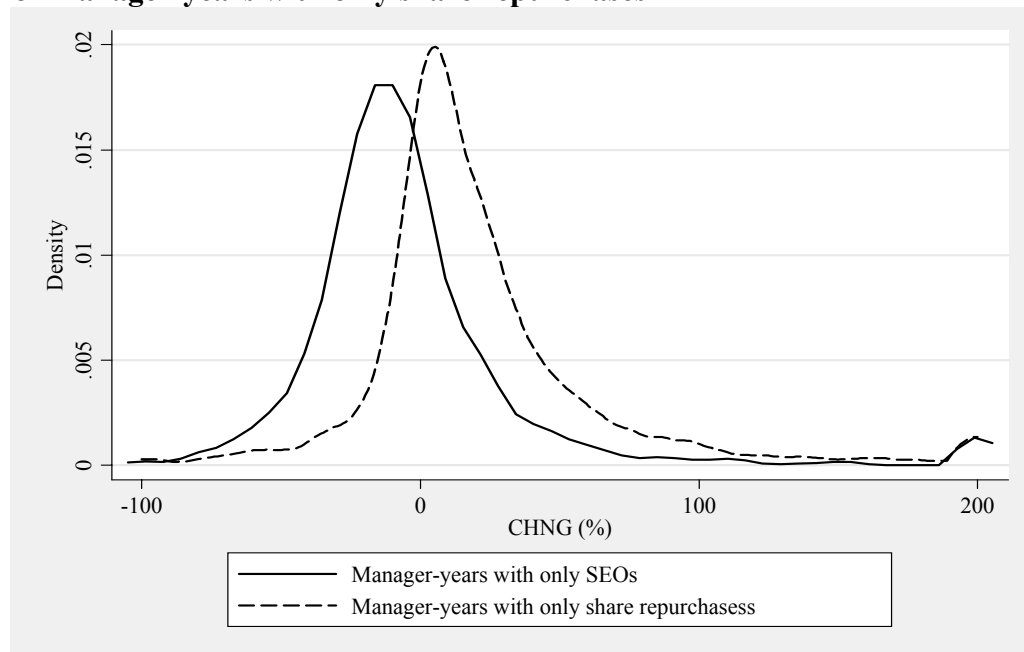


Figure 1.12: Distribution of CHNG for manager-years with only SEOs and for manager-years with only share repurchases



(Figures 1.11 and 1.12) shows managers as a whole sell and decrease their holdings significantly more in SEO years than in share repurchase years.

These results show that the change in trading patterns is not merely due to increased activity in the tails; the entire NETPR and CHNG distributions shift towards higher net-selling and higher decrease in holdings in years when there are only stock acquisitions or SEOs, while they shift towards higher net purchasing and higher increase in holdings in years when there are only cash acquisitions or share repurchases. This suggests that managers change their trading patterns at all levels of trading, not just at tails.

In order to understand the extent of the “running for the exits” behavior, I compare the percentage of managers with big decreases in holdings in years with and without events. I define managers with big decreases in holdings as those at the bottom 5 percentile of the CHNG distribution. In order to control for time variation in the distribution of CHNG, I define the bottom 5 percentile of CHNG as follows: Every year from 1993 to 2000, I sort manager-years based on CHNG and identify the bottom 5 percentile of that year’s distribution as managers with big decreases in holdings. I expect these managers to be the ones to be “running for the exits” and label them as *possible running-for-the-exits (PRFE)* managers. Table 1.13 shows the trading characteristics of PRFE managers by year. For every year these managers reduce their holdings by more than 35 percent with a mean of 66 percent and a median of 61 percent for the entire 1993-2000 period. These are

very low numbers compared to the 20 percent mean and 8 percent median increase in holdings for the remaining 95 percent of the sample.

Table 1.13: Changes in managerial holdings for the bottom 5% of the sample sorted by CHNG

| | Percentage Change in Holdings CHNG (%) | | | |
|-----------------------------------|---|-------------|---------------|----------------|
| | <i>N</i> | <i>Mean</i> | <i>Median</i> | <i>Maximum</i> |
| Bottom 5 % of the sample | | | | |
| 1993 | 195 | -56 | -51 | -36 |
| 1994 | 256 | -56 | -49 | -35 |
| 1995 | 269 | -62 | -55 | -40 |
| 1996 | 279 | -59 | -53 | -37 |
| 1997 | 279 | -63 | -57 | -41 |
| 1998 | 289 | -61 | -55 | -41 |
| 1999 | 297 | -62 | -55 | -38 |
| 2000 | 54 | -67 | -63 | -41 |
| Bottom 5% of the sample 1993-2000 | 1,918 | -60 | -54 | -35 |
| Top 95% of the sample 1993-2000 | 36,386 | 20 | 8 | 200 |

Next I look at how the percentage of PRFE managers changes in event and non-event years. Since PRFE managers constitute the bottom 5 percent of the population, unconditionally I would expect to see 5 percent PRFE managers in both event and non-event years.

Table 1.14 shows the percentage of PRFE managers for manager-years with and without stock acquisitions. The percentage of PRFE managers is higher for manager-years when there are only stock acquisitions. In six of the eight years, a test for equality of proportions rejects the null that the percentage of

Table 1.14: Running for the Exits - Stock and Cash Acquisitions ^{a, b}

Panel A: Percentage of PRFE Managers

| Year | Manager-Years with only | Manager-Years with | Difference | Z-statistic |
|-----------|----------------------------|-----------------------|------------|-------------|
| | Stock Acquisitions | No Acquisitions | | |
| 1993 | 6 | 5 | 1 | 0.94 |
| 1994 | 8 | 4 | 4 | 2.70 *** |
| 1995 | 10 | 5 | 5 | 4.04 *** |
| 1996 | 6 | 5 | 1 | 1.15 |
| 1997 | 7 | 5 | 2 | 2.0 ** |
| 1998 | 11 | 4 | 7 | 6.45 *** |
| 1999 | 7 | 5 | 2 | 2.0 ** |
| 2000 | 2 | 6 | -4 | -1.40 * |
| 1993-2000 | 8 | 5 | 3 | 7.15 *** |

Panel B: Percentage of PRFE Managers

| Year | Manager-Years with only | Manager-Years with | Difference | Z-statistic |
|-----------|----------------------------|-----------------------|------------|-------------|
| | Cash Acquisitions | No Acquisitions | | |
| 1993 | 6 | 5 | 1 | 0.82 |
| 1994 | 5 | 4 | 1 | 0.72 |
| 1995 | 4 | 5 | -1 | -1.40 * |
| 1996 | 3 | 5 | -2 | -1.87 ** |
| 1997 | 5 | 5 | 1 | 0.60 |
| 1998 | 3 | 4 | -1 | -0.91 |
| 1999 | 6 | 5 | 1 | 1.12 |
| 2000 | 5 | 6 | -1 | -0.47 |
| 1993-2000 | 4 | 5 | 0 | 0.50 |

Table 1.14 (Continued)

| Year | Percentage of PRFE Managers | | Difference | Z-statistic |
|-----------|--|---|------------|-------------|
| | Manager-Years with only Stock Acquisitions | Manager-Years with only Cash Acquisitions | | |
| 1993 | 6 | 6 | 1 | 0.30 |
| 1994 | 8 | 5 | 3 | 1.76 *** |
| 1995 | 10 | 4 | 6 | 4.12 *** |
| 1996 | 6 | 3 | 3 | 2.26 *** |
| 1997 | 7 | 5 | 2 | 1.21 |
| 1998 | 11 | 3 | 8 | 5.45 *** |
| 1999 | 7 | 6 | 1 | 0.97 |
| 2000 | 2 | 5 | -3 | -1.08 |
| 1993-2000 | 8 | 4 | 4 | 6.09 *** |

^a This table shows the percentage of managers that represent the bottom 5% of the distribution of the CHNG variable (PRFE managers) for manager-years with and without stock and cash acquisitions. Panel A compares the percentage of PRFE managers for manager-years with only stock acquisitions and for manager-years without any acquisitions. Panel B compares the percentage of PRFE managers for manager-years with only cash acquisitions and for manager-years without any acquisitions. Panel C compares the percentage of PRFE managers for manager-years with only stock acquisitions and for manager-years with only cash acquisitions.

^b The significance of the differences in the percentage of PRFE managers across different categories is assessed using a two-sample test of proportions. Z-statistics are reported next to the percentages. Significance levels at 1%, 5% and 10% are denoted by ***, ** and * respectively.

PRFE managers for manager-years with stock acquisitions only and without any acquisitions is the same. On the other hand, for six of the eight years year from 1993 to 2000, Panel B of Table 1.14 shows that percentage of PRFE managers for manager-years with only cash acquisitions and for manager-years without any acquisitions are not statistically different from each other. Finally Panel C shows that the percentage of PRFE managers for manager-years with only stock acquisitions is double the percentage of PRFE managers for manager-years with only cash acquisitions. These results suggest that the percentage of PRFE managers increase substantially in years with stock acquisitions but not in years with cash acquisitions.

Table 1.15 shows the percentage of PRFE managers for manager-years with and without SEOs and share repurchases. The percentage of PRFE managers increases substantially when there is an SEO only; in 1998 and 1999 it increased to 15 percent and 16 percent respectively, more than three times the unconditional PRFE percentage of 5 percent for manager-years without SEOs or share repurchases. In five of the eight years the percentage of PRFE for manager-years with SEOs only is significantly higher than the percentage of PRFE managers for manager-years without SEOs or share repurchases. Panel B of Table 1.15 shows that the opposite is true for share repurchases, in three of the eight years the percentage of PRFE managers is significantly lower in years with share

Table 1.15: Running for the Exits - SEOs and Share Repurchases^{a, b}

| <i>Panel A:</i> | | | | |
|-----------------------------|----------------------------|----------------------------------|------------|-------------|
| Percentage of PRFE Managers | | | | |
| | Manager-Years with only | Manager-Years with No SEOs or | | |
| Year | SEOs | Share Repurchases | Difference | Z-statistic |
| 1993 | 10 | 5 | 6 | 2.83 *** |
| 1994 | 10 | 5 | 5 | 2.23 *** |
| 1995 | 5 | 5 | 0 | 0.19 |
| 1996 | 13 | 5 | 8 | 4.50 *** |
| 1997 | 7 | 5 | 1 | -0.78 |
| 1998 | 15 | 5 | 10 | 4.23 *** |
| 1999 | 16 | 5 | 11 | 4.28 *** |
| 2000 | 0 | 5 | -5 | -1.34 |
| 1993-2000 | 10 | 5 | 5 | 6.59 *** |
| <i>Panel B:</i> | | | | |
| Percentage of PRFE Managers | | | | |
| | Manager-Years with only | Manager-Years with No SEOs or | | |
| Year | Share Repurchases | Share Repurchases | Difference | Z-statistic |
| 1993 | 3 | 5 | -2 | 1.26 |
| 1994 | 3 | 5 | -2 | -1.82 ** |
| 1995 | 5 | 5 | 0 | 0.27 |
| 1996 | 3 | 5 | -2 | -1.19 |
| 1997 | 1 | 5 | -4 | -2.70 *** |
| 1998 | 3 | 5 | -2 | -1.10 |
| 1999 | 2 | 5 | -3 | -1.42 * |
| 2000 | 5 | 5 | 0 | 0.04 |
| 1993-2000 | 3 | 5 | -2 | -3.61 *** |

Table 1.15 (Continued)

| Year | Percentage of PRFE Managers | | Difference | Z-statistic |
|-----------|------------------------------------|---|------------|-------------|
| | Manager-Years with only SEOs | Manager-Years with only Share Repurchases | | |
| 1993 | 10 | 3 | 8 | 2.77 |
| 1994 | 10 | 3 | 7 | 2.98 *** |
| 1995 | 5 | 5 | 1 | 0.30 |
| 1996 | 13 | 3 | 10 | 3.87 *** |
| 1997 | 7 | 1 | 5 | 2.64 *** |
| 1998 | 15 | 3 | 12 | 3.14 *** |
| 1999 | 16 | 2 | 13 | 3.61 *** |
| 2000 | 0 | 5 | -5 | -1.30 |
| 1993-2000 | 10 | 3 | 7 | 7.16 *** |

^a This table shows the percentage of managers that represent the bottom 5% of the distribution of the CHNG variable (PRFE managers) for manager-years with and without SEOs and share repurchases. Panel A compares the percentage of PRFE managers for manager-years with only SEOs and for manager-years with no SEOs or share repurchases. Panel B compares the percentage of PRFE managers for manager-years with only share repurchases and for manager-years with no SEOs or share repurchases. Panel C compares the percentage of PRFE managers for manager-years with only SEOs and for manager-years with only share repurchases.

^b The significance of the differences in the percentage of PRFE managers across different categories is assessed using a two-sample test of proportions. Z-statistics are reported next to the percentages. Significance levels at 1%, 5% and 10% are denoted by ***, ** and * respectively.

repurchases only compared to the percentage of PRFE managers in years with no share repurchases or SEOs.

Several important conclusions emerge from these results. First, confirming our earlier findings, managers trade differently in years with only stock and cash acquisitions, SEOs and share repurchases. Second, this difference does not only come from a small number of managers trading excessively in the tails, the entire distribution of trading shifts towards heavier net-selling in years when there is a stock acquisition or an SEO, towards heavier net buying when there is a cash acquisition or a share repurchase. Third, the percentage of managers with big decreases in holdings almost doubles when there are only stock acquisitions or only SEOs, doesn't change when there are only cash acquisitions and decreases when there are only share repurchases. This might indicate that there is a substantial increase in the percentage of managers possibly *running for the exits* when there are only stock acquisitions or only SEOs.

1.6 Discussion

Results presented so far seem to suggest that there are some managers who time their insider trading to take advantage of the overvaluation of firm equity in an economically significant way. The NETPR and CHNG variables used to measure insider trading represent an improvement over the measures used in the insider trading literature so far, because they control for share and option holdings

in the denominator. Using a regression framework to identify abnormal insider trading makes it easier to control for other motives for managerial trading like portfolio rebalancing, diversification, changes in firm risk and industry and time-specific factors. However, it is also important to acknowledge the limitations of the method and the possibility that important control variables that might explain the differences in trading patterns might be left out from the regressions.

One shortcoming of the method is that NETPR and CHNG can only control for the manager's share and option holdings, not the actual wealth of the manager. The manager might still be undiversified and might be increasing his sales to properly diversify his portfolio and we might merely be observing this diversification going on. If the manager has a sizable outside wealth, my measure of insider trading will be overstated and it will not properly capture the economic significance of the trade. It is very difficult if not impossible to accurately measure the outside wealth of the managers. As a second best solution, I estimated the regressions by including manager fixed-effects. If some managers have more outside wealth than others they might look like as if they are consistently selling more than others throughout the sample period. Adding manager-fixed effects should at least remove some of that effect from my measure. I find that results are qualitatively unaffected by this change.¹⁸

¹⁸ Abnormal change in holdings in years with SEOs does not change. Abnormal change in holdings in years with share repurchases drops to 6 percent from 7 percent, in years with stock acquisitions drops to 5 percent from 8.5 percent when manager-fixed effects are used.

Second, the manager might be selling for liquidity purposes, i.e. to pay for his son's college tuition, or to purchase that new BMW. The method I am using does not take into account the individual liquidity needs of the managers. Once again it is almost impossible to measure the liquidity needs of individual managers over time. However at least for the liquidity needs that occur at regular intervals through time like tuition and taxes, the included time dummies in the regressions should alleviate this problem to a certain degree.

Third, the manager might be thinking of retiring or leaving the company in the near future and hence might prefer not to hold that company's stock anymore. While it is not clear why he should abandon the stock as well, data on manager's years to retirement might be collected and used in the regressions as an additional control. I leave this for future research.

1.7 Conclusion

This paper examined whether managers engage in opportunistic insider trading by measuring how their trading and holdings change around acquisitions, SEOs and stock repurchases after controlling for managerial holdings and non-informational motives for trading.

On one hand, using a regression framework, I find that, on average, managers decrease their holdings by 8.5 percent or 7 million dollars in years when there is a stock acquisition, by 10 percent or 3.6 million dollars in years when

there is an SEO, while they increase their holdings by 7 percent or 2 million dollars in years when there is a share repurchase. The percentage of managers who heavily decrease their holdings almost doubles in years when there are only stock acquisitions or SEOs, does not change in years when there are only cash acquisitions and almost halves in years when there are only stock repurchases. The distributions of net purchases and changes in holdings shift to the left when there is are only stock acquisitions or SEOs, does not change when there are only cash acquisitions and shift to the right when there are only share repurchases.

On the other hand, looking at the absolute changes in holdings reveals that the typical manager experiences a small ownership change, whereas more material ownership changes are limited to the subsets of the sample. For example the median manager-year with only stock acquisitions sees a decrease in holdings of only 1 percent or \$100,000, which is driven mainly by manager-years with only multiple stock acquisitions. Overall, these results suggest that the evidence for managerial opportunism is modest in magnitude and not pervasive in the sample.

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