INSIDER TRADING BY DIRECTORS AND SENIORS OFFICERS BEFORE SEASONED EQUITY OFFERINGS

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Abstract

An important aspect of corporate governance is how directors discharge their duty to shareholders as monitors of management's opportunistic behavior. The insider trading by officers and directors before seasoned equity offerings (SEO) provide an opportunity to examine this issue, because insiders' sales of the firm's stock are incongruent with the objective of the firm to maximize the proceeds of the SEO. Since the market is aware that firms attempt to inflate their proceeds by managing earnings upwards, these trades may signal that the stock is overvalued. In this study, we compare the earnings management activity and the corresponding market response to earnings management and sales by senior officers and directors. We study a sample of 233 firms that conducted SEOs in the 1987-2004 period and either their directors and/or their senior officers traded in the firm's shares. We find that 15% have insider trading by directors only, and 85% by both directors and senior officers. The market discounts the insider trading at the issuance date (the discount increases in the volume of insiders sales), but it treats insider trading by directors as a favorable signal that reduces the discount. Our study then identifies two ways directors monitor opportunistic insider trading before SEO. One is to ban it, as evident by the fact that under our selection criteria, 791 firms conducted SEOs in the 1987-2004 period. The other is to trade too as a positive signal to the market.

Keywords: internal governance, insider trading, seasoned equity offering, earnings management

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1. Introduction

In this study, we examine the association between insiders' trading before seasoned equity offerings (SEO) by directors and senior officers and the proceeds of the SEO, given that firms inflate earnings. The seasoned equity offerings (SEO) event is an important event in the life of the firm. Some firms conduct SEOs to finance working capital and to prolong their survival, while others use the infusion of capital to finance expansion. Naturally, the interests of the company and its incumbent shareholders are to maximize the proceeds of the SEO. For this reason, firms try to time the SEO to occur when the stock is overvalued,[22] and may inflate reported earnings to obtain a higher valuation.[23] To the extent that good corporate governance requires "the board and management to pursue objectives that are in the interests of the company and its shareholders" (OECD p. 3), insider selling seems to be a poor governance practice, since such sales signal to the less-informed but suspicious market that the stock is indeed overvalued.[24] What is more puzzling is that some of the insiders are directors, whose role in the corporate

22 Myers and Majluf, 1984; Loughran and Ritter, 1995; Lee, 1997; Jiandra 2000, Clarke, et al. 2001; Farinos et al., 2005; Jenter, 2005; Jiang, 2008; and Wagner, 2008.

23 Loughran and Ritter 1995; Teoh, Welch, and Wong, 1998; Rangan, 1998; Shivakumar, 2000; Marquardt and Wiedman, 2004; Farinos et al., 2005; Kim and Park, 2005; and Anthony et al., 2006; see also Ronen and Yaari, 2008

24 The market's suspicion is evident in the about 3% negative abnormal returns around the announcement of the issue [e.g., Altınkılıç, and Hansen, 2002]. Moreover, this suspicion is important because SEOs are cancelled when the discount is too large (Clarke et al., 2001).

governance is to monitor management and to watch for the interests of shareholders. If they so wish, the boards can ban insider trading before the SEO.

We examine earnings management and insider trading around seasoned equity offerings (SEOs) by a sample of 233 firms out of a population of 791 firms that conducted SEOs in the 1987-2005 period at least once. We first examine the pattern of insider trading and earnings management, arguing that firms who inflate earnings induce their insiders to sell shares and profit. We then check the market's response around the issuance of the shares given the observable insider trading signal and the earnings management activity of the firm, assuming that as a rational player, it discounts the insiders' sales and the managed earnings.

The majority of firms do not have insider trading. An examination of the firms with insider trading by directors, senior officers, and/or blockholders, shows a different pattern of earnings management inter-temporally: Firms whose insiders sell manage earnings more aggressively than firms whose insiders purchase shares and hence, the former (latter) have negative (positive) abnormal accruals at the year the firm conducts the SEO and in the following year. This pattern is consistent with the incentives of the traders to move the price in the direction that increases their wealth. Sellers would like to inflate earnings to increase the price they sell the firm's stock, hence they "borrow" reported earnings from future periods more aggressively. Buyers prefer the price before the SEO to be as low as possible to increase their wealth when they sell shares in the future. They also manage earnings upwards to inflate the stock price of the SEO, but not that aggressively.

Our major findings are as follows. We find that insider selling is negatively associated with the cumulative abnormal returns around the issuance of the SEO. When we consider insider trading by both directors and senior officers (in 85% of the subsample of 233 firms), we find that the market's discount is lower. That is, the market views insider trading by directors as a favorable signal that the trading is innocuous in that it is not driven by a collusion between directors and managers to manager earnings and make profitable trading gains at the expense on investors.

This study makes several contributions. First, we augment scholarship by examining empirically the theoretical papers by Ronen, Tzur, and Yaari (2006, 2007). These two studies advance the notion that directors who wish to make insider trading gains, do not take steps to curb the misleading earnings management by privately-informed managers. Our findings provide some support to this theory since we find that the market does not discount the earnings management by firms whose insiders sell stock despite the fact that these firms manage earnings more aggressively. This finding is consistent with the disincentives of the directors to expose the true magnitude of earnings management, and explain why insider trading is profitable.

Second, we contribute to the governance literature by focusing on the directors' role in the insider trading around the SEO event. Hillier and Marshall's, 2002, finding that directors' trades is not always informative raises the question of why do they trade then. One explanation in the US context is that the trading is not voluntary. That is, the insider trading laws that are enforced by the Security and Exchange Commission; induce insiders to make trading plans wherein they commit to sales' volume on a quarterly basis as a means to avoid the charge of illegal trades. Our results provide another explanation. Directors can fulfill their role in governance either by banning trades, or by participating it to signal the market that the trade is not driven by opportunistic motivation.

This study proceeds as follows: Section 2 presents our hypotheses. Section 3 presents the sample selection and the methodology. Section 4 presents the results, which are concluded in Section 5.

2. Hypotheses Development

In this section, we present our hypotheses regarding the relationship between earnings management, insider trading, and the market's response.

The common wisdom is that firms manage earnings to inflate the issuance price of the SEO (Loughran and Ritter 1995; Teoh, Welch, and Wong, 1998; Rangan, 1998; Shivakumar, 2000; Marquardt and Wiedman, 2004; Farinos et al., 2005; Kim and Park, 2005; and Anthony et al., 2006; see also Ronen and Yaari, 2008). The reason is that investors pay attention to earnings because earnings are a value relevant signal; as explained by the Gordon[25] formula. The stronger the reported performance before the SEO, the higher the firm's valuation, and the corresponding issuance price (see e.g., Kim and Park, 2005). Being rational, firms have incentives then, to inflate earnings in order to enhance their perceived performance and increase the proceeds.[26] This dynamics implies that firms hoard reported earnings for the SEO year before the event, present high earnings in the event year and then report low earnings after the SEO event since accruals must reverse.[27]

25 Gordon formula states that V= E(x)/(r-g), where V = value of the firm, x = (permanent) earnings, r= discount rate, and g = growth of earnings.

26 While the Sarbanes-Oxley Act reduced the scope of earnings management, it did not eliminate it completely (Cohen, Dey, and Lys, (2005a).

27 The initial interest in earnings management in SEOs was motivated by an attempt to explain the underperformance of SEOs firms. Loughran and Ritter (1995) examined companies that issued stock during the 1970-1990 periods. They found that investors obtained only 7% return for SEO.

The argument that firms manage earnings to inflate the price implicitly assumes that firms manage earnings overtly and hence can fool the market. For example, during the recent market bubble's, firms who managed earnings the most experienced higher returns than firms that managed earnings the least (Huddart and Louis, 2006). We propose the following hypothesis:

H1: The market price around on the SEO's issuance date does not discount earnings management.

There is an extensive literature that shows that insiders' trades are informative. For example, they are profitable contrarian traders: they sell when performance is strong while other investors buy and they buy when performance is poor while other investors sell (Jenter, 2005, Sawicki, 2005, Lakonishok and Lee, 2001, and others), and this strategy earns them abnormal returns (Seyhun, 1982, 2000).

Since firms try to time the SEO to occur when the stock is overvalued (Myers and Majluf, 1984; Loughran and Ritter, 1995; Lee, 1997; Jiandra 2000, Clarke, et al. 2001; Farinos et al., 2005; Jenter, 2005; Jiang, 2008; and Wagner, 2008), insiders can use their superior information that the stock is overvalued to sell shares before the SEO (Karpoff and Lee, 1991; Clarke et al. 2001). [28],[29],

The US environment is litigious. That is, if insiders sell their shares and the price dropped precipitously, they might be sued by investor for illegal insider information (Karpoff and Lee, 1991; Gombola, Lee, and Liu, 1997; Jones and Weingram, 1999). The awareness that the firm is subject to scrutiny by their investors following the SEO event, puts pressure to perform well and present high earnings after the SEO event. This motivation is exacerbated when insiders plan to sell shares after the SEO events, where they have incentives to manage earnings upwards in order to inflate the price (Huddart and Louis, 2006). As discussed above, the market is rational. Hence, it uses the insider trading as a signal (John and Mishra, 1990; Ching et al. 2006). If insiders sell, their trading indicates that the price is overvalued and discounts it. We therefore propose the following hypotheses:

H2: Firms whose insiders sell shares before the SEO, manage earnings less aggressively.

H3: Insiders' selling reduces the proceeds of the SEO.

The law defines insiders as blockholders, management, and directors. The directors are expected to mitigate the agency conflict between shareholders and managers (Jensen and Meckling, 1976). So far, we focused on motivation for the insider trading to make profits by all groups, including the directors (Ronen, Tzur, and Yaari, 2006, 2007). However, as Hillier and Marshall, 2002 have shown, trade by directors is not fully explained by greed. Hence, we look for another explanation for insider trading.

The agency theory of insider trading that focuses on the impact of allowing the managers to trade on the ability of shareholders to align the interests of the managers with their interests, offers a new perspective. Shareholders are willing to allow managers to trade because they can benefit from it. Such trades reveal information that is valuable for contracting with the managers (Dye, 1984), and for inducing the manager to make decisions that maximize shareholders' value when their attitude towards risk differs from that of shareholders. But because shareholders do not have full control over the manager's insider trading and he trades to maximize his personal wealth, this policy might also have some costly repercussions on shareholders' wealth (Bagnoli and Khanna, 1992, Bebchuk and Fershtman, 1991, 1993, 1994; Elitzur and Yaari, 1995). Since directors represent shareholders, directors' trade can construe a signal to shareholders that they do not to have to worry that managers do not act in their best interests, since shareholders can observe this trade but not the decisions done behind the closed doors of the boardroom. This discussion lends the following hypotheses:

H4: The market discount of insider selling is lower when the directors trade too.

3. Sample selection and methodology

3.1. Sample selection

The initial sample contains 10,787 firms issuing seasoned equity offerings between 1985 to 2004, from the Thomson SDC Platinum new issues database. The cut-off of 1985 coincides with calculating accruals from the statement of cash flows. We deleted firms under the following filters: we take the first SEO if the firm conducts multiple SEO (2) We delete financial institutions (SIC codes 6000-6999), and regulated industries (SIC codes 4900-4999), since their accounting is different from other industries.

If investors had instead of investing in these issuers invested the same amount in a non-issuing firm which was equal in size they would have received returns of 15% per year.

28 In the discussion of H1, we focused on the SEO as the motivation for earnings management. The association could be that insiders who plan to sell shares before the SEO attempt to manage earnings to increase their trading profits (Beneish and Vargus, 2002; Park and Park, 2004; Ronen, Tzur, and Yaari, 2006, 2007).

29 There is a debate in the literature regarding the timing of selling, because postponing the sale to after the SEO event can spare the insiders from costly litigation for illegal insider trading (Gombola et al. 1997), but selling before the SEO might be more profitable, because there is usually a price run-up before the announcement of the event.

After deleting firms with missing data on CRSP or COMPUSTAT, the sample includes 791 firms that are divided between 233 firms with insider trading and 558 firms without insider trading.

Insert Table 1 about here

For each SEO, we identified all non-issuing firms sharing the same three-digit SIC code as the issuing firm in the year prior to the SEO to derive our measures of earnings management as detailed below.[30]

Insert Table 2 about here

The data for insider trading is obtained from the Thompson Financial (TFN insider Filing Data), which contains information on all publicly traded U.S. companies. We use their insider trading definition and define corporate insiders broadly to include those that have "access to non-public, material, insider information."

3.2. Methodology

We measure earnings management using the cross-sectional variant of Jones (1991) methodology developed in Teoh, Welch, and Wong (1998) and Kothari, Leone, and Wasley (2005). These approaches separate accruals into two components; normal, or non-discretionary, accruals that results as a natural consequence of business structure and operations common to the industry (i.e. credit policy, business conditions, etc…) and abnormal, or discretionary, accruals that arise from earnings management. We identify abnormal accruals (the proxy for earnings management) using a two-step process. Following Hribar and Collins (2002), Total Accruals are the difference between Net Income and Cash flow from operations (Compustat items # 172 - #308).

We define Current Accruals, CA, as:

Current Accruals = Total Accruals +Depreciation expense (#196) + loss/gain on Sale of Property Plant and Equipment (#213).

We decompose current accruals into its discretionary and non-discretionary components in a two-stage procedure as follows. In the first stage we regress accruals on a model that links normal accruals to change in cash (Sales change less change in accounts receivables) and to lagged return on assets (proposed by Kothari et al. to account for the non-linear relationship between accruals and performance). To alleviate heteroskedasticity, we scale all variables by lagged total assets (Compustat item #6), A_{t-1}. For each SEO firm, we estimate a regression, using all non-SEO firms in the same 3-digit SIC code as the SEO firm in the year prior to the issuance of the SEO. In the second stage of the estimation, we use the coefficients from the first regression in the first equation to calculate discretionary current accruals (DCA) as follows:

$$DCA_{it} = \frac{CA_{it}}{A_{i,t-1}} - \left[\hat{\beta}_0 \frac{1}{A_{t-1}} + \hat{\beta}_1 \frac{\Delta Sales_{it} - \Delta AR_{it}}{A_{t-1}} + \hat{\beta}_2 ROA_{t-1} \right] \quad (1)$$

In equation (2), discretionary current accruals deflated by lagged total assets (henceforth referred to as DCA) are defined as the difference between total current accruals and "non-discretionary" or "normal" accruals (the bracketed term on the right hand side of the equation). They represent the "abnormal" or managed component of current accruals and is used as our proxy for earnings management.

To analyze the pattern of insider trading of issuers of seasoned equity offerings, we adopt the insider purchase ratio used by Piotroski and Roulstone, (2005) and Sawicki, (2005) that measures insider trading behavior. We calculate the insider purchase ratio (IPR) as follows;

$$IPR_t = \frac{BUY_t}{BUY_t + SELL_t}$$

Where BUY_t and $SELL_t$ are (respectively) the number of shares purchased (sold) in open market transactions by registered insiders of a firm during a given fiscal year relative to the year in which the SEO occurs.

To test for the impact of insider trading on the SEO's proceeds, we measure the cumulative abnormal returns around the SEO issuance date. A matching of firms with insiders trading to firms without insider trading--the matching is based on firms conducting an SEO in the same year and within the same industry--, does not yield a meaningful sample. The benefit of using CARs is that they capture the change in returns relative to the time when insiders traded. To sharpen this point, observe that insider trading takes place out of the issuance window, so that the information of the trade is already compounded in the price. This will impact the direction of the expected signs of the coefficients in our regression models, as discussed below.

4. Results

To test H1 and H3, we segregate insiders according to their cohorts where top management is made up of Chairman, Chief executive Officer (CEO), Chief Operating Officer (COO) and President. Top

30 While many prior studies match on 2 digit SIC codes (e.g. Teoh et. al, 1998), this results in SEO firms being matched with firms in widely varying industries. Using 4 digit SIC codes provides a closer match, but shrinks our sample size considerably. We therefore employ 3 digit SIC codes as a compromise between increased accuracy and sample size. Table 2 however aggregates our sample using their 2 digit SIC code for presentation purposes.

financial officers are the Chief financial Officer (CFO) Controller and Treasurer. The category of all officers are the corporate officers, top management, principal financial officer, principal accounting officer, vice presidents in charge of principal business units, divisions or functions and other persons who perform a policy making function. All directors' category includes members of the company's board. Block holders are beneficial owners of 10% or more of the company's outstanding equity. Insiders were segregated according to cohorts to find out if the different types of insiders had different trading patterns which in turn influenced market returns differently. Also, since not all the insider groups are equally knowledgeable about earnings manipulation, segregation according to cohorts would also bring to light differences in trading patterns which might affect market returns. Specifically, we run the following model:

$$CAR_{11} = \alpha_0 + \alpha_1 IPR + \alpha_2 DCA + \alpha_3 TA + \alpha_4 MV + \varepsilon_t, \quad (4)$$

where CAR is the eleven- day cumulative abnormal returns and the independent variables are the insider purchase ratio IPR, discretionary accruals for the year before the SEO, DCA, multiplied by 100, and the standard controls for size: total assets (Compustat # 6) and market value (Compustat item #24 times Compustat item #25) divided by 100.

By H1, we expect that the sign on DCA to be non-significant, and the signs on both control variables to be positive. The sign on IPR is a bit tricky. We measure insider trading for trades that take place one year before the issuance. We wish to focus on the impact of insiders sales on the negative announcement effect on the market price. Since by the time the firm makes the issuance, the information that the sale is overvalued is already filtered into the market price for no other reason than that insiders' trades are informative and public. Hence, if indeed sales have a negative impact on the proceeds of the SEO, the sign on IPR should be negative.[31]

Insert Table 3 about here

The results show insignificant association between market returns and earnings management, which confirm H1. Since, in untabulated results, we find that firms manage earnings upwards in the same fashion as described in Teoh, Welch, and Wong, 1998, this result is consistent with firms managing earnings to appear stronger performers than they really are.

For all cohorts, we find significant negative association between CAR and IPR. The coefficients for managers' cohort, directors' cohort, blockholders' cohort, and all officers' cohort are -0.38, -0.49, -0.67, and -0.39, respectively with the associated t-statistics of -1.59, -2.10, -2.37, and -1,75, respectively. These findings confirm H3. The market regards insiders selling as a signal that the stock is overvalued and discounts the price accordingly.

To test H2, we divide the sample of firms with inside trading into quintiles. Quintiles 1 and 2 include SEO firms with high IPR ratios, which represent the majority sales group; quintiles 4 and 5 represent firms with low IPR ratios, which represent concentration of purchases, quintile 3 is neutral. In each quintile, the firm manages earnings upwards, consistent with prior studies cited in section 2. As postulated by H2, firms with insiders' sales are more aggressive prior to the SEO in that their abnormal accruals are negative subsequently (DCA in period t—the year the SEO is done— and t+1, in quintile 1 are -0.00026 and -0.00017, respectively, while firms with insiders purchases manage earnings less aggressively. The abnormal accruals, in period t and t+1, as a fraction of lagged assets in quintile 5 are 0.00103 and 0.00141, respectively.

Insert Table 4 about here

To test for H4, we run the following model:

$$CAR_{11} = \alpha_0 + \alpha_1 IPR + \alpha_2 DCA + \alpha_3 DUM + \alpha_4 TA + \alpha_5 MV + \varepsilon_t,$$

where *DUM* is a dummy variable that takes the value of 1 if both directors and senior officers trade and zero if only directors do. The results support H4. Insider trading by directors in companies where both the senior officers and the directors trade has weaker impact on the negative impact of insiders' sales. The coefficient on the dummy variable is significantly positive, it is 0.5 with a t-statistics of 2.55. Given that the total sample of firms with and without insider trading is 791 firms, this result shows that insiders control pernicious insider trading by officers in two ways: one is banning it, and the other is to trade themselves and signal that the trade may be driven from reasons other than greed.

Insert Table 5 about here

5. Summary and Conclusions

Since firms conduct seasoned equity offerings to raise much needed capital, insider selling seems a self-

31 A numerical example illustrates this issue. Consider a firm that announces an SEO on December, where the announcement price should be 5 dollars a share. In one scenario, the firm's insiders did not sell shares before that, and hence, the price before the announcement was 10. In another scenario, the firms insiders sold shares before the announcement and the price dropped to 9. Since Eventus uses the data during the trading period to calculate the betas for the CARs around the issuance date, it will yield higher abnormal returns for the firms whose insiders sell shares and these trades depress the price out of the window of the announcement period. The abnormal returns in the first scenario are (5-10=)-5, and in the second scenario, they are (5-9=)-4 >-5.

defeating practice because it conveys to the market that the price of the firm's shares is overvalued. In this study, we examine insider trading a year preceding the issuance of stock at a SEO event and the proceeds of the SEO; the link between insider trading and earnings management, and the role of directors in the occurrence of insider trading before the SEO. Our main findings are that firms whose insiders sell shares manage earnings more aggressively, but that this information is ignored by the market. The market takes into account the information content of insiders' sales, but directors' sales play a mitigating role, in that the discount is lower for firms with both managers and directors' trades. Our results then indicate that directors can control the unfavorable impact of insider trading on the proceeds of an SEO in two ways: one is by banning it, and the other is by trading themselves and conveying to the market that not all trades are motivated by opportunistic greed.

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Appendices

Table 1. Sample Selection

Sample	Number of Firms
Total SEO firms	10,787
SEO firms without multiple issues	6,100
*SEO firms less financial institutions and regulated industries	6,077
SEO firms with necessary data on Compustat	791
SEO firms with necessary data on CRSP	233
* financial institutions (SIC 6000-6999); regulated industries (SIC 4000-4999)	

Table 2

SIC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
10	5	0.63	5	0.63
13	54	6.83	59	7.46
15	3	0.38	62	7.84
20	7	0.88	69	8.72
25	1	0.13	70	8.85
26	1	0.13	71	8.98
27	1	0.13	72	9.1
28	118	14.92	190	24.02
29	5	0.63	195	24.65
30	4	0.51	199	25.16
33	10	1.26	209	26.42
35	49	6.19	258	32.62
36	102	12.9	360	45.51
37	14	1.77	374	47.28
38	73	9.23	447	56.51
39	3	0.38	450	56.89
42	10	1.26	460	58.15
45	5	0.63	465	58.79
48	43	5.44	508	64.22
49	43	5.44	551	69.66
50	19	2.4	570	72.06
51	2	0.25	572	72.31
53	1	0.13	573	72.44
54	4	0.51	577	72.95
56	1	0.13	578	73.07
57	1	0.13	579	73.2
58	15	1.9	594	75.09
59	13	1.64	607	76.74

62	2	0.25	609	76.99
63	13	1.64	622	78.63
64	7	0.88	629	79.52
67	19	2.4	648	81.92
70	4	0.51	652	82.43
73	105	13.27	757	95.7
78	2	0.25	759	95.95
79	8	1.01	767	96.97
80	7	0.88	774	97.85
87	17	2.15	791	100

Table 3. Regression of Eleven Day CAR, to Insider purchase ratio, Discretionary Current Accruals and Control Variables for Insiders

$$CAR_{11} = \alpha_0 + \alpha_1 IPR + \alpha_2 DCA + \alpha_3 TA + \alpha_4 MV + \varepsilon_t$$

Panel A: Top managers				
Independent Variable	α	Standard error	t-Value	Pr > |t|
Intercept	0.11085	0.10648	1.04	0.2991
IPR	-0.37872	0.22383	-1.69	0.0922
DCA_{t-1}	-0.06631	0.06186	-1.07	0.2851
TA	0.00000578	0.00002643	0.22	0.8272
MV	0.00126	0.00426	0.30	0.7683
N = 201		R^2 = 0.02	Adj R^2=0.001	
Panel B: The directors				
Independent Variable	α	Standard error	t-Value	Pr > |t|
Intercept	0.11052	0.09606	1.15	0.2512
IPR	-0.44322	0.21132	-2.10	0.0371
DCA_{t-1}	-0.02937	0.05495	-0.53	0.5935
TA	-0.00001991	0.00001838	-1.08	0.2799
MV	-0.00060155	0.00134	-0.45	0.6547
N = 233		R^2 = 0.03	Adj R^2=0.012	
Panel C: Blockholders				
Independent Variable	α	Standard error	t-Value	Pr > |t|
Intercept	0.21560	0.15209	1.42	0.1595
IPR	-0.66770	0.28211	-2.37	0.0199
DCA_{t-1}	0.00624	0.09910	0.06	0.9499
TA	-0.00008973	0.00010355	-0.87	0.3883
MV	0.00367	0.00560	0.66	0.5135
N = 103		R^2 = 0.063	Adj R^2=0.024	
Panel D: All officers				
Independent Variable	α	Standard error	t-Value	Pr > |t|
Intercept	0.12091	0.10538	1.15	0.2526
IPR	-0.39082	0.22270	-1.75	0.0808
DCA_{t-1}	-0.06439	0.06151	-1.05	0.2964
TA	0.00000559	0.00002635	0.21	0.8322
MV	0.00115	0.00425	0.27	0.7876
N = 203		R^2 = 0.02	Adj R^2=0.001	

CAR_{11} = Eleven day cumulative abnormal return; IPR= Insiders purchase ratio, DCA_{t-1} = Discretionary current accruals multiplied by 100; TA = Total Assets, Compustat item #6; MV= Market value, Compustat item #24 times Compustat item #25 divided by 100. The sample comprises of firms that conducted an SEO in the 1985-2004 period whose insiders trade in the firm's share.

Table 4. Insider purchases and sales and earnings management

Quintiles	Variable	N	Mean	Std. Dev.
1	DCA_{t-1}	30	0.00036	0.01982
	DCA_t	60	-0.00026	0.01755
	DCA_{t+1}	60	-0.00017	0.00577
2	DCA_{t-1}	44	0.00373	0.01196
	DCA_t	62	0.00165	0.02009
	DCA_{t+1}	62	0.00076	0.00344
3	DCA_{t-1}	51	0.00241	0.01357
	DCA_t	62	0.00504	0.01839
	DCA_{t+1}	57	0.00058	0.00604
4	DCA_{t-1}	54	0.00245	0.01491
	DCA_t	60	-0.00284	0.03373
	DCA_{t+1}	56	0.00113	0.00353
5	DCA_{t-1}	54	0.00108	0.01259
	DCA_t	62	0.00103	0.02046
	DCA_{t+1}	62	0.00141	0.00315

DTA_{t-1} Discretionary total accruals in the year before the SEO
DTA_t Discretionary total accruals in the year of the SEO
DTA_{t+1} Discretionary total accruals in the year after the SEO
Quintile 1 and 2 represents the majority sales group
Quintiles 4 and 5 represents majority purchases
Quintile 3 is neutral

Table 5. Regression of Eleven Day CAR, to Insider purchase ratio, Discretionary Current Accruals and Control Variables for directors and senior officers

$$CAR_{11} = \alpha_0 + \alpha_1 IPR + \alpha_2 DCA + \alpha_3 TA + \alpha_4 MV + \varepsilon_t$$

Dependent variable CAR_{11}				
Independent Variable	α	Standard error	t-Value	Pr > |t|
Intercept	-0.342	0.22	-1.71	0.089
IPR	-0.42549	0.209	-2.03	0.043
DCA_{t-1}	-0.04344	0.0546	-0.795	0.427
DUM	0.509	0.2	2.55	0.011
TA	-0.000021	0.0000184	-1.12	0.26
MV	0.00052	0.001356	0.382	0.7026
N = 233		R^2 = 0.055	Adj R^2=0.034	

CAR_{11} = Eleven day cumulative abnormal return; IPR= Insiders purchase ratio, DCA_{t-1} = Discretionary current accruals multiplied by 100; TA = Total Assets, Compustat item #6; MV= Market value, Compustat item #24 times Compustat item #25 divided by 100. The sample comprises of firms that conducted an SEO in the 1985-2004 period whose insiders trade in the firm's share.