Title: CEO Buying: Strategic News Tone Dispersion Around Purchasing Months

Dewan Rahman
Robert Faff
Barry Oliver
University of Queensland, Australia

ABSTRACT

We investigate whether CEOs strategically manipulate news releases, especially in terms of "tone", surrounding their stock purchases. We find that CEOs, and particularly opportunistic CEOs, tend to release a higher volume of news surrounding their stock purchases. Specifically, in the month before and in the month of CEO stock purchases there is an increase in tone dispersion of news releases which is correlated with lower stock prices. These observations suggest strategic motives by CEOs to obtain favourable stock purchase prices, leading to abnormal profits. We provide further evidence supporting this strategic motive by using a quasi-natural experimental design. This design method attempts to separate analyst news releases from CEO news releases, relying on exogenous shocks coming from terminations in analyst coverage of the firm. We run several further robustness checks which also confirm our findings.

INTRODUCTION

It is well-documented that corporate insiders tend to exploit their informational advantage through insider trading (Seyhun, 1986). Recently, emphasis has been on whether CEOs strategically release firm news and set the news tone in an attempt to surreptitiously exploit this informational advantage. Edmans et al. (2017) find that CEOs tend to increase the amount of (positive) discretionary news released during vesting months when they are expected to sell stocks. However, in the insider trading literature there is evidence that sales are driven mainly by (non-informational) liquidity needs (Lakonishok and Lee, 2001; Jeng et al., 2003) and purchases mostly carry inside information. Accordingly, positive abnormal returns are more prevalent for insider purchases compared to insider sales However, given the “smoke screen” of liquidity motivations, it is unclear whether CEOs strategically manage the release of firm news to extract higher abnormal returns from purchases. Hence, investigating whether CEOs strategically manage news releases surrounding their stock purchases will be important for developing better policies to govern insider trading.

DATA AND KEY VARIABLES

DATA: The sample is from January 2003 to December 2015; News tone data from Thomson Reuters News Analytics (TRNA). The data includes news tone scores for the firms listed in NYSE, AMEX, and NASDAQ; Insider trading data from Thomson Reuters Insiders Filings Database, analyst coverage from I/B/E/S, and Financial and stock market data from COMPUSTAT.

KEY VARIABLES

$$\text{TONEDISP}_{i,t} = std\left(\text{TONE}_{i,k,t}\right) \quad (1)$$

Where,

$$\text{TONE}_{i,k} = (1) * pr\left(\text{POSITIVE}_{i,k}\right) or\ (-1) * pr\left(\text{NEGATIVE}_{i,k}\right)$$

MONTH_BEFORE: Equals 1 if the month is immediately before the CEO purchases stock and 0 otherwise.

MONTH_PURCHASE: Equals 1 if the CEO purchases in that month.

MONTH_AFTER: Equals 1 if the month is immediately after purchase.

OPPORTUNISTIC: Following Cohen et al. (2012), equals 1 who do not place trades in the same calendar month for three consecutive years, and otherwise 0 for ROUTINE.

MODELS

$$\mathrm{TONEDISP}_{i,t} = \alpha_0 + \alpha_1 \mathrm{MONTH\_BEFORE}_{i,t} + \alpha_2 \mathrm{MONTH\_PURCHASE}_{i,t} + \alpha_3 \mathrm{MONTH\_AFTER}_{i,t} + \sum_{k=4}^{11} \alpha_k (\mathrm{CONTROL})_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$\mathrm{RETURN}_{i,t} = \beta_0 + \beta_1 \mathrm{TONEDISP}_{i,t} + \beta_2 \mathrm{MARKET}_{i,t} + \beta_3 \mathrm{SIZE}_{i,t} + \beta_4 \mathrm{BM}_{i,t} + \beta_5 \mathrm{RETURN}_{i,t-1} + \beta_6 \mathrm{RETURN}_{i,t-2} + \varepsilon_{i,t} \quad (3)$$

Quasi-natural experimental design

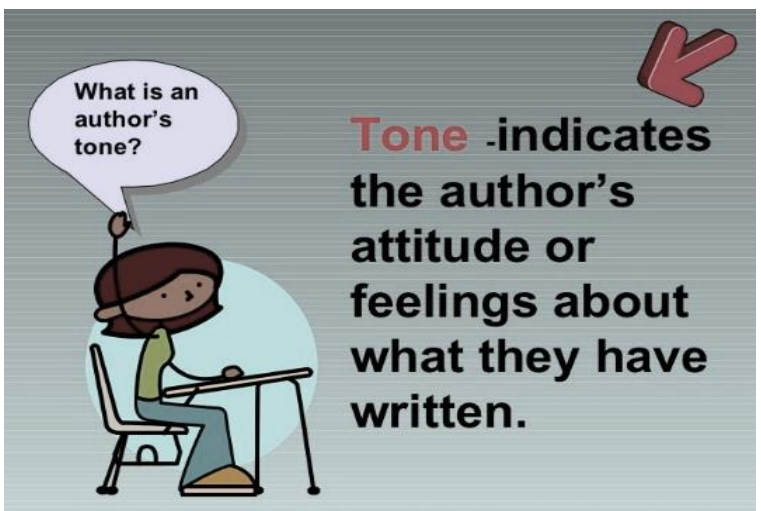
$$\mathrm{MONTH\_PURCHASE}_{i,t} = \beta_0 + \beta_1 \mathrm{TREAT}_{i,t} \times \mathrm{POST}_{i,t} + \sum_{k=2}^{5} \beta_k (\mathrm{CONTROL})_{i,t} + \varepsilon_{i,t} \quad (4)$$

$$\mathrm{TONEDISP}_{i,t} = \alpha_0 + \alpha_1 \mathrm{TREAT}_{i,t} \times \mathrm{POST}_{i,t} \times \mathrm{MONTH\_BEFORE}_{i,t} + \alpha_2 \mathrm{TREAT}_{i,t} \times \mathrm{POST}_{i,t} \times \mathrm{MONTH\_PURCHASE}_{i,t} + \alpha_3 \mathrm{TREAT}_{i,t} \times \mathrm{POST}_{i,t} \times \mathrm{MONTH\_AFTER}_{i,t} + \sum_{k=4}^{11} \alpha_k (\mathrm{CONTROL})_{i,t} + \varepsilon_{i,t} \quad (5)$$

Do CEOs strategically alter the tone of their announcements before they buy stocks in their own company?

Investor disagreement causes stock prices to fall:

CEO can increase investor disagreement through the dispersion in the tone of their announcements:



RESULTS

Table 1 Relevant summary statistics

Name of Variables	Mean	SD	25th Percentile	Median	75th percentile	Observations
TONE	0.444	0.445	0.356	0.609	0.764	213,261
TONEDISP	0.170	0.262	0.000	0.031	0.185	213,261
COUNT_NEWS	3.065	4.135	1.000	2.000	4.000	213,261
SIZE[a]	20.643	1.956	19.314	20.619	21.932	213,151
TRADEVOLUME[a]	0.203	0.198	0.080	0.147	0.256	213,138
RETURNDISP	0.022	0.074	0.011	0.018	0.028	213,257
$RETURN_{i,t-1}$ (per month %)[a]	1.383	13.188	-5.242	0.949	7.190	209,519
EA	0.352	0.478	0.000	0.000	1.000	213,261
SENT	80.064	11.145	72.500	81.200	89.600	213,261
ANALYST_COVERAGE	9.415	7.499	4.000	7.000	13.000	150,097
ANALYST_COVERAGE[b]	6.626	7.619	0.000	4.000	10.000	213,261
CEO_CHAIRMAN	0.343	0.475	0.000	0.000	1.000	213,261

[a]Winsorized at the 1st and 99th percentiles. [b]The summary statistics for this variable is constructed assuming zero values for missing analysts from I/B/E/S.

Table 2 Firm fixed effects regressions: Timing of news tone dispersion around CEO purchasing months

	Dependent variable: TONEDISP			
	ALL	ALL	ROUTINE	OPPORTUNISTIC
Independent variables	(1)	(2)	(3)	(4)
MONTH_BEFORE	0.010***	0.010***	0.014**	0.009**
	(2.94)	(3.04)	(2.15)	(2.31)
MONTH_PURCHASE	0.012***	0.004	-0.009	0.009**
	(3.63)	(1.09)	(1.42)	(2.10)
MONTH_AFTER	-0.008**	-0.002	-0.003	-0.002
	(2.00)	(0.62)	(0.47)	(0.45)
CONTROLS	No	Yes	Yes	Yes
Firms Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm
Observations	213,261	209,423	62,487	146,936

Control variables include: SIZE, TRADEVOLUME, RETURNDISP, RETURN, EA, ANALYST, SENT, and CEO_CHAIRMAN.

RESULTS

Table 3 News tone dispersion and firm return

	Dependent variable: $RETURN_{i,t}$					
Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
$TONEDISP_{i,t}$	-0.360***	-0.363***	-0.245*	-0.944***	-0.789***	-0.710***
	(2.71)	(2.67)	(1.82)	(6.17)	(5.03)	(4.53)
CONTROLS	No	Yes	Yes	No	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	No	No	Yes	No	No	Yes
Month Fixed Effects	No	No	Yes	No	No	Yes
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
Observations	208,050	146,369	146,369	127,316	100,417	100,417

This table illustrates the relationship between CEO news tone dispersion and firm returns. We use firm fixed effect regressions. The dependent variable is the RETURNi,t and the key variable is the news tone dispersion (TONEDISP) based on non-earning news releases by CEOs. We have a set of control variables including $MARKET_t$, $SIZE_{i,t}$, $BM_{i,t}$, $RETURN_{i,t-1}$, $RETURN_{i,t-2}$ to address market risk, size, value and momentum effects. In Columns (1), (2), and (3), we assume zero for missing TONEDISP observations. In months where CEOs release just one news item, then news tone dispersion is assumed to be zero. However, in (4), (5), and (6), sample size is reduced after deleting these missing tone dispersion data.

Table 4 Ex-ante summary statistics of matching variables

	Treated Firms		Control Firms		Treated-Controls
Name of Variables	Mean or Fraction	Std. Dev.	Mean or Fraction	Std. Dev.	Difference in Means or Fractions
SIZE	21.565	1.748	21.407	1.825	0.158
					(1.289)
RETURN	-1.532	10.459	-2.019	10.565	0.487
					(0.675)
ANALYST_COVERAGE	12.519	8.325	12.287	8.449	0.231
					(0.401)

The sample includes 260 treated firms and 365 control firms. In the spirit of Kelly and Ljungqvist (2012), treatment firms are matched with control firms in terms of market capitalization (SIZE), monthly return (RETURN), and analyst coverage. This matching is performed using a nearest-neighbour propensity score with a 0.005 calliper. The matching is done one quarter before the coverage terminations.

RESULTS

Table 5 Diff-in-Diff specifications: Coverage shocks and CEO purchases

Independent variables	Dependent variable: MONTH_PURCHASE			
	(1)	(2)	(3)	(4)
TREAT × POST	0.350***	0.279**	0.302**	0.309*
	(2.92)	(1.96)	(2.16)	(1.80)
CONTROLS	No	No	Yes	Yes
Year Fixed Effects	No	Yes	No	Yes
Month Fixed Effects	No	Yes	No	Yes
Cluster	Firm	Firm	Firm	Firm
Observations	8,152	8,127	6,302	6,281

This table illustrates the results for the relationship between CEO purchasing behaviour and termination of analyst coverage due to exogenous shocks in brokerage houses. We use Probit regression models to evaluate this relationship. In all these models, regression results are tabulated for OPPORTUNISTIC traders.

Table 6 Diff-in-Diff specifications: Coverage shocks and timing of news tone dispersion around CEO purchasing months

Independent variables	Dependent variable: TONEDISP			
	(1)	(2)	(3)	(4)
TREAT × POST× MONTH_BEFORE	-0.003	0.011	0.021	0.051
	(0.10)	(0.34)	(0.23)	(0.58)
TREAT × POST × MONTH_PURCHASE	0.006	0.007	0.095	0.101
	(0.18)	(0.29)	(1.09)	(1.24)
TREAT × POST × MONTH_AFTER	-0.020	-0.024	-0.062	-0.105
	(0.43)	(0.55)	(0.68)	(1.18)
CONTROLS	No	No	Yes	Yes
Firm Fixed Effects	No	Yes	No	Yes
Year and Month Fixed Effects	No	Yes	No	Yes
Cluster	Firm	Firm	Firm	Firm
Observations	8,152	8,152	8,120	8,120

This table shows the results from Diff-in-Diff specifications that accounts for the relationship between CEO purchasing behaviour and news tone dispersion after the termination of analyst coverage due to exogenous shocks in brokerage houses. The sample covers CEO purchases 12 months before and after the exogenous shocks in analyst coverage and spans between 2003 and 2009.

CONCLUSION

With the limitation of types of news used in prior studies (e.g., earnings announcements and conference calls) and that the decision to purchase stocks is endogenous (Noe, 1999; Cheng and Lo, 2006), we use non-earning news releases, since CEOs have the comparative discretion on spinning this news. We support our base analysis with a quasi-natural experimental design. In this setting, exogenous shocks in analyst coverage are considered. We find that exogenous shocks in coverage are unrelated to news tone dispersion by CEOs. Collectively, these results support the argument that CEOs are strategic manipulating news tone dispersion of their firm announcements around purchasing months.

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