The dynamics of informed trading around corporate bankruptcies☆

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ABSTRACT

We investigate the dynamics of informed trading both before and after corporate bankruptcy announcements using high frequency data. Our findings reveal that pre-announcement informed selling attenuates subsequent announcement returns, with this effect being weaker for firms receiving extensive pre-announcement media coverage or adverse news sentiment. We also find that post-announcement informed trading can serve as a predictor of subsequent bankruptcy outcomes. Overall, results are consistent with there being material information leakage, warranting policy efforts to better safeguard less informed investors.

1. Introduction

Informed trading around major corporate events has drawn extensive legislative and media scrutiny owing to the profits it enables for traders privy to price-sensitive information, often disadvantaging other investors (Meulbroek, 1992; Berkman et al., 2014). Filing for bankruptcy represents one such event, associated with significant negative abnormal returns of over 20 % on announcement dates (Altman and Brenner, 1981; Clark and Weinstein, 1983). Thus, the allure for informed traders to trade in advance of bankruptcy announcements remains substantial. In response, regulations such as those specified under Section 10(b) of the Securities Exchange Act in the US aim to safeguard public investors and mitigate the detrimental impact of corporate bankruptcy on shareholder rights during Chapter 11 restructuring (Langevoort, 1991). However, considerable debate persists concerning the efficacy of extant regulations in curbing information leakage, given corporate insiders constitute only one group of informed traders (Christophe et al., 2010).

Prior academic research on informed trading around bankruptcies predominantly focuses on insider trading, restricting the analysis to trades reported by corporate managers and directors (Seyhun and Bradley, 1997; Ma, 2001; Iqbal and Shetty, 2002). These studies render conflicting evidence, with some showing insider selling several months or even years ahead of filings (Seyhun and Bradley,

1997; Ma, 2001) while others find no such activity (Eckbo et al., 2016; Ge et al., 2016).

There are, however, two primary reasons why focusing on just insider trades limits analysis surrounding bankruptcies. First, tipping off outsiders enables insiders to benefit from their informational advantage without directly transmitting negative signals to other stakeholders by dumping shares as bankruptcy risk escalates. Ahern (2017) and Berkman et al. (2014) both suggest that insiders disseminate material non-public information to individuals with strong social ties or similar social, demographic, and geographic backgrounds. Second, beyond corporate insiders, there are also informed traders who may possess material non-public data, including institutional investors, short sellers, high-frequency traders, and analysts (Karpoff and Lou, 2010; Hirschey, 2021).

This study examines informed trading by this broader class of traders. In doing so, we take a different approach to the extant literature by employing high frequency data to calculate daily probabilities of informed trading (PIN) as a means to classify informed trades. We also offer an improved methodology for calculating PIN estimates to address potential trade overflow issues. This granular, high-frequency approach facilitates scrutinizing informed trading dynamics at a more refined level and provides a unique perspective in examining trading behavior surrounding bankruptcy announcements relative to prior research in the area.

Our analysis presents three key findings that contribute to our understanding of informed trading around bankruptcy events. First, we demonstrate an escalation in informed selling in days approaching announcements, evidencing information leakage. Second, this pre-announcement informed selling dampens subsequent bankruptcy announcement reactions, consistent with private information integration into prices. Third, we show informed trading post-announcements predicts bankruptcy outcomes as some traders likely possess comparative analytical advantages.

Additionally, we examine how both news coverage and sentiment moderate the effect of informed trading on announcement returns. In doing so, we contribute to the academic literature on the interplay between pre-disclosure information and subsequent bankruptcy announcement reactions (Tetlock, 2007) alongside the influence of media on informed trading (Bushee et al., 2010). Finally, by uncovering evidence of informed trading before bankruptcy filing announcements, our study underscores the policy significance of revising regulations to more effectively manage information dissemination and protect uninformed investors.

2. Related literature and hypotheses development

Prior research on informed trading around bankruptcies tends to focus on insider trading, providing mixed evidence (Seyhun and Bradley, 1997; Loderer and Sheehan, 1989). However, corporate bankruptcies represent a unique context where informed trading likely originates more from outsiders rather than insiders. Trading by executives of distressed firms could prompt litigation given fiduciary breaches and transmit negative signals to other stakeholders (Loderer and Sheehan, 1989). However, insiders can still benefit by tipping off outsiders about non-public bankruptcy plans (Christophe et al., 2010). This motivates our first hypothesis:

Hypothesis 1. *Informed selling rises significantly in days approaching announcements.*

Additionally, significant negative abnormal returns pervade around bankruptcy announcements (Altman and Brenner, 1981). Theoretical market microstructure models demonstrate informed trading information integration into prices (Glosten and Milgrom, 1985). This motivates our second hypothesis:

Hypothesis 2. *Pre-announcement informed selling gets incorporated into prices, dampening subsequent bankruptcy announcement reactions.*

We also propose that public information dissemination reduces information asymmetry advantages insiders may have (Tetlock et al., 2008). As such, it leads to a moderation effect that motivates our third hypothesis:

Hypothesis 3. *Media coverage and heightened adverse news sentiment weaken the effect of informed selling on subsequent announcement returns.*

Finally, while bankruptcy filing is an endpoint, outcomes remain uncertain given the complex Chapter 11 processes (Gilson et al., 2000). Informed traders likely possess analytical advantages in anticipating outcomes. This motivates our final hypothesis:

Hypothesis 4. *Post-announcement informed trading predicts bankruptcy outcomes.*

3. Estimation methods and descriptive statistics

We extract Chapter 11 bankruptcy filing data for US public firms from 2000 to 2015 from www.bankruptcydata.com. We obtain corresponding stock returns, accounting data, and trades/quotes information from the Center for Research in Security Prices (CRSP), Compustat, and New York Stock Exchange Trade and Automated Quotations (TAQ) databases respectively. Firms are manually matched across databases where needed using the company name and CUSIP.

The initial sample comprises 621 Chapter 11 petitions. We filter this to a final sample of 311 filings from 310 firms based on (1) stock return and accounting data availability on CRSP and Compustat; (2) firms are listed for a minimum of 5 years pre-bankruptcy; and (3) firms are still listed on the filing date or were recently delisted under liquidation/bankruptcy codes. Of the 311 events, 42.4 % of firms successfully reorganized post-filing. Others were liquidated (27.9 %), converted to Chapter 7 (9.6 %), acquired (9.6 %), dismissed (5.8 %), or outcomes unknown (4.5 %). Details of the distribution of bankruptcy events are provided in the Internet Appendix.

We estimate multivariate regressions to examine the effect of pre-announcement informed trading on subsequent bankruptcy announcement returns. The dependent variable is the two-day cumulative abnormal return (CAR) encompassing the filing

announcement date (day 0), calculated based on the difference between a firm's daily returns and value-weighted market returns. We focus on CAR(-1,0) since most sample firms cease trading on the event date. Only 26 % of firms have data for CAR(0,+1). Additionally, as filing announcements prompt substantial negative returns (Seyhun and Bradley, 1997), informed traders likely trade well in advance.[1]

We utilize the methodology proposed by Brennan et al. (2018) to calculate daily posterior probabilities of informed trading to estimate PIN at a higher frequency. We modify their methodology to resolve a potential overflow in estimating the daily PIN for a stock if the stock is traded actively with high numbers of buys and sells on a given day. Full details are provided in the Internet Appendix.

The key independent variables are the average probabilities of informed buying (*Prg*) and selling (*Prb*) over the 21 days before announcements (period (-21,-2)). We also calculate $Pr\varnothing$, which is the estimated posterior probability that no information event occurs on a given day. We include a number of control variables following Brennan et al. (2018) in our regression specification (Eq. (1)). These encompass the average daily stock returns (*RET*), the natural logarithm of the average market capitalization (*SIZE*), the average daily proportional quoted spread (*SPREAD*) calculated as the dollar spread divided by the quote midpoint, the average daily order imbalance (*OIMB*), the standard deviation of daily returns (*RVOLA*), the average daily share turnover (*TURN*), and the book-to-market ratio (*BTM*) using the latest quarterly book value from Compustat and contemporaneous market equity. Additionally, all independent variables are winsorized at the 1 % level to limit the influence of outliers. Following Brennan et al. (2018), we also incorporate both industry and year fixed effects into the regression models. If pre-announcement informed selling partially reflects private information integration into prices as per the attenuation effect, *Prb* would positively predict CAR(-1,0) by shifting losses outside the announcement window.

$$CAR_i(-1, 0) = \beta_0 + \beta_1 Prg_i(-21, -2) + \beta_2 Prb_i(-21, -2) + \beta_3 RET_i(-21, -2) + \beta_4 RVOLA_i(-21, -2) +$$
$$\beta_5 SPREAD_i(-21, -2) + \beta_6 OIMB_i(-21, -2) + \beta_7 TURN_i(-21, -2) + \beta_8 SIZE_i(-21, -2) + \beta_9 BTM_i + \quad (1)$$
$$\beta_{10} Year_{FE} + \beta_{11} Industry_{FE} + u_i$$

Table 1 shows descriptive statistics for informed trading probabilities alongside other variables and trades based on the 21 trading days before bankruptcy announcements. Panel A presents statistics on the daily number of trades executed. Panel B reports the mean, distribution, and dispersion of the daily posterior probabilities estimated to distinguish informed trading by news types. Panel C shows similar statistics for the monthly unconditional probabilities. Panel D summarizes behavior of key variables like returns, spreads, order imbalance and book-to-market ratios over the pre-event period. Finally, Panel E documents the distribution of the three posterior probability measures across all firm-day observations. Notably, average posterior and unconditional probabilities are comparable but posterior standard deviations are almost 3 times greater, suggesting they are better able to identify informed trades. Additionally, 25 % of firm-days exhibit informed trading probabilities exceeding 0.9. Most days see probabilities concentrated below 0.1 or above 0.9.

Fig. 1 plots the daily proportions of firms with high informed selling during the month preceding the bankruptcy announcement. A stock is defined to have high informed selling on a given day if its posterior probability of informed trading on bad news is at least 0.9 on that day. Supporting Hypothesis 1, the figure shows that the percentage of firms with high informed selling increases from 13 % (four days prior to the announcement) to around 18 % (one day before the announcement), before reaching its peak of 25 % on the announcement date. The Internet Appendix also provides a figure plotting the behavior of the abnormal probabilities of informed selling over 40 days before bankruptcy. Informed selling starts to increase substantially from 2 % six days before bankruptcy filings to about 17 % on the event date.

4. Regression results

Table 2 presents regression results from Eq. (1). Across six model specifications, we find informed selling, not buying, significantly and positively predicts CARs. Specifically, a one percentage point increase in the probability of informed selling (*Prb*) over the month prior to filings predicts a 0.518 percentage point higher CAR(-1,0) (Model 3). This demonstrates an attenuation effect - informed selling before bad news dampens the subsequent negative reaction. This is consistent with market makers partially incorporating private information to reduce adverse selection, lessening the surprise at announcements.

Our results show that informed selling retains significance even when controlling for pre-event returns and other factors correlated with information asymmetry, including spreads and order imbalances. This persists when directly modelling informed buying (Model 5) and jointly with controls (Model 6). Additionally, we demonstrate comparable results when incorporating the debt ratio to predict bankruptcies and returns per prior literature.

Overall, Table 2 supports hypothesis two in that pre-announcement informed selling reflects informed traders exploiting private information regarding unscheduled bankruptcy filing dates and that early trades partially attenuate announcement returns.[2]

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[1] In the Internet Appendix we also present results for buy-and-hold abnormal returns (BHAR) encompassing the filing date to account for potentially distorted CARs given the magnitude of filing announcement reactions (Seyhun and Bradley, 1997). Additionally, we estimate variants substituting CAR(-1,0) with CAR(-2,0) to assess a longer window and also BHAR measures over (-1,0) and (-2,0) windows.

[2] While there is a substantial drop in observations, we also estimate a reduced form model (no fixed effects) when using *CAR(0,+1)* as the dependent variable and find the coefficients of the pre-announcement informed selling variable remain positive and statistically significant at the 10 % level.

Table 1

Descriptive statistics and distribution of posterior probabilities and other variables.

Descriptive statistics									
Variables	Mean	Min	Max	Quartile 1	Median	Quartile 3	STD	Skewness	Kurtosis
Panel A. Daily number of trades									
N_Trade	2011.23	659.41	4304.32	667.61	1286.35	3817.44	3768.88	1.195	1.612
Panel B. Daily posterior probabilities									
$Pr\varnothing$	0.733	0.561	0.859	0.603	0.761	0.855	0.308	-1.089	1.513
Prg	0.135	0.062	0.255	0.063	0.106	0.217	0.198	1.687	3.443
Prb	0.132	0.062	0.245	0.063	0.105	0.207	0.187	1.676	3.361
Panel C. Monthly unconditional probabilities									
$(1-\alpha)$	0.774	0.723	0.824	0.733	0.774	0.816	0.094	0.025	-0.227
$\alpha(1-\delta)$	0.127	0.089	0.168	0.095	0.124	0.160	0.075	0.246	0.077
$\alpha\delta$	0.099	0.063	0.142	0.067	0.096	0.130	0.073	0.504	-0.113
Panel D. Other key variables									
RET	-0.012	-0.069	0.048	-0.055	-0.013	0.030	0.104	0.018	0.844
SIZE	2.855	2.117	3.666	2.221	2.812	3.501	1.473	0.216	-0.041
SPREAD	4.407	2.716	6.494	2.911	4.192	5.883	3.573	0.462	-0.072
TURN	0.022	0.012	0.038	0.013	0.019	0.033	0.026	1.044	1.494
OIMB	-7.854	-24.868	8.801	-21.615	-7.736	6.020	32.314	-0.056	0.178
BTM	-3.824	-12.080	0.664	-7.255	-2.058	0.006	11.193	-0.182	1.644

Panel E. Distribution of the daily conditional probabilities for all firm-days									
Range	0–0.1	0.1–0.2	0.2–0.3	0.3–0.4	0.4–0.5	0.5–0.6	0.6–0.7	0.7–0.8	0.8–0.9	0.9–1.0
$Pr\varnothing$	25.49 %%	0.50 %	0.23 %	0.28 %	0.18 %	0.32 %	0.22 %	0.35 %	0.53 %	71.90 %
Prg	85.50 %	0.33 %	0.23 %	0.20 %	0.12 %	0.12 %	0.18 %	0.12 %	0.22 %	12.98 %
Prb	86.10 %	0.32 %	0.17 %	0.20 %	0.20 %	0.12 %	0.20 %	0.15 %	0.33 %	12.22 %

Summary statistics in this table are computed based on one month of trading before bankruptcy announcement dates. The cross-sectional value for each statistic is computed each day (Panel A, B, and D) or each month (Panel C) and then the time-series average of those values is reported. The variables are defined as follows: *N_Trade*: the number of transactions executed across all exchanges each day; $Pr\varnothing$: the estimated posterior probability (conditional on observing the number of daily buyer- or seller-initiated trades) that no information event occurs on a given day; *Prg*: the estimated posterior probability (conditional on observing the number of daily buyer- or seller-initiated trades) that a good news information event occurs on a given day; *Prb*: the estimated posterior probability (conditional on observing the number of daily buyer- or seller-initiated trades) that a bad news information event occurs on a given day; $(1 - \alpha)$: the monthly estimated unconditional probability that no information event occurs on a day; $\alpha(1 - \delta)$: the monthly estimated unconditional probability that a good news information event occurs on a day (δ is the probability with which the information event contains bad news); $\alpha\delta$: the monthly estimated unconditional probability that a bad news information event occurs on a day; *RET*: the daily stock returns, *SIZE*: the natural logarithm of the daily market value of equity (in $ million); *SPREAD*: the daily proportional quoted spread (in%) [i.e., (dollar spread/quote midpoint) × 100];*TURN*: daily share turnover; *OIMB*: daily market order imbalance (in%) [i.e., (#BUY - #SELL)/(#BUY + #SELL) × 100]; and *BTM*: the book-to-market ratio (quarter end book equity divided by the market value of equity). All of these variables are winsorized at the 1 % level.

4.1. The effect of media dissemination

Next, we analyze a sub-sample of 32 firms with pre-announcement bankruptcy-related news stories from Raven Pack to examine if informed trading relies on private or public data. We incorporate media coverage (*MediaBreadth*) and sentiment (*MediaTone*) variables reflecting a count of related media articles and event sentiment scores, respectively, as proxies for public information (Augustin et al., 2015; Dang et al., 2018):

$$MediaBreadth_{it} = \log(1 + N\_articles_{it}) \tag{2}$$

$$MediaTone_{it} = \left(\frac{ESS_{it} - 50}{50}\right) \tag{3}$$

where *N_articles* is the number of news articles published about firm *i* in day *t*; *MediaBreadth* indicates the level of media intensity, with a higher value implying that the company attracted greater attention from the media; *MediaTone* is the *ESS* scaled, to ensure that its values range from -1 to 1.

Only 32 firms in our sample have news coverage prior to the bankruptcy filing over the previous 12 months, limiting our analysis to this subset. We include interaction terms to allow us to examine how public information moderates the impact of informed trading on the subsequent announcement return. Regression results in Table 3 demonstrate informed selling and its attenuation effect persist even amidst considerable public information releases across the 6- and 12-month pre-announcement windows. This implies that trades likely rely on private information. Supporting Hypothesis 3, more media coverage moderates the impact of informed selling, as
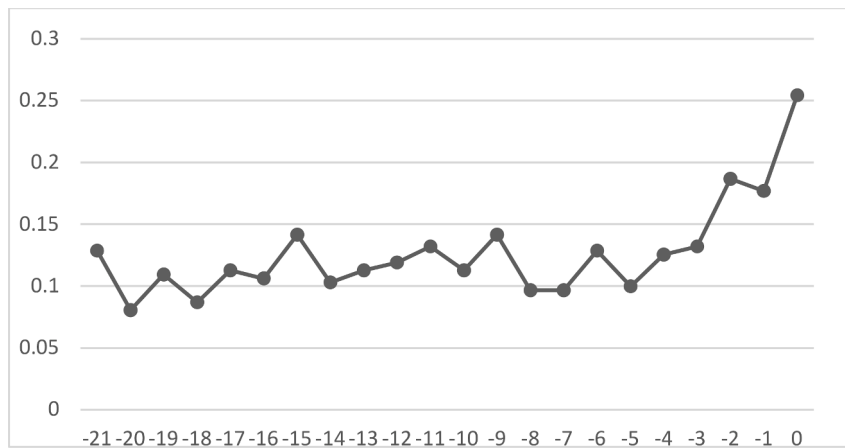
Fig. 1. The fraction of firms with high probabilities of informed selling during the 1-month pre-announcement period.
This figure plots the proportion of firms in the sample that have high probabilities of informed selling during the one-month pre-announcement period (from day -21 to day 0 relative to bankruptcy announcement dates). A stock is defined to have a high probability of informed selling on a given day if its probability of informed trading on bad news on that day is at least 0.9.

Table 2
Pre-announcement informed trading and announcement returns.

Independent variables	Dependent variable $CAR(-1, 0)$					
	(1)	(2)	(3)	(4)	(5)	(6)
$Prg(-21, -2)$	0.478	0.310			0.413	0.217
	(1.28)	(1.00)			(1.15)	(0.71)
$Prb(-21, -2)$			0.518**	0.592***	0.465***	0.562***
			(2.57)	(3.47)	(2.71)	(3.45)
RET$(-21, -2)$		-2.336		-1.922		-1.906
		(-0.93)		(-0.78)		(-0.78)
RVOLA$(-21, -2)$		1.322		1.383		1.292
		(1.27)		(1.22)		(1.25)
SPREAD$(-21, -2)$		-0.012		-0.015		-0.014
		(-1.09)		(-1.23)		(-1.22)
OIMB$(-21, -2)$		0.002		0.004**		0.003**
		(1.39)		(2.52)		(2.34)
TURN$(-21, -2)$		-2.149		-2.251		-2.442
		(-0.83)		(-0.94)		(-0.93)
SIZE$(-21, -2)$		-0.020		-0.029		-0.028
		(-0.84)		(-1.38)		(-1.26)
BTM		0.002		0.002		0.002*
		(1.64)		(1.64)		(1.66)
Intercept	-0.708***	-0.725***	-0.664***	-0.688***	-0.750***	-0.722***
	(-4.34)	(-3.17)	(-4.18)	(-3.33)	(-4.17)	(-3.10)
Year and industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R2	0.007	0.016	0.011	0.031	0.017	0.030
No. of observations	309	308	309	308	309	308

This table presents regression results of the announcement returns on the pre-bankruptcy average probabilities of informed trading. Variable definitions are the same as in Table 1. The values in the first row are coefficients estimated from the regressions, and the values in parentheses in the second row for each variable are t-statistics. Coefficients statistically different from zero at the significance levels of 1 %, 5 %, and 10 % are indicated by ***, **, and *, respectively.

evidenced by the significant and negative coefficients of *Prb*MediaBreadth*. Firms with greater media coverage exhibit a weaker relationship, suggesting lower private information integration into the stock prices before the announcement. Likewise, more negative sentiment (*MediaTone*), potentially indicating eroding fundamentals, reduces surprise at actual filings. Importantly, the positive and significant estimated coefficient on the interaction term *Prb*MediaTone* in Model (2) indicates that more negative news sentiment weakens the effect of informed selling on subsequent announcement returns.

4.2. Post-announcement informed trading and bankruptcy outcomes

We next analyze informed trading dynamics after bankruptcy announcements and link behaviors to subsequent outcomes. Fig. 2

Table 3
The effect of informed trading for sub-sample of firms associated with news.

Independent variables	6-month pre-announcement		12-month pre-announcement	
	(1)	(2)	(3)	(4)
Prg	1.745	-0.709	3.026	0.392
	(0.77)	(-0.05)	(0.72)	(0.02)
Prb	8.445***	28.688**	10.150**	23.759
	(3.03)	(2.37)	(2.17)	(1.03)
Prg*MediaBreath	-1.567		-1.174	
	(-0.63)		(-0.37)	
Prb*MediaBreath	-4.762*		-5.569*	
	(-2.10)		(-1.74)	
Prg*MediaTone		-1.179		-0.573
		(-0.06)		(-0.03)
Prb*MediaTone		32.957**		25.806
		(2.17)		(0.91)
MediaBreath	0.869		0.608	
	(1.49)		(1.07)	
MediaTone		-6.440*		-4.621
		(-2.07)		(-1.02)
Intercept	-2.062**	-6.275**	-1.434	-4.476
	(-2.92)	(-2.36)	(-1.69)	(-1.19)
Controls	Yes	Yes	Yes	Yes
Adjusted-R2	0.026	0.154	-0.052	-0.010
No. of observations	29	29	32	32

This table presents regression results of the announcement returns on pre-announcement probabilities of informed trading for the sub-sample of firms associated with news. The values in the first row are coefficients estimated from the regressions, and the values in parentheses in the second row for each variable are t-statistics. Coefficients statistically different from zero at the significance levels of 1 %, 5 %, and 10 % are indicated by ***, **, and *, respectively.
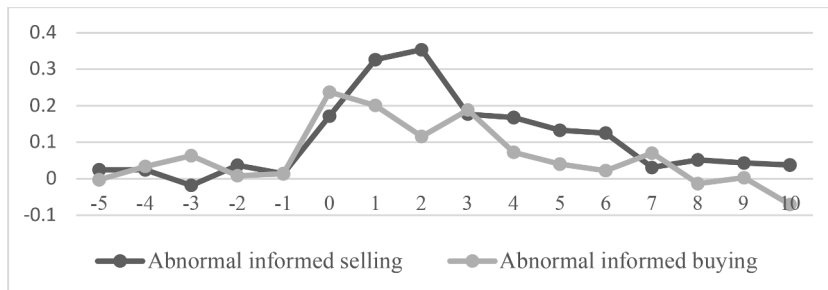

Fig. 2. Abnormal informed trading after bankruptcy announcements.
This figure plots the abnormal probabilities of informed trading after bankruptcy announcements for a sub-sample of firms that continue trading after bankruptcy. The abnormal probability for each stock for each day around the event date is computed as the daily value of the probability minus the average of the corresponding probabilities over three months outside the 12-month pre-announcement period (i.e., $-301 \leq t \leq -242$).

plots abnormal probabilities in the 20 days post-filings for those firms that continue to trade. Informed selling escalates over 16 % on the event date, peaking at 35 % before declining. Meanwhile, informed buying spikes at 23 % upon filing then drops quickly.

While higher post-event informed selling is intuitive, heightened informed buying is puzzling. We posit some traders possess analytical advantages in assessing complex Chapter 11 processes and anticipating outcomes (Dawkin, 2007). We test this via multinomial logistic regressions in Table 4 examining how post-announcement informed trading probabilities predict bankruptcy resolutions, using liquidations as the base case.

Results indicate that for windows spanning at least the first 10 post-event days, higher informed buying probabilities significantly predict a firm being acquired or emerging from bankruptcy. This relationship weakens when expanding to 20 days post-filings. Overall, the findings support Hypothesis 4, suggesting that despite the announcement of filings marking the commencement rather than conclusion of bankruptcy cases, heightened informed buying reflects trader expectations of better relative outcomes, indicative of information asymmetry.

5. Conclusion

This paper examines informed trading dynamics surrounding corporate bankruptcies, differentiating between pre- and post-announcement behaviors. We document an escalation in informed selling probabilities ahead of filings, supportive of information

Table 4
Post-announcement informed trading and bankruptcy outcomes.

Independent variables	Panel A. Multinominal logit			
	Acquired	Converted	Dismissed	Emerged
Prg(+ 1, + 5)	7.495**	0.507	4.937	2.718**
	(3.21)	(2.68)	(4.24)	(1.20)
Prb(+ 1, + 5)	5.994**	1.463	4.198	-0.319
	(2.93)	(1.62)	(3.67)	(0.97)
Intercept	-6.188**	-2.389**	-5.647*	-0.205
	(2.75)	(1.09)	(3.33)	(0.51)
Likelihood ratio	21.373**			
No. of observations	67			
	Panel B. Multinominal logit			
Prg(+ 1, + 10)	5.950**	0.763	5.529	2.521*
	(2.38)	(2.99)	(3.65)	(1.43)
Prb(+ 1, + 10)	4.284**	1.398	3.344	-0.847
	(1.88)	(1.71)	(3.12)	(1.07)
Intercept	-4.382***	-2.342**	-5.143*	0.062
	(1.57)	(1.08)	(2.56)	(0.49)
Likelihood ratio	17.943**			
No. of observations	67			
	Panel C. Multinominal logit			
Prg(+ 1, + 20)	4.009*	-0.232	5.539	1.353
	(2.12)	(3.11)	(3.79)	(1.44)
Prb(+ 1, + 20)	2.391	0.413	3.187	-1.143
	(1.47)	(1.72)	(3.04)	(1.04)
Intercept	-2.861***	-1.807*	-5.120**	0.424
	(1.09)	(0.97)	(2.57)	(0.48)
Likelihood ratio	11.316*			
No. of observations	68			

This table reports the results of multinomial logit regressions of bankruptcy outcomes on the post-bankruptcy average probabilities of informed trading. The dependent variables are 4 dummy variables indicating 4 bankruptcy outcomes (acquired, converted, dismissed, and emerged) with liquidation being the reference group. Independent variables are the averages of daily posterior probabilities from day +1 to day +5 (Panel A), from day +1 to day +10 (Panel B), and from day +1 to day +20 (Panel C). *Prg*: the posterior probability of informed trading on good news. *Prb*: the posterior probability of informed trading on bad news. The values in the first row are coefficients estimated from the regressions, and the values in parentheses in the second row for each variable are standard errors. Coefficients statistically different from zero at the significance levels of 1 %, 5 %, and 10 % are indicated by ***, **, and *, respectively.

leakage. This trading dampens subsequent announcement reactions, consistent with the market integrating private information before the announcement. Additionally, we link post-event behaviors to bankruptcy outcomes, with higher informed buying indicative of a firm's stronger relative prospects. quantifying information flows via media analytics provides novel evidence of its moderating effect. We also show there is a dampening effect on informed trading when there is greater media attention surrounding the bankruptcy.

While we cannot determine whether the informed trades are based on insider information, the results are consistent with the notion of material information leakage surrounding these unscheduled bankruptcy announcements, warranting regulatory efforts to better safeguard less informed investors and ensure level playing fields.

CRediT authorship contribution statement

Viet Anh Dang: Writing – review & editing, Validation, Supervision, Methodology. **Dinh Trung Nguyen:** Writing – original draft, Investigation, Formal analysis, Data curation, Conceptualization. **Thu Phuong Pham:** Writing – review & editing, Validation, Supervision, Methodology, Conceptualization. **Ralf Zurbruegg:** Writing – review & editing, Validation, Supervision, Methodology.

Declaration of competing interest

None.

Data availability

The authors do not have permission to share data.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.frl.2024.105385.

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