Intra-Industry Transfer of Information Inferred From Trading Volume

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CERGE-EI
Prague, August 2020
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Abstract
This study examines the responsiveness of trading volume to a firm’s earnings announcements. We find that the volume and earnings surprise information generated at the first earnings announcement within an industry help to explain the stock returns of the non-announcing firm. Specifically, it explains their equity performance at the time of the first industry announcement and then again after their own earnings announcement. These results provide novel insights into how earnings announcements contain both firm specific as well as industry information that is value relevant for investors.

Keywords: intra-industry; earnings announcement; earnings surprise; trading activity

JEL Classification: G14

The research was supported by GAČR grant No. 16-20451S. The usual disclaimer applies.
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1. Introduction

The first earnings announcement within an industry has significant implications for the other firms in the industry because earnings incorporate industry shocks as well as firm specific information (Foster 1981; Lang and Lundholm 1996). In this study, we focus on two sources of new information which are generated by this initial earnings announcement. First, there is the abnormal trading volume which reflects the differing views of market participants about the value impact of the announcement (Kim and Verrechia, 1997). Second, there is the earnings surprise itself which contains information about the firm’s future performance (e.g. Bartov, Givoly, & Hayn, 2002).

We contend that the information contained in the first earnings announcement in an industry generates new information for the industry and this information affects peer firms in the same industry. Our empirical results show that the information generated at the time of an industry’s first earnings announcement helps to explain the stock returns of the subsequent announcing firms as well as that of the announcing firm itself.

We find that the earnings surprise of an industry’s first announcer has a positive relation with the cumulative abnormal returns of the subsequent announcing firms. This result is consistent with Chan, Jegadeesh, & Lakonishok (1996) and Ramnath (2002) who show that the market undereacts to earnings surprises. Similarly, the abnormal trading volume of the non-announcing peer firms has a positive relation with the cumulative abnormal returns over the event windows (0,1), (2,5) and (6,10). Interestingly, while the earnings surprise information is incorporated, the abnormal trading volume of the first announcer has no relation to the return behavior of the non-announcing firms. This change, however, after the information is processed. Over the event window day +11 through +20, the abnormal trading volume of the first earnings announcer becomes statistically significant. We conclude that investors first incorporate information directly pertaining to the subsequent announcing firm. Afterwards,
they focus attention on the divergence of opinion regarding the value effect of the first announcement through the first announcer’s abnormal trading volume.

We observe several interesting patterns regarding the return behavior of the subsequent announcing firms at the time of their own announcement. The abnormal trading volumes of the subsequent announcing firm and the first announcing firm from the time of the first industry announcement are related to cumulative abnormal returns only over the last window, days +11 through +20. This suggests the existence of a delay in the processing of information associated with the first earnings announcement in an industry. Also, the first announcer’s earnings surprise (FAES) is related to the cumulative abnormal returns only in the window between day +2 through +5. These results suggest that the two sources of new information which are generated by the first industry announcing firm at the time of their announcement influence the subsequent announcing firms at the time of the first industry announcement and its own earnings announcement as well.

This research extends the existing literature which deals with the responsiveness of trading volume to a firm’s earnings announcements (Firth, 1976; Foster, 1981; Clinch & Sinclair, 1987; Han and Wild, 1990; Freeman & Tse, 1992; Thomas & Zhang, 2008) and incorporates new insights. Specifically, since Schneider (2009) argues that trading volume can also be used for purifying the information contained in other financial signals, we augment existing models with earnings surprises.

We organize this study as follows. Section two reviews the literature. Section three discusses the data and describes our sample selection process. In section four we present our empirical results. We conclude with a brief summary and discussion of our findings in Section 5.
2. Theoretical Discussion

Previous research shows that the first earnings announcements in an industry are informative about the non-announcing firms' stock performance (Firth, 1976; Foster, 1981; Clinch & Sinclair, 1987; Han and Wild, 1990; Freeman & Tse, 1992; Thomas and Zhang, 2008). While the first announcer's earnings surprise is valuable for predicting the future earnings of the subsequent announcer, it is a noisy signal concerning the subsequent announcer's return performance. Nevertheless, the informativeness of the first announcement should be reflected in trading activity. Thus, the trading volume on the day of the first announcement in the industry is expected to serve as a purifying signal as defined by Schneider (2009).

The importance of trading volume as an additional information signal is also supported by Gervais, Kaniel, and Mingelgrin (2001). They show that the high trading volume return premium cannot be explained by the firm's return autocorrelation, announcements, market risk, or liquidity. The authors state that the high trading volume return premium is explained by the stock’s greater visibility and subsequent increased demand. Further, lower trading volume can also be explained by higher attention distraction, (Hirshleifer, Lim, & Teoh, 2009).

The change in trading activity can also be induced by the presence of various agents leading to heterogeneous responses to the first earnings announcement within an industry. This hypothesis is motivated by the findings of Barber and Odean (2008) who show that individual investors are more likely to buy on high attention days (i.e., days of new information arrival) while institutional investors are more likely to sell on those days. In our context, this might imply that on the day of the first earnings announcement within an industry, less sophisticated investors (usually believed to be individual investors) might be more inclined to buy the stock of announcing firms. Less sophisticated investors (usually believed to be institutional investors) might be more inclined to sell those same stocks. This trading activity at the time of
the first earnings announcement might be reinforced by the presence of informed and uninformed traders since Collin-Dufresne and Fos (2015) show that informed investors tend to trade more actively when uninformed trading activity is higher.

The trading volume at the time of the first announcement can also reveal the heterogeneity in beliefs that are present in the market. As shown by Kandel and Pearson (1995), investors do not incorporate market information rationally and “agree to disagree”. Li (2007) arrives at the same conclusion, showing that upon observing an identical information signal, investors nevertheless use different models to update their beliefs. In both of these models, disagreement about the implications of new information can lead to a greater dispersion in expectations concerning the performance of the announcing and non-announcing firms. Consequently, due to increased dispersion in beliefs there will be more investors willing to trade the firm’s stock.¹

The other information conveyed by trading volume can be previous disagreement prior to the arrival of news. For example, Karpoff (1986) shows that abnormal trading volume can arise even when investors interpret an information signal identically, but had divergent expectations prior to the arrival of the news. This prior heterogeneity coupled with an identical interpretation of the new information signal should prompt corrective measures by investors. Their change in the demand for stock will produce changes in the stock’s price.

Regardless of whether the increased trading volume results from disagreement about the news (Kandel and Pearson, 1995) or identical interpretation of the news with previous disagreement (Karpoff, 1986), trading volume can signal the direction of the stock performance. In the former case, the disagreement might lead to the failure of meeting investor expectations and subsequently offer profitable trading opportunities due to the market’s

¹ Other studies examining changes in trading volume due to an increase in the heterogeneity of beliefs include Shalen (1993), Barron (1995), Bessembinder, Chan, and Seguin (1996), Bamber et al. (1997), Goetzmann and Massa (2005) and Buraschi and Jiltsov (2006).
corrective actions. This latter case is even more straightforward, since it directly implies corrective market actions due to incomplete incorporation of existing information.

Previous studies find the market rewards firms with persistent positive earnings surprises (Barth, Elliott, & Finn, 1999; Bartov, Givoly, & Hayn, 2002; Kasznik & McNichols, 2002). Bartov et al. (2002) show that the premium for beating analysts' forecasts in the current quarter can be used as a leading indicator of future performance. Lopez and Rees (2002) discover, however, that the market discounts the systemic component of persistent positive earnings surprises, since this persistency can be partially explained by the managers' efforts to meet analysts' forecasts (Brown & Caylor, 2005; Burgstahler & Dichev, 1997; Burgstahler & Eames, 2006; Degeorge, Patel, & Zeckhauser, 1999). Even in the absence of earnings management, persistency in earnings surprises might be driven by the inability of analysts to capture permanent components of earnings (Dichev & Tang, 2009). The irregularity of earnings surprises might be due to temporal factors or favorable market movements.

Regardless of whether the stream of positive earnings surprises results from the permanent earnings surprises component ignored by analysts or earnings management by corporate executives, a stream of positive earnings surprises can create a market representativeness bias (Alti & Tetlock, 2014; Barberis, Shleifer, & Vishny, 1998; Brav & Heaton, 2002; Gennaioli, Shleifer, & Vishny, 2015; Kahneman & Tversky, 1972;). As the result of this representativeness bias, the market might treat firms with persistent positive earnings surprises differently from those which demonstrate only occasional positive earnings surprises.

3. Methodology

We examine two event windows for our empirical analysis as depicted in Figure 1. The first event window is centered around the first announcement in the industry. The second is
focused around the subsequent announcer's own reporting date for that same quarter. For both event windows, we study intervals of varying duration to assess the persistency of our variables of interest. Specifically, we analyze: days 0 through +1; days +2 through +5; days +6 through +10; days +11 through +20.

To examine stock price performance, we compute the risk-adjusted cumulative abnormal returns using a four-factor model, which includes the Fama and French (1993) risk factors augmented with the Carhart (1997) momentum factor. We estimate the stock-specific factor betas using daily returns over a 255-day estimation period window that ends 46 days prior to each respective announcement date. The abnormal returns are calculated as the difference between these expected returns and their actual values. The abnormal return, \( AR_{i,t} \), (or prediction error) for the common stock of firm \( i \) on day \( t \) is defined below in equation (1):

\[
AR_{i,t} = R_{i,t} - \left( \hat{\alpha} + \hat{\beta}_{i,MKT} MKT_t + \hat{\beta}_{i,SMB} SMB_t + \hat{\beta}_{i,HML} HML_t + \hat{\beta}_{i,MOM} MOM_t \right)
\]  

(1)

The cumulative abnormal returns over a \( T1, T2 \) (i.e., \( CAR_{T1,T2} \)) interval is calculated as per equation (2):

\[
CAR_{T1,T2} = \frac{1}{N} \sum_{t=T1}^{T2} AR_{i,t},
\]  

(2)

where \( N \) is the number of days between time \( T1 \) and \( T2 \) (i.e. \( N = T2 - T1 \)). That is, \( N = T2 - T1 \).

Abnormal trading volume which is a variable of considerable interest for this study is defined as follows:

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2 Although in event studies [-n,n] time windows with day 0 being the event date are usually analyzed (Fama et al., 1960; Binder, 1998) we consciously consider only the post announcement period, starting with the announcement day. This is motivated by the fact that our focus is the trading activity and stock return behavior in response to the information known to the market. While there might be some information leakage or market anticipation about the earnings announcements prior to the announcement day, the goal of this study is to analyze the informativeness of the trading volume resulting from the actual earnings releases.
\[ ATV_{i,t} = \frac{TV_{i,t} - \sum_{t=-375}^{-1} TV_{i,t}/365}{\sum_{t=-375}^{-1} TV_{i,t}/365} \]  

(3)

where \( ATV_{i,t} \) is the abnormal trading volume of stock \( i \) at time \( t \) and \( TV_{i,t} \) is the trading volume of stock \( i \) at time \( t \).

Additional variables of interest include: \( SAATV_{i,t} \) (\( SAATV_{own,i,t} \)) the subsequent \( i \) announcer's abnormal trading volume on the day of the first (own) announcement in quarter \( t \); \( FAATV_{i,t} \), the first announcer's abnormal trading volume in quarter \( t \); \( SAMES_{i,t} \) and \( FAMES_{i,t} \) are the subsequent \( i \) announcer's and the first announcer's mean earnings surprises over the previous 20 quarters prior to the current quarter \( t \), respectively. \( SANPS_{i,t} \) and \( FANPS_{i,t} \) are the subsequent \( i \) announcer's and first announcer's number of positive earnings surprises over the previous 20 quarters prior to quarter \( t \), respectively. \( SAES_{i,t} \) and \( FAES_{i,t} \) are the subsequent \( i \) announcer's and first announcer's earnings surprise in quarter \( t \), respectively. The earnings surprise is calculated as the difference between the actual quarterly EPS and the mean forecast for that quarter scaled by the last available stock price in the quarter.

Previous research on the persistency of earnings surprises considers the sequence of the earnings surprises (Barth, Elliott, & Finn, 1999; Bartov, Givoly, and Hayn, 2002; Kasznik and McNichols, 2002). But in this study we ask two different questions regarding the earnings surprises: (1) How often does the firm exceed analysts' forecasts? (2) How much, on average, does the firm exceed forecasts over the previous 20 quarters? Our first research question provides insight into the persistency of positive earnings surprises while the second offers perspective into the actual magnitude of the earnings surprise.

We also include a number of other control variables in our empirical analysis. These include: \( MRET10_{i,t} \) (\( MRET10_{own,i,t} \)), the subsequent \( i \) announcer's mean of the returns
excluding dividends over the last 10 trading days before the first (own) announcement in quarter $t$; $MATV10_{i,t}$ ($MATV10_{own_{i,t}}$) which is the subsequent $i$ announcer's mean of the abnormal trading volume over the last 10 trading days prior to the first (own) announcement in quarter $t$; $MRET_{182_{i,t}}$ ($MRET_{182_{own_{i,t}}}$), the subsequent $i$ announcer's mean return over the last six months, but 10 trading days prior to the first (own) announcement in quarter $t$; $MV_{i,t}$, the logarithm of the market value of firm $i$ in quarter $t$ which is calculated as the number of shares outstanding at the end of the quarter multiplied by the last available share price for that quarter; $BM_{i,t}$, the book-to-market value of firm $i$ in quarter $t$ is calculated as the logarithm of the ratio of total assets minus depreciation to the market value; $ACC_{i,t}$, the accruals of firm $i$ in quarter $t$ calculated as the change in the working capital minus depreciation from the previous quarter scaled by total assets.

Inclusion of mean returns over the last six months and the last ten trading days helps to control for long- and short-term price momentum (Jegadeesh and Titman, 2001; Cooper, Gutierrez, & Hameed, 2004). The mean of the abnormal trading volume over the last ten trading days is included to remove any short-term trend in trading volume due to managerial incentives to trade strategically prior to an announcement (Korczak et al, 2010). Consistent with Thomas and Zhang (2008), variables such as $MV$ and $BV$ are included to control for possible size and book-to-market effects. $ACC$ is used to account for investors' failure to incorporate information contained in the firm’s use of accruals (Sloan, 1996).

4. Data and Sample Statistics

4.1 Data

In this study we examine U.S. stocks over the period January 1994 to March 2013. Our sample ranges from 4,400 to 4,597 firms, depending on the specific analysis. The data on market variables such as stock prices, trading volume, and returns are drawn from CRSP. We
use IBES quarterly data to estimate analysts' forecasts of earnings per share. Accounting information for our sample firms is obtained from Compustat.

From the IBES summary data file, we use the actual earnings per share (EPS) and the most recent mean of EPS forecasts made for the current quarter. We drop those observations presented in currencies other than U.S. dollars. We restrict the sample to those firms which have a standard fiscal quarter end (i.e., March 31, June 30, September 31, December 31) to make sure that the first announcing firm and its peers report results for the same fiscal quarter. We discard those observations if a firm reports later than 91 days after the end of a forecast period.

In the analysis of the cumulative abnormal returns at the time of the first announcement, we limit the sample of subsequent announcing firms to those firms which report at least 3 days after the end of the event window. For instance, to be included in the sample for the event window of days 0 through +1, the subsequent announcer should report no earlier than the fifth day after the first announcement. To calculate the means of the returns and trading volume from CRSP daily data, we require firms to have at least 50% non-missing observations for a particular interval window.

4.2 Sample Statistics

To avoid the effect of outliers, we winsorize all variables below the 1st and above the 99th percentiles, respectively.\(^3\) We also discard those observations for which Cook's distance is equal to or greater than one. The descriptive statistics of the cumulative abnormal returns, abnormal trading volume, and the other control variables are provided in Tables 1, 2, and 3 respectively.

\(^3\) The analysis was also done without dropping any observation and the results show a similar pattern.
The comparison of the cumulative abnormal returns upon the first and own announcements (Table 1; Figure 2) suggests that they are, on average, higher upon the firm's own announcement. At the same time, we do not find any differences in the behavior of the cumulative abnormal returns upon the first and own announcements for the event windows of days +2 through +5 and days +6 through +10.

The summary statistics for the abnormal trading volume of the first and subsequent announcers upon their own announcements (Table 2; Figure 3) reveals a comparable pattern for both groups of firms. That is, abnormal trading volume increases one day before the firm's own announcement, increases on the announcement day and one day after, and then begins to decline. This pattern is consistent with Chae (2005), since these announcements contain new information about the firm. That is why these announcements draw market attention to the firms, which can lead to increased trading activity (Hirshleifer et al., 2009). This greater trading volume prior to the announcement is consistent with pre-announcement informative trading by short sellers (Christophe et al., 2004). Although the pattern is the same for both first and subsequent announcers, we find some evidence that abnormal trading volume is, on average, higher for the first announcer. We hypothesize that this difference results from the trading activity in the stocks of the subsequent announcer between the first and a firm's own subsequent announcements.

Figure 3 also provides a graphical comparison of the subsequent announcer's abnormal trading volume at the time of first and its own announcement. The behavior of the subsequent announcer's abnormal trading volume upon the first announcement does not follow the pattern of the abnormal trading volume at the time of the firm's own subsequent announcement. Moreover, one can see that the mean abnormal trading volume of the subsequent announcer is, on average, higher before the first announcement than upon the firm's own announcement. This
suggests that trading volume can contain different information, depending on the announcement.

5. Empirical Findings

5.1. First Announcer Window

To test if the information content of abnormal trading volume, and earnings surprises exhibit any relation to the stock performance of subsequent announcers at the time of the first industry announcement, we estimate the following model using robust standard errors:

\[
CAR_{i,t} = \beta_0 + \beta_1 FAES + \beta_2 SAATV_{i,t} + \beta_3 FAATV_{i,t} + \beta_4 SAMES_{i,t} + \\
\beta_5 SANPS_{i,t} + \beta_6 FAMES_{i,t} + \beta_7 FANPS_{i,t} + \gamma Z + \epsilon_{i,t},
\]

where \( CAR_{i,t} \) represents the cumulative abnormal returns of subsequent announcer \( i \) over the appropriate time interval at the time of the first announcement in quarter \( t; \) \( FAES_{i,t} \) is the first announcer's earnings surprise; \( SAATV_{i,t} \) and \( FAATV_{i,t} \) are the subsequent \( i \) and first announcer's abnormal trading volume on the day of the first announcement in quarter \( t; \) \( SAMES_{i,t} \) and \( FAMES_{i,t} \) are the subsequent \( i \) and the first announcer's mean of the earnings surprises over the previous 20 quarters before the current quarter \( t. \) The earnings surprise is calculated as the difference between the actual quarterly EPS and the mean forecast for that quarter scaled by the last available stock price in that quarter; \( SANPS_{i,t} \) and \( FANPS_{i,t} \) are the subsequent \( i \) and first announcer's number of positive earnings surprises over the previous 20 quarters before quarter \( t; \) \( Z \) is the matrix of the other control variables: \( MRET10_{i,t}, MATV10_{i,t}, MRET182_{i,t}, MV_{i,t}, BM_{i,t}, \) and \( ACC_{i,t}; \) \( \epsilon_{i,t} \) is the error term with a zero mean and a constant variance. The models are estimated with year and quarter fixed effects.
Table 4 contains the estimation results for the cumulative abnormal returns at the time of the first earnings announcement in the industry across four different event windows: days 0 through +1; days +2 through +5; days +6 through +10; days +11 through +20. We estimate three models: (1) a basic model which is consistent with previous research findings, (2) a model extended for trading volume, and (3) a full model with trading volume and the history of earnings surprises. For all of the returns windows we observe that the extended and full models perform as well as the basic model (days +11 through +20) or better (days 0 through +1; days +2 through +5; days +6 through +10) as measured by the adjusted R-squared values.

When analyzing the full model (models 3, 6, 9, and 12), the first announcers’ earnings surprise, FAES, is significant in the first 5 days, but subsequently becomes insignificant. The abnormal trading volume, SAATV, is significant within the first 10 days, but becomes insignificant afterwards. The abnormal trading volume of the first announcer, FAATV, is statistically significant, however, in the last window.

In aggregate, the cumulative abnormal returns of subsequent announcers after the first industry announcements is positively related to the first announcer’s earnings surprise as well as its own abnormal trading volume. Their affect vanishes ten days following the announcement. In the the window between 10 to 20 days post announcement, the first announcer’s abnormal trading volume is positively related to the cumulative abnormal returns of the non-announcing (subsequent announcing) firm. These results suggest that the two sources of new information generated by the first industry announcing firm at the time of their own announcement, affect the non-announcing industry firms at the time of the first announcement.
5.2. Subsequent Announcer Window

To test if the information content of abnormal trading volume and earnings surprise bear any relation to the stock performance of subsequent announcers at the time of their own announcement, we estimate the following model using robust standard errors:

\[
CAR_{own\,i,t} = \beta_0 + \beta_1 FAES_{i,t} + \beta_2 SAES_{i,t} + \beta_3 SAATV_{i,t} + \beta_4 FAATV_{i,t} + \\
\beta_5 SAATV_{own\,i,t} + \beta_6 SAMES_{i,t} + \beta_7 FAMES_{i,t} + \beta_8 FANPS_{i,t} + \\
\gamma Zown + \epsilon_{i,t},
\]

where \( CAR_{own\,i,t} \) is the subsequent i announcer's cumulative abnormal returns over the appropriate time interval upon its own announcement. The other variables are comparably defined as in equation (4) in Section 5.1.

Table 5 contains the estimation results of the cumulative abnormal returns at the time of the subsequent announcer's own reporting. Models 1, 3, 5, and 7 do not control for the earnings surprise history. The full models (i.e., 2, 4, 6, and 8) do control for the earnings surprise history. The full models perform a little better based upon the adjusted R-squared values.

When analyzing the full model, the earnings surprise, SAES, is significant across all models. This is consistent with Chan, Jegadeesh, and Lakonishok (1996) and Ramnath (2002) who show that the market underreacts to earnings surprises. The first announcer’s earnings surprise, FAES, is related to the cumulative abnormal returns of the subsequent announcers at their own announcement only in the window between days +2 through +5 and is insignificant in all other models. This suggests that the FAES was incorporated at the time of the first announcer’s announcement. Interestingly, the abnormal trading volumes SAATV and FAATV from the time of the first industry announcement are related to cumulative abnormal returns only in the last window, days +11 through +20, indicating a certain delay in processing the information. The abnormal trading volume created on the day of its own announcement, SAATV_{own}, is significant only in the first two windows: days 0 through +1 and days +2.
through +5. They become statistically insignificant afterwards. These results imply that the two sources of new information which are generated by the industry’s first announcer affects the non-announcing industry firms at the time of its own earnings announcement.

5 Summary and Discussion

When first industry announcing firms release their earnings, two sources of new information are revealed to the market. The first is the abnormal trading volume, which captures differences in opinions regarding the value effect of information (Kim and Verrechia, 1997). The second is earnings surprise information which reveals information about the firm’s future performance (e.g. Bartov, Givoly, and Hayn, 2002).

This research extends the stream of inquiry which examines the responsiveness of trading volume to a firm’s earnings announcements (Clinch & Sinclair, 1987; Firth, 1976; Foster, 1981; Freeman & Tse, 1992; Han & Wild, 1990; Thomas & Zhang, 2008).

The results in this study reveal that new information generated at the first earnings announcement: (1) abnormal trading volume of the first announcing firm, (2) abnormal trading volume of the non-announcing firm at the time of the first industry announcement, and (3) the first announcer’s earnings surprise all help to explain the stock returns of the non-announcing firm. Specifically, it explains their equity performance at the time of the first announcement within the industry and then again after the firm’s own earnings announcement.

These results provide novel insights into how earnings announcements contain both firm specific as well as industry information that is value relevant for investors. These findings are broadly consistent with work in the industrial organization literature and studies of contagion appearing in corporate finance which describe industry spill over effects whereby the performance of one firm affects that of its industry competitors. It is also consistent with
Vuolteenago (2002) who shows that a firm’s stock returns are mainly driven by cash-flow news which can be influenced by the earnings announcements of industry competitors.

References


Figure 1

Event Timeline
This figure depicts the event windows. The first announcement is the announcement of the first firm in the industry. On that date we also obtain the abnormal trading volume of non-anouncing/subsequent announcing firms. The second window is the announcement of the subsequent announcing firms. The time intervals which we analyze are days 0-1 (where day=0 is the first announcement or own subsequent announcement date respectively), days 2-5, days 6-10, and days 11-20.
Figure 2

Average Cumulative Abnormal Returns Over Event Windows

This figure shows the mean and 95% confidence intervals of the cumulative abnormal returns from January 1994 to March 2013. Abnormal returns are estimated from a four-factor model with a 252-day estimation period that ends 46 days prior to the announcement day. The cumulative abnormal returns are calculated over days 0-1, 2-5, 6-10, and 11-20. We use the IBES earnings announcement dates and restrict the sample to those firms which have a standard fiscal quarter end (March 31, June 30, September 31, December 31). We discard observations if a firm reports later than 91 days after the end of a forecast period and observations when there is more than one firm reporting on the first announcement date. We restrict the sample of subsequent announcing firms to those firms which report at least three days after the end of the appropriate time interval. The descriptive statistics of the cumulative abnormal returns are presented in Table 1. CAR represents the percentage cumulative abnormal return.
Figure 3

Average First and Subsequent Announcers' Abnormal Trading Volume

This figure shows the mean and 95% confidence intervals of abnormal trading volume of the first and subsequent announcing firms around the earnings announcement day. \( SAATV \) and \( FAATV \) are the subsequent and first announcer's abnormal trading volume respectively. We use the IBES earnings announcement dates and restrict the sample to those firms which have a standard fiscal quarter end (March 31, June 30, September 31, and December 31). We discard observations if a firm reports later than 91 days after the end of a forecast period and if there is more than 1 firm reporting on the first announcement date. We restrict the sample of subsequent announcing firms to those firms which report at least three days after the end of the appropriate time interval.
Table 1

Summary Statistics of Cumulative Abnormal Returns

This table shows the summary statistics of the subsequent announcers’ cumulative abnormal returns over our sample period. Abnormal returns are derived from a four-factor model with a 252-day estimation period that ends 46 days prior to the announcement day. The cumulative abnormal returns are calculated over event windows: 0-1, 2-5, 6-10, and 11-20. We use the IBES earnings announcement dates and restrict the sample to those firms which have a standard fiscal quarter end (March 31, June 30, September 31, December 31). We discard observations if a firm reports later than 91 days after the end of a forecast period and if there is more than one firm reporting on the first announcement date. We restrict the sample of subsequent announcing firms to those firms which report at least three days after the end of the appropriate time interval.

<table>
<thead>
<tr>
<th>Days</th>
<th>First Announcement</th>
<th>Own Subsequent Announcement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>0-1</td>
<td>53,809</td>
<td>-0.03</td>
</tr>
<tr>
<td>2-5</td>
<td>46,104</td>
<td>-0.09</td>
</tr>
<tr>
<td>6-10</td>
<td>36,554</td>
<td>-0.08</td>
</tr>
<tr>
<td>11-20</td>
<td>13,625</td>
<td>-0.2</td>
</tr>
</tbody>
</table>
Table 2
Summary Statistics of Abnormal Trading Volume
This table presents the summary statistics for abnormal trading volume of the first and subsequent announcing firms around the earnings announcement day. $FAATV$ is the abnormal trading volume of the first industry announcing firm. $SAATV$ is the abnormal trading volume of the subsequent industry announcing firm on the day of the first industry announcing firm. $SAATV_{own}$ is the abnormal trading volume of the subsequent industry announcing firm on the day of its own first quarterly earnings announcement. We use the IBES earnings announcement dates and restrict the sample to those firms which have a standard fiscal quarter end (March 31, June 30, September 31, December 31). We discard observations if a firm reports later than 91 days after the end of a forecast period and if there is more than one firm reporting on the first announcement date. We restrict the sample of subsequent announcing firms to those firms which report at least three days after the end of the appropriate time interval.

<table>
<thead>
<tr>
<th>Days</th>
<th>Abnormal Trading Volume of First Industry Announcing Firms (FAATV)</th>
<th>Subsequent Industry Announcing Firms</th>
<th>Abnormal Trading Volume Around Day of First Industry Announcing Firm (SAATV)</th>
<th>Abnormal Trading Volume Around Its Own Announcement Day (SAATV_{own})</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>-10</td>
<td>4,302</td>
<td>0.08</td>
<td>1.40</td>
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<td>1.44</td>
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Table 3
Summary Statistics Control Variables
This table contains the summary statistics for the control variables. **SAMES** and **FAMES** are the subsequent and first announcer’s mean earnings surprises over the previous 20 quarters, where the earnings surprise is calculated as the difference between the actual quarterly EPS and the mean forecast for that quarter, scaled by the last available stock price in that quarter. **SANPS** and **FANPS** are the subsequent and first announcer’s number of positive earnings surprises over the previous 20 quarters. **SAES** and **FAES** are the subsequent and first announcer’s earnings surprise. **MRET10** and **MRET10own** are the subsequent announcer’s mean return excluding dividends over the last 10 trading days before the first announcement and own announcement respectively. **MATV10** and **MATV10own** are the mean abnormal trading volumes over the last 10 trading days before the first and own announcement, respectively. **MRET182** and **MRET182own** are the subsequent announcer’s mean of the returns over the last 182 days (or six months) before the first and own announcement respectively. **MV** is the logarithm of the market value calculated as the number of shares outstanding at the end of the quarter multiplied by the last available stock price in that quarter. **BM** is the book-to-market ratio, which is calculated as the logarithm of the ratio of total assets minus depreciation to the market value of equity. **ACC** is the firm’s accruals calculated as the change in the working capital from the previous quarter minus depreciation scaled by total assets.

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<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>N</th>
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<td>-0.04</td>
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<tr>
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<tr>
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<td>0.06</td>
<td>-0.27</td>
<td>0.38</td>
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</tbody>
</table>
Table 4
Cumulative Abnormal Returns Upon The First Earnings Announcement in the Industry
SAATV and FAATV are the subsequent and first announcer’s abnormal trading volume on the day of first announcement. SAMES and FAMES are the subsequent and first announcer’s mean earnings surprises over the previous 20 quarters, where the earnings surprise is calculated as the difference between the actual quarterly EPS and the mean forecast for that quarter. SANPS and FANPS are the subsequent and first announcer’s number of positive earnings surprises over the previous 20 quarters; FAES is the first announcer’s earnings surprise. Other controls include, besides the intercept: MRET10 is the subsequent announcer’s mean of the returns excluding dividends over the last 10 trading days before the first announcement. MATV10 is the mean abnormal trading volume over the last 10 trading days before the first announcement. MRET182 is the subsequent announcer’s mean return over the last 182 days (or six months). MV is the logarithm of the market value of equity calculated as the number of shares outstanding at the end of the quarter multiplied by the last available stock price in that quarter. BM is the book-to-market value ratio which is calculated as the logarithm of the ratio of total assets minus depreciation to the market value of equity. ACC is the firm’s accruals calculated as the change in the working capital from the previous quarter minus depreciation scaled by total assets. Robust standard errors in parentheses. Statistical significance at the one, five, and ten percent levels is indicated by ***, **, *, respectively.

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Cumulative Abnormal Returns Over Select Event Windows</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Days 0-1</td>
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<tr>
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<tr>
<td></td>
<td>(3.22)</td>
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<tr>
<td>SAATV</td>
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<tr>
<td>FAATV</td>
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</tr>
<tr>
<td></td>
<td>(0.01)</td>
</tr>
<tr>
<td>SANPS</td>
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</tr>
<tr>
<td></td>
<td>(0.00)</td>
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<tr>
<td>FAMES</td>
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<tr>
<td></td>
<td>(5.62)</td>
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<tr>
<td>FANPS</td>
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<tr>
<td></td>
<td>(0.00)</td>
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<tr>
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<tr>
<td>Adj. R-squared</td>
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Table 5
Cumulative Abnormal Returns Upon Own Subsequent Announcement

$SAATV_{own}$ is the abnormal trading volume on the day of the own announcement. $SAATV$ and $FAATV$ are the subsequent and first announcer’s abnormal trading volume on the day of first announcement. $SAMES$ and $FAMES$ are the subsequent and first announcer’s mean earnings surprises over the previous 20 quarters, where the earnings surprise is calculated as the difference between the actual quarterly EPS and the mean forecast for that quarter scaled by the last available stock price in that quarter. $SANPS$ and $FANPS$ are the subsequent and first announcer’s number of positive earnings surprises over the previous 20 quarters. $SAES$ and $FAES$ are the subsequent and first announcer’s earnings surprise. Other controls include, besides the intercept: $MRET_{10own}$ is the subsequent announcer’s mean of the returns excluding dividends over the last 10 trading days before the own announcement. $MATV_{10own}$ is the mean abnormal trading volume over the last 10 trading days before the own announcement. $MRET_{182own}$ is the subsequent announcer’s mean of the returns over the last 182 days (or six months). $MV$ is the logarithm of the market value, calculated as the number of shares outstanding at the end of the quarter multiplied by the last available stock price in that quarter. $BM$ is the book-to-market value, which is calculated as the logarithm of the ratio of total assets minus depreciation to the market value. $ACC$ is the accruals calculated as the change in the working capital from the previous quarter minus depreciation scaled by total assets. Robust standard errors in parentheses. Statistical significance at the one, five, and ten percent levels is indicated by ***, **, *, respectively.

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<th>Independent Variables</th>
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<td>(5.78)</td>
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<td></td>
<td>(0.04)</td>
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<tr>
<td>FAATV</td>
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</tr>
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<td>(0.02)</td>
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Abstrakt
Tato studie zkoumá citlivost objemu obchodovaných akcií na zveřejnění výsledků firmy. Zjistili jsme, že neočekávané informace a informace o objemu generované při prvním oznámení v rámci jednoho odvětví pomáhají vysvětlit výnosy z akcií firem ve stejném odvětví, které ale výsledky nezveřejnují. Konkrétně to vysvětluje chování jejich akcií v době prvního průmyslového oznámení v oboru a poté znovu po oznámení vlastního hospodářského výsledku. Tyto výsledky poskytují nové poznatky o tom, jak oznámení o výnosech obsahují informace o jednotlivé firmě a také i o průmyslu, které jsou pro investory relevantní.
Individual researchers, as well as the on-line and printed versions of the CERGE-EI Working Papers (including their dissemination) were supported from institutional support RVO 67985998 from Economics Institute of the CAS, v. v. i.

Specific research support and/or other grants the researchers/publications benefited from are acknowledged at the beginning of the Paper.

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Published by
Charles University, Center for Economic Research and Graduate Education (CERGE) and
Economics Institute of the CAS, v. v. i. (EI)
CERGE-EI, Politických vězňů 7, 111 21 Prague 1, tel.: +420 224 005 153, Czech Republic.
Printed by CERGE-EI, Prague
Subscription: CERGE-EI homepage: http://www.cerge-ei.cz

Phone: + 420 224 005 153
Email: office@cerge-ei.cz
Web: http://www.cerge-ei.cz

Editor: Byeongju Jeong

The paper is available online at http://www.cerge-ei.cz/publications/working_papers/.

ISBN 978-80-7343-470-0 (Univerzita Karlova, Centrum pro ekonomický výzkum a doktorské studium)