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Do transient institutions overreact to small negative earnings surprises?

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Abstract

Using a proprietary database of institutional investors' stock transactions, we examine whether transient institutions overreact to the announcement of small negative earnings surprises defined as quarterly earnings that fall short of analysts' consensus forecasts by one cent. Transient institutions' selling in response to the announcement of small negative earnings surprises is significant and is greater than transient institutions' selling in response to the announcement of large negative earnings surprises. Furthermore, transient institutions' selling in response to the announcement of small negative earnings surprises is positively associated with the contemporaneous abnormal stock return. However, transient institutions' selling in response to the announcement of small negative earnings surprises is positively associated with the abnormal return in the three months subsequent to the earnings announcement window, suggesting that transient institutions' trading response to small negative earnings surprises is not an overreaction that results in a temporary stock mispricing. Our results are inconsistent with the common managerial allegation that transient institutions would dump a firm's shares indiscriminatingly whenever there is a small shortfall of reported earnings versus analysts' consensus forecasts.

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1. Introduction

A large body of accounting research documents that managers of publicly traded U.S. firms are willing to manipulate accounting accruals and real firm activities to avoid missing analysts' short-term earnings forecasts (see, e.g., DeGeorge et al. 1999; Kasznik and McNichols 2002; Dhaliwal et al. 2004; Brown and Caylor 2005; Graham et al. 2005; Hribar et al. 2006; Roychowdhury 2006; Bhojraj et al. 2009). One frequently cited reason for such myopic managerial behavior is the capital market pressure (see Graham et al. 2005; McVay et al. 2006).[1] Many commentators (see, e.g., Lowenstein 1988; Jacob 1991; Porter 1992) allege that corporate managers' myopic short-term focus is caused by the short-term focus of many institutional investors (referred to as transient institutions hereafter).[2] There is a concern among managers that transient institutions cannot correctly interpret reported earnings and thus would dump a firm's stock whenever there is a negative earnings surprise. Furthermore, Froot et al. (1992) show analytically that institutional investors' short horizons may result in myopic trading behavior such as herding on the same information that is completely unrelated to firm fundamentals. Many managers are particularly worried that even an innocuous small negative earnings surprise may trigger a large-scale selling by transient institutions, resulting in an increased risk of a temporary stock mispricing.[3]

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[1] Stein (1989) discusses several reasons why managers care about short-term stock prices, such as takeover threat, the need to raise new equity, and managerial compensation that is sensitive to short-term stock prices.

[2] Although institutional investors' short investment horizons could result from irrationality, several studies show that short horizons may also arise endogenously from the uncertainty about a money manager's investment skills or imperfections in capital markets such as credit rationing (see, e.g., Narayanan 1985; Shleifer and Vishny 1990).

[3] The existing literature finds no evidence of a stock price overreaction to small negative earnings surprises on average (see Kinney et al. 2002; Skinner and Sloan 2002; Hand 2002). However, prior research has not investigated whether stock prices overreact to small negative earnings surprises for firms with heavier transient institutional trading.

Consistent with this myopic investor view, existing research shows that firms with higher transient institutional ownership are more likely to take costly actions to reverse an earnings decline (Bushee 1998) or avoid missing analysts' earnings forecasts (Matsumoto 2002). Bushee (2001) finds that higher transient institutional ownership is associated with an overpricing (underpricing) of the firm's near-term expected earnings (long-term expected earnings).

However, the myopic investor view is inconsistent with a competing view that regards transient institutions as sophisticated investors who possess a superior ability to access and process public and private information (see, e.g., Walther 1997; El-Gazzar 1998; Balsam et al. 2002; Jiambalvo et al. 2002). Under this sophisticated investor view, transient institutions would not mechanically react to small negative earnings surprises and thus are not responsible for corporate managers' myopic earnings management behavior. In addition, as sophisticated investors, transient institutions may serve as an arbitrage force by trading against other investors who misreact to small negative earnings surprises (see Ke and Ramalingegowda 2005).

Using a proprietary database of institutional investors' stock transactions over the period 1999-2005, the objective of this study is to provide direct evidence on the key question of contention underlying the two competing views: do transient institutions overreact to the announcement of small negative earnings surprises? We examine three specific research questions. We first examine whether transient institutions' average selling in response to the announcement of small negative earnings surprises is significantly different from zero and is higher than their average selling in response to the announcement of large negative earnings surprises. To mitigate the effects of confounding events on institutional investors' trading, we focus on transient institutions' trading on the day immediately following the quarterly earnings announcement (denoted event day zero). Inferences are similar if we use transient institutions' trading over a 5-trading day period that starts on event day zero. If transient institutions' trading does not move stock prices, corporate managers should not be concerned about their trading behavior. Hence, our second question examines the contemporaneous association between transient institutions' trading and abnormal stock returns on event day zero for small negative earnings surprises. While it is difficult to directly demonstrate the causal impact of transient's trading on stock prices, the contemporaneous association between transient's trading and abnormal returns on event day zero must be positive if transient institutions' trading moves stock prices. Our third question examines whether transient institutions' trading reaction to small negative earnings surprises on event day zero predicts future abnormal stock returns. If transient institutions' trading represents informed trading (blind selling), they should be (not be) positively correlated with future abnormal stock returns.

Until recently there was no detailed data on institutional investors' stock transactions in the U.S. and thus it is difficult to address our research question. Most extant institutional investor research uses Spectrum's quarterly ownership disclosure mandated by the SEC.[4] Lang and McNichols (1997, Table 5) document that quarterly institutional ownership changes are positively associated with contemporaneous quarterly earnings surprises and quarterly abnormal stock returns. Using a sample of 203 publicly traded U.S. firms over 1992-1997, Hotchkiss and Strickland (2003) find that for firms

[4] Pioneered by Lee and Ready (1991), a separate empirical literature uses NYSE's TAQ database to infer the buy and sell trades of institutional investors versus individual investors (see, e.g., Lee 1992; Bhattacharya 2001; Campbell et al. 2009). No study in this literature examines our research question.

that report negative earnings surprises, the quarterly institutional ownership change around an earnings announcement and the stock price reaction to the earnings announcement are more negative for firms with higher levels of ownership by momentum and aggressive growth institutional investors. However, they find no evidence that stock prices overreact to negative earnings surprises as evidenced by the lack of reversal of future abnormal returns for the full sample or for the high versus low institutional ownership subsamples.[5]

Neither of the above two studies analyzes institutional investors' trading response to *small* negative earnings surprises, which is at the heart of the expressed managerial concern. In addition, using the quarterly institutional ownership change to measure transient institutions' trading reaction to an earnings announcement is problematic for several reasons. First, the quarterly institutional ownership change is at best a noisy measure of institutional investors' reaction to an earnings announcement. The Pearson (Spearman) correlation between transient institutions' trading on event day zero and their trading over the calendar quarter of the earnings announcement is only 0.34 (0.28) in our sample. In addition, we show in Section 6.1 that using transient institutions' ownership change over the entire quarter of the earnings announcement as a proxy for their trading reaction to the earnings announcement may lead to erroneous conclusions. Second, earnings announcement is not the only news event during a quarter and thus any contemporaneous relation between quarterly earnings surprises and quarterly institutional ownership changes could be driven by institutional investors' reaction to correlated omitted events other than the earnings announcement in the quarter. Finally, the quarterly

[5] Hotchkiss and Strickland (2003) find similar results when limiting their sample to large negative earnings surprises (i.e., earnings surprises less than -1 cent)

institutional ownership change does not distinguish institutional investors' trading prior to an earnings announcement from their trading subsequent to the earnings announcement. While institutional investors' excessive selling subsequent to the announcement of a small negative earnings surprise could be interpreted as evidence of an overreaction, institutional investors' trading prior to the earnings announcement could reflect their superior private information about the forthcoming earnings announcement and thus be more consistent with the sophisticated investor view.

Our transient institution definition follows Bushee (2001), which classifies all institutional investors into three types: transient, dedicated, and quasi-indexing. We define a small negative earnings surprise as an earnings surprise per share that is exactly equal to -1 cent and a large negative earnings surprise as an earnings surprise per share less than -1 cent. Consistent with the managerial concern, transient institutions' average selling on event day zero in response to the announcement of small negative earnings surprises is significant and is greater than their average selling on event day zero in response to the announcement of large negative earnings surprises. In addition, transient institutions' trading reaction to the announcement of small negative earnings surprises is positively correlated with the contemporaneous abnormal stock return, consistent with the managerial concern that transient institutions' trading has a material impact on contemporaneous stock prices. However, we find no evidence that transient institutions' trading reaction to the announcement of small negative earnings surprises is an overreaction that results in a temporary stock mispricing. Specifically, transient institutions' trading on event day zero is positively associated with the abnormal stock return in the three months subsequent to the earnings announcement date. Overall, we find no evidence that transient institutions react myopically to the announcement of small negative earnings surprises.

What could be the sources of transient institutions' information on the quality of small negative earnings surprises? While it is impossible to investigate all the sources, we consider three possibilities that are of interest to accountants, including discretionary accruals that are negatively associated with future abnormal returns (Sloan 1996; Xie 2001), access to management's private information proxied using a Regulation FD dummy variable, and access to sell-side analysts' private information. We find no evidence that transient institutions' information is attributed to discretionary accruals or better access to corporate management's private information, but we find evidence that transient institutions who pay for sell-side analysts' research services have a better ability to distinguish the quality of small negative earnings surprises.

Although not the primary focus of this study, we also analyze dedicated and quasi-indexing institutions' trading behavior in response to the announcement of small negative earnings surprises. We find no evidence that these two types of institutions sell significantly on event day zero, their trading on event day zero has a smaller impact on contemporaneous stock prices and cannot predict future abnormal stock returns. These results are broadly consistent with the prior literature's finding that dedicated and quasi-indexing institutions do not trade on short-term earnings news (see, e.g., Ke and Petroni 2004).

The findings from this study have interesting implications for corporate managers, investors, and researchers. Our evidence suggests that the common managerial belief about myopic transient institutions is either systematically wrong or self serving.

Alternatively, it is some unknown investors (e.g., small investors) who are responsible for the alleged capital market pressure for corporate managers to manage earnings. Our results also suggest the necessity of revisiting prior earnings management studies that have implicitly assumed the myopic institutional investor view.

The rest of the paper is organized as follows. Section 2 describes the sample selection procedures and data sources. Section 3 presents the regression models for our three research questions. Section 4 discusses the regression results for transient institutions while Section 5 reports the regression results for dedicated and quasi-indexing institutions. Section 6 shows transient institutions' regression results using alternative AVE_NETBUY definitions and provides preliminary evidence on the sources of private information reflected in transient institutions' trading on event day zero. Section 7 concludes.

2. Sample selection procedures and data sources

2.1. Institutional investor data

The data on institutional investors' stock transactions for the period 1/1/1999-12/31/2005 came from the Abel/Noser Corporation, a widely recognized consulting firm that works with institutional investors to monitor their equity trading costs.[6] Abel/Noser's clients include pension plan sponsors such as CALPERS and portfolio money managers such as Fidelity. The Abel/Noser database includes all the trades of the included money managers over 1999-2005. Abel/Noser received the trading data directly from the Order Delivery System (ODS) of all money manager clients. The method of data delivery for

[6] Concurrent academic studies that have used the Abel/Noser data include Goldstein et al. (2009), Chemmanur and Hu (2007), Lipson and Puckett (2007), and Puckett and Yan (2008).

pension plan sponsors is more heterogeneous, but similar to money managers, the database includes all executed trades of the pension plan sponsors. For each stock trade the Abel/Noser database discloses the institution identity code (denoted clientcode), date of execution, stock traded, number of shares executed, execution price, and whether the trade is a buy or sell. Although the Abel/Noser database contains the time stamps of the institutional stock trades, they are not reliable and thus not used to construct our institutional trading variable. Unlike Spectrum, Abel/Noser does not disclose institutional investors' stock holdings at any time. In addition, to protect the privacy of the firm's clients, Abel/Noser does not disclose the names of its institution clients nor provide a link between the clientcode and mgrnum, the institution identity code used in Spectrum.

We obtained the three types of institutional investor classifications from Brian Bushee, which are based on Spectrum's quarterly institutional ownership data compiled from the SEC 13f filings. Bushee collected six variables that capture the past investment behavior of each institutional investor in terms of both portfolio diversification and turnover and then use both principal factor analysis and cluster analysis to group institutions into three clusters: transient, quasi-indexing, or dedicated (see Bushee 1998 and 2001 for the details). Transient institutions have high portfolio turnover and a diversified portfolio. Dedicated institutions have low turnover and more concentrated portfolio holdings while quasi-indexing institutions have low turnover and diversified portfolio holdings. Although Bushee performs the trading classification annually, each institution's trading classification is highly stable over time. The classifications all have a year-to-year correlation of greater than 0.80. Therefore, we assign each institution to the type that is the most frequent over the maximum available sample period 1979-2005.

This approach results in 1,015 transient institutions, 169 dedicated institutions, and 1,874 quasi-indexing institutions for the entire Spectrum database.[7]

To link Bushee's institutional investor classifications with Abel/Noser's trading data, we use a self-created algorithm to match the clientcode in the Aber Noser database with the mgrnum in Spectrum (see Appendix A for the details).[8] The Abel/Noser database contains a total of 840 different institutions but we are able to achieve matching for only 103 institutions. However, as shown in Table 1, the 103 institutions represent approximately 70% of the 840 institutions in terms of either the dollar value of shares traded or the number of shares traded over 1999-2005. Among the 103 matched institutions, 35 are transient, 8 dedicated, and 51 quasi-indexing. Nine of the 103 institutions do not have Bushee's classifications and thus will be dropped in subsequent analyses. As shown in Table 1, the nine dropped institutions represent a negligent portion of our sample in terms of trading volume.

Relative to the population of institutions in the Spectrum database over the same period 1999-2005, the institutions in our final sample are significantly larger as a whole or by each of the three Bushee classifications. For example, the median portfolio size is only US$373 million for all the institutions in Spectrum but US$6,315 million for the 94 institutions in our final sample. To determine whether our empirical results are limited to large institutions only, we re-estimated the primary regression models in Tables 3-5 using only the bottom half of the institutions based on each institution's median dollar value

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[7] By construction, transient institutions are expected to trade on short-term earnings news more frequently than the other two types of institutions, but this fact does not necessarily imply that transient institutions would misreact to earnings news.

[8] As shown in Appendix A, the matching between Abel/Noser's clientcode and Spectrum's mgrnum should be reasonably accurate. However, as a precaution, we do not use the Spectrum data except for Bushee's institution type classifications and the beginning-of-quarter total institutional ownership required for our sample selection procedures in Section 2.

portfolio size over 1999-2005 and found similar inferences (untabulated). The only exception is that the coefficient on SMALLNEG_SUR in column (1) of Table 3 is not significantly negative any more, suggesting that smaller transient institutions do not sell significantly more in response to the announcement of small negative earnings surprises than to the announcement of large negative earnings surprises.

2.2. Quarterly earnings announcement data

We retain all the quarterly earnings announcements (including the fourth fiscal quarter) in IBES between 1999 and 2005 (inclusive) that meet the following requirements:

(a) Have non-missing IBES ticker, cusip, forecasting period ending date, earnings announcement date, actual unadjusted EPS from the IBES unadjusted database.

(b) Have non-missing consensus (i.e., median) forecast from the IBES unadjusted database issued immediately before (i.e., within 35 calendar days prior to) the earnings announcement date. We use a cutoff of 35 days because a significant number of consensus earnings forecasts immediately prior to an earnings announcement are issued between 30 and 35 days prior to the earnings announcement.

(c) Have non-missing GVKEY/PERMNO, and book-to-market and market capitalization at the end of the fiscal quarter from the CRSP/COMPUSTAT merged database. We need to use GVKEY/PERMNO to obtain data from COMPUSTAT/CRSP. We require non-missing book-to-market and market capitalization because firms with missing values for those two variables are likely to have missing values for other variables we need in later regressions.

(d) Earnings announcement dates are within 45 days after the fiscal quarter-end for fiscal quarters 1-3 and within 90 days after the fiscal year-end for the 4th fiscal quarter. This requirement eliminates delayed earnings announcements that could cause unnecessary complications for our regression analyses. During our sample period publicly traded firms are required to file with the SEC the quarterly reports within 45 days after the fiscal quarter end and the annual reports within 3 months after the fiscal year end.

(e) For each calendar quarter, we retain only the earliest earnings announcement if there are multiple earnings announcements for different fiscal quarters.

(f) Retain only U.S. common stocks (CRSP share code = 10 or 11).

Those restrictions result in a sample of 78,576 quarterly earnings announcements over 1999-2005.

We further require all the earnings announcements to be made either before the market opening or after the market closing. We eliminate the earnings announcements made during the market trading hours because we do not have reliable time stamps of institutional investors' trades and thus cannot determine the timing of institutional trades relative to the timing of the earnings announcement for these observations. We obtain the time stamps of the earnings announcements from Thomson Financial's Streetevents database, which is also used by the Wall Street Journal.[9] We retained 44,665 (56.8%) out

[9] Two recent studies (Berkman and Truong 2009; Doyle and Magilke 2007) verified the accuracy of the earnings announcement time stamps from the Wall Street Journal. We also checked the accuracy of 15 randomly picked time stamps from the Streetevents against the newswire releases in Factiva. We find that

of the 78,576 earnings announcements from IBES after this sample restriction. We lost 31,708 earnings announcements due to missing announcement time stamps from Streetevents and 2,203 (about 4.7% of all earnings announcements with valid time stamps) earnings announcements that are made during normal trading hours. Although we lost almost half of the earnings announcements, our final sample does not appear to be severely biased because the distribution of the earnings surprises is similar for the retained observations and the lost observations (untabulated).

2.3. The final sample

We merge the institutional stock transactions in Sections 2.1 (the unit of observation is a firm-institution-day) with the earnings announcements in Section 2.2 (the unit of observation is a firm-quarter) to create the final sample used to calculate institutional investors' trading in response to earnings announcements. Specifically, we link each firm's earnings announcement to *each* of the 103 institutions, including the institutions that have no trading records around the firm's earnings announcement per Abel/Noser. That is, if an institution never traded around an earnings announcement in a firm quarter, we create new observations for the days around the earnings announcement and code the value of the stock trade to be missing for the new observations. The unit of observation in the final sample is a firm-institution-day.

There are several reasons why not all of the 103 institutions have trading observations in the days around all the earnings announcements. First, some institutions entered the Abel/Noser database after 1999 (the first year of our sample) or exited the

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all of them are correct except that one time stamp is a few minutes later than the release time of the first newswire article on Factiva.

database before 2005 (the last year of our sample). Thus, these institutions' trades prior to the entry or subsequent to the exit, even if they exist, are not recorded in the database. Clearly it is incorrect to assume that there are no trades around the earnings announcements for those institutions. To control for this data truncation problem, we require each of the 103 institutions to have non-missing trading observations in at least one firm in each of the five months centered around the earnings announcement month. The 5-month cutoff is arbitrarily selected but we have no reason to believe our inferences are sensitive to this cutoff.

Second, some firms are not on the radar screens of the 103 institutions and thus we observe no stock trades by the institutions in the days around those firms' earnings announcements. Given the nature of our research questions, we believe that it is more appropriate to exclude such firm-quarter-institution trading observations from our analysis. As it is difficult to determine which firms are on an institution's radar screen, we use the following sample restrictions as an approximation:

(a) Delete the firm-quarter-institution trading observations associated with the earnings announcements whose total institutional ownership at the beginning of the earnings announcement quarter reported in Spectrum is less than 10% of the common shares outstanding. We assume that firms with low total institutional ownership are less likely to be watched by institutional investors.

(b) Delete the firm-quarter-institution trading observations if the institutions never traded in the firm during our sample period per Abel/Noser. We assume that the firms that an institution never traded on during our sample period are less likely to be on the watch list of that institution.

Third, for the remaining institutions whose stock trade values are missing for the days around the earnings announcements, we assume that the missing trading values are due to the institutions' conscious decision not to trade and therefore are recoded zero.

These additional sample restrictions reduce the sample to 42,779 earnings announcements. For firms that report negative earnings surprises, we further require each institution to have a non-zero stock ownership at the beginning of the earnings announcement quarter. We impose this restriction in order to mitigate the concern that institutions do not sell upon the announcement of negative earnings surprises simply because they own no shares in those firms. Our final sample contains 42,632 earnings announcements, 31,774 of which are announcements of non-negative earnings surprises.

3. Regression models

3.1. Transient institutions' trading after the earnings announcement

To test our first research question, we first examine the univariate descriptive statistics of transient institutions' average net stock purchase on event day zero (AVE_NETBUY) for each of the five earnings surprise categories, i.e., large negative earnings surprises, small negative earnings surprises, zero earnings surprises, small positive earnings surprises, and large positive earnings surprises (see Appendix B for all variable definitions including event day zero).[10] We focus on transient institutions' trading on event day zero for two reasons. First, we expect transient institutions to react swiftly to earnings announcements. Second, event day zero's institutional trading is less likely to be contaminated by unobservable confounding events. However, our inferences

[10] As a sensitivity check, we also subtract the mean net institutional purchase over event days -15 to -6 from AVE_NETBUY to obtain an abnormal AVE_NETBUY and find similar results (not tabulated).

are robust to defining AVE_NETBUY over event days [0, +4], a 5-trading day period (see Section 6.1).

Our primary interest is to examine whether transient institutions' mean AVE_NETBUY for small negative earnings surprises is significantly negative by itself and is more negative than transient institutions' mean AVE_NETBUY for large negative earnings surprises. For completeness, we also report the descriptive statistics for zero, small positive, and large positive earnings surprises.

To control for the confounding determinants of AVE_NETBUY, we also estimate the following OLS regression model for transient institutions:

$$\begin{aligned} AVE\_NETBUY &= \alpha + \beta_1 SMALLNEG\_SUR + \beta_2 ZERO\_SUR \\ &+ \beta_3 SMALLPOS\_SUR + \beta_4 LARGEPOS\_SUR + \beta_5 SURPRISE \\ &+ \beta_6 LNSIZE + \beta_7 BM + \beta_8 MOM + \alpha_{calendaryear} + \alpha_{fiscalquarter} + \varepsilon \end{aligned} \tag{1}$$

The coefficient on LARGENEG_SUR is omitted to avoid multicollinearity. We winsorize all the continuous variables at the top and bottom 1% to reduce the influence of outliers. The control variables (SURPRISE, LNSIZE, BM, and MOM) follow Gompers and Metrick (2001) and Griffin et al. (2003).[11] Though not our primary focus of interest, we also estimate model (1) for dedicated and quasi-indexing institutions separately.

Our primary variable of interest is the coefficient on SMALLNEG_SUR, which measures transient institutions' net stock purchase in response to the announcement of small negative earnings surprises relative to transient institutions' net stock purchase in response to the announcement of large negative earnings surprises, after controlling for the common determinants of institutional trading including SURPRISE. Note that we are not interested in the average relation between SURPRISE and AVE_NETBUY which has

[11] Inferences are similar if we allow the coefficient on SURPRISE to differ for positive and negative earnings surprises.

been examined in prior research (see, e.g., Lang and McNichols 1997; Ke and Petroni 2004). Although not our primary variables of interest, we also include ZERO_SUR, SMALLPOS_SUR, and LARGEPOS_SUR to increase the power of the regression estimation. In addition, it is also interesting to examine transient institutions' trading behavior in response to zero or positive negative earnings surprises.

As the unscaled earnings surprise per share is typically the focus of corporate managers and sell-side analysts (see Graham et al. 2005), all of our earnings surprise variables are defined using the unscaled earnings surprise per share.[12] We later rule out the possibility that the coefficient on SMALLNEG_SUR is driven by transient institutions' reaction to the scaled earnings surprises in Section 4.2.

3.2. The contemporaneous association between transient institutions' trading and abnormal stock return on event day zero

We use the following OLS regression model to test our second research question: whether transient institutions' trading response to small negative earnings surprises on event day zero (AVE_NETBUY) is positively associated with the contemporaneous abnormal stock return (AR0):

$$\begin{aligned} AR0 = &(\beta_1 LARGENEG\_SUR + \beta_2 SMALLNEG\_SUR + \beta_3 ZERO\_SUR \\ &+ \beta_4 SMALLPOS\_SUR + \beta_5 LARGEPOS\_SUR) \times (1 + \sum_{i=1}^{3} \gamma_i AVE\_NETBUY_i) \\ &+ \beta_6 LNSIZE + \beta_7 BM + \beta_8 MOM + \varepsilon \end{aligned}$$

(2)

See Appendix B for all the variable definitions. AVE_NETBUY_i is AVE_NETBUY by institution type i (i.e., transient, dedicated, or quasi-indexing). All continuous variables

[12] Results are similar if SURPRISE is scaled by lagged stock price.

are winsorized at the top and bottom 1% to reduce the influence of outliers. Consistent with model (1), regression model (2) includes all five earnings surprise categories. In addition, we include all three types of institutions' AVE_NETBUY in one regression because AR0 could be affected by all three types of institutions' trading on event day zero.[13] We use LNSIZE, BM, and MOM to control for the common size, book-to-market, and return momentum effects.

The variable of interest for our second research question is the coefficient on SMALLNEG_SUR×AVE_NETBUY$_i$ for transient institutions. If transient institutions' trading on event day zero significantly affects contemporaneous stock prices, the coefficient on this interaction term should be significantly positive.

3.3. The association between transient institutions' trading response to small negative earnings surprises and future abnormal return

We use the following OLS regression model to test our third research question: whether transient institutions' trading response to small negative earnings surprises on event day zero (AVE_NETBUY) can predict future abnormal stock return:

$$FUTURE\_AR = (\beta_1 LARGENEG\_SUR + \beta_2 SMALLNEG\_SUR + \beta_3 ZERO\_SUR$$
$$+ \beta_4 SMALLPOS\_SUR + \beta_5 LARGEPOS\_SUR) \times (1 + \gamma AVE\_NETBUY)$$
$$+ \beta_6 LNSIZE + \beta_7 BM + \beta_8 MOM + \varepsilon$$

(3)

See Appendix B for all the variable definitions. AVE_NETBUY refers to the net stock purchase by transient institutions. Following prior research (e.g., Hotchkiss and

[13] Results are robust to excluding AVE_NETBY by dedicated and quasi-indexing institutions.

Strickland 2003), we control for LNSIZE, BM, and MOM. All continuous variables are winsorized at the top and bottom 1% to reduce the influence of outliers.

Consistent with models (1) and (2), regression model (3) includes all five earnings surprise categories. However, different from model (2), we do not include AVE_NETBUY for dedicated and quasi-indexing institutions in model (3). This is because the purpose of model (3) is to examine whether transient institutions' trading on event day zero contains private information about future stock returns rather than whether transient institutions' AVE_NETBUY contains incremental price-relevant information to AVE_NETBUY by dedicated and quasi-indexing institutions. For completeness, we also estimate the same regression model for dedicated and quasi-indexing institutions separately.

We measure FUTURE_AR over 3 months to coincide with the fact that U.S. companies are required to report earnings quarterly. However, inference is robust to defining FUTURE_AR over 10-trading days or 6 months (untabulated). Our primary variable of interest is the coefficient on SMALLNEG_SUR×AVE_NETBUY. If transient institutions can distinguish firms with good future abnormal stock returns from firms with bad future abnormal stock returns within the category of small negative earnings surprises, the coefficient on SMALLNEG_SUR×AVE_NETBUY should be significantly positive. Otherwise, the coefficient should be either zero or even negative.

4. Results on transient institutions' trading behavior

4.1. Descriptive statistics

Table 2 shows the descriptive statistics of the three dependent variables (i.e., AVE_NETBUY for transient, dedicated and quasi-indexing institutions respectively, AR0, and FUTURE_AR) by the five earnings surprise categories. The sample sizes across the three types of institutions are not identical because some of the sample restrictions discussed in Section 2.3 are imposed separately for each institution type.

Panel A reports the descriptive statistics of AVE_NETBUY by the earnings surprise categories for transient, dedicated, and quasi-indexing institutions separately. To increase the readability of the descriptive statistics, AVE_NETBUY is multiplied by 1,000 in Table 2 but not in other tables. Focusing on the transient institutions first in Panel A, we find that the mean AVE_NETBUY is significantly negative for all negative earnings surprises and significantly positive for the "earnings surprise≥+2 cents" category. The mean AVE_NETBUY is insignificant for zero and one cent earnings surprise categories. More importantly, transient institutions' mean AVE_NETBUY for small negative earnings surprises is the most negative among all the five earnings surprise categories (0.013343% of the common shares outstanding). In addition, transient institutions' mean AVE_NETBUY is significantly different for small negative earnings surprises and large negative earnings surprises (two-tailed p=0.013). This evidence is consistent with corporate managers' allegation that transient institutions are more likely to sell shares upon a small shortfall of reported earnings versus expected earnings. However, transient institutions' selling for the small negative earnings surprise category does not seem economically significant relative to their stock holdings at the beginning of the earnings announcement quarter (only 1.83% on average). In addition, as evidenced from the entire distribution of AVE_NETBUY, transient institutions do not always sell shares upon the announcement of small negative earnings surprises. We discuss dedicated and quasi-indexing institutions' AVE_NETBUY in Section 5.

Panel B reports the descriptive statistics of AR0 by the earnings surprise categories. As expected, the mean AR0 is significantly positive (+1.9%) for the "earnings surprises≥+2 cents" category and significantly negative (-2.7%) for the "earnings surprises≤-2 cents" category. More importantly, the mean AR0 for the "earnings surprise=-1 cent" category is also an economically significant -2%, though it is still significantly less negative than the mean AR0 for the "earnings surprise≤-2 cents" category. The large negative AR0 for small negative earnings surprises may explain corporate managers' belief that investors overreact to small negative earnings surprises. It is interesting that the mean AR0 is a significant -1.2% for the zero earnings surprise category. This finding is consistent with Hotchkiss and Strickland (2003) and suggests that the stock market on average does not interpret meeting analysts' consensus earnings forecasts as good news.

Panel C reports the descriptive statistics of FUTURE_AR by the earnings surprise categories. To the extent that the mean AR0 reported in Panel B of Table 2 represents an overreaction, we should expect the mean FUTURE_AR to reverse. Comparing AR0 and FUTURE_AR for the small negative earnings surprise category, we find no evidence that investors on average overreact to small negative earnings surprises because the mean FUTURE_AR for the "earnings surprise=-1 cent" category is insignificantly different from zero (two-tailed p value=0.121). As transient institutions do not always sell shares in response to small negative earnings surprises, the mean FUTURE_AR may fail to detect transient institutions' overreaction in some small negative earnings surprise cases where they sell significantly. Our regression model (3) directly addresses this concern by examining the association between transient institutions' AVE_NETBUY and FUTURE_AR for the small negative earnings surprise category (see Section 4.4 for the results).

Though the earnings surprise categories are sorted based on the unscaled earnings surprise (SURPRISE), consistent with the post-earnings announcement drift literature, investors underreact to large positive earnings surprises (i.e., the "earnings surprise≥+2 cents" category). Both the mean AR0 and mean FUTURE_AR are significantly positive for the large positive earnings surprise category. There is evidence that the mean AR0 reverses in the following three months for both the "earnings surprise≤-2 cents" category and the "earnings surprise=0 cent" category, as evidenced by the significantly positive mean FUTURE_AR (but not the median FUTURE_AR).

4.2. Regression results on transient institutions' trading in response to the announcement of small negative earnings surprises

Table 3 shows the regression results of model (1) for transient (column (1)), dedicated (column (2)), and quasi-indexing (column (3)) institutions, respectively. We will discuss the results for dedicated and quasi-indexing institutions in Section 5. The reported standard errors in this and subsequent tables allow heteroskedasticity and any type of correlation for observations of the same firm but assume independence for observations across different firms (Rogers 1993). We also computed the standard errors and p values using the Fama and MacBeth (1973) method and obtained similar conclusions (untabulated).

Consistent with the univariate results in Table 2, the coefficient on SMALLNEG_SUR in column (1) of Table 3 is significantly negative, suggesting that on average transient institutions sell significantly more stock in response to the announcement of small negative earnings surprises than to the announcement of large negative earnings surprises. It may not be surprising that the coefficients on ZERO_SUR, SMALLPOS_SUR, and LARGEPOS_SUR are all significantly positive, implying that transient institutions' net stock purchase on event day zero is greater for zero and positive earnings surprises than for large negative earnings surprises.

Interestingly, none of the coefficients on the control variables including SURPRISE are insignificant. As we show in Section 6.1, this is partly due to the fact that AVE_NETBUY is measured over one trading day only. In addition, the insignificant coefficient on SURPRISE is likely due to the inclusion of the four earnings surprise dummies because the coefficient on SURPRISE becomes significantly positive if the four earnings surprise dummies are excluded.

We perform several untabulated robustness checks for transient institutions' key variable of interest SMALLNEG_SUR in column (1) of Table 3. First, we allow the coefficients on the four earnings surprise dummies to vary with the earnings surprise scaled by the stock price at the fiscal quarter end. The interaction coefficient between SMALLNEG_SUR and the scaled earnings surprise are insignificant. Thus, there is no evidence that the negative coefficient on SMALLNEG_SUR is driven by transient institutions' response to the magnitude of the scaled earnings surprises.

Second, we examine whether the negative coefficient on SMALLNEG_SUR is limited to growth firms which are found to experience larger negative stock market reaction to negative earnings surprises (see Skinner and Sloan 2002). The interaction coefficient between SMALLNEG_SUR and a value firm indicator (defined as one for firms whose book-to-market value is greater than the median and zero otherwise) is positive but insignificant, suggesting that transient institutions' selling on event day zero in response to the announcement of small negative earnings surprises is not entirely limited to growth firms only.

4.3. Regression results on the contemporaneous association between transient institutions' trading and abnormal return on event day zero

Table 4 shows the result of model (2). We adjust the standard errors clustered by firms (Rogers 1993). We also computed standard errors and p values using the Fama and MacBeth (1973) method and obtained similar conclusions (untabulated). There are two interesting findings. First, transient institutions' trading on event day zero is significantly positively associated with the contemporaneous abnormal return for each of the five earnings surprise categories. This is not the case for dedicated and quasi-indexing institutions. Second, as evidenced by the magnitude of the regression coefficients on the interaction terms, the incremental impact of institutional trading on stock prices is much larger for transient institutions than for dedicated or quasi-indexing institutions. Those results are consistent with the findings from Hotchkiss and Strickland (2003). The significantly positive coefficients on SMALLNEG_SUR×AVE_NETBUY for both transient and quasi-indexing institutions are consistent with the managerial allegation that institutional investors' trading in response to small negative earnings surprises causes significant stock price drops. We next examine whether the large abnormal selling by transient institutions accompanied by large negative abnormal returns on event day zero is an overreaction.

4.4. Regression results on the association between transient institutions' trading response to small negative earnings surprises and future abnormal returns

Table 5 shows the results of model (3) for transient (column (1)), dedicated (column (2)), and quasi-indexing (column (3)) institutions, respectively. We will discuss the results for dedicated and quasi-indexing institutions in Section 5. We adjust the standard errors clustered by firms (Rogers 1993). We also computed standard errors and p values using the Fama and MacBeth (1973) method and obtained similar conclusions (untabulated).

There are two interesting findings in column (1). First, the coefficient on SMALLNEG_SUR×AVE_NETBUY is significantly positive, suggesting that transient institutions' trades on event day zero correctly predict future abnormal returns for observations within the small negative earnings surprise category and thus do not represent irrational behavior. For the small negative earnings surprise category, transient institutions' 3-month mean buy and hold abnormal return weighted by the dollar value of AVE_NETBUY is a positive 3.0% (or approximately 12.6% annualized). This evidence is not consistent with the managerial allegation that institutional investors *blindly* dump firm shares whenever there is a small shortfall of reported earnings versus expected earnings.

Second, except for the significantly positive coefficient on ZERO_SUR×AVE_NETBUY, the coefficients on the interactions between

AVE_NETBUY and the remaining earnings surprise dummies are insignificant. The insignificant coefficients on LARGENEG_SUR×AVE_NETBUY and LARGEPOS_SUR×AVE_NETBUY are particularly surprising because large earnings surprises contain more value relevant information than small earnings surprises (see AR0 in Table 2).

One way to reconcile the difference in the informativeness of transient institutions' AVE_NETBUY in response to the announcement of large earnings surprises versus the announcement of small earnings surprises is that transient institutions have a better ability to obtain early warning signals about large earnings surprises than small negative earnings surprises. As a result, informed transient institutions should have traded on large earnings surprises ahead of the public earnings announcement. Consistent with this conjecture, we find in untabulated analysis that transient institutions' AVE_NETBUY over the calendar month prior to the earnings announcement is significantly negative (positive) for large negative (positive) earnings surprises. However, we find no evidence that transient institutions trade (buy or sell) significantly in the month prior to the announcement of small negative, zero, or small positive earnings surprises. If anything, transient institutions' AVE_NETBUY in the one month prior to the announcement of small negative earnings surprises is marginally significantly positive on average. Overall, our results suggest that transient institutions cannot predict small earnings surprises ahead of the earnings announcement but they do carefully scrutinize the small negative and zero earnings surprises at the earnings announcement time and can differentiate these firms' future abnormal stock performance.

5. Regression results on dedicated and quasi-indexing institutions' trading behavior

Prior research (see, e.g., Ke and Petroni 2004) finds that dedicated and quasi-indexing institutions are less sensitive to short-term earnings news. This section examines whether dedicated and quasi-indexing institutions exhibit the same trading response as transient institutions to the announcement of small negative earnings surprises.

Panel A of Table 2 shows the descriptive statistics of AVE_NETBUY for dedicated and quasi-indexing institutions respectively. We find little evidence that dedicated and quasi-indexing institutions buy or sell significantly on event day zero for any earnings surprise category, consistent with Ke and Petroni (2004). The only exceptions are that dedicated institutions' mean AVE_NETBUY is significantly positive for the "earnings surprise≥+2 cents" category and quasi-indexing institutions' mean AVE_NETBUY is significantly negative for the "earnings surprise≤-2 cents" category.

Columns (2) and (3) of Table 3 reports the regression result of model (1) for dedicated institutions and quasi-indexing institutions respectively. After controlling for the common determinants, the coefficient on SMALLNEG_SUR is insignificant in both columns, suggesting that dedicated and quasi-indexing institutions do not exhibit greater selling on event day zero in response to the announcement of small negative earnings surprises than to the announcement of large negative earnings surprises.

Columns (2) and (3) of Table 5 show the regression results of model (3) for dedicated and quasi-indexing institutions respectively. We find no evidence that dedicated and quasi-indexing institutions' trades on event day zero predict future abnormal returns for any of the five earnings surprise categories. In fact, quasi-indexing institutions trade in the opposite direction of future abnormal returns for the small negative earnings surprise category.

6. Further analyses of transient institutions' trading behavior

6.1. Alternative measurement windows for AVE_NETBUY

To reduce potential confounding events, our primary regression models focus on transient institutions' trading on event day zero. As a robustness check, we replicate transient institutions' regression results in Tables 3 and 5 by redefining AVE_NETBUY over a five-trading day window that starts from event day zero. For Table 5's replication, the 3-month FUTURE_AR starts from the trading day subsequent to the AVE_NETBUY measurement window. Column (1) of Table 6 shows the replication of Table 3 while column (1) of Table 7 the replication of Table 5. The coefficient on SMALLNEG_SUR in column (1) of Table 6 continues to be significantly negative and larger in magnitude than the same coefficient in column (1) of Table 3. Consistent with transient institutions' result in column (1) of Table 5, the coefficient on SMALLNEG_SUR×AVE_NETBUY continues to be significantly positive in column (1) of Table 7. Therefore, transient institutions' regression results in Tables 3 and 5 are robust to the alternative measurement window of AVE_NETBUY.

Prior research (see, e.g., Ke and Petroni 2004; Hotchkiss and Strickland 2003) had no access to detailed institutional trading records and thus had to use institutional investors' ownership change over a calendar quarter for hypothesis testing. As noted in the Introduction, the Pearson (Spearman) correlation between transient institutions' trading on event day zero and their trading over the calendar quarter of the earnings announcement is only 0.34 (0.28). Hence, a natural question is whether we can replicate transient institutions' result in Table 3 using AVE_NETBUY defined over the entire calendar quarter of the earnings announcement. As shown in column (2) of Table 6 using this alternative AVE_NETBUY definition, the coefficient on SMALLNEG_SUR is now significantly positive, inconsistent with the negative coefficient on SMALLNEG_SUR in column (1) of Table 3.[14] Overall, the result in column (2) of Table 6 suggests that using the quarterly transient institutional ownership change to measure transient institutions' trading response to the earnings surprise announcement is noisy and may even reach erroneous conclusions.

6.2. Sources of transient institutions' information on small negative earnings surprises

The regression results in Tables 3 and 5 suggest that transient institutions' abnormal selling in response to small negative earnings surprises contains private information about future abnormal stock returns. We next conduct an exploratory analysis of the potential sources of information behind transient institutions' trades on event day zero. Clearly, this is a difficult question because we cannot observe transient institutions' private information set at the earnings announcement date. In addition, it is possible that transient institutions' private information is idiosyncratic and cannot be captured using a few variables. With this caveat in mind, we consider three possible sources of transient institutions' information on the quality of small negative earnings surprises. First, we examine whether transient institutions' private information is related to the accrual anomaly. Sloan (1996) finds that total accruals are negatively associated

[14] The positive coefficient on SMALLNEG_SUR is partially caused by transient institutions' significant selling prior to the announcement of large negative earnings surprises and marginally significant buying prior to the announcement of small negative earnings surprises as reported in Section 4.4.

with future abnormal stock returns while Xie (2001) shows that Sloan's finding is largely limited to discretionary accruals. Hence, we examine whether transient institutions' informed selling documented in Tables 3 and 5 is limited to firms with large positive abnormal accruals (denoted HIGH_ABACC). We follow Kothari et al. (2005) to estimate abnormal accruals and HIGH_ABACC is coded one for abnormal accruals greater than the 75th percentile of the sample and zero otherwise.[15]

Second, we examine whether transient institution's private information is due to their better access to corporate management's private information. The evidence in Ke et al. (2008) suggests that Regulation FD significantly curtailed management's selective disclosure to transient institutions. Hence, we examine whether transient institutions' results in Tables 3 and 5 are limited to the pre-Regulation FD period. FD is a dummy variable equal to one for the post-Regulation FD period.

Third, we consider whether transient institutions' private information comes from sell-side analysts who have superior private information on the stocks they follow. It is well known that institutional investors frequently talk to sell-side analysts. Goldstein et al. (2009) show that institutional investors are often willing to pay higher per-share commissions than the normal trade execution cost in exchange for long term access to a broker's premium services such as analyst research. The evidence in Goldstein et al. (2009) suggests that a per-share commission greater than 2 cents is deemed excess and thus likely reflects an institution's payment for a broker's premium services. Therefore, we examine whether transient institutions' results in Tables 3 and 5 are limited to institutions who pay significant excess trading commissions to sell-side analysts. COMMISSION is a dummy variable that is one for institutions whose total excess

[15] Inference is the same if we use total accruals rather than abnormal accruals as the conditioning variable.

trading commissions (defined as per-share excess commission multiplied by the total number of shares traded) paid over a 90-calendar day period prior to a stock's earnings announcement date are greater than the 75th percentile of the entire sample of institution-stock-quarters. We choose a 90-day cutoff for two reasons. First, we wish to capture an institution's most recent trading commissions. Second, we wish to retain as large a sample as possible. Had we selected a 1-year cutoff, we would have lost approximately 40% of the institution-quarters.[16]

Panel A of Table 8 reports the regression results of model (1) while Panel B of Table 8 shows the regression results of model (3) by HIGH_ABACC, FD, and COMMISSION, respectively. For brevity, we only show the coefficient estimates on the key variables of interest, i.e., the coefficient on SMALLNEG_SUR in model (1) and the coefficient on SMALLNEG_SUR×AVE_NETBUY in model (3).

We find no evidence that transient institutions' selling on event day zero is driven by high abnormal accruals firms. The coefficient on SMALLNEG_SUR in Panel A and the coefficient on SMALLNEG_SUR×AVE_NETBUY in Panel B are always significant and as predicted for both HIGH_ABACC=0 and HIGH_ABACC=1 observations. In addition, the coefficients on SMALLNEG_SUR and SMALLNEG_SUR×AVE_NETBUY do not differ significantly for HIGH_ABACC=0 and HIGH_ABACC=1 observations.

We also find no evidence that transient institutions' information source is directly attributable to their better access to management's private information. The coefficient on SMALLNEG_SUR in Panel A is negative and significant for both FD=0 and FD=1

[16] Results are similar if we delete all the institution-firm-quarters that do not report any stock trades in the 90-day period prior to the earnings announcement.

observations. The coefficient on SMALLNEG_SUR×AVE_NETBUY in Panel B is significantly positive for both FD=0 and FD=1 observations. In addition, the coefficients on SMALLNEG_SUR and SMALLNEG_SUR×AVE_NETBUY do not significantly differ for FD=0 and FD=1 observations.

However, there is evidence that transient institutions' private information comes from sell-side analysts. Specifically, the coefficient on SMALLNEG_SUR in Panel A is significantly negative for COMMISSION=1 observations but not for COMMISSION=0 observations. In addition, the coefficient on SMALLNEG_SUR is significantly different for COMMISSION=0 and COMMISSION=1 observations. Similarly, the coefficient on SMALLNEG_SUR×AVE_NETBUY in Panel B is significantly positive for COMMISSION=1 observations but not for COMMISSION=0 observations, though the coefficient on SMALLNEG_SUR×AVE_NETBUY is not significantly different for COMMISSION=0 and COMMISSION=1 observations (two-tailed p=0.281).

7. Conclusions

There are two competing views on the role of short-horizon institutional investors (referred to as transient institutions) in contributing to stock market efficiency. While there is ample empirical evidence suggesting that transient institutions are sophisticated investors who know how to process financial information, many corporate managers strongly believe that transient institutions are myopic investors who are fixated on short term firm performance and ignore long-term firm fundamentals. A common example cited to support the myopic investor view is the allegation that transient institutions would dump a firm's shares indiscriminatingly whenever there is a *small* shortfall of reported earnings versus analysts' consensus forecasts, resulting in an increased risk of a temporary stock mispricing. Transient institutions' alleged myopic trading behavior is often used as a justification by corporate managers to take costly actions to avoid missing analysts' consensus earnings forecasts.

Using a proprietary database of institutional investors' stock transactions over the period 1999-2005, we examine whether transient institutions overreact to the announcement of small negative earnings surprises, defined as quarterly earnings that fall short of analysts' consensus forecasts by one cent. We find the following interesting results. First, consistent with the managerial allegation, transient institutions' selling in response to the announcement of small negative earnings surprises is significantly different from zero and is greater than transient institutions' selling in response to the announcement of large negative earnings surprises defined as earnings surprises less than -1 cent. Second, transient institutions' selling in response to the announcement of small negative earnings surprises is positively associated with the contemporaneous abnormal stock return, consistent with the managerial concern that transient institutions' trading has a material impact on contemporaneous stock prices. Third, transient institutions' selling in response to the announcement of small negative earnings surprises is positively associated with the abnormal return in the three months subsequent to the earnings announcement window, suggesting that transient institutions' trading response to small negative earnings surprises is not an overreaction that results in a temporary stock mispricing. Finally, we provide preliminary evidence suggesting that the private information that transient institutions reply on in their informed trading response to the announcement of small negative earnings surprises is purchased from sell-side analysts.

Overall, our empirical results support the view that transient institutions are sophisticated investors. We find no evidence that transient institutions overreact to the announcement of small negative earnings surprises. Our results provide new information to the debate on the role of institutional investors in contributing to financial market efficiency. Our results should be also of interest to corporate managers and board directors who believe that transient institutions would overreact to the announcement of small negative earnings surprises. Our evidence suggests that this belief is unwarranted. More importantly, our evidence suggests that transient institutions can see through reported small negative earnings surprises and thus corporate managers should not sacrifice shareholder resources to manage earnings in order to avoid missing analysts' consensus forecasts.

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Appendix A. The algorithm of matching Abel/Noser's institution IDs with Spectrum's institution IDs

In this appendix we describe how we match Abel/Noser's institution IDs (denoted clientcode) with Spectrum's institution IDs (denoted mgrnum). The matching is performed over the Abel/Noser database's coverage period 1999-2005. There are 3,864,132 institution-firm-year-quarters in the Abel/Noser database and 13,089,377 institution-firm-year-quarters in Spectrum.

We first clean the observations in both databases to reduce potential measurement errors in the matching. For the Abel/Noser database, we delete the *clientcode-quarters* that report no stock trades in any month of a calendar quarter. This restriction deletes institutions that enter or exit the Abel/Noser database in the middle of a quarter or fail to file their stock trades for some months of a calendar quarter. To avoid unnecessary complications, we require all *firm-quarters* to satisfy the following restrictions for both databases:

(a) The firms must be publicly traded U.S. domestic firms that issue only one class of common stock traded on one of the three major stock exchanges.

(b) There are no stock splits, stock delistings, or IPO in the calendar quarter.

(c) The stock price at the beginning of the calendar quarter is greater than $5 and the number of common shares outstanding at the beginning of the calendar quarter is greater than one million shares.

(d) The net quarterly institutional ownership change should be more than 500 shares. Our match results are the same if we require a minimum of 100 shares.

(e) Each firm-quarter must have institutional trading data from both databases (though not necessarily by the same institutions).

Those sample restrictions reduce the Abel/Noser database to 2,677,564 institution-firm-year-quarters and reduce the Spectrum database to 6,862,411 institution-firm-year-quarters. The loss of observations is largely due to restrictions (a) and (d).

We match Abel/Noser's clientcodes with Spectrum's mgrnums as follows. For both databases, we compute each institution's quarterly change in stock ownership (in number of shares) for each stock (permno), denoted ΔIO. For each pair of clientcode and mgrnum, we define N_ABEL as the total number of firm-quarters that have nonmissing ΔIO in the Abel/Noser database and N_BOTH as the total number of firm-quarters that have nonmissing ΔIO in both databases. By definition, N_BOTH is always less than or equal to N_ABEL. For each pair of clientcode and mgrnum, we define N_SAME_ΔIO as the number of firm-quarters in which the values of ΔIO from the two databases are identical. MATCH1 is N_SAME_ΔIO divided by N_ABEL and represents the percentage of a clientcode's firm quarters whose quarterly institutional ownership changes are equal to an mgrnum's quarterly institutional ownership changes in the same firm-quarters.

For each clientcode, we retain the mgrnum with the highest MATCH1 (denoted mgrnum_1st and MATCH1_1st, respectively) and the mgrnum with the second highest MATCH1 (denoted mgrnum_2nd and MATCH1_2nd, respectively). For example, assume that clientcode=001 has valid data in two firm-quarters, IBM-1999-Q1 and DELL-2000-Q2. For IBM-1999-Q1, mgrnum=100 and mgrnum=200 have the same ΔIO as clientcode=001. For DELL-2000-Q2, only mgrnum=100 has the same ΔIO. Then, for clientcode=001, mgrnum=100's MATCH1=100% (the highest), and mgrnum=200's MATCH1=50% (the second highest).

Even if a pair of clientcode and mgrnum belongs to the same institution, MATCH1 is unlikely to equal 100% for several reasons. First, the Spectrum database may not contain all the stock trades for all the institutions. Small institutions with less than $100 million in equity securities are not required to file the 13f with the SEC. Even if an institution is required to file the 13f, it is only required to disclose common stock positions greater than 10,000 shares or $200,000. Second, some institutions may report their stock positions under one clientcode in Abel/Noser but under several different mgrnums in Spectrum. For example, we find that Fidelity Management & Research (FMR Co.) and Fidelity International are separate companies in Spectrum (they report under different mgrnums) even though they are both subsidiaries of Fidelity Investments and share the same clientcode in the Abel/Noser database. We have corrected this inconsistency for Fidelity but we don't know if a similar problem exists for other institutions. Third, the stock holdings reported in Spectrum may not reflect the holdings exactly at the end of a calendar quarter and thus ΔIO in Spectrum may not be the same as ΔIO in the Abel/Noser database. Finally, the Abel/Noser database may not contain all the trading data for a given institution. Although we have confirmed that Abel/Noser did not filter data on their end, it is possible that their clients filtered out certain parts of the data before sending the data to Abel/Noser.

Because of those known and other unknown reasons, MATCH1 could be low even if a pair of clientcode and mgrnum belongs to the same institution. To mitigate this problem, we also define an alternative matching score (denoted MATCH2) that is identical to MATCH1 except that ΔIO in Spectrum is deemed identical to ΔIO in

Abel/Noser as long as the absolute difference in ΔIO across the two databases is less than 10% of the absolute ΔIO from Abel/Noser.

We follow two basic principles to match clientcodes with mgrnums. First, there must be a reasonable number of common firm-quarters (i.e., N_BOTH) for each pair of clientcode and mgrnum so that the matching scores MATCH1 and MATCH2 are reliable. Second, MATCH1_1st (MATCH2_1st) should be as high as possible while MATCH1_2nd (MATCH2_2nd) should be as low as possible. We use the following four sequential iterations to identify 103 matched pairs of clientcode-mgrnum. The stringency of the matching conditions declines from iteration 1 to iteration 4. However, it is important to note that our inferences in Tables 3-5 are the same if we restrict our sample to the matched institutions from iteration 1 only (untabulated).

Iteration 1 requires the following matching conditions:

- N_BOTH>=100 firm quarters.
- MATCH1_1st>=10%.
- MATCH2_1st>=20%.
- MATCH1_2nd<=1%.
- MATCH2_2nd<=5%.

We selected the cutoffs for iteration 1 based on the empirical distributions of the variables. Iteration 1 results in 62 matched pairs of clientcode-mgrnum.

Iteration 2 relaxes some of the matching conditions in iteration 1 as follows:

- N_BOTH>=100 firm quarters.
- MATCH1_1st>=5%.
- MATCH2_1st>=15%.

- MATCH1_2nd<=1%.
- MATCH2_2nd<=5%.

Iteration 2 results in 24 additional matched pairs of clientcode-mgrnum.

Iteration 3 repeats iterations 1 and 2 after deleting the 84 matched pairs of clientcode-mgrnum from iterations 1 and 2. However, iteration 3 results in no additional matched pairs of clientcode-mgrnum.

For the remaining unmatched clientcodes and mgrnums, iteration 4 requires that N_BOTH>=100 firm quarters and either MATCH1_1st>=5% or MATCH2_1st>=10%. Those conditions result in a total of 32 pairs of clientcode-mgrnum, from which we retained 17 additional matched pairs of clientcode-mgrnum whose MATCH1_1st dominates MATCH1_2nd or MATCH2_1st dominates MATCH2_2nd.

Table 1A shows the overlap of firm-quarters between Abel/Noser and Spectrum for the 103 matched institutions as a whole and by iteration. For the 103 matched institutions as a whole, on average 31.4% of the combined firm-quarters from both databases have institutional trading data in Abel/Noser only, 10.7% in Spectrum only, and 57.8% in both. The high percentage of firm quarters that have only institutional data from Abel/Noser is not surprising because as noted above, Abel/Noser should contain all the institutional trades while Spectrum tend to report only large institutions' stock positions greater than a certain threshold.

Table 2A reports descriptive statistics of MATCH1 and MATCH2 for the 103 matched institutions. By construction, MATCH2_1st is always no smaller than MATCH1_1st and MATCH1_1st (MATCH2_1st) is always higher than MATCH1_2nd (MATCH2_2nd). For all 103 matched institutions, the mean MATCH2_1st is 31.46%

versus a mean MATCH1_1st of 19.24%. As neither MATCH1_1st nor MATCH2_1st is close to 100%, one may question the accuracy of our matching algorithm.

We check the reasonableness of our matching algorithm in two ways. First, we use a large Abel/Noser institution whose clientcode is known to us to gauge the quality of our matching procedures. Our algorithm successfully matched this institution's clientcode in Abel/Noser with its mgrnum in Spectrum. However, this institution's MATCH1_1st is only 20% and MATCH2_1st is only 55% while MATCH1_2nd is 0% and MATCH2_2nd is 0%. Those values are comparable to the mean values reported in Table 2A. This evidence suggests that a successful match does not require either MATCH1_1st or MATCH2_1st to be 100%.

Second, we know that mgrnum in Spectrum is unique and thus our matching algorithm should not be able to find pairs of mgrnums within Spectrum with high MATCH1_1st and MATCH2_1st. To check if this is the case, we use the same matching algorithm to find the best match for each mgrnum in Spectrum over the period 1999-2005. There are 3,272 unique institutions in Spectrum (mgrnum) that satisfy our pre-match sample screening described above. Out of the 3,272 mgrnums, 2,730 mgrnums have at least 1 firm-quarter that has the same ΔIO as another mgrnum. After imposing the requirement that N_BOTH>=100, we identified 1,638 pairs of matched mgrnums. Table 3A reports the result of this pseudo match. The largest MATCH1_1st is only 1.19% while the largest MATCH2_1st is only 4.74%. By comparison, the minimum MATCH1_1st is 3% while the minimum MATCH2_1st is 6% for the 103 institutions in our sample (untabulated). Hence, the results in Tables 2A and 3A suggest that our matching algorithm is unlikely to cause a mismatch between clientcodes with mgrnums.

Table 1A. The mean (median) number and percentage of firm-quarters that are in Abel/Noser only, in Spectrum only, and in both databases for the 103 matched pairs of clientcode-mgrnum

Iteration	Firm-quarters that have institutional trading data in Abel/Noser only		Firm-quarters that have institutional trading data in Spectum only		Firm-quarters that have institutional trading data in both databases	
	Number of firm-quarters	As a percentage of total firm-quarters from both databases	Number of firm-quarters	As a percentage of total firm-quarters from both databases	Number of firm-quarters	As a percentage of total firm-quarters from both databases
1	1,999 (566)	29.1 (28.0)	493 (97)	7.3 (3.1)	4,640 (1,418)	63.6 (65.1)
2	1,868 (711)	30.2 (27.2)	1,189 (148)	13.5 (8.3)	6,100 (1,425)	56.4 (55.2)
3	N/A	N/A	N/A	N/A	N/A	N/A
4	1,838 (1,615)	41.6 (39.6)	1,503 (403)	19.6 (8.5)	2,807 (1,046)	38.9 (38.2)
All	1,942 (699)	31.4 (28.5)	822 (144)	10.7 (4.9)	4,678 (1,323)	57.8 (57.8)

Table 2A. Matching statistics of the 103 matched pairs of clientcode-mgrnum

Mean, (median)

Iteration	MATCH1		MATCH2	
	MATCH1_1st	MATCH1_2nd	MATCH2_1st	MATCH2_2nd
1	27.71 (20.50)	0.06 (0.00)	39.92 (35.00)	0.51 (0.00)
2	7.04 (7.00)	0.04 (0.00)	22.83 (21.00)	0.58 (0.00)
3	N/A	N/A	N/A	N/A
4	5.59 (5.00)	0.06 (0.00)	12.76 (13.00)	0.82 (1.00)
All	19.24 (14.00)	0.06 (0.00)	31.46 (28.00)	0.58 (0.00)

For each pair of clientcode and mgrnum, MATCH1 is the percentage of a clientcode's firm-quarters whose quarterly institutional ownership (ΔIO) is exactly matched with an mgrnum's quarterly institutional ownership in the same firm-quarters. MATCH2 is defined similarly except that ΔIO in Spectrum is deemed identical to ΔIO in Abel/Noser as long as the absolute difference in ΔIO across the two databases is less than 10% of the absolute ΔIO from Abel/Noser.

Table 3A. Descriptive statistics from the pseudo matching of mgrnums within Spectrum

Variable	Mean	Min	10%	50%	90%	Max
$MATCH1\_1^{st}$	0.12	0.00	0.02	0.08	0.26	1.19
$MATCH2\_1^{st}$	0.76	0.00	0.00	0.69	1.38	4.74

See Table 2A for the definitions of MATCH1 and MATCH2. $MATCH1\_1^{st}$ is the highest MATCH1 for a pair of mgrnums in Spectrum.

Appendix B. Variable definitions

Event day zero: the first trading day immediately after the earnings announcement date if the earnings announcement occurs on a day after the market closing. If the earnings announcement occurs on a day before the market opening, event day zero is the earnings announcement date if the earnings announcement date is a trading day, and the first trading day subsequent to the earnings announcement date if the earnings announcement date is not a trading day. We exclude the earnings announcements made during the normal trading hours.

AVE_NETBUY: the average net purchase (buys minus sales) of a firm's stock as a percentage of the total common shares outstanding on event day zero by transient institutions, dedicated institutions, or quasi-indexing institutions. Note that we do not use the sum of all institutions' net purchases, a common measure used in the existing literature (see, e.g., Ke and Petroni 2004), to measure institutional trading intensity because we do not have a complete panel data set for all the institutions over 1999-2005 and thus the sum of individual institutions' net stock purchases is not comparable across firms or over time.

SURPRISE: unadjusted actual earnings per share minus the unadjusted latest mean consensus forecast issued immediately before the earnings announcement date.

LARGENEG_SUR: a dummy variable that equals one for SURPRISE less than -1 cent.

SMALLNEG_SUR: a dummy variable that equals one for SURPRISE equal to -1 cent.

ZERO_SUR: a dummy variable that equal one for SURPRISE equal to zero.

SMALLPOS_SUR: a dummy variable that equals one for SURPRISE equal to +1 cent.

LARGEPOS_SUR: a dummy variable that equals one for SURPRISE greater than +1 cent.

LNSIZE: the natural logarithm of the market cap measured at the end of fiscal quarter t.

BM: the book-to-market ratio measured at the end of fiscal quarter t.

MOM: the 3-month Buy-and-hold raw returns ending one trading day before the earnings announcement date.

AR0: the size-adjusted abnormal return on event day zero.

FUTURE_AR: the size-adjusted buy and hold abnormal return over the three months subsequent to event day zero.

Table 1. Descriptive statistics of the 103 matched institutions by the institution types over the period 1999-2005

Institution classification	Number of institutions	Mean (median) number of months of trading data in Abel/Noser	Mean (median) dollar value of trades (in billions) per institution	The dollar value of trades (in billions) by all institutions	The dollar value of trades as a percentage of the total dollar value of trades in Abel/Noser	Total number of shares traded (in billions) by all institutions	Total number of shares traded as a percentage of the total shares traded in Abel/Noser
Transient	35	33 (25)	84 (20)	2,951	14.8%	96	14.7%
Dedicated	8	44 (52)	888 (10)	7,106	35.6%	224	34.2%
Quasi-indexing	51	36 (36)	79 (11)	4,016	20.1%	134	20.5%
Unclassified	9	15 (11)	9 (6)	78	0.4%	2	0.4%
All institutions matched with Spectrum	103	34 (29)	137 (12)	14,151	70.9%	458	69.7%
All Abel/Noser institutions	840	33 (23)	24 (1)	19,945	100%	656	100%

Table 2. Descriptive statistics of the regression dependent variables

Panel A. AVE_NETBUY*1,000

Earning surprise	N	Mean	t-test's p	Median	STD	10%	25%	75%	90%
transient									
≤-2 cents	6,053	-5.461	<0.001	0.000	112.041	-12.021	0.000	0.000	5.534
=-1 cent	2,063	-13.343	<0.001	0.000	155.624	-14.339	0.000	0.000	3.867
=0 cent	6,984	-0.413	0.356	0.000	37.405	-1.948	0.000	0.000	3.043
=+1 cent	6,409	-0.266	0.481	0.000	30.242	-2.770	0.000	0.000	3.450
≥2 cents	18,102	0.684	<0.001	0.000	22.645	-1.869	0.000	0.000	4.294
Dedicated									
≤-2 cents	6,353	-2.058	0.393	0.000	191.887	-47.290	0.000	0.000	43.270
=-1 cent	2,176	3.545	0.396	0.000	194.852	-47.415	0.000	0.000	53.380
=0 cent	6,994	-0.259	0.826	0.000	98.687	-26.903	0.000	0.000	24.593
=+1 cent	6,409	1.509	0.167	0.000	87.371	-24.476	0.000	0.000	29.683
≥2 cents	18,084	1.402	0.022	0.000	82.069	-19.347	0.000	0.000	29.806
Quasi-indexing									
≤-2 cents	8,049	-1.180	0.014	0.000	42.951	-1.262	0.000	0.101	2.419
=-1 cent	2,625	-0.315	0.700	0.000	41.889	-1.687	0.000	0.111	2.103
=0 cent	7,048	-0.283	0.252	0.000	20.767	-1.504	0.000	0.139	1.922

=+1 cent	6,464	-0.119	0.668	0.000	22.383	-1.416	0.000	0.151	1.902
≥+2 cents	18,247	-0.066	0.601	0.000	16.983	-1.377	0.000	0.143	1.937

Panel B. AR0

Earnings surprise	N	Mean	t-test's p	Median	STD	10%	25%	75%	90%
≤-2 cents	8,190	-0.027	<0.001	-0.016	0.085	-0.117	-0.055	0.011	0.048
=-1 cent	2,663	-0.020	<0.001	-0.011	0.078	-0.107	-0.046	0.015	0.050
=0 cent	7,045	-0.012	<0.001	-0.006	0.073	-0.089	-0.039	0.020	0.058
=+1 cent	6,466	0.000	0.895	0.001	0.074	-0.077	-0.030	0.032	0.079
≥+2 cents	18,236	0.019	<0.001	0.012	0.075	-0.053	-0.015	0.050	0.102

Panel C. FUTURE_AR

Earnings surprise	N	Mean	t-test's p	Median	STD	10%	25%	75%	90%
≤-2 cents	8,190	0.007	0.025	-0.008	0.299	-0.279	-0.127	0.111	0.274
=-1 cent	2,663	0.008	0.121	-0.005	0.250	-0.257	-0.118	0.111	0.264
=0 cent	7,045	0.006	0.044	-0.007	0.252	-0.245	-0.112	0.105	0.245
=+1 cent	6,466	-0.000	0.947	-0.005	0.235	-0.263	-0.117	0.107	0.240
≥+2 cents	18,236	0.024	<0.001	0.008	0.287	-0.252	-0.104	0.127	0.285

See Appendix B for variable definitions. To improve the readability we multiply AVE_NETBUY by 1,000 in this table only so that a value of 100 represents 0.10% of the common shares outstanding.

Table 3. Regression results of institutional investors' reactions to the announcement of earnings surprises

	(1)	(2)	(3)
	Transient	Dedicated	Quasi-indexing
	Dependent variable =AVE_NETBUY		
	Regression coefficient (standard error)		
SMALLNEG_SUR	-0.001**	0.003	-0.000
	(0.001)	(0.002)	(0.000)
ZERO_SUR	0.002***	0.001	0.000
	(0.000)	(0.001)	(0.000)
SMALLPOS_SUR	0.002***	0.003*	0.000
	(0.000)	(0.001)	(0.000)
LARGEPOS_SUR	0.002***	0.002	0.000
	(0.000)	(0.002)	(0.000)
LNSIZE	-0.000	-0.001***	0.000
	(0.000)	(0.000)	(0.000)
BM	0.000	-0.001	-0.000*
	(0.000)	(0.001)	(0.000)
MOM	0.001	0.004***	0.001***
	(0.000)	(0.002)	(0.000)
SURPRISE	0.001	0.000	-0.001*
	(0.002)	(0.006)	(0.001)
N	39,606	40,013	42,428
Adjusted R^2	0.00	0.00	0.00

See appendix B for variable definitions. All continuous variables are winsorized at the top and bottom 1% to reduce the influence of outliers. The regressions include calendar year and fiscal quarter fixed effects. The reported standard errors allow heteroskedasticity and any type of correlation for observations of the same firm but assume independence for observations across different firms (Rogers 1993).*** $p<0.01$, ** $p<0.05$, * $p<0.1$ (two-tailed).

Table 4. The contemporaneous association between institutional trading and abnormal returns on the day following the earnings announcement (i.e., event day zero)

	Dependent variable=AR0
	Regression coefficient (standard error)
LARGENEG_SUR	-0.028***
	(0.002)
SMALLNEG_SUR	-0.021***
	(0.003)
ZERO_SUR	-0.015***
	(0.002)
SMALLPOS_SUR	-0.002
	(0.002)
LARGEPOS_SUR	0.015***
	(0.002)
LNSIZE	0.000
	(0.000)
BM	0.006***
	(0.001)
MOM	-0.015***
	(0.002)
LARGENEG_SUR×AVE_NETBUY for transient	0.245***
	(0.055)
SMALLNEG_SUR×AVE_NETBUY for transient	0.514***
	(0.089)
ZERO_SUR×AVE_NETBUY for transient	0.396***
	(0.090)
SMALLPOS_SUR×AVE_NETBUY for transient	0.422***
	(0.089)
LARGEPOS_SUR×AVE_NETBUY for transient	0.403***
	(0.053)
LARGENEG_SUR×AVE_NETBUY for dedicated	0.031*
	(0.016)
SMALLNEG_SUR×AVE_NETBUY for dedicated	0.034
	(0.028)
ZERO_SUR×AVE_NETBUY for dedicated	0.026
	(0.021)
SMALLPOS_SUR×AVE_NETBUY for dedicated	0.062***
	(0.022)

LARGEPOS_SUR×AVE_NETBUY for dedicated	0.052***
	(0.013)
LARGENEG_SUR×AVE_NETBUY for quasi-indexing	0.295*
	(0.154)
SMALLNEG_SUR×AVE_NETBUY for quasi-indexing	0.457*
	(0.261)
ZERO_SUR×AVE_NETBUY for quasi-indexing	0.234
	(0.176)
SMALLPOS_SUR×AVE_NETBUY for quasi-indexing	-0.146
	(0.188)
LARGEPOS_SUR×AVE_NETBUY for quasi-indexing	-0.250**
	(0.108)
N	38,034
Adjusted R^2	0.07

See appendix B for variable definitions. All continuous variables are winsorized at the top and bottom 1% to reduce the influence of outliers. The reported standard errors allow heteroskedasticity and any type of correlation for observations of the same firm but assume independence for observations across different firms (Rogers 1993).*** p<0.01, ** p<0.05, * p<0.1 (two-tailed).

Table 5. The association between institutional trading on event day zero and future abnormal returns by earnings surprises

	(1)	(2)	(3)
	Transient	Dedicated	Quasi-indexing
	Dependent variable=FUTURE_AR		
	Regression coefficient (standard error)		
LARGENEG_SUR	-0.008	-0.002	-0.017**
	(0.007)	(0.008)	(0.007)
SMALLNEG_SUR	-0.001	0.003	-0.012
	(0.008)	(0.009)	(0.008)
ZERO_SUR	-0.007	-0.004	-0.013*
	(0.007)	(0.007)	(0.007)
SMALLPOS_SUR	-0.011	-0.008	-0.017**
	(0.007)	(0.007)	(0.007)
LARGEPOS_SUR	0.007	0.011	0.001
	(0.007)	(0.007)	(0.007)
LNSIZE	-0.001	-0.002**	-0.000
	(0.001)	(0.001)	(0.001)
BM	0.040***	0.039***	0.039***
	(0.005)	(0.005)	(0.004)
MOM	0.032***	0.031***	0.033***
	(0.006)	(0.006)	(0.006)
LARGENEG_SUR×AVE_NETBUY	-0.147	-0.038	-0.057
	(0.113)	(0.037)	(0.326)
SMALLNEG_SUR×AVE_NETBUY	0.699***	-0.028	-0.026
	(0.171)	(0.057)	(0.536)
ZERO_SUR×AVE_NETBUY	0.446**	-0.015	-0.692
	(0.177)	(0.043)	(0.459)
SMALLPOS_SUR×AVE_NETBUY	0.189	0.069	-0.825**
	(0.172)	(0.050)	(0.416)
LARGEPOS_SUR×AVE_NETBUY	-0.042	0.008	-0.468
	(0.123)	(0.032)	(0.287)
N	39580	39987	42402
Adjusted R^2	0.01	0.01	0.01

See appendix B for variable definitions. All continuous variables are winsorized at the top and bottom 1% to reduce the influence of outliers. The reported standard errors allow heteroskedasticity and any type of correlation for observations of the same firm but assume independence for observations across different firms (Rogers 1993).*** p<0.01, ** p<0.05, * p<0.1 (two-tailed).

Table 6. Replication of regression model (1) for transient institutions: alternative definitions of AVE_NETBUY

	(1)	(2)
	AVE_NETBUY defined over the trading days [0, +4] around the earnings announcement date	AVE_NETBUY defined over the calendar quarter of the earnings announcement
	Regression coefficient (standard error)	
SMALLNEG_SUR	-0.003*	0.028***
	(0.002)	(0.009)
ZERO_SUR	0.005***	0.057***
	(0.001)	(0.006)
SMALLPOS_SUR	0.006***	0.051***
	(0.001)	(0.006)
LARGEPOS_SUR	0.007***	0.070***
	(0.001)	(0.006)
LNSIZE	-0.000	-0.001
	(0.000)	(0.001)
BM	-0.000	-0.008**
	(0.001)	(0.004)
MOM	0.004***	0.053***
	(0.001)	(0.006)
SURPRISE	0.002	-0.017
	(0.005)	(0.025)
N	39,606	39,606
Adjusted R^2	0.01	0.02

See appendix B for variable definitions. All continuous variables are winsorized at the top and bottom 1% to reduce the influence of outliers. The reported standard errors allow heteroskedasticity and any type of correlation for observations of the same firm but assume independence for observations across different firms (Rogers 1993).*** p<0.01, ** p<0.05, * p<0.1 (two-tailed).

Table 7. Replication of regression model (3) for transient institutions: AVE_NETBUY defined over the trading days [0, +4] around the earnings announcement date

	(1)
	Regression coefficient (standard error)
LARGENEG_SUR	0.005
	(0.007)
SMALLNEG_SUR	0.009
	(0.008)
ZERO_SUR	0.002
	(0.007)
SMALLPOS_SUR	-0.004
	(0.007)
LARGEPOS_SUR	0.008
	(0.007)
LNSIZE	-0.002**
	(0.001)
BM	0.032***
	(0.004)
MOM	0.041***
	(0.006)
LARGENEG_SUR×AVE_NETBUY	-0.077*
	(0.045)
SMALLNEG_SUR×AVE_NETBUY	0.212***
	(0.069)
ZERO_SUR×AVE_NETBUY	0.110
	(0.074)
SMALLPOS_SUR×AVE_NETBUY	-0.060
	(0.075)
LARGEPOS_SUR×AVE_NETBUY	-0.033
	(0.050)
N	39,574
Adjusted R^2	0.01

See appendix B for variable definitions. All continuous variables are winsorized at the top and bottom 1% to reduce the influence of outliers. The reported standard errors allow heteroskedasticity and any type of correlation for observations of the same firm but assume independence for observations across different firms (Rogers 1993).*** p<0.01, ** p<0.05, * p<0.1 (two-tailed).

Table 8. Replications of regression models (1) and (3) by conditioning variables

Panel A. Replication of model (1) by conditioning variables

	(1)	(2)	(3)
	W=HIGH_ABACC	W=FD	W=COMMISSION
	Regression coefficient (standard error)		
SMALLNEG_SUR for W=0	-0.002**	-0.002*	0.000
	(0.001)	(0.001)	(0.000)
SMALLNEG_SUR for W=1	-0.002	-0.001**	-0.006***
	(0.001)	(0.001)	(0.002)
Two-tailed p value from the null hypothesis that the coefficient on SMALLNEG_SUR is the same for W=0 and W=1	0.932	0.751	0.001

Panel B. Replication of model (3) by conditioning variables

	(1)	(2)	(3)
	W=HIGH_ABACC	W=FD	W=COMMISSION
	Regression coefficient (standard error)		
SMALLNEG_SUR×AVE_NETBUY for W=0	0.774***	1.600**	0.052
	(0.215)	(0.643)	(0.382)
SMALLNEG_SUR×AVE_NETBUY for W=1	0.610**	0.545***	0.365***
	(0.268)	(0.168)	(0.089)

Two-tailed p value from the null hypothesis that the coefficient on SMALLNEG_SUR×AVE_NETBUY is the same for W=0 and W=1	0.632	0.113	0.281

Panel A reports the regression results of model (1) by HIGH_ABACC, FD, and COMMISSION, respectively. Panel B shows the regression results of model (3) by HIGH_ABACC, FD, and COMMISSION, respectively. For brevity, we only show the coefficient estimate on the key variable of interest in each model. HIGH_ABACC is a dummy variable that is one if the abnormal accruals estimated using the Kothari et al. (2005) method are greater than the 75^{th} percentile of the sample and zero otherwise. FD is a dummy variable equal to one for the post-Regulation FD period. COMMISSION is a dummy variable that is one for institutions whose total excess trading commissions (defined as per-share excess commission multiplied by the total number of shares traded) paid over a 90-calendar day period prior to a stock's earnings announcement date are greater than the 75^{th} percentile of the entire sample of institution-stock-quarters. See appendix B for other variable definitions. All continuous variables are winsorized at the top and bottom 1% to reduce the influence of outliers. The reported standard errors allow heteroskedasticity and any type of correlation for observations of the same firm but assume independence for observations across different firms (Rogers 1993).*** $p<0.01$, ** $p<0.05$, * $p<0.1$ (two-tailed).