Information Acquisition and Stock Influence by Buy-Side Analysts and Surrogate Sell-Side Analysts on Earnings Conference Calls: Evidence from Institutional Trading[*]

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Abstract

We examine trading patterns of institutional investment firms surrounding earnings conference calls and the tone of their buy-side analysts in the call to infer their underlying motives. We find patterns consistent with behaviors related to buy-side information acquisition and stock influence. We also examine the same trading patterns when surrogate sell-side analysts may be asking questions in the call on behalf of their buy-side clients. We find more nuanced results with surrogates, suggesting that they tend to sound positive in a conference call when helping their clients under both the information acquisition and stock influence behaviors, but when they are negative in the call, it is more likely under the stock influence rather than information acquisition motive. Our findings contribute both to an emerging literature on buy-side analysts and a mature literature on sell-side analysts.

1. Introduction

Compared to an extensive literature on sell-side equity analysts (Bradshaw [2011]), a nascent literature on the role of buy-side equity analysts in the capital markets is emerging (Cheng, Liu, and Qian [2006], Groysberg, Healy, and Chapman [2008], Groysberg, Healy, Serafeim, and Shanthikumar [2013], Frey and Herbst [2014], Rebello and Wei [2014], Brown, Call, Clement, and Sharp [2016]). Buy-side analysts work for institutional investment firms and have different incentives and responsibilities compared to their sell-side counterparts working at brokerage firms. One stream of research examines buy-side analysts who participate in companies' public earnings conference calls (Cen, Ragunathan, Xiong, and Yang [2018], Call, Sharp, and Shohfi [2021], Jung, Wong, and Zhang [2018]), which in itself is puzzling to some because of common perceptions that: 1) these calls are venues for sell-side analysts and company managers to interact, 2) buy-side analysts have private access to management (i.e., they can ask questions privately), 3) they do not want to reveal their investment ideas in a public forum (Solomon and Soltes [2015]), and 4) certain sell-side analysts act as surrogates for their buy-side clients (Brown, Call, Clement, and Sharp [2021]) in conference calls by asking questions on their behalf.[1] Despite these perceptions, several of the aforementioned studies document thousands of buy-side analysts themselves participating in conference calls. In this study, we use institutional trading and conference call data to investigate two purported motives and behaviors of buy-side analysts, along with involvement by surrogate sell-side analysts, in the conference call setting.

The first scenario is that buy-side analysts ask questions of management in the call to obtain or clarify information to help make subsequent investment decisions. They may not have

[1] Throughout this paper, we use the terms "firm" and "institution" when referring to the entity that employs a buy-side analyst, the term "brokerage" and "broker-dealer" when referring to the entity that employs a sell-side analyst, and the term "company" when referring to the entity that hosts an earnings conference call.

opportunities to ask management questions privately or have the help of a surrogate sell-side analyst during a call, but in either case, their participation is fairly innocuous. We refer to the behavior in this scenario as "information acquisition."

The second scenario, which is more inflammatory, is supported by anecdotes (Brown et al. [2016], Jung et al. [2018]) that suggest buy-side analysts only participate in public conference calls when they want to make a company look good or bad publicly in an effort to influence the stock. The sports analogy is to throw management a "softball" question when a buy-side analyst wants to boost the stock or a "curve ball" when the analyst wants to hurt the stock (e.g., see Example 1 of Appendix C). We refer to this behavior as "stock influence."

We note that the two behaviors described are not necessarily mutually exclusive, and we do not consider them to be strictly competing stories. It is conceivable that a buy-side analyst asks a question to acquire information about a company's growth prospects, and in doing so, highlights the company's growth prospects to all market participants in a positive or negative light. In addition, a buy-side analyst may be motivated to acquire information in some conference calls but also try to influence the stock in other calls. Our goal is to investigate if one or both behaviors is supported by large-sample daily institutional trading data surrounding conference calls.

A related phenomenon we investigate is that of buy-side analysts having sell-side analysts ask questions on their behalf in a conference call. We refer to such sell-side analysts as surrogate sell-side analysts. As we explain later in more detail, we identify a sell-side analyst as a surrogate for a specific buy-side institution based on the amount of commissions that the institution has paid to the sell-side analyst's brokerage firm in the past. While the existence of surrogates has been highlighted in anecdotes, we attempt to empirically test whether their participation in calls is

similar to participation by buy-side analysts. As such, our paper is the first academic study to empirically examine the role or effect of surrogate sell-side analysts.

To shed light on the information acquisition and stock influence behaviors, we examine buy-side analysts' direct participation in conference calls (i.e., the "BSA subsample") based on the positivity or negativity of their tone, in conjunction with their employing institution's trading patterns before and after the conference call, as well as the informativeness of post-call trades for future stock returns. We predict and test for significant differences in trading patterns and interactive effects from tone when there is direct participation by the institution's buy-side analyst compared to when there is no buy-side analyst or surrogate sell-side analyst in the call.

We then consider if the observed patterns are supportive of one or both behaviors. For example, if we can observe a particular institution: i) execute net selling activity (i.e., more sell than buy trades) in a company's stock before a conference call, ii) have its buy-side analyst participate in the call and speak negatively, and iii) execute net buying activity in the stock after the call, then that scenario would be supportive of stock influence—an attempt to hurt the stock during the call and cover a short position immediately afterwards to realize a profit. Likewise, the opposite trading pattern (pre-call net buying, positive tone in the call, and post-call net selling) would also be supportive of stock influence—an attempt to inflate the stock price and then realize a short-term profit. While each of the two aforementioned scenarios may seem equally plausible, we note that it may be more difficult to empirically detect the former if company management tends to screen against known short sellers intending to criticize (Call et al. [2021]). Alternatively, trading in the same direction both before and after the call by a given institution, in conjunction with the predicted tone in the call, can be supportive of information acquisition.[2]

[2] In Section 2.4, we discuss how eight possible patterns linking pre- and post-call trades and two patterns linking post-call trades and future returns are consistent with stock influence or information acquisition behavior.

For sure, there are exceptions to these inferences (e.g., not closing out a position can still lead to an unrealized gain) and counterexamples that could go against our expectations. There is no definitive way to read the mind of a buy-side analyst, but we believe that observed direct participation in conference calls and trading patterns of their employing investment firms surrounding the call can point towards the *more likely* inference on average.

To investigate the role of surrogate sell-side analysts, we use a sample *without* direct buy-side analyst participation but includes a sell-side analyst who participated in the call and is likely to be a surrogate for a specific buy-side institution (i.e., the "surrogate subsample"). We then compare that group to a subsample of sell-side analysts who are not likely to be surrogates (i.e., the "non-surrogate subsample"). If conference call participation by a surrogate analyst substitutes or complements a buy-side analyst's direct participation, then it will also have an interactive effect on the trading patterns by an institution around a company's conference call.

We use a unique combination of data that include 10,953 earnings conference call transcripts with names of participating sell-side and buy-side analysts (from Thomson Reuter's StreetEvents database) and daily trade executions from Abel Noser Solutions ("Abel Noser") with names of institutional investment firms and broker-dealers that employ the analysts. We highlight four sets of results.

First, when comparing the BSA subsample to the non-surrogate subsample and testing for an association between pre-conference call trades and post-conference call trades, we find evidence for the pattern of pre-call net selling, negative tone, and post-call net selling, which is supportive of the information acquisition behavior. We also find evidence of pre-call net selling, positive tone, and post-call net selling, which is supportive of the stock influence behavior. Moreover, when partitioning buy-side institutions based on transient, quasi-indexer, and dedicated

classifications (Bushee [1998, 2001]), we find evidence of stock influence behavior from transient and dedicated institutions (when their buy-side analysts were positive in the call) and evidence of information acquisition behavior from quasi-indexers. We note that our findings of stock influence behavior among the buy-side were observed when it involved positive tone but not negative tone, which is consistent with the belief that company management tends to screen against short sellers intending to be negative in the call.

Second, when comparing the same two subsamples and testing for an association between post-conference call net buying activity and future stock returns, we find evidence that post-call net buying, in conjunction with positive tone by the buy-side analyst in the call, is predictive of higher future stock returns, which supports the notion of informed trading after the call and the information acquisition behavior.

Third, regarding surrogate sell-side analysts, we find they are more likely to be positive than negative in the conference call when they act on behalf of a buy-side analyst client for either the stock influence or information acquisition behavior. However, when the surrogate sell-side analyst is negative in the call, it happens more likely under the stock influence motive than the information acquisition motive. We conjecture that the reason is when company management suspects that a buy-side analyst intends to be negative or critical of the company in the call, management will screen against such callers. Therefore, these buy-side analysts will be more likely to ask their surrogate sell-side analysts to do the "dirty work." Our findings for surrogates suggest that even when a buy-side analyst does not directly participate in a company's conference call, the participation by a surrogate sell-side analyst may still help a buy-side institution's trading strategy.

Fourth, cross-sectional analyses show that the main results hold for smaller companies, where information acquisition and stock influence behaviors are expected to be effective, and

companies with higher analyst coverage, where surrogate sell-side analysts are expected to play a larger role. As prior studies (e.g., Brushan 1989) have shown that smaller companies tend to have *lower* analyst coverage, we believe that our cross-sectional results are supportive of the underlying behaviors examined in this study. That is, we find that the information acquisition and stock influence behaviors are effective with smaller companies because of their poorer information environments, and these behaviors are more detectable from surrogate sell-side analysts for companies with higher analyst coverage.

This study contributes to the literatures on buy-side analysts and conference calls (Tasker [1998], Frankel, Johnson, and Skinner [1999], Bowen, Davis, and Matsumoto [2002], Bushee, Matsumoto, and Miller [2003, 2004]). It is the first study to combine conference call transcript data with daily institutional trading data to link a specific buy-side analyst's direct participation in the call to the employing institution's trades before and after the call to shed light on the reasons and motives for the analyst to be in the call. We find evidence for both the information acquisition behavior and the stock influence behavior, which have thus far been supported only by anecdotal evidence (Brown et al. [2016], Jung et al. [2018]).

This study also bridges two literatures on financial analysts. The literature on sell-side analysts highlights their role as information intermediaries, gathering and processing information from companies and other sources to relay investment research and ideas to institutional clients (e.g., Bradshaw [2011], Brown et al. [2015]).[3] The literature on buy-side analysts highlights their

[3] A related paper in the sell-side analyst literature is Jung, Wong, and Zhang [2015], who show that "unexpected" conference call participation of sell-side analysts represents an increase in "analyst interest" and is a leading indicator of future coverage initiations and positive stock returns. While sell-side analyst participation serves as a leading indicator of positive things to come because of self-selection in analyst coverage (McNichols and O'Brien 1997), the implication of buy-side analyst participation depends on the nature of the conversation between the analyst and company management, which in turn is determined by the buy-side analyst's motive to participate in the call. And, as one of the bases for our study in the first place, it likely depends on the nature of the employing institution's trading in the company's stock before and after the conference call. These considerations are moot for sell-side analysts. Therefore, we believe what we can infer from buy-side participation is much more nuanced and "behind the scenes"

role as stock-pickers who gather information and develop investment recommendations for an internal audience of portfolio managers (Groysberg et al. [2008, 2013], Brown et al. [2016]). Each type of analyst has been viewed as complementary in their roles within the capital markets because they have different responsibilities and incentives. We bridge the two literatures by documenting that in the setting of public earnings conference calls, where many buy-side analysts are reluctant to (or cannot) participate directly, surrogate sell-side analysts can act on their behalf.

Three related papers in the buy-side analyst literature have examined trading data: Jung et al. [2018], Cen et al. [2018], and Huang and Wermers [2020]. Jung et al. [2018] examines the causes and consequences of buy-side analyst participation in earnings conference calls. In one of their tests, they use quarterly Form 13F data to examine quarter-over-quarter changes in institutional holdings, but such data is coarse and thus cannot distinguish between information acquisition and stock influence behaviors, which is the focus of our paper.[4] Cen et al. [2018] uses intraday stock price data to examine "how market participants with different information interact with each other, and how differently the diverse information gets impounded into prices (pg. 1)." Using high-frequency trading data in three-minute intervals around earnings conference calls, they find that buy-side participation triggers market-level trading activities, lending support to their information production hypothesis. Huang and Wermers [2020] tests how aggregated institutional trading (computed using quarterly Form 13F and daily Abel Noser data) is related to the tone of all participations' questions and/or management's answers to those questions, as well as short- and long-term stock returns after the conference call. However, the latter two studies do not link

than what we can infer from sell-side participation. In this paper, we focus on buy-side analysts' two motives to participate in conference calls, information acquisition and stock influence, which are not equally applicable to sell-side analysts.

[4] For example, if an institution buys a company's stock before a conference call and sells it afterwards (or vice versa), both within a calendar quarter, then trading data based on Form 13Fs will not detect the trades. In contrast, trading data based on the Abel Noser dataset will detect such trading patterns.

individual institutions' trading to their analysts in the call, do not examine the stock influence motive, and do not examine the indirect participation of surrogate sell-side analysts. Hence, our study provides incremental insights over and above these three studies on the information acquisition and stock influence role that buy-side analysts play in the capital markets.

The rest of the paper is organized as follows. Section 2 discusses the institutional background and empirical predictions. Section 3 describes the data and sample construction. Section 4 presents the research design and empirical results, while Section 5 concludes.

2. Institutional Background and Empirical Predictions

2.1 Buy-Side Analysts

A buy-side analyst works for an institutional investment (or buy-side) firm, which explains the "buy-side" moniker. According to *Institutional Investor* magazine's annual ranking, some of the largest investment firms include BlackRock (formerly Barclays Global Investors), State Street Global Advisors, Fidelity Investments, and the Capital Group Companies (Capon [2005]). In contrast, a sell-side analyst works for a brokerage firm (also called a broker-dealer) or an independent research firm (i.e., not affiliated with a brokerage firm or investment bank) that sells investment research to the buy-side.

Groysberg et al. [2008] provide a comprehensive description of the differences between the two types of analysts in terms of size and scope of coverage, target audience, and compensation structure. Briefly stated, buy-side analysts cover approximately 40 companies (with many more on their "radar") broadly grouped within a single sector (e.g., technology, healthcare, consumer, etc.), provide research to in-house portfolio managers, and are compensated based on the investment profitability of their recommendations (Brown et al. [2016]). Sell-side analysts cover approximately 15-20 companies grouped within a narrow industry (e.g., telecommunication

services, medical devices, beverages, etc.), provide research to buy-side analysts and portfolio managers (Abramowitz [2006], Retkwa [2009]), and are compensated based on generating trading commissions (Jackson [2005], Brown et al. [2015]). Another difference between the two types of analysts is that sell-side analysts tend to be very public in their research activities and dissemination of research, while buy-side analysts work privately for an internal audience. Such typical privacy is one reason we are interested in examining the reasons for their participation in a public venue such as a conference call.

2.2 Conference Calls

Prior research into earnings conference calls shows that they are an important voluntary disclosure medium for companies and a source of information for sell-side analysts (Tasker [1998], Frankel et al. [1999], Bowen et al. [2002], Bushee et al. [2003, 2004]). Although Brown et al. [2016] find, using survey data and follow-up interviews, that some buy-side analysts avoid or are cautious about participating in the Q&A portion of conference calls, several studies document thousands of buy-side analysts participating in the calls (Call et al. [2021], Jung et al. [2018]), which indicates they participate when there is a good reason. In Jung et al. [2018], the authors interview nine buy-side professionals and one investor relations officer and surmise that buy-side analysts participate in conference calls for multiple reasons, which can be summarized into two general explanations: (1) trying to obtain or clarify information and (2) trying to influence the stock price.

It is important to note two institutional details that can affect the inferences from our study. First, throughout this paper, we refer to "participation" as asking at least one question during a company's conference call because we cannot observe analysts (buy-side or sell-side) who merely listen during the call or who wanted to ask a question but were not selected by management. This is related to the second detail, which is that participation by any type of analyst on a company's

earnings conference call is not entirely a random or first-come, first-serve occurrence.[5] An analyst who wants to ask management a question calls a specific phone number and enters a question queue using a touch-tone keypad (Heinrichs, Park, and Soltes [2018]), and then management has discretion over whom to select from the queue to ask the next question (Skinner [2003], Mayew [2008], Mayew, Sharp, and Venkatachalam [2013], Brown et al. [2021]). Hence, our observations of buy-side analysts asking a question is a joint outcome of analysts wanting to ask a question and management selecting them to ask a question. Similarly, a lack of questions could be due to buy-side analysts not wanting to ask a question or management not allowing them to ask a question. One implication of these details is that results regarding conference call participation by buy-side analysts likely underestimate general buy-side interest and, hence, the association between direct buy-side participation and any related trading by the employing institutional investment firm. A second implication is that known short sellers who would likely criticize management may be intentionally excluded by management from asking questions. Empirically, this implication suggests that it would be more difficult to find buy-side analysts with negative tone in conference calls for the purpose of stock influence. However, the potential participation by surrogate sell-side analyst may partially alleviate this issue, as they can be negative in the conference call on behalf of their buy-side analyst client.

2.3 Surrogate Sell-Side Analysts

Brown et al. [2021] discuss anecdotes in which a buy-side analyst texts or instant messages a sell-side analyst during a conference call to ask questions on their behalf, which suggest there are "surrogate" sell-side analysts. Given that the presence and effects of surrogate sell-side analysts have not been tested empirically in prior studies, we emphasize several of our expectations. First,

[5] For example, Brown et al. [2021] report that 59% of the investor relations officers surveyed indicate that their companies do not select conference call participants based on a first-come, first-served basis.

we expect that the conditional likelihood that a sell-side analyst is asking a question on behalf of a specific buy-side client is much higher than the unconditional likelihood. To illustrate the conditional case, suppose that institutional Investment Firm A has had its buy-side analyst directly participate in the conference call of Company X for one or more quarters in the past, but in the current quarter it did not participate. At the same time, Investment Firm A has a strong relationship with Brokerage B and its sell-side analyst participated in the call. In this scenario, we expect that it is very plausible that this sell-side analyst could be acting as a surrogate for Investment Firm A and its buy-side analyst in Company X's call. The unconditional case is that the sell-side analyst working for Brokerage B participated in the conference call of Company Y. If there is no prior history of Investment Firm A and its buy-side analyst directly participating in Company Y's call, then it is less likely that the sell-side analyst is acting as a surrogate for Investment Firm A in Company Y's call. We note that our sample (discussed in Section 3) is constructed based on the conditional scenario because we hold institution-company pairs constant and compare quarters in which the investment firm and its buy-side analyst directly participated in the call to other quarters in which it did not.

Our second expectation is about the expected likelihood that any given sell-side analyst asking a question on any given company's conference call is acting in a surrogate role. Our data suggest that approximately one-third of the roughly 800 sell-side brokerages in our sample have a significant relationship with one or more institutional investment firms based on annual commission dollars. Assuming that sell-side analysts cover approximately 15 companies on average, if only one of those covered companies hosts a call in which the sell-side analyst is likely to be acting as a surrogate (i.e., the conditional case), then a back-of-the-envelope estimate for the prevalence of a surrogate among all sell-side analysts in all conference calls is one-third of one-

fifteenth, or approximately 2%. A higher plausible estimate based on five of the fifteen covered companies (i.e., one-third of the analyst's coverage) would be one-third of one-third, or 11%. Therefore, we estimate that between 2-11% of any given sell-side analyst asking questions in any given company's conference call could be doing so on behalf of a buy-side analyst.

2.4 Empirical Predictions

2.4.1 Association Between Pre-Call Trades and Post-Call Trades

We distinguish the motives for buy-side analyst participation by examining whether the employing institution's pre-call trading is associated with its post-call trading, and whether the tone of the buy-side analyst (or the surrogate sell-side analyst) in the conference call has an interactive effect. For a given institution-company-quarter, pre-call trades can be buys or sells, tone can be positive or negative, and post-call trades can be buys or sells. Thus, there are eight $(2 \times 2 \times 2)$ total possible observable patterns, and we consider four of them to be more likely related to stock influence behavior and the other four more likely to be related to information acquisition behavior.

However, empirically examining individual buy and sell trades in isolation is potentially misleading because, in many situations, institutions trade in both directions during a relatively short trading window due to liquidity reasons. For example, institutions may first sell a stock to meet redemptions, then a short while later buy it back to rebalance or reweight their portfolio. As a result, individual buy and sell orders may only partially reflect the intentions of the institutional traders and investors (Chan and Lakonishok [1993], Saar [2001], Hu [2009]). To alleviate this problem, we elect to measure net buys, defined as shares bought minus shares sold during a given window and deflated by total share outstanding. And to ease exposition, when the number of shares sold exceed the number of shares bought, which would lead to negative values for net buys, we

instead use the term "net sells". We define these and other variables in more detail in Section 3 and Appendix A.

As discussed in the introduction, we believe that pre-call net buys linked to post-call net sells (i.e., round-trip trades), accompanied by positive tone in the call, should be consistent with stock influence behavior—an attempt to inflate the stock price and then realize a short-term profit. Brown et al. [2016] discusses one buy-side analyst as saying, "… you would never ask a question unless you were giving them a softball question." Likewise, pre-call net sells linked to post-call net buys, in conjunction with negative tone in the call, would also more likely to be reflective of stock influence behavior—an attempt to hurt the stock during the call and cover a short position immediately afterwards to realize a profit. For example, when David Einhorn, a legendary hedge fund manager, criticized Herbalife about its sales practices during its May 1, 2012 conference call, Herbalife's stock lost 8.8% immediately and 20% by the close of the market (Chung, Light, and McGinty [2012]). Anecdotes of this nature are also provided in Jung et al. [2018], including one analyst who stated "we also can short a stock, in which case, in a very nice way we can make the company look bad. That's not easy to do, but we try to be as nice as possible."

In addition, we consider the pattern in which an institution builds an initial position in a stock before the earnings announcement (and conference call) and then makes (or asks a surrogate sell-side analyst to make) negative comments during the call in an attempt to buy more of the stock afterwards at temporarily depressed prices to be consistent with stock influence behavior. By the same logic, an institution reducing its position before the call can make (or ask a surrogate sell-side analyst to make) positive comments during the call to sell more of stock afterwards at temporarily inflated prices. We note that among the four patterns discussed above, we expect to observe more cases in which a buy-side analyst speaks positively in a call, as company

management tends to screen against known short sellers intending to criticize management in the call. We summarize the four patterns as more likely to be consistent with stock influence behavior as follows.

Stock Influence (SI) b*ehavior is more likely with a pattern of:*

(i) pre-call net buys, positive tone, and post-call net sells
(ii) pre-call net sells, negative tone, and post-call net buys
(iii) pre-call net buys, negative tone, and post-call net buys
(iv) pre-call net sells, positive tone, and post-call net sells

Regarding the remaining four trade and tone patterns, we consider them to be more likely related to information acquisition behavior. An institution begins to build a position in a stock before the earnings announcement because it expects good news, the buy-side analyst (or sell-side surrogate) learns or confirms the good news during the conference call (as reflected in a positive tone), and then the institution increases its position afterwards. In the opposite pattern, an institution reduces its position before the call because it is worried about the results, the buy-side analyst (or sell-side surrogate) learns or confirms bad news during the call (negative tone), and then the institution further reduces its position afterwards. Lastly, there are the scenarios in which an institution learns of company news during the call that is contrary to their prior expectations, and as a result, sells the stock after the call despite buying it before the call, or buys the stock after the call despite selling it before the call (i.e., the institution reverses its previous trade). We summarize these patterns in the next prediction.

Information Acquisition (IA) *behavior is more likely with a pattern of:*

(i) pre-call net buys, positive tone, and post-call net buys
(ii) pre-call net sells, negative tone, and post-call net sells
(iii) pre-call net buys, negative tone, and post-call net sells
(iv) pre-call net sells, positive tone, and post-call net buys

We note that if any *one* of the above eight patterns we expect to be more likely consistent with stock influence or information acquisition behavior were detected from the conference call

and institutional trading data, it would be supportive of the respective behavior. That is, it is not necessary for *all* patterns to be detected for there to be evidence of stock influence or information acquisition behavior. In fact, we would not expect to detect all eight patterns in our data (discussed in section 3) because: i) it may be difficult to observe negative comments if management does not allow short sellers in the call, ii) the Abel Noser dataset has low coverage of hedge funds because they tend to not disclose their transactions to third-party data providers, and iii) actions taken by the same buy-side analyst and institution during different conference calls may cancel each other out.

2.4.2 Association Between Post-Call Trades and Future Stock Returns

Our next set of predictions is based on trade informativeness, defined as the ability of buy-side analyst participation and post-call institutional trades to predict future price movements. We again focus on tone of the buy-side analysts (or their surrogate sell-side analysts) during the call, as well as the amount of net buying or net selling activity by an institution after the call, to test for an association with future stock returns.

With stock influence behavior, if a buy-side analyst attempts to boost a company's stock price with positive comments during a conference call in order for the employing institution to sell the stock at temporarily inflated prices (consistent with SI(i) and SI(iv)), then we should observe less net buying (i.e., more net selling) after the call and lower future stock returns. Likewise, if a buy-side analyst uses negative comments during the call to temporarily depress stock price so that the institution can buy more of the stock (consistent with SI(ii) and SI(iii)), then we should observe more net buying after the call and higher future stock returns. In both of those cases, post-call net buys would be positively correlated with future stock returns, but to the extent that the buy-side analyst's tone during the conference call influences the stock price, there would be a negative

interactive effect between net buys and the tone of the buy-side analyst (or sell-side surrogate). We summarize the above patterns in the next prediction.

Stock Influence (SI): *Stock influence behavior is more likely when the tone of the buy-side analyst (or sell-side surrogate) has a negative interactive effect on the relationship between the employing institution's post-call net buys and the company's future stock returns.*

With information acquisition behavior, if a buy-side analyst learns or confirms positive news during the call (as captured by positive tone) that results in the employing institution buying the company's stock after the call (consistent with IA(i) and IA(iv)), then we should observe more net buying after the call and higher future stock returns. By the same logic, if the buy-side analyst acquires negative information during the call (as captured by negative tone) that results in the institution selling the stock after the call (consistent with IA(ii) and IA(iii)), then we should observe less net buying (i.e., more net selling) after the call and lower future stock returns. In both of those cases, post-call net buys would be positively correlated with future stock returns, and there would be a positive interactive effect with the tone of the buy-side analyst (or sell-side surrogate). We state our last prediction as follows.

Information Acquisition (IA): *Information acquisition behavior is more likely when the tone of the buy-side analyst (or sell-side surrogate) has a positive interactive effect on the relationship between the employing institution's post-call net buys and the company's future stock returns.*

2.4.3 Predictions for Surrogate Sell-Side Analysts

We posit that when a sell-side analyst is asked by a buy-side analyst client to act on their behalf in a conference call, there are several factors to consider. First, we conjecture that the surrogate sell-side analyst does not mind sounding positive in the call because, all else equal, doing so would not anger management, which could limit the sell-side analyst's future access to management. Therefore, if a buy-side analyst asks a surrogate sell-side analyst to say something positive or ask a question in a positive manner, for either the information acquisition or stock

influence motive, the sell-side analyst will do so without hesitation. Second, if a buy-side analyst asks a surrogate sell-side analyst to be negative or critical in a call, for either the information acquisition or stock influence motive, the sell-side analyst will be more reluctant. However, such a request would occur most likely when that buy-side analyst is not able to do so on their own because management screens the callers to avoid short-sellers (Call et al. [2021]) who want to negatively influence the stock. Thus, if a sell-side analyst is negative in the call, and if the sell-side analyst is acting as a surrogate for an important buy-side client, then it likely happens when the buy-side analyst cannot negatively influence the stock on their own.

These factors lend themselves to several predictions related to surrogate sell-side analysts. We expect that surrogate sell-side analysts are more likely to be positive than negative in a conference call for either the stock influence or information acquisition behavior. But when the surrogate sell-side analyst is negative in the call, it is more likely for the stock influence behavior than the information acquisition behavior.

2.4.4 Predictions for Dedicated, Quasi-Indexer, and Transient Institutions

Call et al. [2021] partition buy-side analysts by hedge funds, mutual funds, and registered investment advisors. Ideally, we would predict that hedge funds, which are allowed to employ long-short trading strategies, are more likely to exhibit stock influence behavior. However, as mentioned earlier, the Abel Noser dataset has very little coverage of hedge funds because such institutions tend not to disclose their transactions to a third-party data provider. Therefore, as the next best alternative, we partition institutions using the Bushee [1998, 2001] classifications.

Transient institutions utilize short-horizon, long-short, and momentum trading strategies, in contrast to Dedicated institutions that hold large, concentrated positions in companies for a long-period of time. The largest percentage of institutions are Quasi-indexers, which actively manage diversified funds (i.e., not passively indexing *per se*) but exhibit buy-and-hold strategies. In our

data, buy-side analysts from transient institutions account for 40% of the total, while buy-side analysts from quasi-indexer institutions account for 57% and analysts from dedicated institutions account for 3%.

We predict that buy-side analysts from transient institutions are more likely to exhibit stock influence behavior, given their propensity for short-term trading strategies. For quasi-indexers, given their portfolios tend to mimic indexes with slightly higher or lower sector weightings, we expect to see more information acquisition behavior. However, with dedicated institutional investors, we see two sides of the argument. On the one hand, dedicated investors have long investment horizons and should be more inclined to exhibit information acquisition behavior, as firm values tend to converge to fundamental values in the long-term. On the other hand, dedicated investors hold large, concentrated positions in their portfolio companies, and as a result, they have most to gain or lose from stock influence behavior. Therefore, we leave this as an empirical question.

3. Data and Sample

Our data are composed from the intersection of company quarterly earnings conference call transcripts from the Thomson Reuters StreetEvents database and daily intuitional trading data from Abel Noser. Each of these databases is large and requires careful preparation before any analyses can be conducted. Therefore, we briefly describe each data source below.

3.1 Conference Call Transcript Data

A conference call transcript contains a list of participants, their affiliation, the text of management's prepared remarks, and the questions and answers between management and analysts. We use a python script to parse the text of the transcripts to collect the names and affiliations of all questioners. Following Jung et al. [2018], we identify buy-side analysts who work

for institutional investment firms using an extensive procedure to exclude participants affiliated with sell-side brokerage firms and investment banks, individual retail investors, and business reporters. The details are explained in Jung et al. [2018], but briefly stated, the affiliation is the key identifier, and we: 1) exclude affiliations that are known to be sell-side firms using I/B/E/S data sources, 2) include affiliations that are known to be institutional investment firms using the Thomson Reuters Form 13-F database, 3) exclude affiliations that operate both sell-side and buy-side operations where the distinction between each side can be unclear, and 4) manually check the website of each affiliation to confirm that the entity in the remaining sample is indeed a buy-side institutional investment firm.

3.2 Institutional Trading Data

Our daily institutional trading data come from Abel Noser. It is a commercial dataset that provides transaction-level data on buy and sell orders from institutional investment managers (e.g., Fidelity Investments and Putnam Investments) and pension plan sponsors (e.g., California Public Employees' Retirement System (CalPERS) and the Commonwealth of Virginia). The data has been used in studies on market microstructure, corporate finance, investments, and to a lesser extent, accounting (see, e.g., Chemmanur, He, and Hu [2009], Puckett and Yan [2011], Cready, Kumas, and Subasi [2014], Hu, Ke, and Yu [2018]). An extensive discussion of the data source and a review of the papers that have used this data is provided in Hu, Jo, Wang, and Xie [2018].

As discussed in Hu et al. [2018], Abel Noser data includes several categories of variables, two of which are pertinent to this study. First, there are variables that identify the market participants, including the institutional investment firm that submitted a trade order and the broker-dealer that executed the order. Second, there are transaction-specific variables including the date, stock ticker symbol, CUSIP identifier, whether an order was a buy or sell, execution price, number

of shares traded, and dollar commissions paid on the transaction. In terms of coverage, not all institutional investment firms are in the Abel Noser database, such as hedge funds because they tend not to disclose their transactions to a third-party data provider, which is one disadvantage to an otherwise highly useful data source. Nonetheless, the database includes transaction data on 1,088 investment managers and plan sponsors. Hu et al. [2018] estimate that the database covers at least 12 percent of CRSP volume over the 1999 to 2011 period.

3.3 Other Data Sources

In addition to data from conference call transcripts and institutional trading, we require other data sources for our empirical tests. We use Thomson Reuters 13F filings data to compute institutions' quarterly ownership in companies, I/B/E/S data for sell-side analyst forecasts of earnings, Compustat data to compute companies' quarterly financial variables, and CRSP data to compute stock returns and trading volume. These data requirements reduce our total sample sizes in subsequent regression analyses.

3.4 Sample Construction and Direct Participation by Buy-Side Analysts

Our sample covers the period from the second quarter of 2002 to the third quarter of 2011, for a total of 9.5 years. The reason is that conference call transcripts started becoming widely populated in the StreetEvents database in the second quarter of 2002 and the Abel Noser data are available to researchers with the necessary identification code until the third quarter of 2011.

Table 1 summarizes the sample construction process. Over our sample period, there are 90,296 quarterly earnings conference call transcripts from 3,755 unique companies. Among these conference calls, there are 26,139 calls (or 29 percent) that have direct buy-side analyst participation from 1,778 unique investment firms. Restricting the calls in which the investment firm is covered by the Abel Noser dataset results in 10,953 conference calls with buy-side analyst

participation from 366 investments firms. A list of the top 40 investment firms and their frequency of participation is shown in Appendix B. This "Buy-Side Analyst (BSA)" subsample is the basis for the analyses in this study and it will be compared to conference calls hosted by the same companies in other quarters when there was either: i) no direct buy-side participation but likely participation by a surrogate sell-side analyst (the surrogate subsample explained in the next section), or ii) no direct buy-side participation and no surrogate sell-side participation (the non-surrogate subsample).

The expanded sample has 25,234 company-institution-quarter observations, but it is reduced to 22,399 observations when CRSP daily return data is required and to 16,886 observations after dropping those with missing values for other explanatory variables. The final combined sample has 16,886 company-institution-quarter observations–2,390 with direct buy-side participation (14.2%) and 14,496 without (85.8%).

3.5 Participation by Surrogate Sell-Side Analysts

Using our data, for the subsample of 14,496 institution-company-quarters *without* direct buy-side participation, we identify the presence of a sell-side analyst potentially acting as a surrogate for a buy-side client. We expect the existence of this type of surrogate relationship to be more likely if the buy-side analyst's investment firm contributed significant commission dollars to the sell-side analyst's brokerage firm in the past (Chemmanur, Hu, and Huang [2015]). Therefore, we define a sell-side analyst who participated in a company's conference call as a likely surrogate for a given buy-side analyst and institution if the commissions paid by that institution to that sell-side analyst's brokerage firm during the one-year period prior to the call accounted for more than 1% of that brokerage firm's total commissions (from our data).[6] We find that of the

[6] In untabulated robustness checks, we use an alternative definition of a surrogate based on whether the sell-side brokerage firm executed at least one transaction for the institution that involved the hosting company's stock within

company-institution-quarters without direct buy-side analyst participation, 276 or 2% have participation by surrogate sell-side analysts and 14,220 or 98% do not. We refer to the "surrogate subsample" as the one with surrogate sell-side analysts and the "non-surrogate subsample" as the one without surrogates. Using the "non-surrogate subsample" as the control sample, we compare and contrast the effects direct BSA participation and surrogate sell-side participation have on institutional trading of the hosting company's stock.

4. Empirical Analyses

In the following subsections, we examine several possible links between buy-side analyst conference call participation and institutional trading. Specifically, we examine how a specific institution's trading in a company's stock, both before and after a conference call, differs depending on whether that institution's buy-side analyst participated directly in the call (BSA subsample), that institution's surrogate sell-side analyst participated in the call (surrogate subsample), or neither its buy-side analyst nor surrogate sell-side analyst participated in the call (non-surrogate subsample). We hold all institution-company pairs constant and compare quarters in which there was participation with quarters in which there was no participation.

4.1 Variable Definitions

To examine pre-call trading activity, we define $PreCall\text{-}NetBuys_{j,i,t}$ as the number of shares bought minus shares sold by institution j in company i during the 10 trading days before the conference call (−10, −1) in quarter t, where day 0 is the date of the conference call, and scaled by company i's total shares outstanding. When the number of shares sold exceeds the number of shares bought, this variable takes on a negative value, and thus, to ease exposition, we define a separate variable as $PreCall\text{-}NetSells_{j,i,t.}$ That is, *PreCall-NetBuys* takes on only positive values

10 trading days around the call (–5, +4). This is a looser requirement, and thus, we estimate that 11% of company-institution-quarters have surrogate participation. We find qualitatively similar results using this definition.

and *PreCall-NetSells* takes on only negative values; 0 otherwise. We measure post-call trading activity with $PostCall\text{-}NetBuys_{j,i,t}$, defined as the number of shares bought minus shares sold during the 10 trading days, inclusive, after the conference call (0, +9), scaled by shares outstanding. *PostCall-NetBuys* is used as a dependent variable, so to keep it as a single variable, it can take on both positive and negative values, the latter of which would indicate post-call net selling.

To capture the positivity or negativity of questions and comments made by a buy-side analyst in the conference call, we define a tone variable. $Tone_{i,j,t}$ is defined as the number of positive words minus negative words spoken by the buy-side analyst working for institution *j* on the conference call of company *i* during quarter *t*, divided by the sum of positive and negative words. Beyond using the Loughran and McDonald (2011) dictionary of positive and negative words, we augment the word lists using the Bozanic, Chen, and Jung [2019] list of positive and negative words used by sell-side analysts in their reports. Example 1 in Appendix C illustrates a buy-side analyst with negative tone and example 2 illustrates another analyst with positive tone.

In our regression tests, we use two indicator variables to capture whether a buy-side analyst's *Tone* is positive or negative, conditional on participation.[7] $Positive\ Tone_{j,i,t}$ is set to 1 (and 0 otherwise) if $Tone_{i,j,t}$ is positive and $Negative\ Tone_{j,i,t}$ is set to 1 (and 0 otherwise) if $Tone_{i,j,t}$ is negative. If there was no direct buy-side participation in the conference call, then *Positive Tone* and *Negative Tone* are both set to zero. If there was direct buy-side participation but the analyst's tone was neutral (which is only about 5% of the observations with buy-side participation), then to avoid being unable to distinguish between neutral participation from non-participation,, we drop these observations. For the surrogate subsample, we define *Positive Tone* and *Negative Tone*

[7] We use indicator variables instead of continuous variables to ease interpretation of regression results. We acknowledge that an indicator variable does not distinguish between extremely and moderately positive or negative tones, however, our empirical predictions are not based on the severity of tone.

similarly, except that the tone is based on the positive and negative words spoken by the surrogate sell-side analyst.[8] For the non-surrogate subsample, in which there is no participation by the buy-side analyst or surrogate sell-side analyst, both indicator variables take on the value of zero.

We include several control variables that may be associated with institution *j*'s trading of company *i*'s stock during quarter *t*. $Value\text{-}of\text{-}Holding_{j,i,t}$ is the natural log of the dollar value of ownership that institution *j* has in company *i*; $Investment\text{-}Firm\text{-}Size_{j,t}$ is the natural log of the total dollar value of all of institution *j*'s holdings; $Firms\text{-}in\text{-}Portfolio_{j,t}$ is the natural log of the total number of companies in institution *j*'s portfolio. Each variable is based on Thomson Reuter's 13F database and measured as of the calendar quarter ended prior to the conference call for quarter *t*. *Earnings-News* is reported earnings per share (EPS) minus analyst consensus median forecast measured prior to the announcement, scaled by stock price at the beginning of the current quarter. All continuous variables are winsorized at the 1st and 99th percentiles; definitions are summarized in Appendix A.

Table 2 Panel A reports descriptive statistics of the regression variables. The mean values of *PreCall-NetBuys, PreCall-NetSells,* and *PostCall-NetBuys* are 0.041%, −0.056% and −0.007% of total shares outstanding, respectively (median of 0%). Approximately 10% (5%) of conference calls have direct participation by a buy-side analyst who speaks with a positive (negative) tone. The median value of holding (*Value-of-Holding*) that a given institution has in a company is $25 million, the median value of an institution's entire portfolio (*Investment-Firm-Size*) is $28 billion, and the median number of companies in an institution's portfolio (*Firms-in-Portfolio*) is 747. The average company has a market-to-book ratio and return-on-assets of 2.845 and 0.013, respectively. Panel B presents a correlation matrix with Pearson (lower triangle) and Spearman (upper triangle)

[8] For the surrogate subsample, 185 observations are positive tone, 81 are negative tone, and 10 are zero tone (dropped). For the BSA subsample, 1483 observations are positive tone, 776 are negative tone, and 131 are zero tone (dropped).

values. *Tone,* the proxy for buy-side participation, is positively correlated with *PostCall-NetBuys* and $Return_{10\text{-}day}$, the raw stock return during the window (+10, +19).

4.2 Association Between Pre-Call Trades and Post-Call Trades

We test for evidence of stock influence and information acquisition behavior based on the possible link between pre-call trading and post-call trading, in conjunction with buy-side analyst and surrogate sell-side analyst participation, using the following regression equation.

$$\begin{aligned} PostCall\text{-}NetBuys_{j,i,t} = {} & \beta_0 + \beta_1(PreCall\text{-}NetBuys_{j,i,t}) + \beta_2(PreCall\text{-}NetSells_{j,i,t}) \\ & + \beta_3(Positive\ Tone_{j,i,t}) + \beta_4(Negative\ Tone_{j,i,t}) \\ & + \beta_5(PreCall\text{-}NetBuys_{j,i,t} * Positive\ Tone_{j,i,t}) \\ & + \beta_6(PreCall\text{-}NetSells_{j,i,t} * Negative\ Tone_{j,i,t}) \\ & + \beta_7(PreCall\text{-}NetBuys_{j,i,t} * Negative\ Tone_{j,i,t}) \\ & + \beta_8(PreCall\text{-}NetSells_{j,i,t} * Positive\ Tone_{j,i,t}) \\ & + Controls + fixed\ effects + \varepsilon \end{aligned} \quad (1)$$

The dependent variable is *PostCall-NetBuys*, as previously defined, while the explanatory variables of interest are the corresponding trading variables before the conference call (*PreCall-NetBuys* and *PreCall-NetSells*) interacted with the positive or negative tone of buy-side participation (*Positive Tone* and *Negative Tone*). The primary coefficients of interest are β_5, β_6, β_7, and β_8 on the four interaction terms, which capture whether positive or negative tone by the institution's buy-side analyst in the conference call interacts with the pre-call trades in predicting post-call net buys, relative to no surrogate participation. In addition to some control variables, we include institution, company, and quarter fixed effects in the regression models.

We summarize the eight trading patterns and predictions from Section 2.4.1 below:

Prediction	**Pre-call Trades**	**Tone**	**Post-call Trades**
SI (i)	*PreCall-NetBuys*	*Positive Tone*	*PostCall-NetSells*
IA (i)			*PostCall-NetBuys*
SI (ii)	*PreCall-NetSells*	*Negative Tone*	*PostCall-NetBuys*
IA (ii)			*PostCall-NetSells*
SI (iii)	*PreCall-NetBuys*	*Negative Tone*	*PostCall-NetBuys*
IA (iii)			*PostCall-NetSells*
SI (iv)	*PreCall-NetSells*	*Positive Tone*	*PostCall-NetSells*
IA (iv)			*PostCall-NetBuys*

Given these predictions, the signs on the estimated coefficients of the four interaction terms will indicate whether any of the four patterns (i to iv) under the stock influence (SI) behavior or the four patterns (i to iv) under the information acquisition (IA) behavior are supported by the data. In particular, the expected signs are as follows:

Pred.	**Pre-call Trades**	**Tone**	**Interaction terms**	**Coeff.**	**Sign for SI**	**Sign for IA**
(i)	*PreCall-NetBuys*	*Positive*	*PreCall-NetBuys * Positive Tone*	β_5	−	+
(ii)	*PreCall-NetSells*	*Negative*	*PreCall-NetSells * Negative Tone*	β_6	−	+
(iii)	*PreCall-NetBuys*	*Negative*	*PreCall-NetBuys * Negative Tone*	β_7	+	−
(iv)	*PreCall-NetSells*	*Positive*	*PreCall-NetSells * Positive Tone*	β_8	+	−

Take Prediction (ii) above as an example: since *PreCall-NetSells* takes on negative values and *Negative Tone* is an indicator, *PreCall-NetSells * Negative Tone* takes on a negative value when there is negative tone. Then, a negative coefficient β_6 for the interaction will make the dependent variable (*PostCall-NetBuys*) more positive, lending support to Prediction SI(ii). However, if the coefficient β_6 is positive, the dependent variable (*PostCall-NetBuys*) will be more negative, thereby supporting Prediction IA(ii).

Table 3 presents the results. In Column (1), the BSA subsample is compared to the non-surrogate subsample and the four interaction terms are not yet included. We find that *PreCall-NetBuys* and *PreCall-NetSells* are both positively associated with *PostCall-NetBuys* at the 1% level, which suggests that when an institution's buy-side analyst participates in the call, there is increased trading activity around the call by that institution. In addition, *Negative Tone* is significantly positive, indicating that there is increased post-call net buying when the buy-side analyst has a negative tone, which was not tested in Jung et al. [2018]. Regarding the control variables, only *Value-of-Holding* exhibits a significant negative association, which is consistent with institutions buying less of the stock if they already have a large holding of the stock in their portfolios. In Column (2), the surrogate sell-side analyst subsample is compared to the non-

surrogate subsample. We find similar results as in Column (1), which suggests that a surrogate sell-side analyst may substitute for a buy-side analyst in a conference call. The one difference, however, is that *Negative Tone* is not significant, which suggests that post-call net buying is not associated with surrogate sell-side analysts' negative tone alone.

Columns (3) and (4) present the results with the four interaction terms included. For the BSA subsample (Column (3)), we find that β_6, the coefficient for *PreCall-NetSells* * *Negative Tone*, is positive as the 10% level, which supports IA(ii) for the information acquisition behavior. However, this result is weaker than one might expect, likely because it involves negative tone, which we had conjectured would be more difficult to observe empirically if management screens callers to avoid short sellers expected to be negative in the call. We also find that β_8, the coefficient for *PreCall-NetSells* * *Positive Tone*, is positive as the 5% level, which supports SI(iv) for the stock influence behavior. Thus, when a buy-side analyst directly participates in a company's conference call, we find evidence of both stock influence and information acquisition behaviors, albeit weaker when it involves negative tone from the buy-side analyst.

For the surrogate sell-side analyst subsample (Column (4)), we find that the coefficient β_5 is positive and significant at the 5% level and the coefficient β_8 is negative and significant at the 1% level, which are consistent with IA(i) and IA(iv), respectively, for information acquisition behavior. Both results are also consistent with the predictions discussed in section 2.4.3, in which surrogate sell-side analysts are more likely to be positive than negative in a conference call for either the stock influence or information acquisition behavior. Next, the coefficient β_6 is negative and significant at the 1% level, which is consistent with SI(ii) for stock influence behavior. As this result indicates that the surrogate sell-side was negative in the call, it is also consistent with our prediction that it would happen more likely under the stock influence motive rather than the

information acquisition motive. Therefore, we find evidence that conference call participation by surrogate sell-side analysts may substitute for direct participation by buy-side analysts for both types of behaviors.

4.3 Association Between Post-Call Trades and Future Stock Returns

In this subsection, we examine whether net buying activity after the conference call (i.e., *PostCall-NetBuys*), in conjunction with the positive or negative tone of the buy-side analyst or surrogate sell-side analyst during the conference call, is associated with future stock returns of the company hosting the call. Specifically, we test if post-call net buys, interacted with the positive and negative tone of the buy-side or surrogate analyst in the call, is informative and predictive of future returns. This test also helps to distinguish the motives for buy-side analysts (or their sell-side surrogates) to participate in conference calls, as described in Section 2.4.2. Our test uses the following regression equation.

$$\begin{aligned} Return_{i,10\text{-}days} = {} & \beta_0 + \beta_1(PostCall\text{-}NetBuys_{i,j,t}) + \beta_2(Positive\ Tone_{j,i,t}) + \beta_3(Negative\ Tone_{j,i,t}) + \\ & \beta_4(PostCall\text{-}NetBuys_{i,j,t} * Positive\ Tone_{j,i,t}) + \\ & \beta_5(PostCall\text{-}NetBuys_{i,j,t} * Negative\ Tone_{j,i,t}) + \\ & Controls + fixed\ effects + \varepsilon \end{aligned} \quad (2)$$

The dependent variable is company *i*'s raw stock return over a 10-trading-day window, which begins after the post-conference call trading measurement window. For example, if $PostCall\text{-}NetBuys_{j,i,t}$ is computed for institution *j* over the 10-trading day window after company *i*'s conference call date, inclusive (0, +9), then $Return_{10\text{-}days}$ is the return over the subsequent ten trading days (+10, +19). Descriptive statistics in Table 2, Panel A show that both mean and median 10-trading-day returns are positive.

The independent variables of interest are the interaction terms *PostCall-NetBuys* * *Positive Tone* and *PostCall-NetBuys* * *Negative Tone*. The information acquisition behavior predicts a positive interactive effect of tone on the relation between post-call net buys and future stock

returns, suggesting a positive β_4. The stock influence behavior predicts a negative interactive effect of tone on the relation between post-call net buys and future stock returns, indicating a positive β_5. In addition to the control variables used in regression equation (1), we include four more that may be associated with a firm's future returns. *Company-Size* is the natural logarithm of a company's market capitalization in the quarter prior to the conference call. *Market-to-Book* is the market value of equity divided by the book value of equity in the quarter prior to the conference call. *Leverage* is total long-term debt divided by total assets in the quarter prior to the conference call. *Return-on-Assets* is computed as income before extraordinary items scaled by lagged total assets in the quarter prior to the conference call. All continuous variables are winsorized at the 1st and 99th percentiles; definitions are summarized in Appendix A.

Table 4 column (1) presents the results from estimating regression equation (2), comparing the effect of BSA participation with that of no surrogate participation. We find that β_4, the coefficient for *PostCall-NetBuys* * *Positive Tone*, is positive and significant at the 1% level, which is supportive of the information acquisition behavior. In contrast, the coefficient β_5 for *PostCall-NetBuys* * *Negative Tone* is not significant, which does not support the stock influence behavior. In column (2), we compare the surrogate sell-side analyst subsample against the non-surrogate subsample. Neither interaction term is significant, which does not support the information acquisition or stock influence behaviors. Overall, the results on future returns are consistent with, but do not perfectly line up with, the results on post-call net buys discussed in Section 4.2. Generally weaker results on future returns than on post-call net buys are likely related to much stronger noise in stock returns in capturing the informativeness of analyst conference call participation.

4.4 Institutions Partitioned by Type

In this subsection, we present the results of estimating regression equation (1) on subsamples partitioned by the type of institution as categorized in Bushee [1998, 2001]. In addition to the predictions discussed in section 2.4.4, another purpose of partitioning the sample is to investigate if any lack of significance in the coefficients on the interaction terms from Columns (3) and (4) in Table 3 may be the result of countervailing effects from different types of institutions.

Table 5 Columns (1) to (3) present the results from comparing the BSA and non-surrogate subsamples, and the variables of interest are the interaction terms. In Column (1), where the subsample is buy-side analysts from transient institutions, β_8 is positive and significant at the 10% level, which is consistent with the result from Column (3) of Table 3 and again supportive of SI(iv) for stock influence behavior. In Column (2), where the subsample is buy-side analysts from quasi-indexer institutions, β_5 is positive and significant at the 5% level, which is supportive of IA(i) for information acquisition behavior. In Column (3), where the subsample is buy-side analysts from dedicated institutions, β_5 is negative and significant at the 10% level and β_8 is positive and significant at the 5% level, which support SI(i) and SI(iv), respectively, for stock influence behavior. All the significant results in columns (1) to (3) are based on the buy-side analyst being positive in the call, which is consistent with our conjecture that it is more difficult to observe buy-side analysts being negative in a call because management is more likely to screen such callers. Moreover, the opposite signs for β_5 in columns (2) and (3) suggest that the insignificant coefficient β_5 in column (3) of Table 3 is due to countervailing effects between quasi-indexer and dedicated institutions.

Columns (4) to (5) present the results from comparing surrogate sell-side analysts from transient and quasi-indexer institutions with the non-surrogate subsample. A lack of sufficient

observations of sell-side analysts who are surrogates for dedicated institutions prevents us from presenting those results. In column (4), β_5 is negative and significant at the 5% level, which is supportive of SI(i) for stock influence behavior from sell-side analysts who are surrogates for transient buy-side analysts and institutions. In column (5), β_5 is positive and β_8 is negative (both significant at 1% level), which is supportive of IA(i) and IA(iv), respectively, for information acquisition behavior. Again, these three results are each consistent with the surrogate being more likely to be positive than negative in the call for either the stock influence or information acquisition behavior. We also find that β_6 is significantly negative and supportive of SI(ii) for stock influence behavior. This latter result is consistent with the prediction that if a surrogate is negative in the call, it would happen more likely under the stock influence motive rather than the information acquisition motive. Overall, the results from the surrogate subsample suggest that surrogate sell-side analysts can substitute for their buy-side clients for both types of behaviors when they are positive, but they are more likely to substitute for stock influence behavior when they are negative.

4.5 Additional Cross-Sectional Analyses

In this subsection we re-run the analyses of section 4.2 on subsamples partitioned based on two company characteristics. First, we partition the sample based on company size. We expect that both the information acquisition and stock influence behaviors would be effective for smaller companies because such companies typically have poorer information environments. Table 6 presents the results. For smaller companies, Column (1) for the BSA subsample shows that β_6 and β_8 are positive and significant, which support IA(ii) and SI(iv), respectively. Column (2) for the surrogate subsample shows that β_5 is positive and β_8 is negative, which support IA(i and iv), while β_6 is negative and supports SI(ii). The results for the partition of smaller companies are similar to

those presented in Table 3, Columns (3) and (4), for the full sample. In contrast, for the partition of larger companies, we find only one significant coefficient. Coefficient β_6 is negative in column (4), which indicates that when surrogate sell-side analysts are negative in the conference call, it is supportive of SI(ii) for stock influence behavior. Overall, the cross-sectional analysis based on company size indicates that the main results presented in Table 3 hold for smaller companies, as expected, while only one of the main results hold for larger companies.

The second cross-sectional partition we use is based on the level of analyst coverage. We choose this partitioning variable (where the median is 8) for two reasons. First, we wish to examine if the main results from Table 3 related to surrogate sell-side analysts (column (4)) hold in a subsample of higher analyst coverage companies, as we would expect. Second, as past studies have shown a high positive correlation between company size and analyst coverage (e.g., Brushan 1989), we can examine whether cross-sectional results for lower (higher) coverage companies merely mimic those for smaller (larger) companies. If they are similar, then that would indicate that company size and analyst coverage capture the same company characterises in our sample. If, however, the results are different, then that would indicate that the two partitioning variables capture company characteristics that are orthogonal to each other, and that each cross-sectional analysis can provide different insights into the information acquisition and stock influence behaviors.

In Table 6, Column (5), for the low analyst coverage and BSA subsample, we find that β_6 is positive and significant, which is supportive of IA(ii) for information acquisition and consistent with the main result shown in Table 3, Column (3). In contrast, for the lower analyst coverage and surrogate subsample, none of the interaction terms shown in Column (6) are significant. For the higher analyst coverage and BSA subsample (Column (7)), β_8 is positive and significant, which is

supportive of SI(iv) for stock influence and consistent with the main result shown in Table 3, Column (3). Finally, for the higher analyst coverage and surrogate subsample, the results in Column (8) are similar to the main results shown in Table 3, Column (4), as we expected.

In summary, we find that the main results presented in Table 3 hold in subsamples of smaller companies and companies with higher analyst coverage. As prior studies have shown that smaller companies tend to have *lower* analyst coverage, we believe that our cross-sectional results are supportive of the underlying behaviors examined in this study. That is, we find that the information acquisition and stock influence behaviors are effective with smaller companies because of their poorer information environments, and these behaviors are more detectable from surrogate sell-side analysts for companies with higher analyst coverage.

4.6 Potential Self-Selection Issue

To address a potential self-selection issue of buy-side analysts choosing to directly participate in the conference calls of companies with poor information environments, we model that decision using a first-stage probit regression, similar to that used in Jung et al. [2018]. We note, however, that the units of analysis in our paper are institution-company-quarters, while they are company-quarters in Jung et al. [2018]. As a result, we expect much less variation in the information environment across observations. In the first-stage regression (untabulated), we find that the proxy for information environment, sell-side analyst forecast dispersion, is not a significant determinant of the buy-side analysts' decisions to participate in conference calls. We then retrieve the inverse Mills ratio (IMR) from the first-stage regression and find (untabulated) that its inclusion does not alter the inferences from Tables 3 or 4. Therefore, we believe that self-selection is not a major issue in our main tests.

5. Conclusion

In this study, we examine buy-side analysts' direct participation in conference calls (including the tone of their dialogues with company management), in conjunction with their employing institution's trading patterns before and after the conference call, as well as the informativeness of their post-call trades with future stock returns. We find evidence supportive of both information acquisition and stock influence behavior by buy-side analysts, which thus far have been supported only by anecdotes. We also find evidence that participation by a surrogate sell-side analyst being positive in the call on behalf of their buy-side clients is associated with both information acquisition and stock influence activities, while a surrogate being negative in the call is more likely to be associated with stock influence behavior. Cross-sectional analyses show that the main results hold for smaller companies, where information acquisition and stock influence behaviors are expected to be effective, and companies with higher analyst coverage, where surrogate sell-side analysts are expected to play a larger role. Our findings contribute both to an emerging literature on buy-side analysts and a mature literature on sell-side analysts. The evidence we provide on each behavior should be of interest to firm managers who host conference calls, market participants who use conference calls to collect company information, as well as regulators who monitor for possible market manipulation.

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Appendix A: Variable Definitions

Variable	Definition
PreCall-NetBuys$_{j,i,t}$	Number of shares bought minus shares sold (where # bought > # sold) by institution *j* in company *i* during the 10 trading days before the conference call (−10, −1) in quarter *t*, where day 0 is the date of the conference call and scaled by company *i*'s total shares outstanding. This variable is set to zero if # bought < # sold.
PreCall-NetSells$_{j,i,t}$	Number of shares bought minus shares sold (where # bought < # sold) by institution *j* in company *i* during the 10 trading days before the conference call (−10, −1) in quarter *t*, where day 0 is the date of the conference call and scaled by company *i*'s total shares outstanding. This variable is set to zero if # bought > # sold.
PostCall-NetBuys$_{j,i,t}$	Number of shares bought minus shares sold during the 10 trading days, inclusive, after the conference call (0, +9), scaled by shares outstanding; negative values again indicate post-call net selling.
Return$_{i,10\text{-}day}$	Raw stock return of company *i* over the 10 trading-days during window (+10, +19), where day 0 is the date of the conference call.
Tone	Number of positive words minus negative words spoken by the buy-side analyst, divided by the sum of positive and negative words. Word lists are from Loughlan and McDonald (2011) and Bozanic, Chen and Jung (2019).
Positive Tone	Indicator variable equal to 1 if *Tone* is positive; and 0 otherwise.
Negative Tone	Indicator variable equal to 1 if *Tone* is negative; and 0 otherwise.
Value-of-Holding$_{j,i,t}$	Natural log of the dollar value of ownership that institution *j* has in company *i* in quarter *t* prior to the conference call.
Investment-Firm-Size$_{j,t}$	Natural log of the total dollar value of all the investment firm *j*'s stock holdings in quarter *t* prior to the conference call.
Firms-in-Portfolio$_{j,t}$	Natural log of the total number of companies in investment firm *j*'s portfolio in quarter *t* prior to the conference call.
Earnings-News	Reported earnings per share (EPS) minus analyst consensus median forecast measured prior to the announcement, scaled by stock price at the beginning of the current quarter. If an analyst consensus forecast is not available (because a lack of analyst coverage), then we use the reported EPS from the prior year's quarter.
Company-Size	Natural logarithm of a company's market capitalization in the quarter prior to the conference call.
Market-to-Book	Market value of equity divided by the book value of equity in the quarter prior to the conference call.
Leverage	Total long-term debt divided by total assets in the quarter prior to the conference call.
Return-on-Assets	Income before extraordinary items scaled by lagged total assets in the quarter prior to the conference call.

Appendix B: Top 40 Institutional Investment Firms

Institutional Investment Firm	Number of Conference Calls
Lord Abbett	487
Kennedy Capital Management	300
Heartland Advisors	115
Kalmar Investments	112
Cardinal Capital Management	111
Wellington Management	111
Fidelity Investments	83
Blackrock	75
American Century	52
Emerald Advisors	50
Iridian Asset Management	40
Eagle Asset Management	39
Putnam Investments	38
Vanguard Group	38
David J. Greene & Co.	36
W.H. Reaves & Co.	36
State Street Research & Management	33
Rutabaga Capital	30
Federated Investors	29
Snyder Capital Management	26
Wasatch Advisors	26
Strong Capital Management	22
Frontier Capital Management	21
TimesSquare Capital Mgmt	18
Barrow, Hanley, Mewhinney & Strauss	17
John A. Levin & Co.	17
Columbia Management	16
Cramer Rosenthal McGlynn	16
Loomis, Sayles & Co.	16
Levin Capital Management	15
Neuberger Berman	14
Delphi Asset Management	13
Westfield Capital Management	13
Buckhead Capital	12
Hoover Investment Management	12
Massachusetts Financial Services	12
MFS Institutional Advisors	12
Speece, Lewis, and Thorson Inc.	12
Gilder Gagnon & Howe & Co.	11
T. Rowe Price	11
All others	275
Total	**2,390**

Appendix C: Excepts from Conference Call Transcripts

Company name [.] and buy-side analyst name [.] are not disclosed for confidentiality.

Example 1: Negative Tone

Buy-Side Analyst (BSA): It looks like with this [.] contract, we've severely misjudged-- I mean we've missed the business case here substantially and the losses are exceptionally higher than we probably thought, at least in terms of what we've been told. And the revenue stream is continuing to be pushed off to the right. What is your tolerance for pain here in terms of allowing this adventure and new business to deplete our precious cash resources?

> Manager 1: Well, we haven't given any thought to giving up on this project. And the recent good news, I would say in terms of new prescriptions flattening out and turning up slightly, are very encouraging. And also the fact that we're now into the actual season for eczema, or the heaviest season for eczema; makes us more confident that things are going well. You're right. It did start slower than we thought it would. And we don't exactly know the reasons for that, but it could be the dermatologists a bit, and let me ask [.] to comment on this.
>
> Manager 2: Yes, I think I have to respectfully just say that you really have mischaracterized what we've disclosed today. We have said consistently that this is going to be dilutive in the first year and when pressed, we probably said there would be a minor amount of sales in 2008, which is what we expected. And while we have not seen that minor amount of sales; at this point, there is not a major difference between what we had originally projected for our bottom line for 2008 and what we're talking about now. Now third quarter-- I'm sorry-- fourth quarter, as we've said, is critical in terms of getting above the baseline-- that you know there's a contractual baseline. But clearly, while we are behind where our original expectations, they are not significantly behind at this point.

BSA: How much would it cost you to shut this program down right now or by the end of the fourth quarter?

> Manager: That's not an alternative at this point, contractually.

BSA: Why not?

> Manager: We have no intent to do that.

BSA: Can you please answer the question; how much would it cost you to shut down the program?

> Manager: I don't know the answer to that because we haven't-- that's an alternative we haven't considered.

BSA: Your Company is trading at basically half of cash and I don't need to tell you what the destruction of shareholder value we've seen as a result of the terrible bear market you've witnessed on the CSO side, which thankfully sounds like we're starting to see some improvement. However, any favorable improvement we might see there is going to be massively diminished by this adventure we're on in terms of this commercialization business and it's depleting our cash. At the direction of this Board, massive amounts of shareholder value have been destroyed. I just don't think this is an environment with the credit markets as difficult as they are, for a small company that is unprofitable to be continuing to be engaged in a line of business that is one, unproven; and two, financially dilutive to the enterprise. This company does not have infinite resources as a result of your negative cash flow and you're burning through cash. This is not a sustainable business model and it's one of the reasons why your stock is trading at such depressed valuations. I mean this is not an acceptable situation.

> Manager: You seem to be making the assumption that this program is not going to be successful.

BSA: I don't think it will.

> Manager: Well, we differ with your opinion because we feel it will be successful and we're not thinking in any other terms. And as far as what you call an adventure, we did considerable research and digging and discussion before going into some of this magnitude. And we all felt it was a go, and we are firmly committed to making it work and we believe it can work. And I personally, and I think the Board agrees, would like to pursue more of these kinds of deals. That's where we stand. That's the way we feel about it.

BSA: I mean I guess I'm in shock. Do you have any reason to-- I mean the market somewhat inefficient in this landscape, to say the least; but the very fact that your stock is trading below cash; the market is somewhat efficient as well, and I think the market is very concerned that this "business" that you're in, on the commercialization side, is going to have a significantly negative impact on the financial well-being of our Company. And again, I don't need to

repeat that at the direction of this Board, which I might add has been inactive in terms of buying stock over the last four or five years in meaningful amounts; has sit idly by and watched our stock go from the mid 20s down to $4. We're in a financial crisis. This is not an environment for a small company to be experimenting and burning through cash, especially when your base business is improving. I'm trying to help you here.

Manager: I think we've answered that already, but one thing I'd like to correct you on is that the Board has not been buying shares. They are buying shares and I did mention at our last Board meeting which was last week, that this would be a very good time to be buying shares and I know that a number of the directors are buying shares and others are considering it and watching it.

BSA: How can they be buying stock if they're not filing Form 4s as per the regulatory guidelines?

Manager: Maybe it hasn't happened yet.

BSA: Well, that's beside the point. We're burning through our cash. This is not sustainable.

Manager: Look--

BSA: Hey, I'm trying to make a point here for the public and the Board. I hope the Board is listening to this because we're on a path to basically destroy the value of this Company and it's not sustainable and the Board should be taken to task. You're not representing all shareholders. And the current situation is not acceptable. I might add that your stock is trading at about half your cash position. What else do you need to have as confirmation that the Market is not confident in the direction of the Company?

Manager: We announced the product commercialization strategy a year ago. We went into this and I know the Board spent a lot of time on this and the management spent a lot of time. We knew on [.] specifically, that we were going to make a major investment. We made that very clear when we announced it. We made it very clear. We thought every time we talked about it early. Are we slightly off our estimates? Yes we are, but we are not dramatically off of where we thought we would be at this point in time. We went into this with our eyes wide open. We still believe [.] is a good project for the long term and as [.] said, product commercialization as we understand it today, is still an important part of the strategy of this Company to make it a very profitable and very successful enterprise.

BSA: I'm sorry to disagree with you. But I mean your cash flow guidance is basically a reduction about 50%. So even if you attribute some of that margin to your deteriorating underlying business, it's clear that the [.] business is more of a drag than you had anticipated. So this is not an environment where hope is a strategy. I'm just-- I'm seeing our cash balance getting depleted and it is highly disturbing, especially at a time when our base business is getting better and we have an opportunity to start to grow again and we are facing severe losses in this commercialization business. I'm shocked that you'd even consider doing another one of these, considering the scarcity of capital in these capital markets, on top of the fact the Company is not making money.

Manager: I think we got your point.

BSA: I don't think you have because-- this is just -- this is unbelievable. I'll get back in queue.

Manager: Thank you.

Appendix C: Excepts from Conference Call Transcripts (continued)

Company name [.] and buy-side analyst name [.] are not disclosed for confidentiality.

Example 2: Positive Tone

BSA: Fun times, [.] and team. Well done. Can you expand on the comments in your press release on your foam outlook where you talk about some new markets and integrate those thoughts on revenue in the most recent quarter and how the more recent or more immediate future might look?

> Company: We remain bullish on our opportunities in the High Performance Foams area, both in the fourth quarter and looking ahead to 2007. To give you some examples, in mass transportation, for example, we're finding an increasing number of uses for our silicone foam. In railcars, subway cars, trolley cars where we are the underlay under the floor, one, to eliminate the noise and the vibration but a lot of things can do that, but silicone does not give off a toxic gas in fire and there are a whole new set of regulations associated with that, due to some of the -- over the last few years fires in subways that created some serious life lost. Then the medical area, there is a really wide range of things in medical devices that we're a -- we're being used as a pad and as a disposable neo-natal sensor. That would be PORON or silicone foam -- is used as several seals in a medical flashlight that has to go through an autoclave. Silicone is used in a DNA analyzer. There is some equipment that measures skin color and we are used in sensor pads, used in defibrillators, a whole range of medical devices from Waters -- that's the manufacturer. There is an antifatigue mat being used in the surgery room that is made out of PORON. It's a wide range of things, none of which are huge but in total add up to pretty significant business.

BSA: Is there a retrofit opportunity in mass transit?

> Company: When they refurbish the cars, yes, but they are not applying these, at least not this point. It is pretty expensive to refurbish them. They do not seem to be requiring refurbishment earlier than normal.

BSA: Is the benefit to take vibration out of the passenger experience or --.

> Company: Yes.

BSA: Is it something else?

> Company: Yes, it is.

BSA: When did they start to care? I hope that is chuckling and not just a chair vibrating in the background.

> Company: I really don't know. We would appreciate them starting to complain more.

BSA: Does that mean we'll sleep better or sleep worse when we are trying to ride on a train?

> Company: Well, it depends on how much you like the clicking.

BSA: Moving on to a different topic, can you -- once upon a time, circuit material margins were robust when you were maximizing on both flex and high frequency. Can you talk in this environment when high frequency seems to be delivering more of the growth and yet you are not quite back to the peak in the total segment revenue, where you stand on margin and how that might progress from here?

> Company: Sure. Overall, the flex material portion of this has not been growing. It is way below its peak, but on the other hand our joint venture has -- is enjoying a large portion of the business that we once had. As you know, our joint venture sales, the fabricators who are headquartered in Taiwan, and to the EMS houses that are headquartered there, and those particular customers are winning pretty big chunks of business away from some of the more traditional suppliers. So we tend to look at this now as add them together and see how we're doing because together, things look pretty good. On the high frequency side, that business continues to grow and we're quite pleased with the margins. In fact, we have recently moved to seven days, 24 hours in Arizona, and next weekend we will move to six days, 24 hours in Belgium, and within two weeks to seven days, 24 hours. As we have talked about the satellite TV, and that one day they would make the high-definition satellites, it would turn

them on and begin to push them, that appears to have happened as we have a forecast which is an 80% increase from the third quarter. And they have already taken our full inventory. We are now in air shipment. We did have six weeks of shipments on the water. That will be drained as we supplement those with air shipments. Now, I do believe that some of this is the pipeline filling, but they clearly have made the decision to bring this into the high volume. My guess is that the early adopters who are willing to pay whatever must have slowed down. In addition, in some cases, is we're having some difficulty on our flex material side adding people. We are using our joint venture to make some of the product for us. Of course, that depresses the margins considerably as it's shown on our income statement because some of that income comes down into the other line.

BSA: Understood. Many of us tend to look at the satellite TV market from a U.S. perspective when we see what [.] and its partner or its -- what's the name of the other company Charlie what's-his-face runs?

Company: [.]

BSA: Thank you. Is the adoption of high-def, is that a worldwide experience or is it likely to happen in the U.S. first?

Company: It is happening in the U.S. first, but what is happening in the more traditional areas is there is a lot of adoption of satellite TV in India. Of course, that is back to using five square inches of material versus 27 here in the U.S. And in China, before October 30 they are going to launch a satellite which will allow them to move into the modern world for satellite TV at the 12 gigahertz frequency. I believe that is the frequency. And of the four manufacturers we know of, of the low-noise block down converters, they have all adopted our material. We expect that, can't tell exactly when but sometime in the next few months that should start to ramp also.

BSA: You've described how your share of market in that business has crept up over time to a very robust figure. Where would you say that market share happens to be now and how might that differ in high-def world?

Company: I think we're in the 70% to 80% and high-def would tend to raise our market share.

BSA: Another question. You are growing astronomically in the EL/keypad area. Can you talk about what processes you are likely to handle internally versus externally? We have talked about domes. We've talked about a variety of things. There is further mention of external sourcing in the quarter which might go outside of domes, but how might that look as you bring on new lines in China moving into '07? What implications would that have for gross margin and operating margin?

Company: First answer here is that the placing of the domes, we view that as something to outsource. It is something our customers want, but they know exactly what the suppliers charge and therefore there is really no room to add any margin to that. So raising the sales doesn't help the margins. It does not hurt the absolute dollars, but it certainly hurts the percentage some. We have pursued a strategy, as you know, of having an outside contract manufacturer available to make lamps such that when a spike occurs we are able to fill our customers' needs in a seamless manner. That is exactly what went on in the third quarter to the point at which a contract manufacturer was making more than 30% of all the lamps we manufactured. Now, as we see that volume begin to stabilize, as we add more programs, then that is one of the reasons for adding the capacity in December and make [fastly] at the beginning of the year. And of course when we make it, the contribution is significantly larger than when someone else makes it. Then we will wait a little while and if we see another spike coming, we will use the contract manufacturer and when that turns to baseline business, we will again add capacity. Our goal here is to keep our lines running at full capacity so that we get the maximum leverage and that any overage that occurs, which generally is a short-term situation -- latter part, third quarter generally and early part fourth quarter we use those contract manufacturers. So volume can surge; margins will shrink a little. And then we expect them to be able to cut back as we add capacity. And this -- for once this worked exactly how we planned.

BSA: You, however, are making a judgment that over time lit keypads will penetrate more models, which is why you are continuing to add lines so that these surges, as you describe them now, at least in a volume sense, will be incorporated into your internal producible run rates.

Company: Yes, exactly, and we do expect that the percentage of phones using EL will continue to grow at least through 2008. And the way to think about it is a higher and higher percentage of the very thin phones are choosing to use electrolume -- ELM.

BSA: One last question, which will be two-part. Can you talk about the implications that adding capacity in the scope that you described during your pre-question discussion today will have implications for smooth operations in '07 and beyond? Can you update how we might score you from a gross margin standpoint given the very large increase that we're seeing in the Durel inverter business and the fact that that is likely to be a lower-value-add gross margin business?

Company: We expect very smooth ramp ups with the lamp capacity as we're installing the exact same equipment we have installed multiple times in China. And the last two startups in China have gone very smoothly. This one is going just the same. And in early next year, we will be adding the same equipment. For us, it is very good in that we do not have to add significant amounts of overhead in that we're doing it at the same location. With the inverters, as that grows it should help our gross margins. It all depends upon when you look at the aggregate how many of the lamps were made by an outside contractor. If indeed we were able to make all the lamps and had all the inverters then you could expect several points, maybe three or four, on the gross margin line, to increase in the custom electronic components area.

BSA: A 300 to 400 basis point increase in that segment loan?

Company: Yes.

BSA: Not corporate?

Company: No, not corporate. That segment, being the component segment, in total will probably always have lower gross margins than materials segment.

BSA: You have long talked about the 35 gross level as being operating nirvana. Has the computation changed, though, based on the mix of business and where the growth is coming from, or is that still an ideal that we ought to hold you to?

Company: I believe we still get there. We just may get there -- it may take a little longer than we thought. But then we did not want to turn away all this growth. One thing to keep in mind about the custom electronic components is the business comes in much larger chunks and requires less SG&A than, say, material businesses where the business comes in $10,000 and $50,000 pieces. Therefore, you are seeing that our net income as a percent of sales continues to rise even though we had somewhat lower sequentially gross margin.

BSA: I will step back. Thank you.

Company: Maybe one more thing. The real goal is 15% after-tax. I am not wedded to how we get there. I have a preferred way but there is more than one.

BSA: Good show. Thanks.

BSA Follow-up: The other folks are just not pulling the load today. Bob, can you speak for a moment on this thermal management stuff and what timeframe would this be commercial and measurable for you?

Company: Let me give you an example. The Company that we have the partnership with, and which we intend and we have an option to buy, that option to purchase is between three years and seven years from today. In the meantime we are -- their sales are -- so this could become meaningful, but you won't see it reflected in our sales until the day we choose to buy it. In the meantime we are helping them with some R&D. In fact, that is how we're approaching most of these situations because they are generally quite small companies. We believe they're going to be $30 million or $40 million in three or four years and they want us to pay the price for what they're going to be. Our approach is if you are, we will be happy to, but let's agree on the formula today and we will give you a little money to help you continue with your R&D effort for that option to buy. Some of the other arrangements are shorter term ones. An announcement is likely to be a nine-month to 30-month type term. In other cases we're going to be taking licenses. Those negotiations are going on and there would be immediate

business that would be measurable on receiving the licenses. Then in other cases we have developed or in the process of developing materials, and of course, from introduction of material to significant sales is two or three years. We look at all this as large growth for Rogers in the three to five years out.

BSA: As investors we've had long-time regard for your expertise and positioning in electronic materials fields. If we were to flip this around, though, why would these folks who are doing something incipient be looking at you as the preferred partner?

Company: Just, for example, if the base station customers, the train customers, the automobile customers are targets, for example, we have access to all those and most of those companies are not willing to discuss with a very small company. They won't allow a very small company to become a supplier. However if we are there representing them and are saying that we will stand behind this, then everything changes, and that is exactly what has already happened with the first ones we talked about. We are able to get the access they can't get. They all see that and therefore we have become their preferred partner.

BSA: If this particular company goes from what might be nil revenue today to $30 million or $40 million, how would we discern your participation in that? It sounds like you would act as a sales agent. How would that percolate through your P&L?

Company: We would make a little money off of that but not munch. But if it were headed toward $30 million or $40 million, we have the right to buy it any time we want after three years. And of course, the way these things go, you can't beat $30 million in three years. It is just not possible. But if we thought it was going to be $30 million in four years, you can bet I would buy it at three years and one day. The formula is fixed on past results, not future prospects.

BSA: A circle-back on the foam business. You've described how you would hope to grow on a secular trendline basis at 10% to 15%. Given the surge that the foam business has been through and yet would appear to be a broadening of applications, do you have visibility towards 10% to 15% growth type growth over the next couple of years in foam from this level?

Company: I think foams are going to stay in the 8% to 12% range as opposed to the 15% range. Your Printed Circuit Materials have more opportunities to grow faster and at least for the next few years the custom electronic components will be growing probably the fastest.

BSA: Dennis, I was momentarily distracted. Did you say that the companies operating margin in the quarter was 12.5%?

Company: That was in the -- I believe it is 12.6.

BSA: The joint venture contribution was how much again?

Company: Hold on one second.

BSA: The sales are $26 million.

Company: We did not speak to the contribution of the profit.

BSA: So what was the 12.5 or the 12.6 percentage figure that you talked about when you were making your presentation?

Company: That was SG&A expense, 12.5% of sales was our SG&A.

BSA: And you did not cite a specific number on joint venture income?

Company: No.

BSA: Nor do you intend to until the Q comes out?

Company: That is correct.

BSA: That is all I have today. Thank you.

Table 1: Sample Construction

Number of Conference calls or Company-Institution-Quarter Observations	Sample Size	Number of investment firms (institutions)
Initial sample of conference calls (hosted by 3,755 unique companies)	90,296	n/a
with buy-side participation	26,139	1,778
with buy-side participation from investment firms covered in the Abel Noser database	10,953	366
Company-Institution-Quarter observations		
with Abel Noser institutional trading data	25,234	
with CRSP daily return data	22,399	
with non-missing values for all control variables	16,886	
with direct buy-side participation	2,390	
without direct buy-side participation	14,496	
with surrogate sell-side participation	276	
without surrogate sell-side participation	14,220	

Table 1 summarizes the sample construction process. Over our sample period, there are 90,296 quarterly earnings conference call transcripts from 3,755 unique companies. Among these conference calls, there are 26,139 calls (or 29 percent) that have buy-side analyst participation from 1,778 unique investment firms. Restricting the calls to those that have buy-side participation from an investment firm covered by the Abel Noser dataset results in 10,953 conference calls with buy-side analyst participation from 366 investments firms. This sample is the basis for the analyses in this study and it will be compared to conference calls hosted by the same companies in other quarters when there was no buy-side participation from the same investment firms. The combined sample has 25,234 company-institution-quarter observations, but it is reduced to 22,399 observations when CRSP daily return data is required and to 16,886 observations after dropping those with missing values for other explanatory variables. Hence, the final combined sample has 16,886 company-institution-quarter observations–2,390 with buy-side participation and 14,496 without. Among those observation without direct buy-side analyst participation, 276 have participation by surrogate sell-side analysts and 14,220 do not.

Table 2: Summary Statistics

Panel A: Descriptive Statistics

Variable	N	Mean	Std. Dev.	Minimum	1st Quartile	Median	3rd Quartile	Maximum
PreCall-NetBuys	16,745	0.041%	0.164%	0.000%	0.000%	0.000%	0.007%	3.627%
PreCall-NetSells	16,745	–0.056%	0.247%	–14.142%	–0.009%	0.000%	0.000%	0.000%
PostCall-NetBuys	16,745	–0.007%	0.401%	–7.315%	–0.012%	0.000%	0.014%	8.073%
Return$_{10\text{-}days}$	16,610	0.193%	7.676%	–62.228%	–3.436%	0.254%	3.745%	142.396%
Tone	16,745	0.032	0.222	–1.000	0.000	0.000	0.000	1.000
Positive Tone	16,745	0.0996	0.299	0.000	0.000	0.000	0.000	1.000
Negative Tone	16,745	0.0512	0.220	0.000	0.000	0.000	0.000	1.000
Value-of-Holding	16,745	17.125	2.022	3.845	15.882	17.046	18.358	23.233
Value-of-Holding (not logged, in $millions)	16,745	211.884	814.028	0.000	7.900	25.299	93.926	12,304.294
Investment-Firm-Size	16,745	23.831	1.908	17.826	22.119	24.057	25.087	27.198
Investment-Firm-Size (not logged, in $billions)	16,745	92.375	148.115	0.055	4.039	28.036	78.535	648.615
Firms-in-Portfolio	16,745	6.560	1.063	2.398	5.976	6.616	7.444	8.474
Firms-in-Portfolio (not logged)	16,745	1,118.240	1,012.970	11.000	394.000	747.000	1,709.000	4,790.000
Earnings-News	16,745	0.000	0.010	–0.068	0.000	0.001	0.002	0.037
Company-Size	16,610	7.949	1.878	4.170	6.606	7.650	9.129	12.650
Market-to-Book	16,610	2.838	2.250	0.439	1.531	2.213	3.307	14.207
Leverage	16,610	0.180	0.148	0	0.052	0.162	0.278	0.616
Return-on-Assets	16,610	0.013	0.022	–0.094	0.004	0.013	0.023	0.076

Table 2: Summary Statistics (Continued)

Panel B: Correlation Matrix (Pearson correlations in lower triangle; Spearman rank correlations in upper triangle)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1)	*PreCall-NetBuys*		**0.605**	**0.269**	0.019	–0.005	**0.072**	**0.147**	**0.140**	**–0.015**	0.000	**–0.023**	**0.029**	**–0.049**
(2)	*PreCall-NetSells*	**0.056**		**0.275**	**0.028**	0.001	**–0.093**	**–0.057**	**–0.050**	**–0.009**	0.011	**–0.016**	0.011	–0.005
(3)	*PostCall-NetBuys*	**0.204**	**0.168**		**0.023**	0.004	**–0.056**	–0.010	0.004	–0.044	**–0.022**	**–0.037**	0.005	**–0.044**
(4)	$Return_{10\text{-}Days}$	**0.016**	0.007	0.003		**0.018**	0.006	0.000	0.004	0.019	0.005	**0.018**	0.008	**0.037**
(5)	*Tone*	**0.015**	0.005	0.000	**0.015**		**–0.043**	**–0.072**	**–0.077**	**0.022**	**–0.098**	**–0.016**	**–0.031**	**0.017**
(6)	*Value-of-Holding*	0.005	**–0.029**	**–0.038**	–0.004	**–0.041**		**0.461**	**0.263**	**–0.011**	**0.564**	**0.202**	**0.133**	**0.078**
(7)	*Investment-Firm-Size*	**0.106**	**–0.092**	**–0.020**	–0.002	**–0.073**	**0.459**		**0.825**	**–0.023**	**0.323**	**0.097**	**0.113**	0.005
(8)	*Firms-in-Portfolio*	**0.084**	**–0.067**	–0.007	0.002	**–0.072**	**0.225**	**0.813**		–0.031	**0.249**	**0.038**	**0.098**	**–0.048**
(9)	*Earnings-News*	**–0.017**	**0.014**	–0.017	0.029	**0.016**	**0.031**	**–0.015**	–0.031		**–0.024**	**–0.020**	**–0.016**	**0.183**
(10)	*Company-Size*	**–0.102**	**0.108**	0.006	–0.004	**–0.088**	**0.572**	**0.320**	**0.229**	0.049		**0.322**	**0.192**	**0.171**
(11)	*Market-to-Book*	**–0.031**	0.010	–0.011	0.002	**–0.024**	**0.135**	**0.056**	**0.018**	**0.046**	**0.258**		**–0.019**	**0.480**
(12)	*Leverage*	–0.002	–0.008	–0.004	0.012	**–0.021**	**0.095**	**0.087**	**0.059**	**–0.018**	**0.111**	**0.050**		**–0.176**
(13)	*Return-on-Assets*	**–0.034**	**0.040**	–0.007	**0.021**	0.009	**0.089**	**0.019**	**–0.026**	**0.266**	**0.200**	**0.320**	**–0.150**	

Table 2, Panel A presents descriptive statistics of variables used in regression analyses. Panel B shows the correlation matrix, and the values in bold are significant at the 10% or lower level. $PreCall\text{-}NetBuys_{j,i,t}$ the number of shares bought minus shares sold by institution *j* in company *i* during the 10 trading days before the conference call (−10, −1) in quarter *t*, and scaled by company *i*'s total shares outstanding. When the number of shares sold exceeds the number of shares bought, this variable takes on a negative value, and thus, to ease exposition we define a separate variable as $PreCall\text{-}NetSells_{j,i,t}$. $PostCall\text{-}NetBuys_{j,i,t}$ is the number of shares bought minus shares sold by institution *j* in company *i* during the 10 trading days, inclusive, after the conference call (0, +9) of quarter *t*, scaled by total shares outstanding. $Return_{i,10\text{-}days}$ is company *i*'s raw stock return over the 10 trading-days during window (+10, +19), where day 0 is the date of the conference call. $Tone_{i,j,t}$ is the number of positive words minus negative words spoken by the buy-side analyst working for institution *j* on the conference call of company *i* during quarter *t*, divided by the sum of positive and negative words. $Value\text{-}of\text{-}Holding_{j,i,t}$ is the natural log of the dollar value of ownership that institution *j* has in company *i*. $Investment\text{-}Firm\text{-}Size_{j,t}$ is the natural log of the total dollar value of all of institution *j*'s holdings. $Firms\text{-}in\text{-}Portfolio_{j,t}$ is the natural log of the total number of companies in institution *j*'s portfolio. Each of these last three variable is based on Thomson Reuter's 13F database and measured as of the calendar quarter ended prior to the conference call for quarter *t*. *Earnings-News* is reported earnings per share (EPS) minus analyst consensus median forecast measured prior to the announcement, scaled by stock price at the beginning of the current quarter. *Company-Size* is the natural logarithm of a company's market capitalization in the quarter prior to the conference call. *Market-to-Book* is the market value of equity divided by the book value of equity in the quarter prior to the conference call. *Leverage* is total long-term debt divided by total assets in the quarter prior to the conference call. *Return-on-Assets* is computed as income before extraordinary items scaled by lagged total assets in the quarter prior to the conference call.

Table 3: Association Between Pre-Call Trades and Post-Call Trades

Dependent Variable:		*PostCall-NetBuys*			
Samples:	Prediction SI / IA	BSA vs. Non-Surrogate	Sell-Side Surrogate vs. Non-Surrogate	BSA vs. Non-Surrogate	Sell-Side Surrogate vs. Non-Surrogate
		(1)	(2)	(3)	(4)
PreCall-NetBuys		0.4797***	0.4316***	0.4329***	0.4308***
		(9.92)	(8.56)	(8.74)	(8.52)
PreCall-NetSells		0.2530***	0.2176***	0.2300***	0.2204***
		(4.35)	(3.69)	(3.91)	(3.69)
Positive Tone		0.0001	0.0001	0.0001	–0.0001
		(0.75)	(0.33)	(0.68)	(–0.30)
Negative Tone		0.0005***	0.0002	0.0005***	0.0001
		(2.60)	(0.81)	(3.00)	(0.42)
PreCall-NetBuys*Positive Tone	**(i) – / +**			**0.2526**	**0.3039****
				(1.59)	**(2.15)**
PreCall-NetSells*Negative Tone	**(ii) – / +**			**0.2826***	**–0.2837*****
				(1.81)	**(–4.51)**
PreCall-NetBuys*Negative Tone	**(iii) + / –**			**0.3384**	**–0.2163**
				(1.36)	**(–1.05)**
PreCall-NetSells*Positive Tone	**(iv) + / –**			**0.2354****	**–0.4121*****
				(2.13)	**(–3.55)**
Value-of-Holding		–0.0002***	–0.0002***	–0.0002***	–0.0002***
		(–6.85)	(–6.28)	(–6.81)	(–6.27)
Investment-Firm-Size		0.0001	0.0000	0.0001	0.0000
		(0.50)	(0.04)	(0.46)	(0.01)
Firms-in-Portfolio		–0.0002	–0.0002	–0.0002	–0.0002
		(–1.12)	(–0.99)	(–1.15)	(–1.03)
Earnings-News		–0.0061	–0.0116	–0.0057	–0.0116
		(–0.83)	(–1.42)	(–0.79)	(–1.43)
Institution F.E.		Yes	Yes	Yes	Yes
Company F.E.		Yes	Yes	Yes	Yes
Quarter F.E.		Yes	Yes	Yes	Yes
Observations		16,479	14,486	16,479	14,486
Adjusted R-squared		0.094	0.071	0.098	0.071

Table 3 presents the results from estimating regression equation (1); *t*-statistics are shown in parentheses beneath the estimated coefficients. All estimated coefficients are multiplied by 1,000. Columns (1) and (3) examine the BSA and non-surrogate subsamples, while Columns (2) and (4) compare the surrogate and non-surrogate subsamples. *PostCall-NetBuys*$_{j,i,t}$ is the number of shares bought minus shares sold by institution *j* in company *i* during the 10 trading days, inclusive, after the conference call (0, +9) of quarter *t*, scaled by total shares outstanding. *PreCall-NetBuys*$_{j,i,t}$ the number of shares bought minus shares sold by institution *j* in company *i* during the 10 trading days before the conference call (−10, −1) in quarter *t*, and scaled by company *i*'s total shares outstanding. When the number of shares sold exceeds the number of shares bought, this variable takes on a negative value, and thus, to ease exposition we define a separate variable as *PreCall-NetSells*$_{j,i,t}$. *Tone*$_{i,j,t}$ is the number of positive words minus negative words spoken by the buy-side analyst working for institution *j* on the conference call of company *i* during quarter *t*, divided by the sum of positive and negative words. *Positive Tone*$_{j,i,t}$ is an indicator variable set to 1 (and 0 otherwise) if *Tone*$_{i,j,t}$ is positive and *Negative Tone*$_{j,i,t}$ is an indicator variable set to 1 (and 0 otherwise) if *Tone*$_{i,j,t}$ is negative. *Value-of-Holding*$_{j,i,t}$ is the natural log of the dollar value of ownership that institution *j* has in company *i*. *Investment-Firm-Size*$_{j,t}$ is the natural log of the total dollar value of all of institution *j*'s holdings. *Firms-in-Portfolio*$_{j,t}$ is the natural log of the total number of companies in institution *j*'s portfolio. Each variable is based on Thomson Reuter's 13F database and measured as of the calendar quarter ended prior to the conference call for quarter *t*. *Earnings-News* is reported earnings per share (EPS) minus analyst consensus median forecast measured prior to the announcement, scaled by stock price at the beginning of the current quarter. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 4: Association Between Post-Call Trades and Future Stock Returns

Dependent variable:	$Return_{10\text{-}days}$	
Samples:	BSA vs. Non-Surrogate	Sell-Side Surrogate vs. Non-Surrogate
	(1)	(2)
PostCall-NetBuys	–0.2049	–0.2114
	(–0.99)	(–1.00)
Positive Tone	0.0056**	0.0020
	(2.53)	(0.30)
Negative Tone	0.0037	–0.0081
	(1.29)	(–0.90)
PostCall-NetBuys*Positive Tone	**1.0768*** **	**2.0017**
	(2.66)	**(0.43)**
PostCall-NetBuys*Negative Tone	**0.0479**	**–0.6303**
	(0.08)	**(–0.17)**
Controls	Yes	Yes
Institution F.E.	Yes	Yes
Company F.E.	Yes	Yes
Quarter F.E.	Yes	Yes
Observations	16,344	14,372
Adjusted R-squared	0.134	0.138

Table 4 presents the results from estimating regression equation (2); *t*-statistics are shown in parentheses beneath the estimated coefficients. All estimated coefficients are multiplied by 1,000. Column (1) examines the BSA and non-surrogate subsamples, while Column (2) compares the surrogate and non-surrogate subsamples. $Return_{i,10\text{-}days}$ is company *i*'s raw stock return over the 10 trading-days during window (+10, +19), where day 0 is the date of the conference call. $PostCall\text{-}NetBuys_{j,i,t}$ is the number of shares bought minus shares sold during the 10 trading days, inclusive, after the conference call (0, +9), scaled by shares outstanding. $Tone_{i,j,t}$ is the number of positive words minus negative words spoken by the buy-side analyst working for institution *j* on the conference call of company *i* during quarter *t*, divided by the sum of positive and negative words. $Positive\ Tone_{j,i,t}$ is an indicator variable set to 1 (and 0 otherwise) if $Tone_{i,j,t}$ is positive and $Negative\ Tone_{j,i,t}$ is an indicator variable set to 1 (and 0 otherwise) if $Tone_{i,j,t}$ is negative. Control variables are not shown but include the following. $Value\text{-}of\text{-}Holding_{j,i,t}$ is the natural log of the dollar value of ownership that institution *j* has in company *i*. $Investment\text{-}Firm\text{-}Size_{j,t}$ is the natural log of the total dollar value of all of institution *j*'s holdings. $Firms\text{-}in\text{-}Portfolio_{j,t}$ is the natural log of the total number of companies in institution *j*'s portfolio. Each of the three variables is based on Thomson Reuter's 13F database and measured as of the calendar quarter ended prior to the conference call for quarter *t*. *Earnings-News* is reported earnings per share (EPS) minus analyst consensus median forecast measured prior to the announcement, scaled by stock price at the beginning of the current quarter. *Company-Size* is the natural logarithm of a company's market capitalization in the quarter prior to the conference call. *Market-to-Book* is the market value of equity divided by the book value of equity in the quarter prior to the conference call. *Leverage* is total long-term debt divided by total assets in the quarter prior to the conference call. *Return-on-Assets* is computed as income before extraordinary items scaled by lagged total assets in the quarter prior to the conference call. All continuous variables are winsorized at the 1st and 99th percentiles; definitions are summarized in Appendix A. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 5: Association Between Pre-Call Trades and Post-Call Trades by Institution Type

Dependent Variable:		*PostCall-NetBuys*				
Samples:		BSA vs. Non-Surrogate			Sell-Side Surrogate vs. Non-Surrogate	
Institution Type:	Prediction	Transient	Quasi-indexer	Dedicated	Transient	Quasi-indexer
	SI / IA	(1)	(2)	(3)	(4)	(5)
PreCall-NetBuys		0.3235***	0.3697***	0.6621***	0.3207***	0.3656***
		(4.36)	(5.43)	(4.11)	(4.23)	(5.22)
PreCall-NetSells		0.2338***	0.3975***	0.4877	0.2316***	0.3948***
		(3.44)	(6.36)	(1.26)	(3.30)	(6.27)
Positive Tone		0.0001	0.0001	0.0001	0.0003	–0.0002
		(0.39)	(0.41)	(0.10)	(1.57)	(–0.68)
Negative Tone		0.0002	0.0006**	0.0012	0.0004	–0.0001
		(0.72)	(2.35)	(0.75)	(0.89)	(–0.17)
PreCall-NetBuys*Positive Tone	**(i) – / +**	**0.0940**	**0.3544****	**–0.6140***	**–0.6200****	**0.5061*****
		(0.39)	**(2.55)**	**(–1.80)**	**(–1.99)**	**(6.15)**
PreCall-NetSells*Negative Tone	**(ii) – / +**	**0.2627**	**0.0582**	**–0.2886**	**–0.2889**	**–0.4743*****
		(0.94)	**(0.28)**	**(–0.59)**	**(–1.38)**	**(–7.10)**
PreCall-NetBuys*Negative Tone	**(iii) + / –**	**0.1007**	**0.3871**	**–0.2078**	**0.1925**	**–0.2203**
		(0.39)	**(1.10)**	**(–0.26)**	**(0.05)**	**(–0.86)**
PreCall-NetSells*Positive Tone	**(iv) + / –**	**0.3461***	**–0.0765**	**1.3700****	**0.0001**	**–0.6801*****
		(1.80)	**(–0.64)**	**(2.41)**	**(0.00)**	**(–3.01)**
Value-of-Holding		–0.0002***	–0.0003***	–0.0012	–0.0002***	–0.0002***
		(–3.67)	(–5.99)	(–1.56)	(–3.53)	(–5.19)
Investment-Firm-Size		–0.0001	0.0001	0.0147	–0.0002	–0.0000
		(–0.72)	(0.36)	(1.63)	(–1.08)	(–0.05)
Firms-in-Portfolio		–0.0005	–0.0002	–0.0165**	–0.0003	–0.0001
		(–1.35)	(–0.48)	(–2.27)	(–0.87)	(–0.20)
Earnings-News		0.0020	–0.0026	–0.0118	–0.0046	–0.0099
		(0.20)	(–0.31)	(–0.39)	(–0.50)	(–0.94)
Institution F.E.		Yes	Yes	Yes	Yes	Yes
Company F.E.		Yes	Yes	Yes	Yes	Yes
Quarter F.E.		Yes	Yes	Yes	Yes	Yes
Observations		5,650	8,063	433	4,945	7,065
Adjusted R-squared		0.123	0.143	0.241	0.155	0.108

(continued…)

Table 5: Association Between Pre-Call Trades and Post-Call Trades by Institution Type (continued)

Table 5 summarizes the results from estimating regression equation (2) on three subsamples of institutional investor types: transient, quasi-indexer, and dedicated (Bushee 1998, 2001). *T*-statistics are shown in parentheses beneath the estimated coefficients. All estimated coefficients are multiplied by 1,000. Columns (1) to (3) examine the BSA and non-surrogate subsamples, while Columns (4) to (6) compare the surrogate and non-surrogate subsamples. $PostCall\text{-}NetBuys_{j,i,t}$ is the number of shares bought minus shares sold by institution *j* in company *i* during the 10 trading days, inclusive, after the conference call (0, +9) of quarter *t*, scaled by total shares outstanding. $PreCall\text{-}NetBuys_{j,i,t}$ the number of shares bought minus shares sold by institution *j* in company *i* during the 10 trading days before the conference call (−10, −1) in quarter *t*, and scaled by company *i*'s total shares outstanding. When the number of shares sold exceeds the number of shares bought, this variable takes on a negative value, and thus, to ease exposition we define a separate variable as $PreCall\text{-}NetSells_{j,i,t}$. $Tone_{i,j,t}$ is the number of positive words minus negative words spoken by the buy-side analyst working for institution *j* on the conference call of company *i* during quarter *t*, divided by the sum of positive and negative words. $Positive\ Tone_{j,i,t}$ is an indicator variable set to 1 (and 0 otherwise) if $Tone_{i,j,t}$ is positive and $Negative\ Tone_{j,i,t}$ is an indicator variable set to 1 (and 0 otherwise) if $Tone_{i,j,t}$ is negative. $Value\text{-}of\text{-}Holding_{j,i,t}$ is the natural log of the dollar value of ownership that institution *j* has in company *i*. $Investment\text{-}Firm\text{-}Size_{j,t}$ is the natural log of the total dollar value of all of institution *j*'s holdings. $Firms\text{-}in\text{-}Portfolio_{j,t}$ is the natural log of the total number of companies in institution *j*'s portfolio. Each of the three variables is based on Thomson Reuter's 13F database and measured as of the calendar quarter ended prior to the conference call for quarter *t*. *Earnings-News* is reported earnings per share (EPS) minus analyst consensus median forecast measured prior to the announcement, scaled by stock price at the beginning of the current quarter. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 6: Association Between Pre-Call Trades and Post-Call Trades by Firm Characteristics

Dependent Variable: *PostCall-NetBuys*		Smaller Companies		Larger Companies		Lower Analyst Coverage		Higher Analyst Coverage	
Samples:	Prediction	BSA vs. Non-Surrogate	Sell-Side Surrogate vs. Non-Surrogate	BSA vs. Non-Surrogate	Sell-Side Surrogate vs. Non-Surrogate	BSA vs. Non-Surrogate	Sell-Side Surrogate vs. Non-Surrogate	BSA vs. Non-Surrogate	Sell-Side Surrogate vs. Non-Surrogate
	SI / IA	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PreCall-NetBuys		0.4348***	0.4261***	0.4064***	0.4111***	0.4364***	0.4397***	0.4083***	0.4040***
		(6.80)	(6.59)	(5.98)	(6.75)	(6.18)	(6.22)	(5.95)	(5.73)
PreCall-NetSells		0.2133***	0.2032***	0.2800***	0.2716***	0.3251***	0.3309***	0.2226**	0.2167**
		(3.01)	(2.85)	(5.91)	(5.58)	(4.13)	(3.94)	(2.27)	(2.16)
Positive Tone		0.0002	–0.0005	0.0000	0.0002**	0.0002	0.0001	0.0000	0.0000
		(0.67)	(–1.34)	(0.15)	(2.49)	(1.17)	(0.45)	(0.06)	(0.06)
Negative Tone		0.0007***	0.0004	0.0002	0.0002	0.0004*	0.0008	0.0005*	–0.0000
		(2.80)	(0.55)	(0.82)	(1.30)	(1.83)	(1.43)	(1.74)	(–0.03)
PreCall-NetBuys*Positive Tone	**(i) – / +**	**0.2363**	**0.5365*** **	**0.5337**	**–0.0401**	**0.1266**	**–0.1007**	**0.2993**	**0.3900*** **
		(1.32)	**(4.08)**	**(0.90)**	**(–0.17)**	**(0.73)**	**(–0.49)**	**(1.45)**	**(3.31)**
PreCall-NetSells*Negative Tone	**(ii) – / +**	**0.3388***	**–0.2979*** **	**0.0682**	**–0.4181*** **	**0.3910** **	**0.2172**	**0.2038**	**–0.2955*** **
		(1.72)	**(–3.84)**	**(0.34)**	**(–2.99)**	**(2.02)**	**(0.41)**	**(0.85)**	**(–2.83)**
PreCall-NetBuys*Negative Tone	**(iii) + / –**	**0.2256**	**–0.3228**	**0.5106**	**–0.6485**	**0.8178**	**–3.1440**	**0.1316**	**–0.0851**
		(0.89)	**(–0.89)**	**(0.76)**	**(–0.83)**	**(1.56)**	**(–1.01)**	**(0.36)**	**(–0.27)**
PreCall-NetSells*Positive Tone	**(iv) + / –**	**0.2075***	**–0.7174*** **	**0.2986**	**–0.1579**	**0.0836**	**–0.3931**	**0.3065***	**–0.3974** **
		(1.63)	**(–3.00)**	**(1.52)**	**(–1.61)**	**(0.51)**	**(–1.43)**	**(1.67)**	**(–1.99)**
Value-of-Holding		–0.0005***	–0.0004***	–0.0001***	–0.0001***	–0.0002***	–0.0002***	–0.0003***	–0.0003***
		(–5.62)	(–4.61)	(–5.09)	(–4.97)	(–5.86)	(–5.44)	(–4.78)	(–4.33)
Investment-Firm-Size		0.0003	0.0002	0.0000	–0.0001	0.0001	0.0002	–0.0001	–0.0002
		(0.99)	(0.60)	(0.32)	(–0.38)	(1.14)	(1.29)	(–0.30)	(–0.80)
Firms-in-Portfolio		–0.0005	–0.0004	–0.0000	–0.0000	–0.0001	–0.0001	–0.0005	–0.0004
		(–0.79)	(–0.62)	(–0.13)	(–0.21)	(–0.45)	(–0.57)	(–1.09)	(–0.86)
Earnings-News		–0.0001	–0.0079	–0.0193	–0.0176	–0.0074	–0.0177	–0.0077	–0.0130
		(–0.01)	(–0.75)	(–1.25)	(–1.27)	(–0.63)	(–1.43)	(–0.86)	(–1.28)
Institution F.E.		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Company F.E.		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter F.E.		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		8304	7193	8175	7293	8500	7532	7979	6954
Adjusted R-squared		0.066	0.030	0.126	0.122	0.202	0.166	0.037	0.015

(continued…)

Table 6: Association Between Pre-Call Trades and Post-Call Trades by Firm Characteristics (continued)

Table 6 presents the results from estimating regression equation (1) on subsamples partitioned by company size and analyst coverage; *t*-statistics are shown in parentheses beneath the estimated coefficients. All estimated coefficients are multiplied by 1,000. $PostCall\text{-}NetBuys_{j,i,t}$ is the number of shares bought minus shares sold by institution *j* in company *i* during the 10 trading days, inclusive, after the conference call (0, +9) of quarter *t*, scaled by total shares outstanding. $PreCall\text{-}NetBuys_{j,i,t}$ the number of shares bought minus shares sold by institution *j* in company *i* during the 10 trading days before the conference call (−10, −1) in quarter *t*, and scaled by company *i*'s total shares outstanding. When the number of shares sold exceeds the number of shares bought, this variable takes on a negative value, and thus, to ease exposition we define a separate variable as $PreCall\text{-}NetSells_{j,i,t}$. $Tone_{i,j,t}$ is the number of positive words minus negative words spoken by the buy-side analyst working for institution *j* on the conference call of company *i* during quarter *t*, divided by the sum of positive and negative words. $Positive\ Tone_{j,i,t}$ is an indicator variable set to 1 (and 0 otherwise) if $Tone_{i,j,t}$ is positive and $Negative\ Tone_{j,i,t}$ is an indicator variable set to 1 (and 0 otherwise) if $Tone_{i,j,t}$ is negative. $Value\text{-}of\text{-}Holding_{j,i,t}$ is the natural log of the dollar value of ownership that institution *j* has in company *i*. $Investment\text{-}Firm\text{-}Size_{j,t}$ is the natural log of the total dollar value of all of institution *j*'s holdings. $Firms\text{-}in\text{-}Portfolio_{j,t}$ is the natural log of the total number of companies in institution *j*'s portfolio. Each variable is based on Thomson Reuter's 13F database and measured as of the calendar quarter ended prior to the conference call for quarter *t*. *Earnings-News* is reported earnings per share (EPS) minus analyst consensus median forecast measured prior to the announcement, scaled by stock price at the beginning of the current quarter. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.