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Analyst Interest as an Early Indicator of Firm Fundamental Changes and Stock Returns

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ABSTRACT: We posit that a change in analyst interest in a firm is an early indicator of the firm's future fundamentals, capital market activities, and stock returns. We measure increases in analyst interest by obser.ving analysts who do not cover a firm but participate in that firm's earnings conference call, and we measure decreases in analyst interest by observing analysts who cover a firm, yet are absent from that firm's call. We find that increases in analyst interest are positively associated with future changes in firm fundamentals and capital market activities, while decreases in analyst interest are negatively associated with capital market activities. We also find that increases (decreases) in analyst interest are positively (negatively) correlated with future stock returns over the next three months and that a hedge portfolio yields a significant abnormal return. Overall, our study shows that analyst interest is a novel and early indicator of future firm fundamentals and capital market consequences.

Keywords: *analyst interest; firm fundamentals; analyst coverage; institutional ownership; trading volume; stock returns.*

JEL Classifications: *G11; G12; G14; G31; M41.*

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I. INTRODUCTION

A large literature examines the link between firm fundamentals and future stock returns (e.g., Ou and Penman 1989; Bernard and Thomas 1990; Holthausen and Larcker 1992; Sloan 1996; Abarbanell and Bushee 1997, 1998; Piotroski 2000). Typically, the motivation for this line of research is that firm fundamentals are reflected in accounting data, which are informative about a firm's future cash flows, and that investors do not fully impound this information into stock prices. But since financial statement information is backward-looking, it is beneficial for investors to identify early indicators of firm fundamental changes that are not yet reflected in financial statements. In this paper, we examine whether a change in analyst interest, proxied by either the onset of non-covering sell-side equity analysts who participate in a firm's earnings conference call or by the absence of participation from covering analysts, is an early indicator of not only firm fundamental changes, but also of future capital market activities and stock returns.

Our focus on analyst interest stems from two observations. First, prior research shows that analysts are sophisticated experts with deep industry knowledge (Mikhail, Walther, and Willis 1999; Asquith, Mikhail, and Au 2005; Kadan, Madureira, Wang, and Zach 2012). Based on their knowledge of new products, customers, and market opportunities within an industry, analysts are keenly aware of shifting competitive positions between industry leaders, laggards, up-and-comers, and new entrant firms. Their expertise allows them to foresee future changes in firms' fundamentals, well before such information is reflected in the financial statements of individual firms. Second, before an analyst initiates coverage on a firm, he or she must conduct due diligence. Analyst due diligence has not been explored in the extant literature, as many of the activities analysts perform before and after coverage initiations have been described as a black box (Ramnath, Rock, and Shane 2008; Bradshaw 2011). We explore one aspect of analyst due diligence and document that analysts regularly participate in a firm's earnings conference calls *before* initiating coverage on the firm.[1] This practice is common because listening to and asking a question during a firm's conference call is part of an extensive, and sometimes lengthy, due diligence process. For example, Sanford C. Bernstein & Co., a top-ranked sell-side equity research firm in Institutional Investor's annual All-American Research Survey, gives newly hired analysts up to one year to conduct due diligence on firms before initiating coverage on them (Koo 2012). In a similar vein, analysts who already cover a firm are often absent from, or silent on (do not ask a question), the firm's conference call if they have lost interest in the firm or intend to drop coverage.[2]

We posit that an onset of analysts who do not cover a given firm ("non-covering analysts"), but participate in that firm's earnings conference call, captures increasing analyst interest in the firm, while analyst absenteeism captures decreasing analyst interest in the firm. A change in analyst

[1] Two examples come from our data. First, Asset Acceptance Capital Corp held its first-ever earnings conference call on March 10, 2004. But as of that date, no sell-side analysts had initiated coverage on the firm. Yet, during the question-and-answer (Q&A) portion of the call, six people asked management a question. According to the transcript, three of the questioners were sell-side analysts, one was a buy-side analyst, and two provided no employer affiliation. After that call, two of the sell-side analysts subsequently initiated coverage on the firm, one on March 16 (Buy rating) and the other on April 2 (Outperform rating). A second example is from Bebe Stores Inc., which had seven sell-side analysts participate in its April 22, 2002 earnings conference call, six of which officially covered the firm. The one analyst who was not yet covering the firm subsequently initiated coverage on May 1, 2002 (Market Perform rating).

[2] For example, Morgan Stanley discontinued coverage on Computer Sciences Corp. on March 23, 2006 (rating from Underweight to N/A). The Morgan Stanley analyst participated in the earnings conference call on November 3, 2005, but not the one on February 7, 2006. We note that we cannot distinguish between cases in which an analyst did not dial into a conference call (i.e., absent) or dialed into a call, but did not ask a question (i.e., silent). Any misclassification on our part would add measurement error to our empirical proxy for covering analysts who are absent (explained further in Section III).

interest serves as an early indicator of a change in future firm fundamentals, capital market activities, and stock returns. Our proposition stems from two non-mutually exclusive theories. The first theory is from McNichols and O'Brien (1997), who show that analysts allocate effort toward firms in which they view future prospects to be favorable and curtail effort in firms with poor prospects or whose coverage is likely to be discontinued.[3] This theory suggests that analyst interest—our measure of analyst effort prior to coverage initiation or termination—predicts future reported firm fundamentals, analyst coverage, and stock returns. The second theory is from Merton (1987), who shows that investor recognition of a firm affects the firm's cost of capital and stock price. This theory suggests that a change in analyst interest leads to a change in investor recognition of a firm (i.e., holdings and trading), especially among institutional investors, given their broker-client relationships with sell-side analysts, as well as a change in stock price.

While most indicators of an analyst's early interest or disinterest in a firm are unobservable, conference call participation and absenteeism are observable through available transcripts. Conceptually, our measure of increasing analyst interest is based on an observable aspect of analysts' due diligence prior to their formal issuance of earnings forecasts, price targets, and stock recommendations to the public. Similarly, our measure of decreasing analyst interest is based on the observable lack of participation by a covering analyst during the conference call. Our analyst interest measures have two appealing practical attributes: almost all questioners are sell-side equity analysts, enabling us to capture the interest of sophisticated experts,[4] and virtually all public firms hold quarterly earnings conference calls, allowing for a large sample of firms with variation in size and existing levels of analyst following.

Using a sample of conference call transcripts from 2002 through the first quarter of 2009, we create two measures to capture analysts' early interest and disinterest in a firm. We define *NC_ANALYSTS* as the number of non-covering analysts who ask a question during the conference call, and *COV_ANALYSTS_ABSENT* as the number of covering analysts who asked a question during the prior quarter's conference call, but are absent (or silent) during the current conference call, both scaled by the total number of callers on the current conference call.[5] We find that *NC_ANALYSTS* is positively associated with proxies for future changes in firm fundamentals, earnings per share (EPS), and sales growth, up to four quarters ahead, after controlling for other factors. We also find that *NC_ANALYSTS* is positively associated with a change in the next quarter's analyst coverage, institutional ownership, and trading volume. The results are consistent with our prediction that an increase in analyst interest in a firm is an early indicator of improvement in future reported firm fundamentals and capital market activities in the stock. Finally, we find that *NC_ANALYSTS* predicts future stock returns, over and above the firm's earnings surprise, size, the book-to-market ratio, and the past 11-month return, and after controlling for the aforementioned changes in capital market activities. Subsequent three-month stock returns increase monotonically from 1.69 percent in the bottom *NC_ANALYSTS* quartile to 3.56 percent in the top quartile, resulting in a significant hedge portfolio return of 1.87 percent. After controlling for common return factors, the hedge portfolio yields a significant abnormal return of 0.475 percent per month or 5.7 percent per year. The magnitude of the hedge return is

[3] Consistent with this notion, Ertimur, Muslu, and Zhang (2011) document that coverage initiations are mostly started with a Buy rating. In particular, about 68 percent of initiations are started with a Strong Buy or Buy rating, compared to 3 percent of initiations started with a Strong Sell or Sell rating.

[4] We find that over 92 percent of the questioners on earnings conference calls are affiliated with a sell-side brokerage firm. The remaining questioners are either institutional investors (buy-side analysts) or not identifiable due to a vague or incomplete name or affiliation.

[5] We require covering analysts to have been on the previous conference call to distinguish them from covering analysts who never participate in a firm's conference call.

American Accounting Association

economically significant, especially given the fact that many trading strategies have not worked well in the past ten years (Green, Hand, and Soliman 2011).[6]

In contrast, *COV_ANALYSTS_ABSENT* exhibits no statistical association with proxies for firm fundamental changes or trading volume. However, it is significantly and negatively related to a change in the next quarter's analyst coverage and institutional ownership. These findings provide some evidence that a drop in analyst interest is an early indicator of a decrease in capital market activities. We also find that *COV_ANALYSTS_ABSENT* predicts future stock returns. Subsequent three-month stock returns decrease from 3.15 percent in the bottom *COV_ANALYSTS_ABSENT* quartile to 1.48 percent in the top quartile, resulting in a statistically significant return difference of −1.67 percent.

We rule out a number of alternative explanations for our results, including confounding information, an upward trend in conference call data, microstructure effects, and investor overreaction. We also conduct several additional tests and robustness checks. We partition our sample into three groups based on the level of existing analyst coverage, and find the effects of analyst interest to be more pronounced for low-coverage ("neglected") firms. We also find that our results are robust to alternative specifications of the analyst interest variables. Finally, we show that our results are not driven by initial public offering (IPO) firms or fourth-quarter observations.

This study contributes to the extant literature in three unique ways. First, it adds to the literature examining the link between firm fundamentals and future stock returns. Since financial statements are backward-looking, accounting information may not be timely with respect to changes in firm fundamentals. We show that an awareness of changing analyst interest in a firm can provide investors with an early indicator of a firm's fundamental changes that are not yet reflected in its financial statements. Second, our study contributes to the literature on sell-side analysts by highlighting one aspect of their due diligence process prior to their formal issuance of earnings forecasts, price targets, and stock recommendations to the public and, hence, adds to our understanding of the role analysts play in the capital markets. Our measure of increasing analyst interest, based on pre-coverage due diligence, also distinguishes our study from the prior literature on analyst discrimination (e.g., Mayew 2008; Cohen, Lou, and Malloy 2014) because the views of the non-covering analysts are not yet known to the firm managers prior to the conference calls (at least in terms of a published rating on the stock). Finally, our study adds to prior studies documenting the information content of conference calls and their effects on analysts covering the firms (Frankel, Johnson, and Skinner 1999; Bowen, Davis, and Matsumoto 2002; Bushee, Matsumoto, and Miller 2003; Kimbrough 2005). In particular, we highlight that analyst participation or absenteeism can be a measure of analyst interest in a firm and, moreover, is informative about their future coverage decisions.

This paper continues as follows. The next section develops testable hypotheses. Section III describes the sample and variable construction. Section IV presents the empirical findings. Section V discusses alternative explanations and robustness tests. We conclude in Section VI.

II. HYPOTHESES DEVELOPMENT

Prior studies examine extensively the link between accounting data and future stock returns. Bernard and Thomas (1989, 1990) find that investors do not fully understand the implications of current earnings for future earnings, leading to predictable return drifts in the four quarters subsequent to earnings announcements. Similarly, Sloan (1996) shows that investors do not understand the differential implications of the accrual and cash flow components of current earnings for future earnings. Thus, a hedge portfolio based on extreme deciles of accruals earns significant

[6] Plenty of anecdotal evidence suggests poor performance for quantitative-based trading strategies. For example, Goldman Sachs closed its Global Alpha hedge fund, which relied on computer-driven trading strategies, in 2011.

abnormal returns. Ou and Penman (1989) and Abarbanell and Bushee (1997) show that fundamental signals constructed from accounting data have predictive power for future earnings and, thus, predict future stock returns. Similarly, Holthausen and Larcker (1992) and Lev and Thiagarajan (1993) find that accounting-based fundamental signals are value-relevant over contemporaneous earnings. Finally, Abarbanell and Bushee (1998) find that a trading strategy based on these fundamental signals generates an average 12-month cumulative size-adjusted return of 13.2 percent, suggesting that contemporaneous stock returns do not fully reflect the implications of the fundamental signals for future earnings. In sum, this literature establishes that predicting firm fundamentals is central to the analysis and valuation of stocks.

One of the most important roles for sell-side equity analysts is predicting firms' future fundamentals and stock valuations (Bradshaw 2011; Brown, Call, Clement, and Sharp 2015). Given their deep industry knowledge, analysts are aware of firms' shifting competitive positions well before such information is reflected in the financial statements and stock prices of individual firms. Accordingly, their fundamental analyses and predictions published in written reports have been shown to be informative to the markets (Mikhail et al. 1999; Asquith et al. 2005; Kadan et al. 2012). We exploit two important institutional regularities within the analyst coverage process to develop an early indicator of a firm's prospects. First, before an analyst initiates coverage on a firm, he or she requires a certain amount of time and effort to become informed about the firm (i.e., conduct due diligence). The amount of time needed to complete due diligence varies from a minimum of several weeks to one year.[7] Since earnings conference calls occur every quarter, there is ample opportunity for an analyst to participate in a firm's call before initiating coverage on the firm. Second, while most analysts who already cover a firm actively participate in the firm's conference call each quarter, it is not uncommon for some analysts to be silent or possibly absent from the call. We posit that such absence results from a loss of interest in the firm and a possible intention to drop coverage. Taken together, these two scenarios within the analyst coverage process can provide an early indication about a firm's fundamentals and prospects.

Our proposition that changes in analyst interest in a firm predict future fundamental changes, capital market activities, and stock returns is based upon two non-mutually exclusive theories. The first is from McNichols and O'Brien (1997), who show that analysts allocate effort toward firms in which they view future prospects to be favorable. The fact that over two-thirds of analyst coverage initiations are started with a Buy or Strong Buy rating (Ertimur et al. 2011) is consistent with analysts having exerted effort to learn about and initiate coverage on firms in which the positive fundamentals are not yet reflected in financial statements or stock prices. The findings in McNichols and O'Brien (1997) also indicate that analysts curtail effort toward firms with poor prospects or whose coverage is likely to be discontinued. This theory suggests that analyst interest—our measure of analyst effort prior to coverage initiation or termination—should predict future firm fundamentals, analyst coverage, and stock returns. The second theory is from Merton (1987), who shows that investor recognition of a firm affects the firm's cost of capital and stock price. This theory suggests that a change in analyst interest should lead to a change in investor recognition of a firm (i.e., holdings and trading), especially among institutional investors, given their broker-client relationships with sell-side analysts, and a change in stock price.[8]

[7] Analysts vary in their speed to initiate coverage on firms. Our conversations with a number of sell-side analysts indicate that a lower bound of three weeks is not unreasonable. Due diligence tasks include analyzing past financial statements, preparing models and forecasts, visiting company sites, meeting management, listening to archived conference calls, drafting and editing an initiation report, and receiving approval from the brokerage firm's research executive management. The upper bound of 365 days is based on anecdotes of Sanford C. Bernstein & Co. allowing newly hired analysts up to one year to learn about a firm prior to initiation of coverage (Koo 2012).

[8] Lehavy and Sloan (2008), Da, Engelberg, and Gao (2011), and Drake, Roulstone, and Thornock (2012) document evidence consistent with the prediction of Merton's (1987) investor recognition story.

American Accounting Association

Of the two theories, only the one from McNichols and O'Brien (1997) suggests an association between early analyst interest in a firm and that firm's future fundamentals. This difference provides us with one prediction by which to distinguish between these two theories. If analysts exert effort to learn about firms with positive prospects, then analyst participation in a firm's earnings conference call prior to coverage initiation should capture analysts' pre-initiation effort and positive views about that firm. Such views can eventually be discussed in the analysts' written initiation reports and reflected in their forecasts of sales and earnings. Analogously, if analysts foresee negative prospects for a firm that is already covered and lose interest in participating in that firm's earnings conference call, then the lack of participation can indicate a possible future downgrade or termination of coverage. In sum, we predict that increases in analyst interest are associated with future improvement in firm fundamentals, while decreases in analyst interest are associated with future deterioration in firm fundamentals:

Prediction 1: Increases (decreases) in analyst interest are associated with future improvement (deterioration) in firm fundamentals.

In contrast to the first prediction, a second prediction suggesting that early analyst interest is associated with subsequent capital market activities is supported by both theories. Under the McNichols and O'Brien (1997) theory, some of the non-covering analysts who participate in a firm's conference calls due to expectations of improving fundamentals will eventually initiate coverage on the firm. Increased analyst coverage, especially with positive recommendations, will attract more institutional investors and institutional trading in the stock. Under the Merton (1987) theory, more institutional investors will become informed about a firm's prospects through conversations with the analysts. With increased interest from institutional investors, future trading volume also increases. These interactions between analysts and investors suggest that increases (decreases) in analyst interest are associated with future increases (decreases) in capital market activities, such as analyst coverage, institutional ownership, and trading volume:

Prediction 2: Increases (decreases) in analyst interest are associated with future increases (decreases) in analyst coverage, institutional ownership, and trading volume.

Finally, both theories suggest that analyst interest predicts future stock returns. Under the McNichols and O'Brien (1997) theory, analysts follow firms with positive prospects, and future stock prices will reflect the future improvement in firm fundamentals. Under the Merton (1987) theory, higher analyst interest in a firm leads to greater recognition from institutional investors, which will lead to lower cost of capital and higher demand and valuation for the firm's stock. Conversely, a loss of interest from analysts will be reflective of poor prospects for a firm, and a loss of interest from institutional investors will lead to a decline in demand and valuation for a firm's stock:

Prediction 3: Increases (decreases) in analyst interest are positively (negatively) associated with future stock returns.

In summary, we posit that increases (decreases) in analyst interest capture improvements (deterioration) in firm fundamentals that are not yet reflected in financial statements. Thus, changes in analyst interest serve as an early indicator of future changes in *reported* firm fundamentals, capital market activities, and stock returns.

III. DATA AND VARIABLE DEFINITIONS

Our data are comprised of firms with available conference call transcripts from the Thomson Reuters StreetEvents database from the first quarter of 2002 through the first quarter of 2009. The

transcripts contain identifying information about the firm managers on the call, as well as the name and affiliation of anyone who asked a question during the question-and-answer (Q&A) portion of the call.[9] There are transcripts from many types of conference calls, including calls about technology announcements, sales and marketing initiatives, mergers and acquisitions, restructurings, and earnings announcements. However, only earnings calls are scheduled far in advance, with analysts well aware of the exact date and time of the call, making conference call participation a logical measure of analyst interest. In addition, many of the non-earnings calls do not have a Q&A portion. Therefore, we use only the transcripts of quarterly earnings conference calls of U.S. firms, resulting in a sample of 55,565 conference calls from 3,370 firms.[10] Table 1, Panel A provides a breakdown of the sample conference calls by year and quarter.[11]

From each firm's conference call transcript, we identify those on the call who are sell-side equity analysts using two procedures. First, a caller is identified as an analyst if the last name, first initial, and brokerage affiliation match the equivalent information contained in the I/B/E/S Detail Recommendations file.[12] For cases in which there is no match, we check for possible misspellings of the names and affiliations on the transcripts and manually identify the callers as analysts when it is obvious that the initial mismatch was due to a simple misspelling. With this procedure, we identify 80.5 percent of the callers as I/B/E/S sell-side analysts. Second, callers are also identified as sell-side analysts if their affiliation is a brokerage firm that does not report to I/B/E/S, such as Merrill Lynch, Lehman Brothers, BB&T Capital Markets, Wachovia, and SG Cowen. We identify 11.7 percent of the callers as non-I/B/E/S sell-side analysts. The remaining 7.8 percent of callers are either institutional investors or buy-side analysts (based on their affiliation) or not identifiable due to a vague or incomplete name or affiliation.[13]

For each caller classified as a sell-side equity analyst tracked by I/B/E/S, we obtain the unique analyst code used by I/B/E/S to identify that analyst's earnings estimates or recommendations for a given firm.[14] We then determine whether the analyst on the earnings conference call has initiated coverage on the firm prior to the date of the conference call. Specifically, if an analyst is on a firm's earnings conference call, but has not yet issued any earnings estimates or recommendations at any time during the 12 months prior to the call, then we classify that analyst as a non-covering analyst. All other analysts have issued earnings estimates or recommendations prior to the conference call

[9] A better measure of analyst interest in a firm would be the number of analysts who dial into and listen to the firm's earnings conference call. However, such information is not available on transcripts. Therefore, the number of analysts who ask a question is the next-best alternative.

[10] We require that the date of a firm's conference call (from Thomson Reuters) be the same or one day after the date of the earnings announcement provided by Compustat. We find that 78 percent of the conference calls occur on the same date as the earnings announcement and 22 percent occur on the next day.

[11] Any firm that hosts an earnings conference call in which no analysts ask a question is excluded from our sample. Such exclusions are rare, as we find that 97.5 percent of earnings conference call transcripts for U.S. firms in the StreetEvents database from the first quarter of 2002 through the first quarter of 2009 are included in our final sample (55,565 out of 56,994 conference calls).

[12] In the I/B/E/S Detail Recommendations file, an analyst's last name and first initial are identified in the variable called ANALYST and the brokerage affiliation is identified in a variable called ESTIMID. In rare cases in which a brokerage firm employs two analysts with the same last name and first initial, we distinguish the correct analyst by additionally matching on firm or industry. That is, the analyst must have covered the firm on the transcript (i.e., made a recommendation) either before or after the conference call date, or must have at least covered a firm in the same two-digit Standard Industrial Classification (SIC) code as the firm on the transcript.

[13] The latter group includes callers who cannot be matched to an analyst in the I/B/E/S file, even after checking for misspellings of the name and brokerage affiliation. The participation of these analysts in a firm's conference call is very rare, and our results are virtually unchanged if we include these analysts in the sample.

[14] A given analyst's unique identifier in I/B/E/S is a six-digit number labeled as AMASKCD in the Detail Recommendations file and as ANALYS in the Detail History Earnings per Share file. Although the identifier is labeled as two different variable names in the two files, it is the same number for a given analyst.

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TABLE 1

Sample and Summary Statistics

Panel A: Conference Calls by Year and Calendar Quarter

Year	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
2002	119	495	654	1,142	2,410
2003	1,325	1,321	1,564	1,724	5,934
2004	1,781	1,734	1,829	1,880	7,224
2005	1,949	2,022	2,077	2,128	8,176
2006	2,156	2,156	2,294	2,299	8,905
2007	2,328	2,366	2,455	2,545	9,694
2008	2,642	2,669	2,671	2,641	10,623
2009	2,599	—	—	—	2,599
Total	14,899	12,763	13,544	14,359	55,565

Panel B: Descriptive Statistics

Variable	n	n Missing	Mean	1st Quartile	Median	3rd Quartile
NUMCALLERS	55,565	—	5.09	3.00	5.00	7.00
NC_ANALYSTS (unscaled)	55,565	—	1.06	0.00	1.00	2.00
COV_ANALYSTS (unscaled)	55,565	—	4.04	2.00	4.00	6.00
COV_ANALYSTS_ABSENT (unscaled)	52,195	3,370	1.24	0.00	1.00	2.00
NC_ANALYSTS (scaled)	55,565	—	0.25	0.00	0.17	0.38
COV_ANALYSTS (scaled)	55,565	—	0.75	0.63	0.83	1.00
COV_ANALYSTS_ABSENT (scaled)	52,195	3,370	0.30	0.00	0.17	0.40
ΔEPS_{t+1}	53,990	1,575	−0.01	−0.01	0.00	0.01
$SGROWTH_{t+1}$	51,436	4,129	0.19	−0.01	0.10	0.23
NAN	55,565	—	7.90	3.00	6.00	11.00
$CNAN_{t+1}$ (unscaled)	55,565	—	0.16	−1.00	0.00	1.00
$CNAN_{t+1}$ (percentage change)	52,826	2,739	0.05	−0.06	0.00	0.13
NII	55,565	—	166.53	66.00	119.00	202.00
$CNII_{t+1}$ (unscaled)	55,565	—	1.77	−5.00	1.00	8.00
$CNII_{t+1}$ (percentage change)	53,198	2,367	0.02	−0.05	0.01	0.07
$CTURNOVER_{t+1}$	54,434	1,131	0.04	−0.11	0.02	0.18
RET	54,040	1,525	0.02	−0.11	0.01	0.13
SIZE	54,085	1,480	6.94	5.83	6.83	7.96
ROA	54,130	1,435	0.00	0.00	0.01	0.02
BTM	52,690	2,875	0.54	0.28	0.45	0.67
LEVERAGE	54,085	1,480	0.53	0.01	0.17	0.52
PASTRET	54,370	1,195	0.00	−0.10	−0.01	0.09
VOLATILITY	54,369	1,196	0.02	0.01	0.02	0.03

(continued on next page)

and are classified as covering analysts. Since we cannot determine the coverage status for non-I/B/E/S analysts, we exclude them from our analysis.

For each conference call, we define *NC_ANALYSTS* as the number of non-covering analysts and *COV_ANALYSTS* as the number of covering analysts, both scaled by the total number of callers (*NUMCALLERS*) who appear (i.e., ask a question) on the conference call transcript. We also define

TABLE 1 (continued)

Panel C: Selected Pair-Wise Correlation Variables *NC_ANALYSTS*$_t$ to *CTURNOVER*$_{t+1}$

	1	2	3	4	5	6
1 *NC_ANALYSTS*$_t$						
2 *COV_ANALYSTS_ABSENT*$_t$	−0.03***					
3 ΔEPS_{t+1}	0.02***	0.00				
4 *SGROWTH*$_{t+1}$	0.02***	−0.01***	0.10***			
5 *CNAN*$_{t+1}$	0.06***	−0.09***	0.02***	0.05***		
6 *CNII*$_{t+1}$	0.04***	−0.04***	0.08***	0.10***	0.11***	
7 *CTURNOVER*$_{t+1}$	0.02***	−0.01*	−0.03***	0.00	0.03***	0.12***
8 *SIZE*$_t$	−0.30***	0.06***	0.03***	−0.03***	0.00	−0.01***
9 *ROA*$_t$	−0.07***	−0.03***	0.02***	−0.07***	0.05***	0.07***
10 *BTM*$_t$	0.11***	0.02***	−0.18***	−0.12***	−0.09***	−0.12***
11 *LEVERAGE*$_t$	0.05***	0.02***	−0.07***	−0.04***	−0.05***	−0.06***
12 *PASTRET*$_t$	0.01	−0.03***	0.10***	0.06***	0.07***	0.33***
13 *VOLATILITY*$_t$	0.12***	0.02***	−0.10***	0.02***	−0.06***	−0.08***

Panel D: Selected Pair-Wise Correlation Variables *SIZE*$_t$ to *VOLATILITY*$_t$

	7	8	9	10	11	12
8 *SIZE*$_t$	0.02***					
9 *ROA*$_t$	0.02***	0.25***				
10 *BTM*$_t$	−0.01	−0.29***	−0.13***			
11 *LEVERAGE*$_t$	0.01**	−0.06***	−0.06***	0.45***		
12 *PASTRET*$_t$	0.05***	0.07***	0.09***	−0.15***	−0.09***	
13 *VOLATILITY*$_t$	−0.12***	−0.48***	−0.32***	0.36***	0.23***	−0.08***

*, **, *** Indicate significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a two-tailed test. Panel A presents the sample of earnings conference call transcripts by year and calendar quarter. Panel B presents descriptive statistics of variables for the entire conference call transcript sample. Panels C and D present Pearson pair-wise correlations.

Variables not shown below are defined in Appendix A.

Variable Definitions:

NUMCALLERS = number of analysts that asked a question on the firm's conference call;

NC_ANALYSTS = number of analysts that asked a question on the firm's conference call, but did not cover the firm as of the date of the conference call, scaled by *NUMCALLERS*;

COV_ANALYSTS_ABSENT = number of analysts that covered the firm as of the date of the conference call, did not ask a question on the conference call, but did ask a question on the previous conference call, scaled by *NUMCALLERS*;

NAN = number of analysts that covered the firm as of the date of the conference call;

CNAN$_{t+1}$ = percentage change in the number of analysts that covered the firm;

NII = number of institutional investors that owned the firm's stock as of the most recent calendar quarter ended prior to the conference call;

CNII$_{t+1}$ = percentage change in *NII*;

CTURNOVER$_{t+1}$ = change in average daily turnover;

ΔEPS_{t+1} = seasonal difference in earnings per share;

SGROWTH$_{t+1}$ = seasonal percentage change in quarterly sales for the fiscal quarter ended after the conference call;

SIZE = natural logarithm of the market value of equity;

ROA = income before extraordinary items divided by total assets;

BTM = book value of equity divided by market value of equity;

LEVERAGE = book value of debt divided by book value of equity;

PASTRET = size-adjusted past return; and

VOLATILITY = standard deviation of daily size-adjusted returns.

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COV_ANALYSTS_ABSENT as the number of covering analysts who were on the prior quarter's conference call, but are absent from, or silent on, the current conference call, scaled by *NUMCALLERS*.[15] Descriptive statistics of these variables are provided in Table 1, Panel B. The mean number of callers is 5.1, of which 1.1 are non-covering analysts and 4.0 are covering analysts. The mean values of *NC_ANALYSTS* and *COV_ANALYSTS* are 0.25 and 0.75, respectively. Unscaled *COV_ANALYSTS_ABSENT* has a mean value of 1.2 and a scaled mean value of 0.30.

We note several sources of measurement error (i.e., noise) in our variables of interest. *NC_ANALYSTS* only captures non-covering analysts who ask a question, so to the extent that there are non-covering analysts who listen to a call, but do not ask a question, our measure of increasing analyst interest will be understated. A similar measurement error exists with *COV_ANALYSTS_ABSENT*. Although we require a covering analyst to have asked a question during the prior conference call (to rule out analysts who never ask a question), that analyst may not be absent on the current conference call, but instead simply does not ask a question, in which case, our measure of decreasing analyst interest will be overstated. Most importantly, while a lengthy analyst due diligence process suggests that an analyst is likely to participate in a firm's conference call before initiating coverage, it does not suggest that an analyst would be absent from a conference call before dropping coverage. To the extent that covering analysts drop coverage before they stop participating in a given firm's conference calls, *COV_ANALYSTS_ABSENT* will be understated in measuring decreasing analyst interest. Therefore, we expect relatively more noise in *COV_ANALYSTS_ABSENT,* which tends to attenuate the coefficients toward zero more so than the coefficients on *NC_ANALYSTS* in our regressions if the noise is uncorrelated with the other independent variables.[16]

To measure firm fundamentals, capital market activities, and future stock returns, we obtain financial statement data from Compustat, stock data from CRSP, institutional holdings data from the Thomson Reuters Form 13F database, and earnings estimates from I/B/E/S. We choose EPS growth and sales growth to proxy for firm fundamentals because they are arguably the two most emphasized metrics in firms' quarterly earnings announcements. Also, analysts typically forecast EPS and sales, and the most common valuation models used by analysts are based on EPS (P/E [price/earnings]) and EPS growth (PEG [price/earnings to growth]) (Bradshaw 2004; Brown et al. 2015). We measure EPS growth (ΔEPS_x) as the seasonal difference in diluted EPS excluding extraordinary items, measured one to four quarters after the conference call ($x = t+1$, $t+2$, $t+3$, and $t+4$), scaled by the firm's stock price on the last day of the fiscal quarter ended prior to the conference call. We measure sales growth as the seasonal percentage change in quarterly sales ($SGROWTH_x$), measured one to four quarters after the conference call ($x = t+1$, $t+2$, $t+3$, and $t+4$).

We use analyst coverage, institutional ownership, and trading volume to capture capital market activities. To capture existing analyst coverage at the time of a given conference call, we measure the number of analysts (NAN_t) that issued an earnings estimate to I/B/E/S at any time between the previous conference call date and one day before the current conference call. We measure the next quarter's change in analyst coverage ($CNAN_{t+1}$) as the percentage change in *NAN* from quarter t to $t+1$. Thus, $CNAN_{t+1}$ requires one lag quarter of data and captures the change in total analyst coverage from the period before the conference call (roughly three months) to the period after the call. We

[15] In robustness checks, we use unscaled versions of *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* in the empirical analyses discussed in Section IV. In untabulated results, we find results that are similar to those presented in Tables 2 through 4. For the portfolio return tests in Table 5, we partition the sample into three (instead of four) groups because there is not enough variation in the unscaled versions of *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* to form quartiles in some quarters. Untabulated results indicate that our results hold using unscaled versions of the variables of interest.

[16] It is interesting to point out that the coefficients on *COV_ANALYSTS_ABSENT* are smaller in magnitude than those on *NC_ANALYSTS* in all our regressions, a result consistent with the greater expected measurement error.

define institutional ownership as the number of institutional investors (NII_t) that own a firm's stock as of the most recent calendar quarter ended prior to the firm's conference call. We compute the next quarter's change in institutional investors ($CNII_{t+1}$) as the percentage change in *NII* from the calendar quarter ended prior to the conference call to the calendar quarter ended after the conference call. We define a firm's next quarter change in trading volume turnover ($CTURNOVER_{t+1}$) as the change in average daily turnover (volume divided by shares outstanding) from the 90 calendar days before to the 90 calendar days after the conference call, expressed in percentage terms.

We measure a firm's future stock return (*RET*) over the three-month period [m+1, m+3], where m is the month in which the conference call occurs. In robustness checks, we also measure two- and three-quarter-out stock returns, which are measured over the [m+4, m+6] and [m+7, m+9] windows, respectively.

We include several control variables in our analyses, including firm and stock characteristics measured prior to the conference call. When testing the association between analyst interest and future EPS and sales growth, we control for the current quarter's EPS and sales growth. We also control for firm size using the logarithm of market value of equity (*SIZE*), performance with income before extraordinary items divided by total assets (*ROA*), valuation using the book value of equity divided by market value of equity (*BTM*), and leverage with the book value of debt divided by the book value of equity (*LEVERAGE*). *PASTRET* is the size-adjusted return (raw return less return of the corresponding size decile) for the period [−91, −1], where day 0 is the date of the conference call. In the regressions of future capital market activities, we also control for stock volatility (*VOLATILITY*), defined as the standard deviation of daily size-adjusted returns for the period [−91, −1]. In the stock return regressions, we control for the most recent earnings surprise (*ENEWS*), *SIZE, BTM,* and the past 11-month return ($RET_{m-1,m-11}$) from the [m−11, m−1] period, where m is the month in which the conference call occurs. Finally, in the four-factor model, we use the $R_{Mt} - R_{ft}$, *SMB,* and *HML* factors defined in Fama and French (1996) and the momentum factor (*MOM*) defined in Carhart (1997). Appendix A summarizes all the variable definitions described above.

Table 1, Panel B shows descriptive statistics of the variables. The median values for ΔEPS_{t+1} and $SGROWTH_{t+1}$ are 0.00 and 0.10, respectively, indicating that firms are exhibiting higher top-line growth than bottom-line growth. The median firm is covered by six analysts (median $NAN = 6$). The mean and median future percentage changes in the number of analysts ($CNAN_{t+1}$) are 0.05 and 0.00, respectively, and the interquartile range is from −0.06 to 0.13. These statistics indicate that for the median firm, analyst coverage is stable from quarter to quarter, but there is variation and a slightly right-skewed distribution in the change variable. The mean (median) $CNII_{t+1}$ is 0.02 (0.01), indicating that the number of institutional investors, on average, increases about 1 to 2 percent each quarter for our sample firms. $CTURNOVER_{t+1}$ has a mean value of 0.04 percent, indicating a small increase in daily trading volume each quarter, on average, for the sample firms.

Panels C and D in Table 1 show pair-wise correlations. As expected, *NC_ANALYSTS* is positively correlated with future changes in firm fundamentals (ΔEPS_{t+1} and $SGROWTH_{t+1}$) and capital market activities ($CNAN_{t+1}$, $CNII_{t+1}$, and $CTURNOVER_{t+1}$). Also as expected, *COV_ANALYSTS_ABSENT* is negatively correlated with $SGROWTH_{t+1}$, $CNAN_{t+1}$, $CNII_{t+1}$, and $CTURNOVER_{t+1}$. Furthermore, *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* are negatively correlated, as one would expect. In terms of the control variables, *NC_ANALYSTS* is negatively correlated with firm size (*SIZE*) and performance (*ROA*) and positively associated with firm leverage (*LEVERAGE*) and stock volatility (*VOLATILITY*), consistent with the notion that analysts tend to exert effort to learn about neglected firms that are difficult to understand.[17] Finally, only two

[17] Becoming an expert on neglected firms that are difficult to understand can increase an analyst's visibility among institutional investors and improve his or her career opportunities in the analyst labor market. We thank an anonymous reviewer for raising this point.

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pairs of variables are highly correlated with each other with a correlation above |0.40|: *SIZE* and *VOLATILITY*, and *LEVERAGE* and *BTM*.[18]

IV. EMPIRICAL ANALYSES

Future Change in Firm Fundamentals

In the first part of our analyses, we examine whether *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* have predictive power for future changes in firm fundamentals. We estimate the following regression model (firm subscripts are suppressed for brevity):

$$\begin{aligned} CFUNDA_x = {} & \beta_0 + \beta_1 NC\_ANALYSTS_t + \beta_2 COV\_ANALYSTS\_ABSENT_t + \beta_3 CFUNDA_t \\ & + \beta_4 SIZE_t + \beta_5 ROA_t + \beta_6 BTM_t + \beta_7 LEVERAGE_t + \beta_8 PASTRET_t \\ & + Year\ Fixed\ Effects + \varepsilon, \end{aligned} \tag{1}$$

where $CFUNDA_x$ is either ΔEPS_x or $SGROWTH_x$ ($x = t{+}1$, $t{+}2$, $t{+}3$, or $t{+}4$). Prediction 1 states that the estimated coefficients on $NC\_ANALYSTS_t$ and $COV\_ANALYSTS\_ABSENT_t$ should be positive and negative, respectively.

We control for the current-quarter change in firm fundamental $CFUNDA_t$ (= ΔEPS_t or $SGROWTH_t$). The estimated coefficient on $CFUNDA_t$ depends on the time-series property of $CFUNDA_t$. For ΔEPS, we expect it to be serially positively correlated in the first three lags and negatively correlated in the fourth lag (Bernard and Thomas 1989). For *SGROWTH*, we expect it to follow an autoregressive process, with a nonnegative coefficient decreasing with x. We include other contemporaneous firm characteristics to control for cross-sectional differences that may explain the variations in $CFUNDA_x$, although the relations between such factors and EPS growth and sales growth may differ. Firm size (*SIZE*) captures a firm's market power and competitive position, which should be positively associated with earnings power (ΔEPS_t). However, smaller firms generally have higher sales growth potential than larger firms and, hence, we expect *SIZE* to be negatively associated with $SGROWTH_t$. Operating performance (*ROA*) is expected to have negative coefficients, as firms with high existing levels of earnings are less likely to have higher EPS growth and sales growth. Book-to-market (*BTM*) is a proxy for a firm's investment opportunity set. Since firms with low *BTM* exhibit higher growth, we expect a negative coefficient on *BTM*. Leverage (*LEVERAGE*) captures the capital structure of the firm and, all else being equal, firms with higher leverage should exhibit higher earnings growth, but the expected effect of $LEVERAGE_t$ on sales growth is less clear. We include past stock return (*PASTRET*) to control for confounding events, such as industry-specific news or managerial voluntary disclosures, that may drive both analyst interest and future firm fundamentals, and we expect $PASTRET_t$ to have a positive coefficient.[19]

Table 2, Panel A shows the results of the ΔEPS_x regressions. We cluster standard errors by firm (Rogers 1993). Columns (1) through (4) show that the estimated coefficients on *NC_ANALYSTS* are significantly positive when ΔEPS is measured for the next four quarters. The magnitude of the coefficient (0.009) in column (1) suggests that an interquartile shift in the value of *NC_ANALYSTS* translates into a 0.34 percent (= 0.009 × 0.38) change in ΔEPS, which represents 17.1 percent (= 0.0034/0.02) of the interquartile range in one-quarter-ahead ΔEPS. These results are consistent with analyst interest having predictive power for ΔEPS in the next four quarters. In contrast, *COV_*

[18] In subsequent regression analysis, we conduct multicollinearity diagnostics whenever explanatory variables have correlations above |0.4|. In each case, we find that the variance inflation factors are below 2 for the variables tested, suggesting that multicollinearity is not an issue.

[19] We thank an anonymous reviewer for pointing out this possibility and offering this solution.

TABLE 2

Regressions of Future Growth on the Number of Non-Covering Analysts and Absent Covering Analysts on a Conference Call

Panel A: Regressions of Future Earnings Per Share Growth (ΔEPS_x)

Dependent Variable	Pred. Sign	ΔEPS_{t+1} (1)	ΔEPS_{t+2} (2)	ΔEPS_{t+3} (3)	ΔEPS_{t+4} (4)
$NC\_ANALYSTS_t$	+	0.009***	0.008***	0.005*	0.005*
		(3.88)	(3.26)	(1.84)	(1.83)
$COV\_ANALYSTS\_ABSENT_t$	−	0.002	0.001	−0.001	0.002
		(1.27)	(0.55)	(−0.62)	(0.95)
ΔEPS_t	+/−	0.173***	0.088***	0.009	−0.411***
		(7.26)	(4.76)	(0.45)	(−15.37)
$SIZE_t$	+	0.000	0.000	0.000	0.003***
		(−0.69)	(−0.25)	(−0.23)	(5.70)
ROA_t	−	−0.095***	−0.125***	−0.115***	−0.628***
		(−4.39)	(−5.41)	(−5.27)	(−11.13)
BTM_t	−	−0.041***	−0.023***	−0.012**	−0.017***
		(−7.93)	(−4.48)	(−2.56)	(−3.59)
$LEVERAGE_t$	+	0.000	0.001	0.001	0.001
		(0.18)	(0.36)	(0.63)	(0.52)
$PASTRET_t$	+	0.061***	0.054***	0.020***	0.009*
		(13.06)	(10.69)	(3.80)	(1.95)
Intercept		0.024***	0.014*	0.010*	−0.008
		(3.03)	(1.92)	(1.66)	(−1.22)
Year Fixed Effects		Yes	Yes	Yes	Yes
n		49,378	49,373	49,295	49,191
Adj. R^2		0.072	0.035	0.018	0.207

Panel B: Regressions of Future Sales Growth ($SGROWTH_x$)

Dependent Variable	Pred. Sign	$SGROWTH_{t+1}$ (1)	$SGROWTH_{t+2}$ (2)	$SGROWTH_{t+3}$ (3)	$SGROWTH_{t+4}$ (4)
$NC\_ANALYSTS_t$	+	0.017*	0.038***	0.028**	0.031**
		(1.67)	(3.09)	(2.13)	(1.98)
$COV\_ANALYSTS\_ABSENT_t$	−	−0.006	0.000	0.001	−0.001
		(−1.30)	(0.07)	(0.16)	(−0.35)
$SGROWTH_t$	+	0.563***	0.356***	0.218***	0.019
		(24.34)	(16.06)	(11.55)	(1.04)
$SIZE_t$	−	−0.004***	−0.007***	−0.009***	−0.011***
		(−2.93)	(−3.61)	(−4.29)	(−4.57)
ROA_t	−	−0.432***	−0.581***	−0.779***	−1.297***
		(−4.72)	(−4.76)	(−5.32)	(−7.31)
BTM_t	−	−0.094***	−0.119***	−0.131***	−0.140***
		(−12.17)	(−13.25)	(−13.27)	(−11.55)
$LEVERAGE_t$		0.003	−0.002	−0.006***	−0.009***
		(1.61)	(−0.90)	(−2.76)	(−3.47)
$PASTRET_t$	+	0.133***	0.211***	0.247***	0.180***
		(6.66)	(10.44)	(12.70)	(8.54)

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TABLE 2 (continued)

Dependent Variable	Pred. Sign	$SGROWTH_{t+1}$ (1)	$SGROWTH_{t+2}$ (2)	$SGROWTH_{t+3}$ (3)	$SGROWTH_{t+4}$ (4)
Intercept		0.143***	0.187***	0.226***	0.278***
		(8.82)	(10.13)	(10.90)	(11.71)
Year Fixed Effects		Yes	Yes	Yes	Yes
n		46,937	46,902	46,817	46,728
Adj. R^2		0.369	0.172	0.087	0.034

*, **, *** Indicate significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a two-tailed test and standard errors clustered by firm. The t-statistic is presented in parentheses under the estimated coefficient.
The dependent variable is future growth in earnings per share (ΔEPS_{t+x}) in Panel A, and future sales growth ($SGROWTH_{t+x}$) in Panel B.
Variables not shown below are defined in Appendix A.

Variable Definitions:
ΔEPS_{t+x} = seasonal difference in earnings per share (diluted) excluding extraordinary items scaled by the firm's stock price as of the fiscal quarter ended prior to the conference call (quarter t), and $x = 1,2,3,4$ are the four fiscal quarters ended after the conference call;
$SGROWTH_{t+x}$ = seasonal percentage change in quarterly sales;
NC_ANALYSTS = number of analysts that asked a question on the firm's conference call, but did not cover the firm as of the date of the conference call, scaled by the number of analysts that asked a question on the firm's conference call (*NUMCALLERS*); and
COV_ANALYSTS_ABSENT = number of analysts that covered the firm as of the date of the conference call, did not ask a question on the conference call, but did ask a question on the previous conference call, scaled by *NUMCALLERS*.

ANALYSTS_ABSENT does not exhibit a significant explanatory power for future ΔEPS. Regarding the control variables, ROA_t, BTM_t, and $PASTRET_t$ exhibit significant associations in the predicted directions. Finally, consistent with the results from Bernard and Thomas (1989), ΔEPS_t exhibits a positive estimated coefficient in the ΔEPS_{t+1} and ΔEPS_{t+2} regressions and a negative coefficient in the ΔEPS_{t+4} regression.

Table 2, Panel B shows the results of the $SGROWTH_x$ regressions. Columns (1) through (4) indicate that *NC_ANALYSTS* is positively associated with sales growth one to four quarters later, with the coefficient highest for two quarters out ($SGROWTH_{t+2}$). In terms of economic significance, the coefficient of 0.038 on *NC_ANALYSTS* in the $SGROWTH_{t+2}$ regression (column (2)) suggests that an interquartile shift in the value of *NC_ANALYSTS* translates into a 1.44 percent (= 0.038 × 0.38) change in sales growth two quarters later, which represents 6.00 percent (= 0.0144/0.24) of the interquartile range in future sales growth. These findings suggest that firms with increased analyst interest are associated with sales growth over the next one to four quarters. Similar to the results in Panel A, *COV_ANALYSTS_ABSENT* exhibits no association with future sales growth. The control variables again generally exhibit significant associations in the predicted directions.

Overall, we find that *NC_ANALYSTS* is positively related to future EPS growth and sales growth, consistent with our first prediction, whereas *COV_ANALYSTS_ABSENT* exhibits no predictive power with respect to changes in future fundamentals. As discussed earlier, greater measurement error in *COV_ANALYSTS_ABSENT* (relative to *NC_ANALYSTS*) likely attenuates the coefficients more toward zero, resulting in less power in our tests of analyst disinterest.

Future Change in Capital Market Activities

We next examine whether a change in analyst interest has predictive power for future changes in capital market activities, such as analyst coverage, institutional ownership, and trading volume, using the following regression model (firm subscripts are suppressed):

$$CMACTIVITY_{t+1} = \beta_0 + \beta_1 NC\_ANALYSTS_t + \beta_2 COV\_ANALYSTS\_ABSENT_t + \beta_3 CMACTIVITY_t + \beta_4 SIZE_t + \beta_5 ROA_t + \beta_6 BTM_t + \beta_7 LEVERAGE_t + \beta_8 PASTRET_t + \beta_9 VOLATILITY_t + Year\ Fixed\ Effects + \varepsilon, \quad (2)$$

where $CMACTIVITY_{t+1}$ takes one of the following three variables: $CNAN_{t+1}$, $CNII_{t+1}$, or $CTURNOVER_{t+1}$, as defined in Section III and summarized in Appendix A. Prediction 2 states that the estimated coefficients on *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* should be positive and negative, respectively.

We include the contemporaneous change in capital market activity, $CMACTIVITY_t$ (= $CNAN_t$, $CNII_t$, or $CTURNOVER_t$) to address any serial correlation issues. We control for other firm characteristics that may explain cross-sectional variation in $CMACTIVITY_{t+1}$. In particular, prior studies find that firm size (*SIZE*) is positively related to existing levels of analyst coverage and institutional ownership (e.g., O'Brien and Bhushan 1990). As such, we expect future changes in coverage and ownership to be smaller for larger firms. Operating performance (*ROA*) attracts the interest of analysts and institutional investors and, thus, is expected to be positively related to changes in the next quarter's capital market activities. Book-to-market (*BTM*) proxies for the investment opportunity set, and it is expected to be negatively associated with changes in capital market activities. Leverage (*LEVERAGE*) captures the capital structure of the firm. As in Equation (1), we include past stock return (*PASTRET*) to control for confounding events that have occurred since the prior conference call date, and expect the estimated coefficient to be positive. We include one additional control variable, past stock volatility (*VOLATILITY*), which is expected to have a negative association with future changes in capital market activities because volatile stocks are less attractive to investors.

Table 3 summarizes the estimation of Equation (2). Column (1) reports the results for the $CNAN_{t+1}$ regression. Consistent with our expectation, the coefficient of 0.085 on *NC_ANALYSTS* is significant at the 1 percent level (t-stat = 11.06), and its magnitude suggests that an interquartile shift in the value of *NC_ANALYSTS* translates into a 3.23 percent (= 0.085 × 0.38) change in analyst coverage. Since the interquartile range of $CNAN_{t+1}$ is 0.19 (Table 1, Panel B), the marginal effect of $NC\_ANALYSTS_t$ represents 17.0 percent (= 0.032/0.190) of that range. The coefficient on *COV_ANALYSTS_ABSENT* is −0.046 (t-stat = −15.34), indicating that an interquartile shift in *COV_ANALYSTS_ABSENT* translates into a 1.84 percent (= −0.046 × 0.40) reduction in the number of analysts following, or 9.68 percent (= 0.0184/0.190) of the interquartile range in $CNAN_{t+1}$.

When interpreting our results, we note two benchmarks. First, the magnitudes of the incremental changes we document are comparable to prior work, which typically finds a mean change in analyst coverage of less than one analyst after a disclosure event (e.g., Francis, Hanna, and Philbrick 1997; Healy, Hutton, and Palepu 1999; Irani and Karamanou 2003; Bushee, Jung, and Miller 2011). Second, the potential for increases in analyst coverage among our sample firms is not large, on average, because the mean number of analysts is 7.9 and the median is 6.0 (Table 1, Panel B) and because analyst coverage is very stable over time. Thus, one should expect an *unconditional* increase of less than one analyst per quarter in the first place. Untabulated analysis shows that about 20 percent of non-covering analysts initiate coverage within one year of showing up on a firm's earnings conference call for the first time.[20] Conversely, about 14 percent of covering analysts who are absent from a given call eventually drop coverage within one year.

[20] We view such a "conversion rate" to be significant for several reasons: (1) generally, many analysts dial into many firms' conference calls because the cost is relatively low (just the time required); (2) not every analyst participating on the conference call will ultimately initiate coverage for various reasons (Soltes 2014), and when analysts do decide to initiate coverage, it may take more than a year; and (3) analyst job changes and reassignments introduce measurement errors that reduce the conversion rate.

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TABLE 3

Regressions of Future Changes in Analyst Coverage and Institutional Ownership

Dependent Variable	Pred. Sign	$CNAN_{t+1}$ (1)	$CNII_{t+1}$ (2)	$CTURNOVER_{t+1}$ (3)
$NC\_ANALYSTS_t$	+	0.085***	0.008***	0.022**
		(11.06)	(3.40)	(2.13)
$COV\_ANALYSTS\_ABSENT_t$	−	−0.046***	−0.004***	−0.003
		(−15.34)	(−4.87)	(−0.53)
$CNAN_t$		−0.121***		
		(−16.40)		
$CNII_t$			0.000	
			(0.00)	
$CTURNOVER_t$				−0.097***
				(−5.01)
$SIZE_t$	−	−0.007***	−0.006***	−0.016***
		(−7.95)	(−14.77)	(−4.34)
ROA_t	+	0.161***	0.086***	−0.122*
		(5.76)	(4.88)	(−1.71)
BTM_t	−	−0.059***	−0.018***	−0.001
		(−14.86)	(−11.18)	(−0.08)
$LEVERAGE_t$		0.002*	0.001	0.019***
		(1.92)	(1.37)	(5.18)
$PASTRET_t$	+	0.090***	0.241***	0.224***
		(10.63)	(57.99)	(7.77)
$VOLATILITY_t$	−	−0.381***	−0.224***	−6.892***
		(−3.10)	(−3.74)	(−8.39)
Intercept		0.144***	0.051***	0.337***
		(10.69)	(10.13)	(6.28)
Year Fixed Effects		Yes	Yes	Yes
n		46,983	47,522	49,525
Adj. R^2		0.041	0.153	0.041

*, **, *** Indicate significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a two-tailed test and standard errors clustered by firm. The t-statistic is presented in parentheses under the estimated coefficient.

Table 3 presents results of regressions of next quarter's change in analyst coverage ($CNAN_{t+1}$), institutional ownership ($CNII_{t+1}$), and trading volume turnover ($CTURNOVER_{t+1}$) on the number of non-covering analysts ($NC\_ANALYSTS_t$) and covering analysts who are absent ($COV\_ANALYSTS\_ABSENT_t$) from a firm's earnings conference call, as well as on control variables.

Variables not shown below are defined in Appendix A.

Variable Definitions:

$CNAN_{t+1}$ = percentage change in the number of analysts that covered the firm from the quarter before the conference call to the quarter after the conference call;

$CNII_{t+1}$ = percentage change in the number of institutional investors that owned the firm's stock from the calendar quarter ended prior to the conference call to the calendar quarter ended after the conference call;

$CTURNOVER_{t+1}$ = change in average daily turnover (volume divided by shares outstanding) from the 90 days before to the 90 days after the conference call, expressed in percentage terms;

$NC\_ANALYSTS$ = number of analysts that asked a question on the firm's conference call, but did not cover the firm as of the date of the conference call, scaled by the number of analysts that asked a question on the firm's conference call (*NUMCALLERS*); and

$COV\_ANALYSTS\_ABSENT$ = number of analysts that covered the firm as of the date of the conference call, did not ask a question on the conference call, but did ask a question on the previous conference call, scaled by *NUMCALLERS*.

Regarding the control variables, Table 3, column (1) shows that all the control variables significantly explain changes in analyst coverage over the next quarter. In particular, firms that have already experienced greater increases in analyst coverage, are larger in size, and have high book-to-market and volatility exhibit a decrease (or a smaller increase) in future analyst coverage. Moreover, firms with high operating performance, leverage, and past returns exhibit higher increases in analyst coverage over the next quarter. Thus, the aforementioned results for *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* are incremental to observable firm fundamentals and stock characteristics.

In Table 3, column (2) we report the regression results for the percentage change in the number of institutional investors, $CNII_{t+1}$. We find a positive coefficient of 0.008 (t-stat = 3.40) on *NC_ANALYSTS,* significant at the 1 percent level. Moving *NC_ANALYSTS* from the first to the third quartile translates into a 0.3 percent (= 0.008 × 0.38) increase in the percentage of institutional ownership, or 2.53 percent (= 0.003/0.12) of the interquartile range in $CNII_{t+1}$. The coefficient on *COV_ANALYSTS_ABSENT* is −0.004 (t-stat = −4.87). Moving *COV_ANALYSTS_ABSENT* from the first to the third quartile translates into a 0.16 percent (= −0.001 × 0.40) decrease in $CNII_{t+1}$, or 1.33 percent (= 0.0016/0.12) of the interquartile range in $CNII_{t+1}$. We benchmark our results against prior studies that have documented increases of less than 1 percent in institutional ownership per quarter following changes in firms' information environment (Bushee and Noe 2000; Covrig, DeFond, and Hung 2007; Bushee et al. 2011). For example, Lehavy and Sloan (2008) show that the unconditional average quarterly percentage change in institutional ownership for firms is nearly zero from 1982 to 2004, with a mean of 0.10 percent and a median of 0.00. Only in the highest two deciles of firms ranked by changes in institutional ownership is the average greater than 0.29 percent. Therefore, we believe that the economic significance of *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* in explaining $CNII_{t+1}$ is relatively large. The coefficients on the control variables are largely expected and similar to those reported under column (1), except that *LEVERAGE* exhibits no association with future increases in institutional ownership.

Finally, we examine whether changes in analyst interest are related to future changes in trading volume turnover. In Table 3, column (3) the coefficient on *NC_ANALYSTS* is 0.022 and significant (t-stat = 2.13), but the coefficient on *COV_ANALYSTS_ABSENT* is insignificant (t-stat = −0.53). A shift in the value of *NC_ANALYSTS* from the first to the third quartile translates into a 0.84 percent (= 0.022 × 0.38) increase in $CTURNOVER_{t+1}$, or 2.88 percent (= 0.008/0.29) of the interquartile range in $CTURNOVER_{t+1}$. All the control variables exhibit a significant association with the dependent variable and, with one exception (*BTM*), in the predicted direction.

Overall, consistent with our Prediction 2, we find that changes in analyst interest predict subsequent capital market activities. *NC_ANALYSTS* is positively related to future changes in analyst coverage, institutional ownership, and trading volume, whereas *COV_ANALYSTS_ABSENT* is negatively related to future changes in analyst coverage and institutional ownership.

Future Stock Returns

Finally, we examine whether changes in analyst interest predict future stock returns. We first use regression analyses to test the predictive power of $NC\_ANALYSTS_t$ and $COV\_ANALYSTS\_ABSENT_t$ for future stock returns. For each quarterly conference call, we calculate the three-month stock return (*RET*) from month *m*+1 to *m*+3, where *m* is the month during which the conference call occurs. We control for earnings news and common return factors in the following regression model:

$$RET = \beta_0 + \beta_1 NC\_ANALYSTS_t + \beta_2 COV\_ANALYSTS\_ABSENT_t + \beta_3 ENEWS_t + \beta_4 SIZE_t + \beta_5 BTM_t + \beta_6 RET_{m-1,m-11} + \varepsilon. \quad (3)$$

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TABLE 4

Regressions of Future Stock Returns on Analyst Interest Variables

Dependent Variable	Pred. Sign	*RET* (1)	*RET* (2)
Intercept		0.051	0.050
		(1.20)	(1.20)
$NC\_ANALYSTS_t$	+	0.023***	0.023***
		(2.76)	(2.72)
$COV\_ANALYSTS\_ABSENT_t$	−	−0.005**	−0.005**
		(−2.06)	(−2.18)
$ENEWS_t$	+	3.25***	3.27***
		(8.60)	(8.69)
$SIZE_t$		−0.006	−0.006
		(−1.64)	(−1.62)
BTM_t		0.010	0.009
		(0.99)	(0.89)
$RET_{m-11,m-1}$		−0.019	−0.019
		(−1.30)	(−1.34)
$CNAN_t$			−0.012*
			(−1.80)
$CNII_t$			0.014
			(0.79)
$CTURNOVER_t$			0.007
			(0.22)
Adj. R^2		0.054	0.057

*, **, *** Indicate significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a one-tailed test. The Fama and MacBeth (1973) t-statistic is presented in parentheses under the estimated coefficient.

Table 4 presents results of regressions of future stock returns (*RET*) on the number of non-covering analysts ($NC\_ANALYSTS_t$) and covering analysts who are absent ($COV\_ANALYSTS\_ABSENT_t$) from a firm's earnings conference call, as well as on control variables. The coefficient estimates are the average of quarterly estimates over 27 quarters from the third quarter of 2002 to the first quarter of 2009.

Variables not shown below are defined in Appendix A.

Variable Definitions:

RET = measured over a three-month window [*m*+1, *m*+3], where *m* is the month in which a firm's conference call occurred;

NC_ANALYSTS = number of analysts that asked a question on the firm's conference call, but did not cover the firm as of the date of the conference call, scaled by the number of analysts that asked a question on the firm's conference call (*NUMCALLERS*); and

COV_ANALYSTS_ABSENT = number of analysts that covered the firm as of the date of the conference call, did not ask a question on the conference call, but did ask a question on the previous conference call, scaled by *NUMCALLERS*.

All variables are as previously defined. Prediction 3 states that the estimated coefficients on *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* should be positive and negative, respectively.

Table 4 reports the regression results. Column (1) shows that $NC\_ANALYSTS_t$ and $COV\_ANALYSTS\_ABSENT_t$ are positively and negatively, respectively, associated with future stock returns. In column (2) we further control for contemporaneous changes in analyst coverage ($CNAN_t$), institutional ownership ($CNII_t$), and share turnover ($CTURNOVER_t$) under the premise that contemporaneous changes in capital market activities also predict future stock returns and that $NC\_ANALYSTS_t$ and $COV\_ANALYSTS\_ABSENT_t$ are correlated with these variables. Column (2) indicates that both the magnitude and significance of the estimated coefficients on $NC\_ANALYSTS_t$

and $COV\_ANALYSTS\_ABSENT_t$ are not affected by the inclusion of the additional controls. Regarding control variables, *ENEWS* has a statistically positive coefficient, consistent with the positive link between fundamental news and stock returns. The coefficient on *SIZE* is negative and marginally significant, while the coefficients on *BTM* and $RET_{m-1,m-11}$ are statistically insignificant. In sum, these results confirm our conjecture that analyst interest is an early indicator of future stock returns.

Next, we gauge the economic significance of the return results by comparing subsequent three-month stock returns (*RET*) between the top and bottom quartiles of the analyst interest variables. The findings are presented in Table 5, Panel A. *RET* increases monotonically from 1.69 percent in the bottom *NC_ANALYSTS* quartile to 3.56 percent in the top quartile. A return difference of 1.87 percent (t-stat = 3.66) between the top and bottom quartiles is both statistically and economically significant. When partitioning on *COV_ANALYSTS_ABSENT,* we find that *RET* decreases from 3.15 percent in the bottom quartile to 1.48 percent in the top quartile. A return difference of −1.67 percent (t-stat = −2.81) between the top and bottom quartiles is also significant.

Finally, we use a four-factor model to show that the aforementioned return differences are not attributable to common return factors. Since risk factors are available monthly, we match $NC\_ANALYSTS_t$ and $COV\_ANALYSTS\_ABSENT_t$ with stock returns in months m+1, m+2, and m+3, where m is the month of the conference call. For each month, we independently sort the sample into quartiles based on $NC\_ANALYSTS_t$ or $COV\_ANALYSTS\_ABSENT_t$, resulting in four $NC\_ANALYSTS_t$ and four $COV\_ANALYSTS\_ABSENT_t$ portfolios. We calculate portfolio returns, R_{it}, as the average stock returns of firms in each portfolio, and we estimate abnormal returns using the following four-factor model for each portfolio:

$$R_{it} - R_{ft} = a + b_{iM}(R_{Mt} - R_{ft}) + s_i SMB_t + h_i HML_t + m_i MOM_t + \varepsilon_{it}, \quad (4)$$

where $R_{Mt} - R_{ft}$, SMB_t, and HML_t are defined in Fama and French (1996), and MOM_t is the momentum factor defined in Carhart (1997). The four-factor data are from Kenneth French's website (see: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/). The intercept, a, provides an estimate of the monthly abnormal returns earned by each $NC\_ANALYSTS_t$ or $COV\_ANALYSTS\_ABSENT_t$ portfolio, after controlling for these four factors.

Table 5, Panel B summarizes the estimation of Equation (4) for all the portfolios. The intercepts from the four-factor model increase monotonically with $NC\_ANALYSTS_t$ from 0.41 percent for portfolio Q1 to 0.516 percent for portfolio Q4. A hedge portfolio with a long position in Q4 stocks and a short position in Q1 stocks yields a significant abnormal return of 0.475 percent per month or 5.7 percent per year. For the $COV\_ANALYSTS\_ABSENT_t$ portfolios, abnormal monthly returns decrease from 0.219 percent in portfolio Q1 to −0.007 percent in portfolio Q4. A hedge portfolio yields a significant abnormal return of −0.226 percent per month or −2.7 percent per year.

Overall, both regression and portfolio analyses suggest that the analyst interest variables predict future stock returns and that the effects are both economically and statistically significant, consistent with Prediction 3. *NC_ANALYSTS* is positively related to subsequent stock returns, whereas *COV_ANALYSTS_ABSENT* is negatively related to subsequent stock returns.

Testing the Investor Recognition Story after Controlling for Future Fundamentals

As discussed in Section II, the theories of both McNichols and O'Brien (1997) and Merton (1987) suggest that changes in analyst interest predict subsequent capital market activities and future stock returns. Although these two theories are not mutually exclusive, we attempt to shed light on whether Merton's (1987) investor recognition story holds after controlling for future fundamentals. We again note that Merton's (1987) theory has no direct implications for changes in future fundamentals.

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TABLE 5

Portfolio Analysis Based on Analyst Interest Variables

Panel A: Three-Month Returns across Four Quartiles Based on Analyst Interest Variables

Sorted by	Q1	Q2	Q3	Q4	Q4 − Q1
$NC\_ANALYSTS_t$	1.69%	1.71%	2.12%	3.56%	1.87%***
					(3.66)
$COV\_ANALYSTS\_ABSENT_t$	3.15%	1.44%	1.72%	1.48%	−1.67%***
					(−2.81)

Panel B: The Four-Factor Model on Monthly Portfolio Returns Based on Analyst Interest Variables

	Intercept	$R_M - R_f$	*SMB*	*HML*	*MOM*	Adj. R^2
Sorted by $NC\_ANALYSTS_t$						
Q1	0.041	1.042	0.798	0.004	−0.222	0.987
	(0.47)	(43.56)	(19.46)	(0.10)	(−13.68)	
Q2	0.127	1.042	0.637	−0.253	−0.182	0.964
	(0.95)	(28.01)	(9.99)	(−4.33)	(−7.20)	
Q3	0.135	1.100	0.850	0.043	−0.192	0.981
	(1.23)	(35.91)	(16.17)	(0.90)	(−9.23)	
Q4	0.516***	1.098	0.886	0.027	−0.217	0.966
	(3.48)	(26.48)	(12.46)	(0.41)	(−7.72)	
Q4 − Q1	0.475***	0.056	0.088	0.023	0.005	0.069
	(2.78)	(1.30)	(1.65)	(0.34)	(0.07)	
Sorted by $COV\_ANALYSTS\_ABSENT_t$						
Q1	0.219**	1.070	0.910	0.061	−0.175	0.981
	(2.03)	(35.48)	(17.59)	(1.29)	(−8.51)	
Q2	−0.048	1.060	0.738	−0.057	−0.175	0.977
	(−0.43)	(34.26)	(13.90)	(−1.17)	(−8.30)	
Q3	0.043	1.055	0.750	−0.019	−0.240	0.981
	(0.42)	(36.40)	(15.08)	(−0.41)	(−12.17)	
Q4	−0.007	1.082	0.759	0.001	−0.263	0.982
	(−0.09)	(36.43)	(14.90)	(0.02)	(−13.03)	
Q4 − Q1	−0.226**	0.012	−0.151	−0.060	−0.088	0.286
	(−2.24)	(0.12)	(−2.79)	(−1.45)	(−4.98)	

*, **, *** Indicate significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a one-tailed test. The White heteroscedasticity-adjusted t-statistic is presented in parentheses under the coefficient estimate.

Table 5 presents monthly portfolio returns based on sorting observations into quartiles based on $NC\_ANALYSTS_t$ or $COV\_ANALYSTS\_ABSENT_t$ (both defined in Appendix A). Panel A reports raw returns across quartiles, as well as the Q4 − Q1 hedge portfolio. Panel B reports the results of the four-factor model shown in Equation (4). The Intercept represents the monthly excess return for each portfolio, after controlling for four factors (obtained from Kenneth French's website at: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/). As the factor data are monthly, we match $NC\_ANALYSTS_t$ or $COV\_ANALYSTS\_ABSENT_t$ from the conference month m with monthly returns from m+1 to m+3. The sample period in Panel B includes 84 months, from July 2002 to June 2009.

Table 6 reports regression results for future capital market activities and future stock returns after controlling for future fundamentals. In particular, we include future EPS and sales growth (ΔEPS_{t+1} and $SGROWTH_{t+1}$) as additional variables into regression Equations (2) and (3). Panel A shows that the coefficients on *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* are similar to those

TABLE 6

Testing the Firm Fundamentals and Investor Visibility Stories

Panel A: Regression of Future Capital Market Activities after Controlling for Future Firm Fundamentals

Dependent Variable	Pred. Sign	$CNAN_{t+1}$ (1)	$CNII_{t+1}$ (2)	$CTURNOVER_{t+1}$ (3)
$NC\_ANALYSTS_t$	+	0.088***	0.010***	0.023**
		(10.87)	(4.05)	(2.16)
$COV\_ANALYSTS\_ABSENT_t$	−	−0.046***	−0.005***	−0.006
		(−14.52)	(−5.24)	(−1.00)
$CNAN_t$		−0.125***	0.014***	0.014
		(−16.39)	(6.43)	(1.00)
$CNII_t$		0.159***	0.036***	0.215***
		(12.43)	(4.19)	(6.48)
$CTURNOVER_t$		0.002	0.003**	−0.118***
		(1.01)	(2.45)	(−4.70)
$SIZE_t$	−	−0.006***	−0.005***	0.000
		(−6.37)	(−11.91)	(0.13)
ROA_t	+	0.176***	0.114***	0.113
		(6.62)	(7.70)	(1.50)
BTM_t	−	−0.056***	−0.023***	−0.023**
		(−13.09)	(−13.30)	(−2.07)
$LEVERAGE_t$		0.001	0.000	0.016***
		(0.74)	(0.22)	(3.96)
$PASTRET_t$	+	0.095***	0.270***	0.159***
		(7.25)	(42.12)	(2.94)
$VOLATILITY_t$	−	−0.288***	−0.393***	−2.834***
		(−2.71)	(−7.22)	(−5.43)
ΔEPS_{t+1}		−0.022*	0.024***	−0.213***
		(−1.91)	(4.09)	(−3.89)
$SGROWTH_{t+1}$		0.019***	0.016***	0.009
		(6.29)	(7.71)	(0.57)
Intercept		0.128***	0.047***	0.111***
		(9.21)	(8.65)	(2.63)
Year Fixed Effects		Yes	Yes	Yes
n		42,900	43,234	43,266
Adj. R^2		0.047	0.131	0.029

*, **, *** Indicate significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a one-tailed test. The t-statistic is presented in parentheses under the estimated coefficient.

(continued on next page)

reported in Table 3. Likewise, the results presented in Panel B indicate that the predictive powers of *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* for subsequent stock returns remain intact after controlling for ΔEPS_{t+1} and $SGROWTH_{t+1}$. Collectively, these results suggest that Merton's (1987) investor recognition story plays a role in the link between analyst interest and future capital market activities and stock returns.

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TABLE 6 (continued)

Panel B: Regression of Future Stock Returns after Controlling for Future Firm Fundamentals

Dependent Variable	Pred. Sign	*RET* (1)	*RET* (2)
Intercept		0.023	0.023
		(0.56)	(0.56)
$NC\_ANALYSTS_t$	+	0.022***	0.022***
		(2.67)	(2.78)
$COV\_ANALYSTS\_ABSENT_t$	−	−0.006***	−0.006***
		(−2.99)	(−2.89)
ΔEPS_{t+1}	+	0.996***	0.997***
		(7.08)	(6.86)
$SGROWTH_{t+1}$	+	0.057***	0.056***
		(4.84)	(4.99)
$ENEWS_t$	+	3.04***	3.01***
		(6.27)	(6.24)
$SIZE_t$		−0.004	−0.004
		(−1.08)	(−1.07)
BTM_t		0.019**	0.017*
		(2.10)	(1.76)
$RET_{m-11,m-1}$		−0.038**	−0.034**
		(−2.49)	(−2.34)
$CNAN_t$			−0.013**
			(−2.16)
$CNII_t$			−0.014
			(−0.51)
$CTURNOVER_t$			−0.013
			(−0.32)
Adj. R^2		0.088	0.093

*, **, *** Indicate significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a one-tailed test. The Fama and MacBeth (1973) t-statistic is presented in parentheses under the estimated coefficient.
Panel A presents results of regressions of next quarter's change in analyst coverage ($CNAN_{t+1}$), institutional ownership ($CNII_{t+1}$), and trading volume turnover ($CTURNOVER_{t+1}$) on the number of non-covering analysts ($NC\_ANALYSTS_t$) and covering analysts who are absent ($COV\_ANALYSTS\_ABSENT_t$) from a firm's earnings conference call, as well as on control variables. The results are comparable to those presented in Table 3, except that future earnings growth (ΔEPS_{t+1}) and sales growth ($SGROWTH_{t+1}$) are included in the regression to control for changes in future fundamentals. Panel B presents results of regressions of future stock returns (*RET*) on $NC\_ANALYSTS_t$, $COV\_ANALYSTS\_ABSENT_t$, and control variables. The results are comparable to those presented in Table 4, except that future earnings growth (ΔEPS_{t+1}) and sales growth ($SGROWTH_{t+1}$) are included in the regression to control for changes in future fundamentals.
All variables are defined in Appendix A.

V. ALTERNATIVE EXPLANATIONS AND ROBUSTNESS TESTS

Alternative Explanation: Confounding Information

Confounding information, such as industry news or information released to the market by a given firm, may cause analysts to become interested in that firm. For example, if the first reporting firm in an industry beats earnings expectations substantially due to an industry shock, then analysts will flock to the next firm's call to understand how the shock will manifest. In this case, news from

another firm may be driving analyst interest, future firm fundamentals, and stock returns.[21] To address this concern, we have included *PASTRET* as a control variable in Tables 2 and 3, where *PASTRET* is stock return over the past three months up to the conference call date. In the return tests reported in Table 4, we follow the literature and use the standard 11-month stock returns, $RET_{m-11,m-1}$, to proxy for price momentum. To check the sensitivity of the return results, we add size-adjusted *PASTRET* as an additional control variable. Results (not tabulated) are qualitatively similar to those presented in Table 4. Specifically, the t-statistic of the coefficient on *NC_ANALYSTS* is slightly stronger while the t-statistic of the coefficient on *COV_ANALYSTS_ABSENT* is slightly weaker, relative to the models without *PASTRET*.

Alternative Explanation: Upward Trend in Conference Call Likelihood and Coverage

Another alternative explanation is that there is an upward trend in conference call data (see Table 1, Panel A) and our results could be driven by observations from only a few years. We investigate this possibility using a relatively stable subsample. In particular, we require each firm to have data for at least 21 quarters out of our 27-quarter sample period (more than 75 percent of the quarters). The resultant subsample has 35,554 firm-quarter observations, compared to 55,565 observations in our full sample. The results from this reduced sample are qualitatively similar to those shown in Tables 2 through 5. For example, compared to the results shown in Table 5, Panel A, the abnormal returns on the Q4 − Q1 hedge portfolio when sorted by $NC\_ANALYSTS_t$ is 1.84 percent (t-stat = 3.63), compared to 1.87 percent (t-stat = 3.66) for the full sample. We also investigate the time-series pattern of our results to check whether they are driven by a few years. In Figure 1, we plot the average yearly coefficient on $NC\_ANALYSTS_t$ and $COV\_ANALYSTS\_ABSENT_t$ in Equation (3). We find that the $NC\_ANALYSTS_t$ effect is positive every year and, except for 2002, the magnitudes of the coefficients are comparable. The coefficient on $COV\_ANALYSTS\_ABSENT_t$ is negative every year except 2005 and the magnitudes are comparable. Overall, we conclude that the effect of our analyst interest variables is consistent over time.

Alternative Explanations: Microstructure Effects and Investor Overreaction

We consider market microstructure effects and investor overreaction as alternative explanations to our return results. Under the microstructure story, firms with changes in market interest, as reflected in changes in analyst coverage and institutional ownership, have sharp stock price movements because of the limited supply of the firm's stock. Such price changes will reverse quickly, suggesting a negative (positive) correlation between $NC\_ANALYSTS_t$ ($COV\_ANALYSTS\_ABSENT_t$) and stock returns in later quarters. Under the investor overreaction story, investors and analysts overreact to firm fundamental information, resulting in a temporary change in analyst interest and stock prices. This story also suggests a negative (positive) correlation between $NC\_ANALYSTS_t$ ($COV\_ANALYSTS\_ABSENT_t$) and stock returns in later quarters. To examine these two alternative explanations, we test (using regression Equation (3)) whether $NC\_ANALYSTS_t$ and $COV\_ANALYSTS\_ABSENT_t$ are correlated with stock returns from month m+4 to month m+6 (RET_{q+2}) and from month m+7 to month m+9 (RET_{q+3}), where m is the month in which the conference call occurs. If either story is true, then we should find a negative coefficient on $NC\_ANALYSTS_t$ and a positive coefficient on $COV\_ANALYSTS\_ABSENT_t$. Table 7, Panel A reports the results; the coefficient on $NC\_ANALYSTS_t$ remains statistically positive in the RET_{q+2} regression and becomes marginally positive in the RET_{q+3} regression, inconsistent with a reversal effect. In contrast, the coefficient on $COV\_ANALYSTS\_ABSENT_t$ is marginally positive in the RET_{q+2}

[21] We thank an anonymous reviewer for this suggestion.

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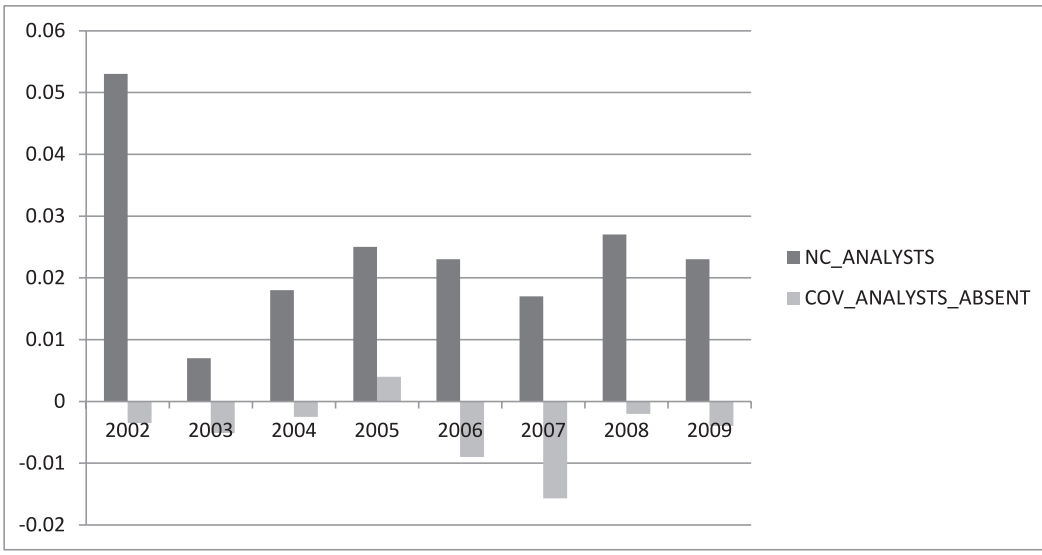
FIGURE 1
The Time-Series Pattern of the Coefficients on *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT*



This figure charts the average quarterly coefficients on *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* in regression Equation (3) for each year in the sample period. For each quarter, we run the regression of future three-month stock return (*RET*) on *NC_ANALYSTS, COV_ANALYSTS_ABSENT*$_t$, *ENEWS, SIZE, BTM,* and $RET_{m-11,m-1}$ (Model 1 of Table 4).

All variables are defined in Appendix A.

regression, suggesting a small reversal, while the coefficient is negative and insignificant in the RET_{q+3} regression. Overall, we find that neither microstructure effects nor investor overreaction drive our main return results, especially for those documented with increases in analyst interest (*NC_ANALYSTS*$_t$).

Robustness Check: Subsamples Based on Information Environment

We partition our sample into three groups based on the number of analysts covering the firm (*NAN*$_t$) to examine whether the effects of analyst interest are stronger for firms with poorer information environments. The results are presented in Table 7, Panel B; the coefficients on *NC_ANALYSTS*$_t$ are statistically positive across all terciles, but statistical significance declines monotonically from the bottom to the top tercile. As for *COV_ANALYSTS_ABSENT*$_t$, the coefficients are significantly negative in the bottom and middle terciles and insignificant in the top tercile. Statistical significance also declines monotonically from the bottom to the top tercile. When performing statistical tests for coefficient estimates across terciles, we find that *COV_ANALYSTS_ABSENT*$_t$ has significantly more negative coefficients in the bottom tercile than in the other two terciles, while the differences in coefficients on *NC_ANALYSTS*$_t$ are statistically insignificant across three terciles. Overall, the evidence weakly supports the idea that the predictive power of analyst interest variables on future returns is stronger for neglected firms.

TABLE 7

Robustness Checks: Regressions of Future Stock Returns

Panel A: Regressions of Subsequent Stock Returns by Different Windows

Dependent Variable:	(1) RET_{q+1} (as Reported in Column (2) of Table 4)	(2) RET_{q+2} (Two-Quarter -Out Returns)	(3) RET_{q+3} (Three-Quarter -Out Returns)
Intercept	0.050	0.045	0.087
	(1.20)	(1.03)	(1.73)
$NC\_ANALYSTS_t$	0.023***	0.014**	0.010*
	(2.72)	(1.75)	(1.43)
$COV\_ANALYSTS\_ABSENT_t$	−0.005***	0.003*	−0.003
	(−2.18)	(1.39)	(−1.11)
$ENEWS_t$	3.27***	0.144	−0.114
	(8.69)	(0.64)	(−0.31)
$SIZE_t$	−0.006	−0.005	−0.007
	(−1.62)	(−1.27)	(−1.74)
BTM_t	0.009	0.001	−0.011
	(0.89)	(0.14)	(−1.13)
$RET_{m-11,m-1}$	−0.019	−0.040	−0.034***
	(−1.34)	(−1.60)	(−2.65)
$CNAN_t$	−0.012*	−0.006	−0.006
	(−1.80)	(−0.95)	(−0.76)
$CNII_t$	0.014	−0.008	0.000
	(0.79)	(−0.45)	(0.02)
$CTURNOVER_t$	0.007	0.053	0.016
	(0.22)	(1.25)	(0.58)
Adj. R^2	0.057	0.032	0.033

Panel B: Regressions of Subsequent Three-Month Stock Returns (*RET*) by Analyst Coverage

	Pred. Sign	Bottom NAN_t Tercile		Middle NAN_t Tercile		Top NAN_t Tercile	
		(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.138**	0.135**	0.028	0.031	0.033	0.031
		(2.01)	(2.01)	(0.61)	(0.68)	(0.98)	(0.95)
$NC\_ANALYSTS_t$	+	0.021***	0.020**	0.021**	0.024*	0.025*	0.024*
		(2.33)	(2.18)	(1.88)	(1.58)	(1.57)	(1.52)
$COV\_ANALYSTS\_ABSENT_t$	−	−0.015**	−0.015**	−0.004*	−0.005*	−0.002	−0.002
		(−2.14)	(−2.17)	(−1.39)	(−1.52)	(−1.01)	(−0.96)
$ENEWS_t$	+	2.96***	3.02***	4.47***	4.49***	3.64***	3.77***
		(5.59)	(5.76)	(6.51)	(6.54)	(6.16)	(6.07)
$SIZE_t$		−0.019**	−0.019**	−0.003	−0.004	−0.003	−0.003
		(−2.40)	(−2.34)	(−0.75)	(−0.81)	(−1.02)	(−1.00)
BTM_t		0.012	0.008	0.009	0.009	−0.006	−0.006
		(0.90)	(0.58)	(0.66)	(0.69)	(−0.55)	(−0.54)
$RET_{m-11,m-1}$		−0.016	−0.017	−0.015	−0.011	−0.014	−0.014
		(−1.36)	(−1.25)	(−0.89)	(−0.75)	(−0.86)	(−0.89)

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TABLE 7 (continued)

	Pred. Sign	Bottom NAN_t Tercile		Middle NAN_t Tercile		Top NAN_t Tercile	
		(1)	(2)	(3)	(4)	(5)	(6)
$CNAN_t$			−0.003		−0.022*		−0.000
			(−0.29)		(−1.72)		(−0.03)
$CNII_t$			0.004		−0.008		0.025
			(0.12)		(−0.28)		(0.77)
$CTURNOVER_t$			−0.021		0.043		−0.005
			(−0.30)		(0.88)		(−0.19)
Adj. R^2		0.060	0.062	0.060	0.068	0.057	0.060

*, **, *** Indicate significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively, using a one-tailed test. The Fama and MacBeth (1973) t-statistic is presented in parentheses under the estimated coefficient.
Panel A presents results of regressions of future stock returns (*RET*) on the number of non-covering analysts ($NC\_ANALYSTS_t$) and covering analysts who are absent ($COV\_ANALYSTS\_ABSENT_t$) from a firm's earnings conference call, as well as on control variables. The results are comparable to those presented in Table 4, except that in columns (2) and (3), stock returns are measured over the three-month windows [m+4, m+6] and [m+7, m+9], respectively, where m is the month in which a firm's conference call occurred. Panel B presents results of regressions of future stock returns (*RET*) on $NC\_ANALYSTS_t$, $COV\_ANALYSTS\_ABSENT_t$, and control variables. The results are comparable to those presented in Table 4, except that the sample is partitioned into terciles based on firms' level of analyst coverage (NAN_t) prior to the conference call date.
All variables are defined in Appendix A.

Robustness Check: The Effect of Transaction Costs

While our analyses of returns show that changes in analyst interest predict future stock returns and predictive power is stronger for neglected stocks, we do not take into account transaction costs. Transaction costs include the bid-ask spread, commissions paid to a broker, and the price impact of the buy or sell order. Broker commissions have been declining over the past 15 years, with many discount brokers offering very low or even zero commissions for an unlimited number of shares per trade. The price impact depends on the trade size and can be substantial for large trades of small-cap stocks. Our conversation with a portfolio manager indicates that total transaction costs are about 15 basis points for large-cap stocks and 70 basis points for small-cap stocks (Russell 2000) for a portfolio of $500 million. As institutional investors typically incorporate multiple signals in their trading strategies (e.g., 10–12 signals in our portfolio manager's case), transaction costs are shared by these multiple signals, further lowering the transaction costs to implement the strategies. Within this context, we surmise that transaction costs can reduce the profitability of the *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* strategies if traded alone, and that the strategies are potentially profitable only to institutional investors with low transaction costs and careful execution. However, *NC_ANALYSTS* and *COV_ANALYSTS_ABSENT* can add significant value to a portfolio that trades on multiple signals and spreads transaction costs across these signals.

Robustness Check: IPO Firms and Fourth-Quarter Effects

We examine whether the positive association between *NC_ANALYSTS* and future analyst coverage is driven by firms that recently had an IPO. Relative to firms that have been public for many years, recent IPO firms may exhibit larger sequential increases in analyst participation in conference calls and analyst initiations during the first few quarters after their IPOs. We repeat our analysis after excluding all firm-quarters where a firm's IPO occurred within the past 12 months, which reduces the sample size by 5,394 firm-quarters (10 percent of total firm-quarters). We find

that the results (not tabulated) and inferences are virtually unchanged from the main results discussed in Section IV.

We also examine whether there is a fourth-quarter effect driving our main results. It is possible that analyst interest in a firm's fourth fiscal quarter is higher because results are aggregated for the full year, news is delayed until the fourth quarter (Mendenhall and Nichols 1988), or analysts can ask questions about the next fiscal year. We investigate this possibility and its potential influence on the main results in two ways. First, we compute the mean and median number of analysts who ask a question during a conference call by quarter. We find that the mean is 5.1 and median is 5.0 in the fourth quarter, the same as in each of the first three quarters. Thus, it does not appear that the average level of analyst interest is significantly different in the fourth or any other quarter. Second, we rerun regression Equations (1) through (3) with the inclusion of quarter fixed effects and find that the results are very similar to those shown in Section IV. In summary, we believe that our main results are not driven by fourth-quarter effects.

VI. CONCLUSION

In this study, we posit that analyst interest is an early indicator of a firm's future fundamentals, capital market activities, and stock price movements. Changes in analyst interest capture changes in firm fundamentals that are not yet reflected in financial statements. Our measure of increasing analyst interest in a firm is based on non-covering analysts who participate in the firm's earnings conference calls, which we argue is an observable aspect of analysts' due diligence prior to coverage initiations. Conversely, our measure of decreasing analyst interest (or disinterest) is based on covering analysts who are absent from the firm's conference calls.

We find that increases in analyst interest are positively associated with future fundamental changes, such as earnings growth and sales growth, after controlling for observable financial statement variables and other determinants. Increases in analyst interest are also positively associated with future capital market activities, such as analyst coverage, institutional ownership, and trading volume turnover. In contrast, we find weaker results based on decreases in analyst interest, which we attribute to greater noise in our measure of analyst disinterest. In our analyses of future stock returns, we show that both increases and decreases in analyst interest predict stock returns over the next three months and that a hedge portfolio yields a significant abnormal return. Overall, our study shows that analyst interest is a novel and early indicator of future firm fundamentals and capital market consequences. Our focus on analyst interest prior to coverage decisions (i.e., due diligence) also contributes to our general understanding of the role that analysts play in the capital markets.

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APPENDIX A

Definitions of Variables

Variable	Definition	Data Source
NUMCALLERS	Number of analysts that asked a question on the firm's conference call.	Thomson StreetEvents
NC_ANALYSTS	Number of analysts that asked a question on the firm's conference call, but did not cover the firm as of the date of the conference call, scaled by *NUMCALLERS*.	Thomson StreetEvents
COV_ANALYSTS	Number of analysts that asked a question on the firm's conference call and covered the firm as of the date of the conference call, scaled by *NUMCALLERS*.	Thomson StreetEvents
COV_ANALYSTS_ABSENT	Number of analysts that covered the firm as of the date of the conference call, did not ask a question on the conference call, but did ask a question on the previous conference call, scaled by *NUMCALLERS*.	Thomson StreetEvents
ΔEPS	Seasonal difference in earnings per share (diluted) excluding extraordinary items, scaled by the firm's stock price on the last day of the fiscal quarter ended prior to the conference call.	Compustat
SGROWTH	Seasonal percentage change in quarterly sales.	Compustat
NAN	Number of analysts that covered the firm as of the date of the conference call, defined as the number of analysts that issued an earnings estimate any time between the previous conference call date and one day before the conference call.	I/B/E/S

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APPENDIX A (continued)

Variable	Definition	Data Source
CNAN	Percentage change in the number of analysts that covered the firm, defined as the number of analysts that issued an earnings forecast any time between the date of the conference call and the next conference call, divided by *NAN*, minus one.	I/B/E/S
NII	Number of institutions that owned the firm's stock as of the most recent calendar quarter ended prior to the conference call.	Thomson Reuters 13F Database
CNII	Percentage change in the number of institutions that owned the firm's stock from the calendar quarter ended prior to the conference call to the calendar quarter ended after the conference call.	Thomson Reuters 13F Database
CTURNOVER	Change in average daily turnover (volume divided by shares outstanding) from the 90 days before to the 90 days after the conference call, expressed in percentage terms.	CRSP
RET	Return over the three-month period [m+1, m+3], where m is the month in which the conference call occurs.	CRSP
SIZE	Natural logarithm of the market value of equity, measured as of the most recent fiscal quarter ended prior to the conference call.	Compustat
ROA	Income before extraordinary items divided by total assets, measured as of the most recent fiscal quarter ended prior to the conference call.	Compustat
BTM	Book value of equity divided by market value of equity, measured as of the most recent fiscal quarter ended prior to the conference call.	Compustat
LEVERAGE	Book value of debt divided by book value of equity, measured as of the most recent fiscal quarter ended prior to the conference call.	Compustat
PASTRET	Size-adjusted return (raw return less return of the corresponding size decile) for the period [−91, −1] where day 0 is the date of the conference call.	CRSP
VOLATILITY	Standard deviation of daily size-adjusted returns for the period [−91, −1] where day 0 is the date of the conference call.	CRSP
$ENEWS_t$	Actual reported EPS for quarter t minus the corresponding mean consensus forecast prior to the conference call, scaled by stock price on the consensus forecast date.	I/B/E/S
$RET_{m-1,m-11}$	Past 11-month return from month m−11 to month m−1, where m is the month in which the conference call occurred.	CRSP

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