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The effect of analysts on the market response to earnings announcements

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THE EFFECT OF ANALYSTS ON THE MARKET RESPONSE TO EARNINGS ANNOUNCEMENTS

by

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CERTIFICATE OF APPROVAL

PH.D. THESIS

This is to certify that the Ph.D. thesis of

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has been approved by the Examining Committee for the thesis requirement for the Doctor of Philosophy degree in Business Administration at the August 2016 graduation.

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I would like to dedicate this doctoral thesis to my mother, Audrey Small, who, since childhood, has been my teacher and mentor, constantly challenging me to seek after truth.

I also wish to dedicate this thesis to the memory of my father, Randolph Small. Because of his sacrifices, I was able to pursue my dreams.

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ABSTRACT

I examine the effect analysts have on the price response to earnings announcements. To address this question, I exploit an exogenous shock to analyst coverage to show that, following the loss of an analyst, the market reaction to earnings announcements decreases. In cross-sectional analyses, I show that the magnitude of the negative effect is *decreasing* in information asymmetry and the likelihood that a firm's earnings are used more for contracting purposes. I further show that the magnitude of the negative effect is *increasing* in the readability of the financial statements and financial reporting comparability. This study contributes to the literature by providing a deeper understanding of the effect analysts have on the pricing of information contained in earnings announcements. As such, the results of this study should be of interest to regulators, researchers, and investors.

PUBLIC ABSTRACT

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1. Introduction

This paper examines the effect analysts have on the price response to earnings announcements. Analysts conduct a variety of activities that have differing implications regarding the price response to earnings announcements. For example, one of their functions is their role in discovering and reporting information about the firms they cover. Information discovery prior to an earnings announcement reduces the amount of unexpected earnings or "earnings surprise" at the time of an earnings announcement (e.g., Kelly and Ljungqvist, 2012). *Ceteris paribus*, a lower earnings surprise should result in a smaller price response at the earnings announcement date. An exogenous reduction in analysts reduces the amount of information discovery, thereby increasing the 'news' included in the earnings release. Thus, we would expect to see a greater price response to earnings announcements following the loss of an analyst.

However, analysts also extract and disseminate important statistics about the firms they cover in their trading recommendations, industry reports, and firm analyses (e.g., Bloomfield, 2002; Ramnath et al., 2008; Brown et al., 2014). These activities reduce information asymmetry and the extraction costs borne by investors and could result in a larger price response at the time of an earnings announcement, particularly if investors are prone to underreact to earnings news (e.g., Kelly and Ljungqvist, 2012; Lys and Sohn, 1990; Ball and Bartov, 1996). An exogenous reduction in analysts increases information asymmetry and the extraction costs borne by investors. Thus, we would expect to see a muted price response to earnings announcements following the loss of an analyst. Therefore, *ex ante*, it is unclear what effect, on average, a change in analyst coverage will have on the price response to earnings announcements.

Prior empirical studies investigating the effect of analyst coverage on the market reaction to earnings announcements have shown mixed results. Dempsey (1989) and Shores (1990) find that the market reaction to earnings announcements tends to be lower for firms with greater analyst coverage, consistent with analysts preempting the information contained in earnings announcements through information discovery. In contrast, more recent studies have concluded that analysts do not preempt the information contained in earnings announcements. Francis et al. (2002) find a positive association between the market reaction to quarterly earnings announcements and the informativeness of analyst research reports, suggesting that analysts do not preempt information in firms' earnings announcements. Using an alternative measure of financial statement informativeness derived from the fitted residuals from a pooled cross-sectional regression of prices on the book values of shareholders' equity and earnings using data from the prior five years, Frankel et al. (2006) find a positive association between the informativeness of analysts' reports and the informativeness of financial statements.

One possible explanation for the mixed results in prior empirical studies is the endogenous nature of analyst coverage (Lang and Lundholm, 1996). Firms with high information asymmetry could attract more analysts, who observe an opportunity to provide new information to the market. An increase in information discovery due to greater analyst coverage would lead to a smaller price response due to a smaller earnings surprise at the time of the earnings announcement. Alternatively, firms with lower information asymmetry could attract more analysts, who are drawn by the amount of information available regarding the covered firm. In this case, the analyst does not compete with the firm by preempting the information contained in earnings announcements. Rather, her focus in on extracting important statistics and disseminating that information to investors, thereby leading to a larger market reaction around the earnings announcement.

An ideal test regarding the effect that analysts have on the price response to earnings announcements would involve the random assignment of analyst coverage. I use an exogenous shock to the number of analysts covering a firm, which approximates a randomized shock to analyst coverage. Specifically, I use two natural experiments identified in the extant literature, namely, brokerage closures and brokerage mergers (Kelly and Ljungqvist, 2012; Hong and Kacperczyk, 2010). Both brokerage closures and brokerage mergers cause analysts to be terminated for reasons highly unlikely to be related to characteristics of the firms covered by the brokerage. Using these closures and mergers as a shock to analyst coverage also helps deal with the omitted variable problem by allowing multiple shocks to affect different firms at different times. As such, these closures and mergers provide a powerful setting that helps address the issue of endogeneity in assessing the impact of analysts on the price response to earnings announcements.

If analysts' information discovery activities preempt the information contained in earnings announcements, the loss of an analyst should result in a larger earnings surprise at the time of the earnings announcement. This predicts that the price response to earnings announcements should *increase* following the loss of an analyst. On the other hand, if the effect of analysts' role in extracting important statistics and disseminating those to investors dominates, the market reaction to an earnings announcement should *decrease* following the loss of an analyst.

I test these predictions in two ways. First, I compare the price response to earnings announcements of treatment firms prior to the shock to the price response to earnings announcements of treatment firms after the shock. In this design, each firm is used as its own control to minimize the potential confounding effect of cross-sectional variation in the market response to earnings announcements. Second, I construct a sample of control firms matched on year, industry, and size, thereby allowing me to use a difference-in-differences design. [1] Comparing the change in the price response to earnings announcements for treatment firms to the change in the price response to earnings announcements for a control sample helps rule out other contemporaneous changes that might explain the effect for the treatment firms. Similar to Francis et al. (2002), I measure the price response to earnings announcements using the absolute abnormal return (AAR) on the 3-day window centered on the earnings announcement date.[2] As a starting point, I use 43 brokerage closures and mergers identified in Kelly and Ljungqvist (2012) between 2000 and 2008 resulting in 1,201 coverage terminations with sufficient data availability.

Under both approaches, I find that the price response to earnings announcements *decreases* following the loss of an analyst. Specifically, when each firm is used as its own control, I find that the loss of an analyst results in a 10.50% decrease in the price response to earnings announcements. By contrast, I find that control firms exhibit a statistically insignificant decrease of 0.81%. In cross-sectional analyses, I find that the magnitude of the negative effect is *decreasing* in information asymmetry. That is, while the loss of an analyst on average *reduces* the market response to earnings announcements,

[1] I use "year" to refer to fiscal year throughout the study.

[2] As Francis et al. (2002) note, in this context, absolute abnormal returns are preferred to other market response measures such as signed abnormal returns or earnings response coefficients.

this negative effect is mitigated by information asymmetry, consistent with analysts playing more of an information discovery role when information asymmetry is greater. Similarly, I find that the magnitude of the negative effect on the market response to earnings announcement due to the loss of an analyst is decreasing in the likelihood that a firm's earnings are used more for contracting purposes. On the other hand, I find that magnitude of the negative effect is *increasing* in the readability of a firm's financial statements and financial reporting comparability, consistent with readability and financial reporting comparability reducing the need for analysts to generate information to compete with the information provided by firms in their earnings announcements.

This study makes several key contributions to the existing literature. First, this study provides evidence that analysts increase the price response to news, consistent with the findings of Gleason and Lee (2003). Most prior studies simply document an association between levels of earnings informativeness and analyst coverage or the informativeness of analyst research (e.g., Dempsey, 1989; Francis et al., 2002; Frankel et al., 2006). Such levels studies are susceptible to the possibility of correlated omitted variables, which renders their results difficult to interpret. In contrast, exogenous shocks that change the amount of analyst coverage and, by extension, the amount of analyst research, provide a more powerful setting in which to examine the relation between analysts and the price response to earnings announcements. My evidence that the price response to earnings announcements decreases following the loss of an analyst provides stronger support that analysts have a causal effect on the pricing of information contained in earnings announcements. Second, this study provides additional evidence regarding the conditions under which analysts are more (less) likely to increase the market reaction to earnings announcements. Finally, this study contributes to a growing body of literature that uses brokerage closures and mergers resulting in a reduction in analyst coverage as exogenous shocks to firms' information environment. This literature has studied the impact of coverage reductions on asset pricing (Kelly and Ljungqvist, 2012), corporate investment and financing policies (Derrien and Kecskes, 2013), corporate governance (Chen et al., 2015), and voluntary disclosure (Balakrishnan et al., 2015).

The rest of the paper is organized as follows. Section 2 reviews prior literature and develops the hypotheses. Section 3 describes the sample and methodology. Section 4 presents descriptive statistics and results of the empirical tests. Section 5 conducts supplemental analyses and Section 6 concludes.

2. Prior Research and Hypotheses Development

2.1. Prior Research

Theory suggests that pre-disclosure information is inversely related to investors' reliance on a subsequent public disclosure provided by the firm. Holthausen and Verrecchia (1988) analyze price changes at public announcements in a two-period model. In their model, investors possess only public information and thus have homogeneous beliefs. The authors show that the price reaction to an announcement, on average, is decreasing in the amount of preannouncement information.

Kim and Verrecchia (1991) investigate trading volume and price reactions to public announcements. Similar to Holthausen and Verrecchia (1988), the authors use a two-period rational expectations model in which traders achieve their optimal portfolios prior to the announcement by trading on what each knows prior to the public announcement. The public announcement of information changes traders' beliefs, inducing them to engage in a new round of trade. The authors show that, at the time of the announcement, the price change is proportional to the unexpected portion of the announcement. Additionally, they show that both the expected volume and the price change are decreasing functions of the amount of preannouncement information.

Demski and Feltham (1994) use a rational expectations model in which traders can privately acquire a costly signal providing imperfect information about a public report to be issued at the second date. They show price changes around an earnings announcement depend on the extent to which information contained in the public release has already been impounded in price as a result of prior information. If analysts preempt the information contained in earnings announcements, these models suggest that the price reaction around earnings announcements should be decreasing in analyst coverage.

Bloomfield (2002) proposes an alternative to the Efficient Markets Hypothesis (EMH), namely the "Incomplete Revelation Hypothesis" (IRH). The EMH states that market prices fully reflect all publicly available information. According to the IRH, statistics that are more costly to extract from public data are less completely revealed in market prices. The association is driven by the following logic: 1) statistics that are more costly to extract from publicly-available information drive less trading interest and 2) statistics that drive less trading interest are less completely revealed by market prices. Prices in noisy rational expectations models react completely to a statistic only if all market participants base their trading strategies on that statistic. As long as opportunity costs keep some investors from basing trading decisions on earnings, the IRH predicts that markets will incompletely reveal earnings information. The IRH has important implications regarding the effect analysts might have on the market response to public disclosures by firms such as earnings announcements. Specifically, if analysts play a significant role in the extraction and dissemination of important earnings statistics, then according to the IRH, the price reaction around earnings announcements should be increasing in analyst coverage.

Early empirical studies (e.g., Dempsey, 1989; Shores, 1990) show that the market reaction to earnings announcements tends to be lower for firms with greater analyst coverage, consistent with analysts preempting the information contained in earnings announcements. More recent studies have found contradictory results. Francis et al. (2002) examine whether analyst reports reduce the earnings informativeness. They find that the AAR for analyst reports is *positively* associated with the AAR for the earnings announcements. They find a similar positive relationship between current period earnings announcements and the subsequent year analyst reports, concluding that their findings are consistent with analyst reports "complementing" rather than preempting the information contained in earnings announcements. However, lacking a theoretical justification for their findings, the authors stress that the exact explanation for their findings remains an open question.

Frankel et al. (2006) examine the cross-sectional determinants of the informativeness of analyst research as measured by their effect on stock prices. They find that analysts' reports are informative and that the information environment affects the informativeness of analyst reports. Most relevant for this study, the authors find a complementary relation between the informativeness of analyst research and the informativeness of accounting numbers using the strength of the contemporaneous association between security prices and accounting earnings as an indicator of the informativeness of accounting numbers. In summary, prior research suggests two possible effects that analysts have on the price response to earnings announcements. As such, whether analysts increase or decrease the price response to earnings announcements remains an open question.

2.2. Hypotheses

One possibility for the mixed results in prior empirical studies is the endogenous nature of analyst coverage. For example, greater analyst coverage could reduce information asymmetry and lead to a stronger price response to earnings announcements. However, firms with lower information asymmetry could attract more analysts. Prior literature has documented the fact that analyst coverage, and, by extension, analyst research, is endogenous. Analysts choose those companies they follow based on a number of factors including future firm prospects (McNichols and O'Brien, 1997), personal prestige (Hong and Kubik, 2003), and brokerage business opportunities (Scherbina, 2008). Analysts could also choose the companies they follow based on the level of information asymmetry. This makes any documented association between analyst coverage and the market response around earnings announcements difficult to interpret.

An ideal test regarding the effect that analysts have on the price response to earnings announcements would involve the random assignment of analyst coverage. Ball (2008) notes that the cleanest research design "involves locating genuinely exogenous shocks to the system, and tracing their effects." In light of the endogenous nature of analyst coverage and mixed empirical results documented in prior literature, I exploit an exogenous shock resulting in the loss of an analyst to provide evidence regarding the effect analysts have on the price response to earnings announcements.

Analysts conduct a variety of activities that have differing implications regarding the price response to earnings announcements. One of their functions is related to discovering and reporting information about the firms they cover. Information discovery related to subsequent earnings announcements reduces the amount of unexpected earnings or "earnings surprise" at the time of an earnings announcement. Kelly and Ljungqvist (2012) find that consensus earnings surprise increases following a decrease in analyst coverage. *Ceteris paribus*, a larger earnings surprise should result in a greater price response at the earnings announcement date. Following the loss of an analyst, the amount of new information in firms' earnings announcements not already reflected in a firm's stock price would be greater, resulting in a greater market response at the time of the earnings announcement. Hence, if the effect of the role that analysts play in the discovery and reporting of information dominates, then I predict the following when firms experience a reduction in analyst coverage:

> ***H1a:*** *Following an exogenous reduction in analyst coverage, the price response to earnings announcements increases.*

In addition to providing pre-announcement information that shapes earnings expectations, analysts also generate trading recommendations, industry reports, and firm analyses and disseminate this information to investors (e.g., Ramnath et al., 2008; Brown et al., 2014). In this role, they assist investors in interpreting and understanding the pricing implications of the news contained in earnings announcements, thereby reducing the cost of extracting important statistics otherwise borne by investors (Bloomfield, 2002). These activities can reduce information asymmetry and potentially result in a larger price response at the time of an earnings announcement, particularly if investors are prone to underreact to earnings news (e.g., Kelly and Ljungqvist, 2012; Lys and Sohn, 1990; Ball and Bartov, 1996). Gleason and Lee (2003) provide evidence that the price adjustment process is faster and more complete for firms with greater analyst coverage. Therefore, if analysts extract important statistics and disseminate this information to investors, we would expect the price response to earnings announcements to *decrease* following the loss of an analyst. Stated formally (in the alternative form):

> ***H1b:*** *Following an exogenous reduction in analyst coverage, the price response to earnings announcements decreases.*

Finally, it could also be the case that, on average, the effects of analysts (i) preempting the news contained in earnings announcements and (ii) extracting and disseminating important statistics contained in earnings announcements could offset. In this case, we would expect an exogenous reduction in analyst coverage to have no observable effect on the price response to subsequent earnings announcements.

While theory predicts that an exogenous reduction in analyst coverage could have an effect on the market response to earnings announcements, there should be no change in the market reaction to earnings announcements for firms that do not experience a shock to analyst coverage, provided the exogenous reduction in analyst coverage is causing the change in the market response. Stated formally (in the alternative form):

> ***H2:*** *For firms that do not experience an exogenous reduction in analyst coverage, there is no change in the price response to earnings announcements.*

2.3. Cross-Sectional Hypotheses

In addition to my main hypotheses, I also examine several factors that could attenuate or strengthen the effect that analysts have on the price response to earnings announcements. As previously discussed, the market response to earnings announcements is decreasing (increasing) in information discovery (extraction and dissemination of important statistics). Therefore, firm characteristics that are likely to alter the demand for the types of activities analysts engage in should, likewise, alter the strength of the treatment effect.

2.3.1 Information Asymmetry

When there is greater information asymmetry between insiders and investors, analysts' activities are likely to focus more on information discovery. Consistent with this notion, I predict that analysts are more (less) likely to engage in information discovery activities when there is more (less) information asymmetry between insiders and investors. Hence, my third hypothesis (stated in the alternative form) is the following:

H3: *The magnitude of the negative (positive) effect of an exogenous reduction on* *the price response to earnings announcements is decreasing (increasing) in information asymmetry.*

Since 1998, the SEC has continued to emphasize its plain English initiative. The general concern is that jargon and legalese inhibit real disclosure because investors cannot adequately understand the language. A growing body of literature within accounting and finance (e.g., Li, 2008; Biddle et al., 2009; Lehavy et al. (2011); Loughran and McDonald, 2011, 2014) has examined the causes and consequences associated with the readability of a firm's financial statements. Building on this literature, I posit that when the financial statements of a firm inhibit real disclosure due to a lack of readability or use of legalese, investors are likely to turn to other sources of information, such as analyst reports, thereby leading to greater demand for analysts to fill this informational void. Consistent with this reasoning, I predict that analysts are more (less) likely to engage in information discovery activities when there is less (more) financial statement readability. Hence, my fourth hypothesis (stated in the alternative form) is the following:

> ***H4:*** *The magnitude of the negative (positive) effect of an exogenous reduction on the price response to earnings announcements is increasing (decreasing) in financial statement readability.*

2.3.2 Financial Reporting Comparability

When a firm's financial reporting is comparable to that of other firms, investors can use the financial statements of other firms to acquire useful information regarding the firm of interest. The findings of DeFranco et al. (2011) suggest that financial statement comparability increases the overall quantity and quality of information available to analysts about the firm. Accordingly, I posit that for firms with greater financial reporting comparability, there is less need for analysts to engage in information discovery.

Therefore, I predict that analysts are less (more) likely to engage in providing new information to the market when there is more (less) financial reporting comparability. Hence, my fifth hypothesis (stated in the alternative form) is as follows:

> ***H5:*** *The magnitude of the negative (positive) effect of an exogenous reduction on the price response to earnings announcements is increasing (decreasing) in financial reporting comparability.*

2.3.3 Contracting Role of Earnings

Under U.S. GAAP, earnings serve to facilitate both the efficient allocation of capital and efficient contracting (Kothari et al., 2010). Healy and Palepu (2001, p. 407) state, “Information and incentive problems impede the efficient allocation of resources in a capital market economy. Disclosure and the institutions created to facilitate credible disclosure between managers and investors play an important role in mitigating these problems.” Thus, according to the efficient allocation of capital/valuation objective, the main focus of earnings is to provide information relevant to equity investors for valuation purposes (Barth et al., 2001; Kothari et al., 2010).

According to the efficient contracting objective, reported earnings serve as a mechanism to both monitor and incentivize managers in the attempt address the two principal agency conflicts arising from the separation of ownership and management: underinvestment due to shirking and asset substitution from excessive risk taking (Jensen and Meckling, 1976; Holthausen and Watts, 2001; Lambert, 2001).

I posit that when a firm’s financial earnings are more oriented toward contracting, there is likely to be greater demand for information useful to investors for valuing the firm. Consistent with this notion, I posit that analysts are more likely to focus their activities on information discovery. Thus, my fifth hypothesis (stated in the alternative form) is as follows:

> ***H6:*** *The magnitude of the negative (positive) effect of an exogenous reduction on the price response to earnings announcements is decreasing (increasing) in the use of a firm's financial statements for contracting purposes.*

3. Sample Selection, Variable Definitions, and Methodology

3.1. Identification of Treatment Sample

To identify my treatment sample, I identify two quasi-natural experiments that result in a reduction of analyst-generated information: (i) brokerage closures and (ii) brokerage mergers. I first identify those brokerage firms that drop out of the I/B/E/S sample between 2000 and 2008. I then match the names of the brokerage closures and mergers identified in Kelly and Ljungqvist (2012) to the names of the brokerage firms that drop out of I/B/E/S between 2000 and 2008 to identify the relevant brokerage firm ID in I/B/E/S. The brokerage closures and mergers are scattered across time in the 2000-2008 window.

I create a list of firms covered by the brokerage firm within the 12-month window (month t–15 to month t–3) prior to the brokerage firm closure or merger event date (i.e., the disappearance date) documented in Kelly and Ljungqvist (2012). As in Derrien and Kecskes (2013), I assume that an analyst covers a firm if there is at least one earnings estimate in I/B/E/S by her for that firm during the year prior to the brokerage disappearance date. For brokerage closures, I retain firms for which the analyst disappears from I/B/E/S during the 12-month period after the broker disappearance date (month $t + 3$ to $t + 15$). I assume that an analyst disappears if there is no earnings estimate by the analyst in I/B/E/S during the year after the brokerage disappearance date.

In the case of mergers, I require that (i) the firm is covered by both the target and acquiring brokerage firm within the 12-month window prior to the brokerage disappearance date (month t–15 to month t–3), (ii) the firm is covered by only the acquiring firm during the 12-month window after the merger event (month $t + 3$ to month

$t + 15$), and (iii) one of the analysts previously covering the firm disappears from I/B/E/S during the 12-month period after the brokerage disappearance date. I hand collect the relevant broker IDs for the acquiring brokerage firm using a 2009 version of the broker/analyst translation file.[3] As it is often the case that a brokerage firm has more than one broker ID included in the translation file, I allow for the possibility that any of the broker IDs could be considered the surviving acquiring brokerage firm. Following Kelly and Ljungqvist (2012), I eliminate firms with CRSP share codes > 12 (REITs, ADRs, closed-end funds, etc.) and companies without share price data in CRSP. Based on these criteria, my analyst termination sample consists of 2,402 observations (1,201 measured in the period prior to the analyst termination and 1,201 observations measured in the period after the analyst termination) for 728 unique firms. My control sample consists of 9,054 observations (4,527 measured in the period prior to the analyst termination and 4,527 observations measured in the period after the analyst termination) for firms matched on year, industry, and size in the year prior to the analyst termination event.

3.2. Variable Definitions

3.2.1 Price Response to Earnings Announcements

Similar to Francis et al. (2002), I measure the price response to earnings announcements using the sum of the absolute abnormal return (AAR) centered on the earnings announcement date:

$$\sum_{m=1}^{M} \mathrm{AAR}_{j,m,t}^{\mathrm{EA}}$$

where M is the earnings announcement dates in year t for firm j.[4] Earnings announcement

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[3] The translation file is no longer available from I/B/E/S. I obtained a version of the 2009 translation table from Alexander Ljungqvist.

[4] As a second measure of the price response to earnings announcements, in untabulated results, I

dates (Compustat "rdq") are obtained from the quarterly Compustat file. Abnormal returns are measured using market model adjusted returns over the 3-day event window centered on the earnings announcement date (-1, +1). The market model is estimated over the estimation window (-255, -46). Specifically, firm *j*'s market model adjusted returns on day *t* during the event window is computed as follows:

$$AR_{it} = R_{it} - \left(\alpha_j + \beta_j R_{mt}\right)$$

where R_{it} is the daily stock return of firm *j* on day *t,* R_{mt} is the daily market return on day *t*, and α_j and β_j are firm *j*'s market model estimates obtained from the estimation window. [5]

3.2.2 Control Variables

I control for numerous firm-level variables that could affect the market response to earnings announcements. Consistent with prior literature (Atiase, 1985; Freeman, 1987), I control for size (*SIZE*) given the potential differences in informational environment for firms of different sizes. To control for a firm's growth options, I include the market-to-book ratio (*MTB*). I include return-on-assets (*ROA*) to control for profitability. Similar to Frankel et al. (2006), I control for trading volume (*VOLUME*), the number of firms in a firm's four-digit industry classification (*NSIC*), and ownership dispersion (*OWNERS*) that could potentially affect the market reaction to earnings announcements. I also control for earnings volatility (*EARNVOL*), given the possibility that the market response could differ for firms whose earnings have historically been more volatile. I control for a firm's age (*AGE*) given the potential differences in the

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measure the mean absolute abnormal return in year *t* for firm *j*: $\overline{\mathrm{AAR}_{j,t}^{\mathrm{EA}}} = \frac{\sum_{m=1}^{M} \mathrm{AAR}_{j,m,t}^{\mathrm{EA}}}{M}$.

[5] The CRSP value-weighted index is used as the relevant benchmark.

market reaction to earnings for firms in different life cycles. I control for analyst coverage (*COVERAGE*), which could be correlated with both the market response to earnings announcements and the likelihood of a firm experiencing a shock to coverage due to a brokerage closure. Finally, I control for earnings surprise (*ESURPRISE*). While the inclusion of earnings surprise could bias again finding evidence of analysts' information discovery activities (H1a), it is unlikely that the loss of an analyst should have any effect on the time-series earnings surprise used in the models. I winsorize all continuous variables at the 1st and 99th percentiles.

3.3. Methodology

3.3.1 Test of H1: Effect of a Loss of an Analyst on the Price Response to Earnings Announcements

H1a predicts that the price response to earnings announcements increases following the loss of an analyst. H1b predicts that the price response to earnings announcements decreases following the loss of an analyst. To test these hypotheses, I estimate the following model for my sample of treatment firms (i.e., analyst termination firms):

$$\Sigma AAR = \beta_0 + \beta_1 POST + \beta_2 SIZE + \beta_3 MTB + \beta_4 ROA + \beta_5 VOLUME + \beta_6 OWNERS \\ + \beta_7 EARNVOL + \beta_8 NSIC + \beta_9 AGE + \beta_{10} AGE + \beta_{11} ESURPRISE \\ + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon \quad (1)$$

where *POST* is an indicator variable that takes a value of 1 if the observation falls within the fiscal year *after* the year in which a firm loses an analyst due to a brokerage house closure or merger and 0 if the observation falls within the fiscal year *prior* to the year of a brokerage house closure or merger event. Other variables are defined as previously described. A *positive* β_1 would provide support for H1a (i.e., price response to earnings announcements increases following an exogenous decrease in analyst coverage); a *negative* β_1 would provide support for H1b (i.e., increases following an exogenous decrease in analyst coverage).

In Eq. (1), I include a battery of control variables and fixed effects following related literature. Therefore, my results are unlikely to be affected by unobservable effects. To further minimize the possibility that the variation in analyst coverage and the variation in my variable of interest, *POST*, is caused by any unobservable cross-sectional or time series effects that affect both analyst coverage and the market response to earnings announcements, I perform a difference-in-differences analysis and estimate the following model:

$$\Sigma AAR = \beta_0 + \beta_1 POST \times TREATMENT + \beta_2 POST + \beta_3 TREATMENT + \beta_4 SIZE$$
$$+\beta_5 MTB + \beta_6 ROA + \beta_7 VOLUME + \beta_8 OWNERS + \beta_9 EARNVOL$$
$$+\beta_{10} NSIC + \beta_{11} AGE + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon \qquad (2)$$

My main variable of interest is the interaction of *POST* and *TREATMENT*. Again, a *positive* β_1 would provide support for H1a while a *negative* β_1 would provide support for H1b (i.e., increases following an exogenous decrease in analyst coverage).

3.3.2 Test of H2: Placebo Test

To provide further evidence that the change in the market response to earnings announcements is driven by the exogenous reduction in analyst coverage, I conduct a placebo test, in which I replicate the main results of Eq. (1) using my matched control sample. If the change in the market response to earnings announcements is not driven by the exogenous reduction in analyst coverage, the coefficient on *POST*, β_1, should also enter significantly in the control sample regression. An insignificant β_1 would provide support for H2.

3.3.3 Test of H3: Information Asymmetry

H3 predicts that the magnitude of the negative (positive) effect of an exogenous reduction on the price response to earnings announcements is decreasing (increasing) in information asymmetry. Following Easley and O'Hara (1992, 2004), I use the probability of an informed trade (*PIN*) to proxy for information asymmetry. To test this hypothesis, I estimate the following model using my sample of treatment firms:

$$\begin{aligned} \Sigma AAR = {} & \beta_0 + \beta_1 POST \times PIN + \beta_2 POST + \beta_3 PIN + \beta_3 SIZE + \beta_4 MTB + \beta_5 ROA \\ & + \beta_6 VOLUME + \beta_7 OWNERS + \beta_8 EARNVOL + \beta_9 NSIC + \beta_{10} AGE \\ & + \beta_{11} COVERAGE + \beta_{12} ESURPRISE + \text{Industry Fixed Effects} \\ & + \text{Year Fixed Effects} + \varepsilon \qquad (3) \end{aligned}$$

A *positive* β_1 would provide support for the notion that analysts are more likely to engage in information discovery as the level of information asymmetry between insiders and investors increases, as predicted in H3. I further expect β_3 to be negative, consistent with *PIN* decreasing the market response to earnings announcements.

3.3.4 Test of H4: Financial Reporting Readability

According to H4, the magnitude of the negative (positive) effect of an exogenous reduction on the price response to earnings announcements is increasing (decreasing) in financial statement readability. I use two measures of readability. The first measure is the Gunning Fog Index (*FOG*), originally developed by Robert Gunning in 1952 and used extensively in accounting and finance research. The second measure I use is the proportion of litigious terms (*LITIGIOUS*) developed in Loughran and McDonald's Master Dictionary in conjunction with their paper, Loughran and McDonald (2011). I assume that readability is inversely related to both FOG and $LITIGIOUS$. To test this hypothesis, I estimate the following models using my sample of treatment firms:

$$\Sigma AAR = \beta_0 + \beta_1 POST \times FOG + \beta_2 POST + \beta_3 FOG + \beta_3 SIZE + \beta_4 MTB + \beta_5 ROA$$
$$+\beta_6 VOLUME + \beta_7 OWNERS + \beta_8 EARNVOL + \beta_9 NSIC + \beta_{10} AGE$$
$$+\beta_{11} COVERAGE + \beta_{12} ESURPRISE + \text{Industry Fixed Effect}$$
$$+\text{Year Fixed Effects} + \varepsilon \qquad (4)$$

$$\Sigma AAR = \beta_0 + \beta_1 POST \times LITIGIOUS + \beta_2 POST + \beta_3 LITIGIOUS + \beta_3 SIZE + \beta_5 ROA$$
$$+\beta_4 MTB + \beta_6 VOLUME + \beta_7 OWNERS + \beta_8 EARNVOL + \beta_9 NSIC + \beta_{10} AGE$$
$$+\beta_{11} COVERAGE + \beta_{12} ESURPRISE + \text{Industry Fixed Effects}$$
$$+\text{Year Fixed Effects} + \varepsilon \qquad (5)$$

As my assumption is that readability is decreasing in both *FOG* and *LITIGIOUS*, a *positive* β_1 would provide support for H4 in both Eq. (4) and Eq. (5), consistent with the notion that analysts are more likely to engage in information discovery as the level of readability decreases. FOG and $LITIGIOUS$ are both separately likely to lead to a lower market response to earnings announcements. Accordingly, I expect the association between ΣAAR and FOG as well as the association between ΣAAR and $LITIGIOUS$ to be negative.

3.3.5 Test of H5: Financial Reporting Comparability

To examine whether the magnitude of the negative (positive) effect of an exogenous reduction on the price response to earnings announcements is increasing (decreasing) in financial reporting comparability, I estimate the following models using my sample of treatment firms:

$$\Sigma AAR = \beta_0 + \beta_1 POST \times COMP + \beta_2 POST + \beta_3 COMP + \beta_3 SIZE + \beta_4 MTB + \beta_5 ROA$$
$$+\beta_6 VOLUME + \beta_7 OWNERS + \beta_8 EARNVOL + \beta_9 NSIC + \beta_{10} AGE$$
$$+\beta_{11} COVERAGE + \beta_{12} ESURPRISE + \text{Industry Fixed Effects}$$
$$+\text{Year Fixed Effects} + \varepsilon \quad (6)$$

where *COMP* is the comparability measure from DeFranco et al. (2011). H5 predicts that β_1 should be negative in Eq. (6), consistent with financial reporting comparability decreasing the demand for analysts to engage in information discovery activities. I expect β_3 to be positive, consistent with financial reporting comparability increasing the overall market response to earnings announcements.

3.3.6 Test of H6: Contracting Role of Earnings

My sixth and final hypothesis predicts that the effect of the loss of an analyst on the price response to earnings announcements is less (more) negative for firms whose earnings are more (less) oriented toward contracting. Although the contracting role of earnings is difficult to measure, prior research has suggested that earnings are more likely to be used for contracting purposes when firms have more debt.[6] As such, I use a firm's level of debt (*LEV*) to proxy for the contracting role of earnings. To test H6, I estimate the following model using my sample of treatment firms:

$$\Sigma AAR = \beta_0 + \beta_1 POST \times LEV + \beta_2 POST + \beta_3 LEV + \beta_3 SIZE + \beta_4 MTB + \beta_5 ROA$$
$$+\beta_6 VOLUME + \beta_7 OWNERS + \beta_8 EARNVOL + \beta_9 NSIC + \beta_{10} AGE$$
$$+\beta_{11} COVERAGE + \beta_{12} ESURPRISE + \text{Industry Fixed Effects}$$
$$+\text{Year Fixed Effects} + \varepsilon \quad (7)$$

[6] While the link between debt and contracting is more likely to be the case for public debt (Nikolaev, 2010), I do not restrict my sample of firms to those with public data, given data availability and the restrictions that would impose on my sample size. Rather, I assume that *LEV* and the use of public debt are positively correlated.

A *positive* β_1 would provide support for H6. Further, I expect the market response to earnings announcements to be decreasing in the use of earnings for contracting purposes. Therefore, if LEV is a suitable proxy for the increased likelihood that earnings are used for contracting purposes, then I expect ΣAAR and LEV to be negatively associated.

4. Results

4.1. Descriptive Statistics and Correlations

Table 1 reports descriptive statistics for the key dependent and independent variables over the sample period. I find that ΣAAR has a mean of 0.219 indicating that, on average, the sum of the absolute abnormal return around earnings announcements for a given year is 21.9% of a firm's value, consistent with findings documented in Francis et al. (2002).

[Insert Table 1]

Table 2 presents both Pearson and Spearman correlations between the variables used in our analyses. I report Pearson correlations above the diagonal and Spearman correlations below. I focus on the Pearson correlations and make the following observations. First, consistent with prior research (Atiase, 1985; Freeman, 1987; and Lobo and Mahmoud, 1989), the unconditional correlation between ΣAAR and $SIZE$ is negative (-0.312) and statistically significant. Second, I find that the correlation between $SIZE$ and $COMP$ is positive (0.204) and significant. Finally, I find that FOG and $LITIGIOUS$ are positively correlated (0.509) as expected.

[Insert Table 2]

4.2. Main Results

4.2.1 Test of H1

Table 3 presents the results from estimating models derived from Eq. (1). In these models, I regress ΣAAR on an indicator variable ($POST$), which is equal to 1 if the observation occurs following a reduction in analyst coverage and 0 otherwise. The coefficient on $POST$ captures the difference in the price response to earnings announcements following the loss of an analyst due to a brokerage merger or closure event. In model (i), I include year fixed effects, while model (ii) includes both year and industry fixed effects. The full set of other controls described in Section 3.2.2 is included in both models. Following the recommendation of Petersen (2009), in addition to including year fixed effects, I cluster standard errors at the firm level.

[Insert Table 3]

I find results consistent with H1b. In model (i), the coefficient on $POST$ (i.e., β_1) is -0.022 (p = 0.002). With the inclusion of industry fixed effects in model (ii), β_1 equals -0.023 (p = 0.002). In terms of economic significance, an exogenous decrease in analyst coverage is associated with a decrease in the price response to earnings announcements of 10.05% (10.50%) in model (i) (model (ii)). The association between ΣAAR and $SIZE$ is negative and significant in both models, consistent with Atiase (1985) and Freeman (1987). The coefficient on $ESURPRISE$ is positive in both models (i) and (ii (0.012 and 0.015, respectively). However, β_{11} is only is only significant at conventional levels in model (ii) (p = 0.015).

Table 4 presents the results of tests of H1 using a difference-in-differences design. Model (i) includes year fixed effects; model (ii) includes both year and industry fixed effects; model (iii) includes year and firm fixed effects.[7] Similar to the results in Table 3, I find that the coefficient on my variable of interest, the coefficient on the interaction of $POST$ and $TREATMENT$, is negative and significant across all model specifications. The magnitude of β_1 decreases slightly from 0.017 (p = 0.002) in model (i) to 0.014 in model (ii) (p = 0.007) with the addition of industry fixed effects. The magnitude of β_1 again

[7] *TREATMENT* is omitted in model (iii) due to the inclusion of firm fixed effects.

decreases from 0.014 in model (ii) to 0.013 in model (iii) (p = 0.033) when year and firm fixed effects are included. The exogenous reduction in analyst coverage based on the results in models (i), (ii), and (iii) is associated with a decrease in the market response to earnings announcements of 8.30%, 7.05%, and 6.22%, respectively.

[Insert Table 4]

Overall, the results in Table 4 indicate that the price response to earnings announcements *decreases* following the loss of an analyst, consistent with analysts serving an important function in the extraction and dissemination of important statistics as described in Bloomfield (2002).

4.2.2 Test of H2

Table 5 repeats the tests in Table 3 for my sample of control firms that did not experience an exogenous reduction in analyst coverage. In both models (i) and (ii), variable of interest is again $POST$. Importantly, β_1 is statistically indistinguishable from zero with (p = 0.223 and p = 0.456 in models (i) and (ii), respectively). While β_1 is negative, the magnitude is only 8.69% to 18.18% of the magnitude in Table 3 when using the sample of treatment firms. In combination with the results in Table 3, Table 5 provides additional evidence that the change in the price is driven by the reduction in analyst coverage and not by other factors.

[Insert Table 5]

4.3. Cross-Sectional Results

4.3.1. Test of H3: Information Asymmetry

In Table 6, I present the results for tests of H3, which predicts that the magnitude of the negative (positive) effect of an exogenous reduction on the price response to earnings announcements is decreasing (increasing) in information asymmetry (PIN).

Consistent with this prediction, I find that the coefficient of interest, β_1, is positive and significant as expected for both models (i) and (ii). In model (i), the β_1 equals 0.182 (p = 0.035). In model (ii), β_1 equals 0.153 (p = 0.066). The coefficient on $POST$ remains negative and statistically significant, consistent with the results in Table 3. Finally, the association between ΣAAR and PIN is negative and significant in both models (i) and (ii) (-0.143 and -0.11, respectively). Standard errors are clustered at the firm level.

[Insert Table 6]

Based on the estimates in Table 6, a one standard change in PIN decreases the magnitude of the effect of an exogenous reduction in analyst coverage by 25.48% (21.42%) in model (i) (model (ii)). The findings, in general, are consistent with information asymmetry creating a greater demand for analysts to engage in information discovery activities.

4.3.2. Test of H4: Readability

Table 7 and Table 8 present the results of tests examining whether readability moderates the effect of a reduction in analyst coverage on the price response to earnings announcements. In Table 6, FOG is used to proxy for readability. Consistent with H4, I find that the coefficient of interest, β_1, is positive and significant for both models (i) and (ii). In model (i), the β_1 equals 0.008 (p = 0.049), while in model (ii), the magnitude of β_1 decreases slightly to 0.007 (p = 0.060). A one standard change in FOG decreases the magnitude of the effect of an exogenous reduction in analyst coverage by 5.41% (4.74%) in model (i) (model (ii)). FOG is negative and significant at the 5% level for both models.

[Insert Table 7]

In Table 8, I proxy for readability using $LITIGIOUS$. Similar to Table 7, I again find that my coefficient on my variable of interest (i.e., the interaction of $POST$ and $LITIGIOUS$) is positive and significant in both models (i) and (ii). In model (i), the β_1 equals 1.541 (p = 0.017). In model (ii), β_1 equals 1.485 (p = 0.021). A one standard change in $LITIGIOUS$ decreases the magnitude of the effect of an exogenous reduction in analyst coverage by 28.39% (27.36%) in model (i) (model (ii)). $LITIGIOUS$ is negatively associated with ΣAAR, as predicted. Further, the coefficient on $POST$ is negative and significant at the 1% level, consistent with the results of Table 3, for both models (i) and (ii).

Tables 7 and 8 provide evidence that the readability (or lack thereof) moderates the effect of a reduction of coverage on the price response to earnings announcements. These findings are consistent with analysts engaging in more information discovery activities when readability is lower.

4.3.3. Test of H5: Financial Reporting Comparability

I report the results of tests examining whether the magnitude of the negative (positive) effect of an exogenous reduction on the price response to earnings announcements is decreasing (increasing) in financial reporting comparability in Table 9. To do so, I regress ΣAAR on the interaction of $POST$ and $COMP$ as well as the main effects. Year fixed effects are included in model (i). Standard errors are again clustered at the firm level.

[Insert Table 9]

Consistent with H5, the coefficient on the interaction of $POST$ and $COMP$ (β_1) is negative and significant (-0.010 and -0.007 in models (i) and (ii), respectively). A one standard change in $COMP$ increases the magnitude of the effect of an exogenous reduction in analyst coverage by 57.21% (38.05%) in model (i) (model (ii)). $COMP$ is positively associated with ΣAAR, as predicted, consistent with $COMP$ increasing the price response to earnings announcements. The coefficient on $POST$ is, again, negative (-0.019 and -0.020 in models (i) and (ii), respectively). These findings are consistent with financial reporting comparability reducing the demand for analysts to engage in information discovery activities.

4.3.4. Test of H6: Contracting Role of Earnings

In Table 10, I report the results of my last cross-sectional tests whether the magnitude of the negative (positive) effect of an exogenous reduction on the price response to earnings announcements is decreasing (increasing) in the use of earnings for contracting purposes. Similar to my other cross-sectional tests, I test H5 by regressing *ΣAAR* on the interaction of *POST* and *LEV* and each main effect (i.e., *POST* and *LEV*). In model (i), the coefficient on the interaction of *POST* and *LEV,* β_1, is positive and significant with a magnitude of 0.019 (p = 0.005). In model (ii), the β_1 decreases to 0.012 (p = 0.033) with the inclusion industry fixed effects. However, the adjusted R-squared increases from 0.339 to 0.365.

[Insert Table 10]

LEV is negatively associated with ΣAAR, as predicted, consistent with the use of earnings for contracting purposes decreasing the price response to earnings announcements. The coefficient on $POST$ is negative (-0.028 and -0.027 in models (i) and (ii), respectively), consistent with my prior results. Overall, the findings are consistent with the use of earnings for contracting purposes increasing the demand for analysts to engage in information discovery activities.

5. **Supplemental Analyses**

5.1. Brokerage Closures

In my tests, I use two shocks—brokerage closures and brokerage mergers identified in Kelly and Ljungqvist (2012) as resulting in a reduction in analyst coverage. While the reduction in analyst coverage should be exogenous to other firm characteristics, the possibility remains that, in the case of brokerage house mergers, the choice on the part of the remaining brokerage house regarding which analyst to retain many not be exogenous with respect to characteristics of the firms covered by the analyst. To address this concern, I reestimate Eq. (1) excluding those observations affected by a brokerage house merger. In Table 11, using a sample of 851 closure events, I find results similar to those in Table 3. Specifically, in model (i), I find that the coefficient on *POST,* β_1, is negative (-0.024) and significant (p = 0.002). In model (ii), I find that the coefficient on β_1 is likely negative (-0.023) and significant (p = 0.002). Regarding economic significance, I find that an exogenous decrease in analyst coverage is associated with a decrease in the price response to earnings announcements of 10.86% (10.41%) in model (i) (model (ii)).

5.2. Alternative Model Specification

In Eq. (2), I use a difference-in-differences specification in which the coefficients on the control variables are restricted to be the same for both treatment and control firms. In Table 12, I relax this restriction and allow the coefficients for the control variables to vary across treatment and control firms. Column (i) shows the results of estimating Eq. (1) for treatment firms (i.e., firms experiencing a reduction in analyst coverage due to a brokerage closure or merger). Column (ii) shows the results for my sample of control firms. Finally, column (iii) reports the statistical significance of Chow tests used to examine whether the coefficients are identical.

While both $\beta_{1\_TREATMENT}$ and $\beta_{1\_CONTROL}$ are negative, $\beta_{1\_TREATMENT}$ (-0.022) is eleven times the magnitude of $\beta_{1\_CONTROL}$ (-0.002). The difference between $\beta_{1\_TREATMENT}$ and $\beta_{1\_CONTROL}$ is significant at the 5% level. Using this alternate difference-in-differences design, I find that a reduction in analyst coverage is associated with a decrease in the price response to earnings announcements of 9.13% for treatment firms and 0.83% for control firms. The results are consistent with those reported in Table 3 and Table 4 and provide additional evidence that analysts are more directly involved in the extraction and dissemination of information than in directly competing with the information contained in earnings announcements.

6. Conclusion

In this paper, I examine the effect analysts have on the price response to earnings announcements. Analysts conduct a variety of activities that have differing implications regarding the price response to earnings announcements. For example, one of their functions is their role in discovering and reporting information about the firms they cover. Information discovery prior to an earnings announcement reduces the amount of unexpected earnings or "earnings surprise" at the time of an earnings announcement (e.g., Kelly and Ljungqvist, 2012). *Ceteris paribus*, a lower earnings surprise should result in a smaller price response at the earnings announcement date. However, analysts also extract and disseminate statistics about the firms they cover in their trading recommendations, industry reports, and firm analyses (e.g., Bloomfield, 2002; Ramnath et al., 2008; Brown et al., 2014). These activities reduce information asymmetry and the extraction costs borne by investors and could result in a larger price response at the time of an earnings announcement, particularly if investors are prone to underreact to earnings news (e.g., Kelly and Ljungqvist, 2012; Lys and Sohn, 1990; Ball and Bartov, 1996). Therefore, *ex ante*, it is unclear what effect, on average, a change in analyst coverage will have on the price response to earnings announcements.

Prior studies investigating the effect of analyst coverage on the market reaction to earnings announcements have shown mixed results. One possible explanation for the mixed results in prior empirical studies is the endogenous nature of analyst coverage (Lang and Lundholm, 1996). I use an exogenous shock to the number of analysts covering a firm, which closely approximates a randomized shock to analyst coverage. Specifically, I use two natural experiments identified in the extant literature, namely, broker closures and broker mergers (Kelly and Ljungqvist, 2012; Hong and Kacperczyk, 2010). Both broker closures and broker mergers cause analysts to be terminated. Further, the brokerage closures and mergers are highly unlikely to be correlated with the affected firms. Using these closures and mergers as a shock to analyst coverage also helps deal with the omitted variable problem by allowing multiple shocks to affect different firms at different times. As such, these closures and mergers provide a powerful setting that addresses the issue of endogeneity in assessing the impact of analysts on the price response to earnings announcements.

If analysts' information discovery activities preempt the information contained in earnings announcements and this effect dominates the effect of their role in assisting investors understand and interpret the pricing implication of the news contained in earnings announcements, the loss of an analyst should result in a larger earnings surprise at the time of the earnings announcement. This predicts that the price response to earnings announcements should *increase* following the loss of an analyst. On the other hand, if the effect of analysts extracting and disseminating statistics about the firms they cover in their trading recommendations, industry reports, and firm analyses dominates, the market reaction to an earnings announcement should *decrease* following the loss of an analyst.

To test these predictions, I use two research designs. First, I compare the price response to earnings announcements of treatment firms prior to the shock to the price response to earnings announcements of treatment firms after the shock. In this design, each firm is used as its own control to minimize the potential confounding effect of cross-sectional variation in the market response to earnings announcements. Second, I use a difference-in-differences design, using a sample of control firms matched on year, industry, and size. Similar to Francis et al. (2002), I measure the price response using the absolute abnormal return (AAR) on the 3-day window centered on the earnings announcement date. Under both approaches, I find that the price response to earnings announcements *decreases* following the loss of an analyst. In cross-sectional analyses, I find that the magnitude of the negative effect is *decreasing* in information asymmetry and the likelihood that a firm's earnings are used more for contracting purposes and *increasing* in the readability of the financial statements and financial reporting comparability.

This study makes several key contributions to the existing literature. First, this study provides evidence that analysts increase the price response to news, consistent with the findings of Gleason and Lee (2003). Most prior studies simply document an *association* between *levels* of earnings informativeness and analyst coverage or the informativeness of analyst research (e.g., Dempsey, 1989; Francis et al., 2002; Frankel et al., 2006). Such levels studies are susceptible to the possibility of correlated omitted variables, which renders their results difficult to interpret. In contrast, exogenous shocks that *change* the amount of analyst coverage and, by extension, the amount of analyst research, provide a more powerful setting in which to examine the relation between analysts and the price response to earnings announcements. My evidence that the price response to earnings announcements decreases following the loss of an analyst provides stronger support that analysts have a *causal* effect on the pricing of information contained in earnings announcements. Second, this study provides additional evidence regarding when analysts are more (less) likely to increase the market reaction to earnings announcements. Finally, this study contributes to a growing body of literature that uses brokerage closures and mergers resulting in a reduction in analyst coverage as exogenous shocks to firms' information environment. This literature has studied the impact of coverage reductions on asset pricing (Kelly and Ljungqvist, 2012), corporate investment and financing policies (Derrien and Kecskes, 2013), corporate governance (Chen et al., 2015), and voluntary disclosure (Balakrishnan et al., 2015). In future work, I extend the findings of this paper and examine whether analysts have a causal effect on reducing post-earnings announcement drift by increasing the rate at which the information contained in earnings announcements is impounded in price.

APPENDIX

$\sum_{m=1}^{M} \text{AAR}_{j,m,t}^{\text{EA}}$: The price response to earnings announcements is measured as the sum of the absolute abnormal return (AAR) on the day a disclosure is made. *M* is the earnings announcement dates in year *t* for firm *j*. Earnings announcement dates (Compustat "rdq") are obtained from the quarterly Compustat file. Abnormal returns are measured using the market model adjusted returns over the 3-day event window following the earnings announcement date (-1, +1). The CRSP value-weighted index is used as the relevant benchmark. The market model is estimated over the estimation window (-255, -46).

AVG_AAR: The average earnings informativeness for each earnings announcement, where earnings informativeness is measured as described above.

SIZE: The natural log of the market value of equity for firm *i* in year *t* (CRSP/Compustat "prcc_f" × CRSP/Compustat "csho").

MTB: The market-to-book ratio for firm *i* in year *t* ([CRSP/Compustat "prcc_f" × CRSP/Compustat "csho"]/CRSP/Compustat "ceq"). *LEV* is debt divided by the market value of equity for firm *i* in year *t* (CRSP/Compustat "dltt+dlc"/[CRSP/Compustat "prcc_f" × CRSP/Compustat "csho"]).

LEV: *LEV* is debt divided by the market value of equity for firm *i* in year *t* (CRSP/Compustat "dltt+dlc"/[CRSP/Compustat "prcc_f" × CRSP/Compustat "csho"]).

ROA: Net income divided by lagged assets for firm *i* in year *t* (CRSP/Compustat "roa" / CRSP/Compustat "at").

VOLUME: The natural log of total trading volume for firm *i* in year *t* - 1 (CRSP/Compustat "cshtr_c").

OWNERS: The natural log of the number of thousands of shareholders of firm *i* in year *t* (CRSP/Compustat "cshr").

EARNVOL: Earnings volatility for firm *i* computed over a 5-year window (CRSP/Compustat "oiadp") divided by 100.

AGE: The age of firm *i* in year *t*, based on the date the firm first appears in CRSP.

NSIC: The number of firms in firm i's four-digit industry classification in year *t* (CRSP/Compustat four-digit SIC code) divided by the total number of firms on CRSP in year *t.*

ESURPRISE: The sum of the absolute value of the time series quarterly earnings surprises occurring in in year *t.*

COVERAGE: The number of analysts covering a firm during year *t*.

COMP: Financial reporting comparability at the beginning of year *t* is obtained from the website of Rodrigo Verdi, Professor of Accounting at MIT (http://www.mit.edu/~rverdi/). De Franco et al. (2011) estimate the following time-series equation using the previous 16 quarters of data for each firm (at the minimum 14 quarters):

$$Earnings_{it} = \alpha_i + \beta_i Return_{it} + \varepsilon_{it}$$

where :

Earnings is quarterly net income before extraordinary items deflated by the market value of equity at the end of the previous quarter. $Return_t$ is the raw stock return during quarter *t*.

The predicted earnings of firm i given firm i's function and firm i's return in period t is measured as follows:

$$E(Earnings)_{iit} = \hat{\alpha}_i + \hat{\beta}_i Return_{it}$$

The predicted earnings of firm i given firm j's function and firm i's return in period t is measured as follows:

$$E(Earnings)_{ijt} = \hat{\alpha}_j + \hat{\beta}_j Return_{it}$$

The estimated intercept ($\hat{\alpha}_i$) and slope coefficient ($\hat{\beta}_i$) are firm-specific accounting system parameters that map economic events into reported earnings numbers for firm *i*. By using firm i's return in both predictions, the economic events are held constant.

Comparability between firm *i* and firm *j* accounting systems ($CompAcct_{ijt}$) is defined as:

$$(CompAcct_{i,j,t} = -\frac{1}{16}\sum_{t-15}^{t}|E(Earnings_{iit}) - E(Earnings_{ijt})|$$

FOG: The Gunning fog index obtained from the SEC readability database ("gunning_fog_index") for year *t.*

LITIGIOUS: The number of litigious financial terms contained in a firm's financial report obtained from the SEC readability database ("finterms_litigious") for year *t*.

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Table 1: Summary Statistics

Variable	N	Mean	Std. Dev.	Q1	Median	Q3
ΣAAR	2,402	0.219	0.140	0.119	0.184	0.280
SIZE	2,402	8.537	1.788	7.250	8.494	9.733
MTB	2,402	3.726	3.958	1.680	2.577	4.290
ROA	2,402	0.048	0.105	0.013	0.052	0.097
VOLUME	2,402	19.563	1.600	18.489	19.566	20.653
OWNERS	2,402	2.136	2.178	0.573	2.171	3.592
EARNVOL	2,402	5.412	17.091	0.362	1.191	4.484
NSIC	2,402	0.010	0.015	0.002	0.003	0.012
AGE	2,402	27.457	20.981	11.000	20.044	36.836
COVERAGE	2,402	15.523	8.190	9.250	14.833	21.000
ESURPRISE	2,402	0.089	0.482	0.011	0.024	0.059
PIN	2,327	0.104	0.056	0.071	0.099	0.127
FOG	1,985	19.972	1.164	19.238	19.862	20.485
LITIGIOUS_TERMS	1,985	0.012	0.007	0.007	0.010	0.015
COMP	1,662	-0.545	1.087	-0.470	-0.240	-0.140
LEV	2,402	0.424	1.187	0.036	0.168	0.453

Table 1 provides descriptive statistics for variables used in the main and cross-sectional tests using the sample of firms that experienced a reduction in analyst coverage due to a brokerage closure or merger. The sample consists of 2,402 observations for 728 unique firms. The shocks to analyst coverage occured over a period from from 2000 to 2008. As such, observations span from 1999 to 2009. All firm-specific variables have been winsorized at the 1st and 99th percentiles. See the Appendix for variable definitions and measurements.

Table 2: Correlations

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	*ΣAAR*	1	0.001	**-0.312**	0.024	**-0.187**	0.029	**-0.290**	-0.004	**0.069**	**-0.275**	**-0.108**	**0.160**	0.011	**-0.066**	**-0.170**	**-0.107**	**0.060**
2	*POST*	-0.011	1	-0.039	**-0.139**	**-0.075**	**0.105**	-0.003	*0.048*	-0.003	**0.058**	**-0.106**	**0.062**	*-0.048*	**0.062**	-0.028	**-0.085**	**0.069**
3	*SIZE*	**-0.298**	-0.036	1	**0.338**	**0.246**	**0.760**	**0.665**	**0.300**	**0.061**	**0.430**	**0.724**	**-0.080**	**-0.625**	**0.104**	**0.204**	**0.144**	**-0.114**
4	*MTB*	-0.017	**-0.152**	**0.415**	1	**0.303**	**0.239**	**0.097**	-0.009	**0.130**	*0.042*	**0.281**	**-0.071**	**-0.227**	*-0.050*	-0.037	**0.074**	**-0.121**
5	*ROA*	**-0.101**	**-0.113**	**0.256**	**0.485**	1	*0.041*	**0.078**	**-0.111**	-0.027	**0.090**	**0.174**	**-0.211**	**-0.083**	**-0.061**	0.034	**0.160**	**-0.134**
6	*VOLUME*	0.033	**0.105**	**0.765**	**0.292**	**0.102**	1	**0.465**	**0.353**	**0.132**	**0.234**	**0.716**	**0.062**	**-0.733**	**0.090**	0.035	-0.003	-0.026
7	*OWNERS*	**-0.307**	-0.005	**0.653**	**0.132**	**0.054**	**0.457**	1	**0.273**	*-0.051*	**0.487**	**0.436**	-0.017	**-0.365**	**0.105**	**0.217**	0.036	0.005
8	*EARNVOL*	**-0.162**	**0.074**	**0.777**	**0.104**	**-0.077**	**0.759**	**0.602**	1	0.006	**0.122**	**0.216**	**0.553**	**-0.158**	**0.088**	**0.073**	**-0.319**	**0.099**
9	*NSIC*	**0.121**	0.003	*0.042*	**0.127**	*-0.043*	**0.179**	**-0.091**	**0.046**	1	**-0.159**	**0.181**	-0.001	**-0.121**	**0.078**	*-0.048*	**0.124**	*-0.049*
10	*AGE*	**-0.324**	**0.088**	**0.430**	0.005	**0.061**	**0.238**	**0.480**	**0.422**	**-0.217**	1	**0.137**	-0.028	**-0.217**	0.036	**0.213**	**0.094**	*0.047*
11	*COVERAGE*	**-0.077**	**-0.099**	**0.726**	**0.335**	**0.228**	**0.723**	**0.423**	**0.587**	**0.222**	**0.161**	1	**-0.063**	**-0.547**	0.042	**0.085**	**0.128**	**-0.129**
12	*ESURPRISE*	**0.199**	**0.136**	**-0.327**	**-0.423**	**-0.538**	**-0.091**	**-0.112**	**0.124**	**0.056**	**-0.070**	**-0.224**	1	0.033	0.018	-0.009	**-0.257**	**0.285**
13	*PIN*	0.009	**-0.056**	**-0.650**	**-0.288**	**-0.162**	**-0.754**	**-0.381**	**-0.568**	**-0.166**	**-0.235**	**-0.579**	**0.163**	1	*-0.048*	-0.037	**-0.171**	**0.107**
14	*FOG*	*-0.045*	**0.088**	**0.106**	**-0.080**	**-0.148**	**0.116**	**0.084**	**0.140**	**0.108**	0.000	*0.058*	**0.070**	**-0.070**	1	**0.509**	-0.026	**0.065**
15	*LITIGIOUS*	**-0.189**	-0.010	**0.240**	**-0.066**	*-0.047*	**0.068**	**0.243**	**0.263**	-0.004	**0.253**	**0.110**	*0.055*	**-0.071**	**0.375**	1	0.036	**0.063**
16	*COMP*	**-0.090**	*-0.060*	**0.226**	**0.257**	**0.198**	**0.100**	**0.125**	*-0.049*	**0.251**	**0.118**	**0.187**	**-0.404**	**-0.198**	-0.030	0.028	1	**-0.087**
17	*LEV*	**-0.205**	**0.083**	-0.024	**-0.496**	**-0.417**	**-0.103**	**0.196**	**0.188**	**-0.242**	**0.271**	**-0.150**	**0.267**	**0.127**	**0.132**	**0.233**	**-0.168**	1

Table 2 provides Pearson (above) and Spearman (below) correlation for variables used in tests of hypotheses for treatment firms. All continuous variables have been wisorized at the 1st and 99th percentiles. Bold typeface indicates significance at the 1% level and italic typeface indicates significance at the 5% level. See the Appendix for variable definitions and measurements.

Table 3: Test of H1

$$\Sigma AAR = \beta_0 + \beta_1 POST + \beta_2 SIZE + \beta_3 MTB + \beta_4 ROA + \beta_5 VOLUME + \beta_6 OWNERS + \beta_7 EARNVOL + \beta_8 NSIC + \beta_9 AGE + \beta_{10} COVERAGE + \beta_{11} ESURPRISE + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon$$

Variables	(i)		(ii)	
	Coeffic.	*p*-value	Coeffic.	*p*-value
POST	**-0.022**	**0.002**	**-0.023**	**0.002**
SIZE	-0.056	< 0.001	-0.057	< 0.001
MTB	0.004	< 0.001	0.004	< 0.001
ROA	-0.072	0.072	-0.053	0.203
VOLUME	0.058	< 0.001	0.056	< 0.001
OWNERS	-0.005	0.026	-0.004	0.078
EARNVOL	0.000	0.977	-0.000	0.228
NSIC	0.041	0.823	-0.225	0.558
AGE	-0.001	0.001	-0.000	0.169
COVERAGE	-0.001	0.072	-0.001	0.339
ESURPRISE	0.012	0.104	0.015	0.015
Intercept	-0.313	< 0.001	-0.134	0.061
Industry Fixed Effects	No		Yes	
Year Fixed Effects	Yes		Yes	
Adjusted R-squared	0.336		0.364	
Observations	2,402		2,402	
Change in *ΣAAR* due to the loss of an analyst (*POST*)	-10.05%		-10.50%	

Table 3 reports the results of tests examining the effect of the loss of an analyst (*POST*) on the price reaction to earnings announcements (*AAR*) using a sample of 1,201 closure/merger terminations for 728 unique firms. All variables are defined in the Appendix. All continuous variables have been winsorized at the 1st and 99th percentiles. Standard errors are clustered by firm. All significance levels are based on two-tailed probabilities.

Table 4: Test of H1: Difference-in-Differences Analysis

$$\Sigma AAR = \beta_0 + \beta_1 POST\times TREATMENT + \beta_2 POST + \beta_3 TREATMENT + \beta_4 SIZE + \beta_5 MTB + \beta_6 ROA + \beta_7 VOLUME + \beta_8 OWNERS + \beta_9 EARNVOL + \beta_{10} NSIC + \beta_{11} AGE + \beta_{12} COVERAGE + \beta_{13} ESURPRISE + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon$$

Variables	(i)		(ii)		(iii)	
	Coeffic.	*p*-value	Coeffic.	*p*-value	Coeffic.	*p*-value
POST×TREATMENT	**-0.017**	**0.002**	**-0.014**	**0.007**	**-0.013**	**0.033**
POST	-0.003	0.265	-0.003	0.326	-0.002	0.426
TREATMENT	0.008	0.171	0.004	0.500	--	--
SIZE	-0.064	< 0.001	-0.055	< 0.001	-0.045	< 0.001
MTB	0.006	< 0.001	0.004	< 0.001	0.003	0.033
ROA	0.134	< 0.001	0.118	< 0.001	0.075	0.003
VOLUME	0.060	< 0.001	0.056	< 0.001	0.071	< 0.001
OWNERS	-0.007	< 0.001	-0.005	< 0.001	-0.002	0.606
EARNVOL	0.003	< 0.001	0.001	0.013	0.000	0.693
NSIC	-0.139	0.269	0.126	0.616	-0.062	0.910
AGE	-0.001	< 0.001	-0.001	< 0.001	0.002	0.439
COVERAGE	-0.001	0.105	-0.001	0.003	-0.001	0.084
ESURPRISE	0.071	< 0.001	0.079	< 0.001	0.089	< 0.001
Intercept	-0.304	< 0.001	-0.143	< 0.001	-0.637	< 0.001
Industry Fixed Effects	No		Yes		No	
Firm Fixed Effects	No		No		Yes	
Year Fixed Effects	Yes		Yes		Yes	
Adjusted R-squared	0.304		0.336		0.460	
Observations	11,456		11,456		11,456	
Change in *ΣAAR* due to the loss of an analyst (*POST*) for treatment sample	-8.30%		-7.05%		-6.22%	

Table 4 reports the results of tests examining the effect of the loss of an analyst using a difference-in-differences analysis. All variables are defined in the Appendix. All continuous variables have been winsorized at the 1st and 99th percentiles. Standard errors are clustered by firm. All significance levels are based on two-tailed probabilities.

Table 5: Test of H2: Placebo

$$\Sigma AAR = \beta_0 + \beta_1 POST + \beta_2 SIZE + \beta_3 MTB + \beta_4 ROA + \beta_5 VOLUME + \beta_6 OWNERS + \beta_7 EARNVOL + \beta_8 NSIC + \beta_9 AGE + \beta_{10} COVERAGE + \beta_{11} ESURPRISE + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon$$

Variables	(i)		(ii)	
	Coeffic.	*p*-value	Coeffic.	*p*-value
POST	**-0.004**	**0.223**	**-0.002**	**0.456**
SIZE	-0.066	< 0.001	-0.055	< 0.001
MTB	0.007	< 0.001	0.004	< 0.001
ROA	0.157	< 0.001	0.135	< 0.001
VOLUME	0.061	< 0.001	0.057	< 0.001
OWNERS	-0.007	< 0.001	-0.005	0.001
EARNVOL	0.002	0.571	-0.002	0.328
NSIC	-0.183	0.224	0.347	0.255
AGE	-0.001	< 0.001	-0.001	< 0.001
COVERAGE	0.000	0.544	-0.001	0.038
ESURPRISE	0.079	< 0.001	0.090	< 0.001
Intercept	-0.394	< 0.001	-0.404	< 0.001
Industry Fixed Effects	No		Yes	
Year Fixed Effects	Yes		Yes	
Adjusted R-squared	0.295		0.331	
Observations	9,054		9,054	
Change in *ΣAAR* due to the loss of an analyst (*POST*)	-1.62%		-0.81%	

Table 5 reports placebo tests examining the effect of the loss of an analyst (*POST*) on the price reaction to earnings announcements (*AAR*) using a set of control firms matched on year, industry, and size in the year prior to the brokerage exit. All variables are defined in the Appendix. All continuous variables have been winsorized at the 1st and 99th percentiles. Standard errors are clustered by firm. All significance levels are based on two-tailed probabilities.

Table 6: Test of H3: Moderating Effect of Information Asymmetry

$$\Sigma AAR = \beta_0 + \beta_1 POST \times PIN + \beta_2 POST + \beta_3 PIN + \beta_4 SIZE + \beta_5 MTB + \beta_6 ROA + \beta_7 VOLUME + \beta_8 OWNERS + \beta_9 EARNVOL + \beta_{10} NSIC + \beta_{11} AGE + \beta_{12} COVERAGE + \beta_{13} ESURPRISE + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon$$

Variables		(i)		(ii)	
	Predicted Sign	Coeffic.	*p*-value	Coeffic.	*p*-value
POST×PIN	+	0.182	0.035	0.153	0.066
POST	?	-0.040	0.001	-0.037	0.002
PIN	-	-0.143	0.071	-0.11	0.184
SIZE		-0.054	< 0.001	-0.054	< 0.001
MTB		0.004	< 0.001	0.003	< 0.001
ROA		-0.058	0.147	-0.045	0.279
VOLUME		0.057	< 0.001	0.055	< 0.001
OWNERS		-0.005	0.013	-0.004	0.029
EARNVOL		0.000	0.867	-0.000	0.248
NSIC		0.049	0.791	-0.179	0.648
AGE		-0.001	0.001	-0.000	0.128
COVERAGE		-0.001	0.036	-0.001	0.194
ESURPRISE		0.012	0.132	0.016	0.021
Intercept		-0.293	< 0.001	-0.116	0.163
Industry Fixed Effects		No		Yes	
Year Fixed Effects		Yes		Yes	
Adjusted R-squared		0.331		0.363	
Observations		2,327		2,327	
Moderating effect of a one standard deviation change in *PIN* on the change in ΣAAR due to the loss of an analyst (*POST*)		-25.48%		-21.42%	

Table 6 reports the results of tests examining whether the information asymmetry between informed and less-informed traders (*PIN*) moderates the effect of the loss of an analyst (*POST*) on the price reaction to earnings announcements (*AAR*). All variables are defined in the Appendix. All continuous variables have been winsorized at the 1st and 99th percentiles. Standard errors are clustered by firm. All significance levels are based based on one-tailed probabilities if a directional prediction is offered, and are based on two-tailed probabilities otherwise.

Table 7: Test of H4: Moderating Effect of Readability

$$\Sigma AAR = \beta_0 + \beta_1 POST \times FOG + \beta_2 POST + \beta_3 FOG + \beta_4 SIZE + \beta_5 MTB + \beta_6 ROA + \beta_7 VOLUME + \beta_8 OWNERS + \beta_9 EARNVOL + \beta_{10} NSIC + \beta_{11} AGE + \beta_{12} COVERAGE + \beta_{13} ESURPRISE + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon$$

Variables		(i)		(ii)	
	Predicted Sign	Coeffic.	*p*-value	Coeffic.	*p*-value
POST×FOG	+	**0.008**	**0.049**	**0.007**	**0.060**
POST	?	-0.172	0.064	-0.163	0.081
FOG	-	-0.007	0.014	-0.007	0.012
SIZE		-0.058	< 0.001	-0.059	< 0.001
MTB		0.004	< 0.001	0.003	< 0.001
ROA		-0.042	0.373	-0.014	0.766
VOLUME		0.057	< 0.001	0.055	< 0.001
OWNERS		-0.003	0.166	-0.002	0.430
EARNVOL		-0.000	0.807	-0.000	0.195
NSIC		0.089	0.674	-0.156	0.710
AGE		-0.001	0.001	0.000	0.124
COVERAGE		-0.001	0.150	-0.001	0.389
ESURPRISE		0.014	0.076	0.017	0.014
Intercept		-0.164	0.069	0.037	0.694
Industry Fixed Effects		No		Yes	
Year Fixed Effects		Yes		Yes	
Adjusted R-squared		0.339		0.368	
Observations		1,985		1,985	
Moderating effect of a one standard deviation change in *FOG* on the change in ΣAAR due to the loss of an analyst (*POST*)		-5.41%		-4.74%	

Table 7 reports the results of tests examining whether the readability of a firm's financial reports (*FOG*) moderates the effect of the loss of an analyst (*POST*) on the price reaction to earnings announcements (*AAR*). All variables are defined in the Appendix. All continuous variables have been winsorized at the 1st and 99th percentiles. Standard errors are clustered by firm. All significance levels are based based on one-tailed probabilities if a directional prediction is offered, and are based on two-tailed probabilities otherwise.

Table 8: Test of H4: Moderating Effect of Readability

$$\Sigma AAR = \beta_0 + \beta_1 POST\times LITIGIOUS + \beta_2 POST + \beta_3 LITIGIOUS + \beta_4 SIZE + \beta_5 MTB + \beta_6 ROA + \beta_7 VOLUME + \beta_8 OWNERS + \beta_9 EARNVOL + \beta_{10} NSIC + \beta_{11} AGE + \beta_{12} COVERAGE + \beta_{13} ESURPRISE + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon$$

Variables		(i)		(ii)	
	Predicted Sign	Coeffic.	*p*-value	Coeffic.	*p*-value
POST×LITIGIOUS	+	**1.541**	**0.017**	**1.485**	**0.021**
POST	?	-0.038	0.002	-0.037	0.003
LITIGIOUS	-	-1.236	0.020	-0.999	0.067
SIZE		-0.057	< 0.001	-0.059	< 0.001
MTB		0.004	< 0.001	0.003	< 0.001
ROA		-0.040	< 0.001	-0.012	0.808
VOLUME		0.056	< 0.001	0.054	< 0.001
OWNERS		-0.003	0.160	-0.002	0.422
EARNVOL		-0.000	0.806	-0.000	0.188
NSIC		0.063	0.764	-0.183	0.661
AGE		-0.001	0.001	-0.000	0.126
COVERAGE		-0.001	0.176	-0.001	0.434
ESURPRISE		0.014	0.071	0.017	0.012
Intercept		-0.265	< 0.001	-0.069	0.372
Industry Fixed Effects		No		Yes	
Year Fixed Effects		Yes		Yes	
Adjusted R-squared		0.339		0.368	
Observations		1,985		1,985	
Moderating effect of a one standard deviation change in *LITIGIOUS* on the change in *ΣAAR* due to the loss of an analyst (*POST*)		-28.39%		-27.36%	

Table 8 reports the results of tests examining whether the percentage of litigious terms in a firm's financial reports (*LITIGIOUS*) moderates the effect of the loss of an analyst (*POST*) on the price reaction to earnings announcements (*AAR*). All variables are defined in the Appendix. All continuous variables have been winsorized at the 1st and 99th percentiles. Standard errors are clustered by firm. All significance levels are based based on one-tailed probabilities if a directional prediction is offered, and are based on two-tailed probabilities otherwise.

Table 9: Test of H5: Moderating Effect of Financial Reporting Comparability

$$\Sigma AAR = \beta_0 + \beta_1 POST{\times}COMP + \beta_2 POST + \beta_3 COMP + \beta_4 SIZE + \beta_5 MTB + \beta_6 ROA + \beta_7 VOLUME + \beta_8 OWNERS + \beta_9 EARNVOL + \beta_{10} NSIC + \beta_{11} AGE + \beta_{12} COVERAGE + \beta_{13} ESURPRISE + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon$$

Variables		(i)		(ii)	
	Predicted Sign	Coeffic.	*p*-value	Coeffic.	*p*-value
POST×COMP	**-**	**-0.010**	**0.029**	**-0.007**	**0.055**
POST	?	-0.019	0.009	-0.020	0.008
COMP	+	0.008	0.054	0.005	0.174
SIZE		-0.054	< 0.001	-0.054	< 0.001
MTB		0.004	0.002	0.003	0.029
ROA		-0.037	0.515	-0.022	0.705
VOLUME		0.059	< 0.001	0.054	< 0.001
OWNERS		-0.006	0.010	-0.006	0.007
EARNVOL		0.000	0.918	-0.000	0.395
NSIC		-0.092	0.619	-0.279	0.514
AGE		-0.000	0.016	-0.000	0.530
COVERAGE		-0.001	0.329	-0.000	0.851
ESURPRISE		0.049	0.020	0.050	0.018
Intercept		-0.408	< 0.001	-0.354	0.372
Industry Fixed Effects		No		Yes	
Year Fixed Effects		Yes		Yes	
Adjusted R-squared		0.349		0.381	
Observations		1,662		1,662	
Moderating effect of a one standard deviation change in *COMP* on the change in *ΣAAR* due to the loss of an analyst (*POST*)		57.21%		38.05%	

Table 9 reports the results of tests examining whether the observed comparability of a firm's earnings to those of other firms (*COMP*) moderates the effect of the loss of an analyst (*POST*) on the price reaction to earnings announcements (*AAR*). All variables are defined in the Appendix. All continuous variables have been winsorized at the 1st and 99th percentiles. Standard errors are clustered by firm. All significance levels are based based on one-tailed probabilities if a directional prediction is offered, and are based on two-tailed probabilities otherwise.

Table 10: Test of H6: Moderating Effect of Contracting Role of Earnings

$$\Sigma AAR = \beta_0 + \beta_1 POST{\times}LEV + \beta_2 POST + \beta_3 LEV + \beta_4 SIZE + \beta_5 MTB + \beta_6 ROA + \beta_7 VOLUME + \beta_8 OWNERS + \beta_9 EARNVOL + \beta_{10} NSIC + \beta_{11} AGE + \beta_{12} COVERAGE + \beta_{13} ESURPRISE + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon$$

Variables		(i)		(ii)	
	Predicted Sign	Coeffic.	*p*-value	Coeffic.	*p*-value
POST×LEV	+	**0.019**	**0.005**	**0.012**	**0.033**
POST	?	-0.028	< 0.001	-0.027	0.001
LEV	-	-0.019	0.001	-0.010	0.052
SIZE		-0.056	< 0.001	-0.057	< 0.001
MTB		0.004	< 0.001	0.004	< 0.001
ROA		-0.078	0.047	-0.056	0.175
VOLUME		0.058	< 0.001	0.055	< 0.001
OWNERS		-0.004	0.037	-0.004	0.090
EARNVOL		0.000	0.914	-0.000	0.319
NSIC		0.045	0.805	-0.224	0.559
AGE		-0.001	0.002	-0.000	0.160
COVERAGE		-0.001	0.056	-0.001	0.358
ESURPRISE		0.012	0.113	0.013	0.041
Intercept		-0.301	< 0.001	-0.126	0.079
Industry Fixed Effects		No		Yes	
Year Fixed Effects		Yes		Yes	
Adjusted R-squared		0.339		0.365	
Observations		2,402		2,402	
Moderating effect of a one standard deviation change in *LEV* on the change in *ΣAAR* due to the loss of an analyst (*POST*)		-80.55%		-52.76%	

Table 10 reports the results of tests examining whether the use of a firm's earnings for contracting purposes (*LEV*) moderates the effect of the loss of an analyst (*POST*) on the price reaction to earnings announcements (*AAR*). All variables are defined in the Appendix. All continuous variables have been winsorized at the 1st and 99th percentiles. Standard errors are clustered by firm. All significance levels are based based on one-tailed probabilities if a directional prediction is offered, and are based on two-tailed probabilities otherwise.

Table 11: Test of H1: Closure Sample

$$\Sigma AAR = \beta_0 + \beta_1 POST + \beta_2 SIZE + \beta_3 MTB + \beta_4 ROA + \beta_5 VOLUME + \beta_6 OWNERS + \beta_7 EARNVOL + \beta_8 NSIC + \beta_9 AGE + \beta_{10} COVERAGE + \beta_{11} ESURPRISE + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon$$

Variables	(i)		(ii)	
	Coeffic.	*p*-value	Coeffic.	*p*-value
POST	**-0.024**	**0.002**	**-0.023**	**0.002**
SIZE	-0.054	< 0.001	-0.055	< 0.001
MTB	0.003	0.018	0.002	0.097
ROA	-0.068	0.156	-0.051	0.305
VOLUME	0.056	< 0.001	0.052	< 0.001
OWNERS	-0.004	0.049	-0.003	0.259
EARNVOL	-0.000	0.406	-0.000	0.072
NSIC	-0.031	0.894	-0.095	0.833
AGE	-0.001	0.406	-0.000	0.072
COVERAGE	-0.001	< 0.001	-0.001	0.341
ESURPRISE	0.017	0.389	0.020	0.304
Intercept	-0.278	< 0.001	-0.131	0.113
Industry Fixed Effects	No		Yes	
Year Fixed Effects	Yes		Yes	
Adjusted R-squared	0.356		0.371	
Observations	1,702		1,702	
Change in *ΣAAR* due to the loss of an analyst (*POST*)	-10.86%		-10.41%	

Table 11 reports the results of tests examining the effect of the loss of an analyst (*POST*) on the price reaction to earnings announcements (*AAR*) using a sample of 851 closure/merger terminations. All variables are defined in the Appendix. All continuous variables have been winsorized at the 1st and 99th percentiles. Standard errors are clustered by firm. All significance levels are based on two-tailed probabilities.

Table 12: Test of H1: Alternative Difference-in-Differences Analysis

$$\Sigma AAR = \beta_0 + \beta_1 POST + \beta_2 SIZE + \beta_3 MTB + \beta_4 ROA + \beta_5 VOLUME + \beta_6 OWNERS + \beta_7 EARNVOL + \beta_8 NSIC + \beta_9 AGE + \beta_{10} COVERAGE + \beta_{11} ESURPRISE + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon$$

Variables	Treatment Sample (i)		Control Sample (ii)		Difference (iii)
	Coeffic.	*p*-value	Coeffic.	*p*-value	Significance
POST	**-0.022**	**0.003**	**-0.002**	**0.441**	**
SIZE	-0.057	< 0.001	-0.056	< 0.001	
MTB	0.004	< 0.001	0.004	< 0.001	
ROA	-0.022	0.629	0.140	< 0.001	***
VOLUME	0.053	< 0.001	0.057	< 0.001	
OWNERS	-0.006	0.007	-0.005	0.001	
EARNVOL	0.001	0.015	0.001	0.290	
NSIC	-0.195	0.605	0.343	0.255	
AGE	-0.000	0.043	-0.001	< 0.001	**
COVERAGE	-0.000	0.627	-0.001	0.029	
ESURPRISE	0.049	0.012	0.084	< 0.001	
Intercept	-0.079	0.298	-0.018	< 0.001	
Industry Fixed Effects	Yes		Yes		
Year Fixed Effects	Yes		Yes		
Adjusted R-squared	0.367		0.332		
Observations	2,402		9,054		
Change in *ΣAAR* due to the loss of an analyst (*POST*)	-9.13%		-0.83%		

Table 12 reports the results of tests examining the effect of the loss of an analyst using an alternative difference-in-differences analysis. All variables are defined in the Appendix. All continuous variables have been winsorized at the 1st and 99th percentiles. Standard errors are clustered by firm. All significance levels are based based on two-tailed probabilities. *, **, *** indicates significance at the 10%, 5%, and 1% levels, respectively.