Information Externality and Voluntary Disclosure: Evidence from a Major Customer's Earnings Announcement

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ABSTRACT

This study examines the relation between information externalities across economically linked firms and voluntary disclosure. Information transfers from a major customer's earnings announcement (EA) can substitute for its supplier's disclosure. Conversely, to the extent that investors have diverse priors and/or limited ability to interpret the customer's news, the EA can increase the demand for disclosure. We find that the supplier is more likely to issue earnings guidance subsequent to the customer's EA when the EA news deviates more from the market's expectation. This effect is more pronounced when the news is negative and when the supplier faces higher investor demand for disclosure, but is less pronounced when the EA is likely to be more revealing about the supplier's future prospects. We also find that while the news component from the customer's realized earnings substitutes for the supplier's subsequent earnings guidance, forward-looking information irregularly bundled with the customer's EA and harder-to-interpret information revealed at the EA trigger additional information searches.

Keywords: *customer-supplier relationship, supply chain, earnings announcement, information transfers, earnings guidance, voluntary disclosure*

Data availability: *All data are publicly available from sources indicated in the text.*

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I. INTRODUCTION

This study examines the relation between information externalities from an economically linked firm and voluntary disclosure decision. Prior research documents information transfers between firms operating in the same industry or along the supply chain (e.g., Foster 1981; Olsen and Dietrich 1985; Baginski 1987; Han, Wild, and Ramesh 1989; Kim, Lacina, and Park 2008; Pandit, Wasley, and Zach 2011). Given that disclosures are costly, information transfers from related firms could substitute for a firm's voluntary disclosure as a source of information available to investors (Pownall and Waymire 1989; Jorgensen and Kirschenheiter 2012). An economically linked firm's news could increase investor demand for disclosure, however, if the news triggers further information searches (Kim and Verrecchia 1994, 1997; Barron, Byard, and Kim 2002). Focusing on information externalities occurring along the supply chain, we investigate whether and how a major customer's earnings announcement (hereafter EA) influences the supplier's disclosure of forward-looking information.[1, 2]

Our study is related to Pownall and Waymire (1989), which *infers* a substitution between information transfers and voluntary disclosure from the finding that relative to firms that issue earnings forecasts, firms that do not issue earnings forecasts receive a greater magnitude of intra-industry information transfers from industry peers' EAs. Unlike the prior work, we test the casual

[1] Throughout the paper, we use the term "EA news" to refer to comprehensive news conveyed at the EA, which includes not only the previous quarter's earnings news but also managers' bundled forecasts, if any, as well as other news disclosed at the EA, such as revenue growth and operating investments.

[2] We refer to an individual customer that comprises 10% or more of firm sales as a major customer, consistent with SFAS No. 131 and SEC regulation S-K. We focus on the effect of a major customer's EA on the voluntary disclosure of its supplier, but not the effect of a supplier's EA on the voluntary disclosure of its major customer, because in our sample of customer-supplier relationships, the impact of a major customer on its supplier is economically much more important than the impact of a supplier on its major customer. In our sample, for example, the median proportion of sales from a supplier to its customer is 21 percent of the supplier's total sales, while the median proportion of the supplier's purchases is only 0.18 (0.32) percent of its customer's total sales (cost of sales).

effect of information externalities on a firm's disclosure choice more directly. Furthermore, we examine information externalities along the supply chain as opposed to those between firms operating in the same industry. There are at least two advantages of focusing on customer-supplier relationships. First, in the intra-industry setting, information externalities can be positive or negative depending on whether firms are taking market share from one another (Kim et al. 2008), complicating the prediction on disclosure choices. Second, by utilizing customer-supplier relationships, we can avoid the confounding effect of product market competition on strategic voluntary disclosure choices of intra-industry rivals (Darrough and Stoughton 1990; Li 2010).

Investigating information externalities along the supply chain also has its own merit. Given that approximately 45% of public firms in the U.S. are "suppliers" that report the identities of major customers in annual reports (Ellis, Fee, and Thomas 2012), a major customer's EAs represent important information events that produce periodic information externalities (Olsen and Dietrich 1985; Pandit et al. 2011). While some prior studies examine the *valuation* effect of the information externalities along the supply chain (e.g., Olsen and Dietrich 1985; Cohen and Frazzini 2008; Pandit et al. 2011), we question the effect of information externalities from the customer's EA on its supplier's *voluntary disclosure decisions*.

We first examine whether a supplier is more or less likely to issue earnings guidance subsequent to its customer's EA when the EA news deviates more from the market's expectation.[3] On the one hand, given that disclosure is costly, material information transfers could substitute for a firm's disclosure (Pownall and Waymire 1989; Jorgensen and Kirschenheiter 2012). In particular, when investors are aware of the identity of a major customer of the focal firm, the customer's EA

[3] Earnings guidance represents any manager-provided information that either directly or indirectly guides outsiders in their assessment of a firm's future earnings (Miller 2002). In this paper, however, management earnings guidance refers only to explicit earnings forecasts issued by managers, and we use the terms "earnings guidance" and "management earnings forecasts" interchangeably.

provides timely information, based on which investors can revise expectations about the supplier's future prospects (Pandit et al. 2011). Therefore, information transfers from the customer's EA could *substitute* as a source of information available to investors and thus reduce the demand for the supplier's disclosure. On the other hand, however, the customer's material EA news may create idiosyncratic beliefs among investors with diverse prior views (Varian 1989; Harris and Raviv 1993; Kandel and Pearson 1995) and thus *trigger* additional information searches (Kim and Verrecchia 1994, 1997; Barron et al. 2002), which in turn increases demand for the supplier's voluntary disclosure. Therefore, it is unclear a priori how the customer's material information releases at EA affect the supplier's voluntary disclosure decisions.

We next examine whether the effect of the customer's EA on the supplier's earnings guidance is asymmetric with respect to the customer's good and bad news. When the customer's EA news is worse than expected, investors will be concerned about the increased probability of the customer reneging on its implicit and explicit contractual obligations, as well as the decrease in the cost-effectiveness of relationship-specific investments that the supplier has already made (Williamson 1975; Klein, Crawford, and Alchian 1978; Klein 2000; Dou, Hope, and Thomas 2013). Given that hold-up problems likely result in underinvestment in relationship-specific investments (Drake and Haka 2008), however, there is a limit to the upside benefit that the supplier can enjoy when the customer performs better than expected. As a result, like a creditor, a supplier tends to have asymmetric payoffs with respect to its customer's strong versus poor performance (Hui, Klasa, and Yeung 2012), and hence investors could be more sensitive to bad news than good news from their investee's customer. We thus expect investors' demand for disclosure to be stronger when the customer's EA delivers bad news than good news.

We further examine whether the relation between the customer's EA news and earnings guidance varies cross-sectionally with (1) investors' demand for disclosure, and (2) value

implications of the customer's news. We predict that the supplier is more likely to issue earnings guidance following the customer's material EA news when investors' demand for disclosure is higher. In contrast, we predict that the supplier is less likely to issue earnings guidance subsequent to the customer's material EA news when the customer and its supplier share more commonalities and thus the customer's EA provides more revealing information about the supplier's future prospects, substituting for additional disclosures.

To test our predictions, we construct a sample of 8,570 supplier firm-years that report the identity of a major customer in their 10-Ks over the 2001-2012 period. We use the absolute (unsigned) value of the customer's market-adjusted EA returns to capture the magnitude of news conveyed at the EA, which is not limited to the previous quarter's earnings news but further includes earnings forecasts bundled with EA, if any, as well as other non-earnings news disclosed over the EA window.[4] To capture the supplier's voluntary disclosure, we measure the supplier's management earnings guidance issued within a 45-day period subsequent to the customer's quarterly EA. Earnings guidance is an important communication channel through which managers convey their expectation of firms' future performance to the capital market (Hirst, Koonce, and Venkataraman 2008).

We find that the supplier is more likely to issue earnings guidance when the news released at the customer's EA deviates more from the market's expectation (as measured by the unsigned magnitude of the customer's market-adjusted EA return). This result is consistent with the notion that the customer's material EA news triggers active information searches by investors of the supplier, and managers respond to such a demand for disclosure by issuing earnings guidance.

[4] We use customer's market-adjusted returns around the EA rather than supplier's market-adjusted returns because prior studies find that suppliers' stock price do not incorporate customers' news timely, generating predictable subsequent price moves (Cohen and Frazzini 2008). It might be difficult for suppliers' investors to evaluate the full value implications of customers' news for suppliers, which could trigger investors' search for more information.

Moreover, we find that the effect of the customer news on the supplier's disclosure is stronger when the news is negative than when it is positive, consistent with the supplier and its investors being more concerned about the downside of the customer's performance. We conduct a series of falsification tests and show that our results are unlikely driven by common economic shocks to the customer and the supplier. We also find that the supplier's direct learning from the customer's EA or the supplier's herding in disclosure is unlikely to explain our results.

In addition, we find that the effect of the customer EA news on the supplier's disclosure is more pronounced when investors' demand for disclosure is likely stronger, i.e., (1) when the supplier's shares are owned more by transient institutional investors, who are likely to trade more on short-term earnings news and thus demand more earnings guidance, and (2) when the customer's EA triggers an increase in bid-ask spreads for the supplier's stock, in which investors experience an increase in information asymmetry between the informed and uninformed. In contrast, we find that the effect is less pronounced when the supplier and its customer share industry- or location-specific commonalities, rendering the information transferred from the customer's EA more value-relevant for the supplier and easier to interpret and thus reducing the need for additional information searches.

We perform several additional analyses and robustness checks. First, we examine the role of supply chain analysts who follow a customer-supplier pair. If analysts following both the supplier and its customer along the supply chain process the customer EA news better than other analysts (Guan, Wong, and Zhang 2015), the existence of supply chain analysts will decrease demand for additional disclosure. Consistent with this prediction, we find that the effect of the customer EA news on the supplier's disclosure becomes weaker for suppliers followed by more supply chain analysts. Second, we find that the supplier's propensity to issue earnings guidance subsequent to the customer's negative EA news is more pronounced for suppliers that revise earnings forecasts upward

relative to their own forecasts issued prior to the EA, consistent with suppliers actively fending off negative news using voluntary disclosures.

Third, given that our main variable of interest (i.e., the customer's market-adjusted EA return) captures the overall magnitude of EA news including various news components, we examine the effect of each component separately by decomposing the customer's market adjusted EA returns. Our results indicate that while the customer news from realized earnings reduces the supplier's propensity to issue earnings guidance (and thereby substitute for voluntary disclosures), forward-looking information bundled irregularly with EA and the news component unexplained by realized earnings and bundled forecasts increase supplier investors' demand for disclosure, suggesting that our results are driven by harder-to-verify or harder-to-interpret information included in the customer's EA news. Fourth, our results are robust to excluding suppliers from the sample that appear pre-committed to issuing earnings guidance, indicating that our results are not driven by pre-scheduled management forecasts.[5]

Lastly, we examine whether our results can extend to the customer's credit-rating announcement, an alternative information event. Changes in the customer's credit rating signal changes in the customer's creditworthiness and thus the supplier's ability to collect receivables and generate cash flows. We find that while the customer's rating upgrade has no significant effect on the supplier's earnings guidance, the customer's rating downgrade results in a higher likelihood of earnings forecasts. This result corroborates our main finding that information externalities from a customer's news elicits its supplier's voluntary disclosures, especially when the news is negative.

Our study makes several important contributions. While extant research leads to two opposing predictions regarding whether information externalities from economically linked firms would

[5] We also find that our results are robust to extending a supplier's guidance window to a 60-day period subsequent to its customer's EA. The results become much weaker, however, when we examine a guidance horizon over a 90-day period. Over a long-time period, a firm's earnings guidance decision is more likely to be affected by the firm's disclosure policy in place, as well as other confounding news.

increase or decrease voluntary disclosures, our study is the first to test the relationship in the context of the supply chain. Considering the risk of litigation and other disclosure costs, prior studies suggest that information transfers from an economically linked firm would substitute for voluntary disclosure (Pownall and Waymire 1989; Jorgensen and Kirschenheiter 2012). Contrary to this prediction, we find that a major customer's material EA news positively affects its supplier's earnings guidance. Our analyses suggest that the positive relation between information externality and voluntary disclosure along the supply chain is driven by harder-to-verify or harder-to-interpret information included in the customer's EA news.

Our study also contributes to the literature on the customer-supplier relationship. Prior studies examine the impacts of the customer-supplier relationship on firm performance and cost of equity (Patatoukas 2012; Dhaliwal et al. 2016), capital structure (Titman and Wessel 1988; Banerjee et al. 2008), bank loan contracting (Kim, Song, and Zhang 2011; Cen et al. 2016), earnings management and accounting conservatism (Raman and Shahrur 2008; Hui et al. 2012), analysts' forecasts (Guan et al. 2015), and tax avoidance (Cen et al. 2014). Our study extends this literature by documenting that the customer-supplier relationship also has important implications for voluntary disclosure. Given that nearly one half of public firms in the U.S. report the identities of their major customers in annual reports (Ellis et al. 2012) and thus experience information externalities from the customer's EA on a regular basis, our results help understand how such a reporting environment and recurring information externalities affect a firm's voluntary disclosure decisions.

The remainder of this paper is organized as follows. Section II reviews prior research and develops our hypotheses. Section III details sample selection and research design. Sections IV and V discuss the empirical results, and Section VI concludes the paper.

II. LITERATURE AND HYPOTHESIS DEVELOPMENT

Customer-supplier Relationship

SFAS No. 131 and SEC Regulation S-K require a firm to report the sales to and identity of any customer that comprises more than 10% of the firm's consolidated revenue. This disclosure is arguably useful to investors, particularly when they assess how the loss of a major customer would affect a firm's revenue (Ellis et al. 2012). More generally, the financial performance of a major customer can be relevant to investors when they assess the supplier's operating, investing, and financing activities. On the one hand, for example, when a major customer exhibits strong earnings growth, the customer's demand for products and services from its supplier will also likely grow and hence increase the supplier's revenue and earnings. On the other hand, when the customer experiences an earnings decline or financial distress, the customer may take actions that negatively affect its supplier's future performance, such as reducing product purchases, delaying payments, and defaulting on long-term contracts.

Furthermore, customers and suppliers establish and maintain economic links via various implicit and explicit arrangements, such as long-term contracts, strategic alliances, and relationship-specific investments (Hui et al. 2012). Thus, the supplier's profitability and operating/financial risk will be greatly affected by the stability of the customer-supplier relationship and the customer's business prospects. If the relationship breaks down due to the customer's poor performance, the supplier must spend a lot of resources finding alternative customers in the product market. The breakup and switching costs have substantial, undesirable impacts on the supplier.

Consistent with the above arguments, a few studies document information externalities along the supply chain. Studies show, for example, that suppliers experience information spillover

at the time of their customers' monthly sales announcements (Olsen and Dietrich 1985) or quarterly earnings announcements (Pandit et al. 2011), as evidenced by the suppliers' significant stock price responses to the customers' announcements. Cohen and Frazzini (2008) find that value-relevant information diffuses between suppliers and customers and their stock returns cross-predict each other's returns. Hertzel et al. (2008) examine the effects of financial distress and bankruptcy filing for firms along supply chains and find that bankruptcy filings of major customers are associated with significantly negative stock price effects for their suppliers.

Beyond information externalities, studies also investigate the effect of the supply chain relationship on accounting policies. For instance, Raman and Shahrur (2008) examine whether relationship-specific investments made by suppliers and customers incentivize these firms to engage in earnings management. They find that earnings management through discretionary accruals is positively related to relationship-specific investments, suggesting that these firms engage in earnings management to mislead their supply chain partners to undertake suboptimal relationship-specific investments. Hui et al. (2012) find that suppliers and customers with bargaining power prefer more conservative financial reporting from their supply chain counterparts, because like creditors, both suppliers and customers are more concerned with bad news about their counterparts' prospects than good news due to their asymmetric payoffs with respect to the counterparts' performance. In addition, Dou et al. (2013) show that to reduce suppliers' concerns about the breakdown of the supply chain relationship, firms that reside in countries with weak contract enforceability and/or operate in industries with greater relationship-specific investments tend to smooth earnings more.

Taken together, these studies suggest that a major customer's performance is related to its supplier's firm value and that the presence of the supply chain relationship influences the

properties of earnings. Despite a growing list of studies on the supply chain, however, research on the effect of the customer's information events on its supplier's voluntary disclosure is a notable absence in the literature.

Hypothesis Development

Accounting theories indicate that managers provide voluntary disclosures to reduce information asymmetry between managers and investors (Fishman and Hagerty 1989; Baiman and Verrecchia 1996), and existing empirical evidence is generally consistent with this prediction (e.g., Frankel, McNichols, and Wilson 1995; Lang and Lundholm 2000). Theories also document benefits from lowering information asymmetry through voluntary disclosures. Diamond (1985), for example, shows that a firm can improve investors' collective welfare by disclosing information publicly, because it can preempt private information acquisition, which is costly to investors. Diamond and Verrecchia (1991) extend this study by showing that disclosure increases future liquidity in a firm's stock, which in turn results in a lower cost of capital. Prior studies also indicate that voluntary dissemination of management earnings guidance reduces information asymmetry (Ajinkya and Gift 1984; Kasznik and Lev 1995; Coller and Yohn 1997) and cost of capital (Botosan 1997; Sengupta 1998).

A major customer's EAs are important information events for its supplier's investors, based on which they can revise expectations about the supplier's future earnings and cash flows on a regular basis (Pandit et al. 2011). Prior studies, however, indicate that public disclosures create idiosyncratic beliefs among investors with diverse prior views (Varian 1989; Harris and Raviv 1993; Kandel and Pearson 1995) and thus trigger investors' additional information searches (Kim and Verrecchia 1994, 1997; Barron et al. 2002), which in turn increases the demand for voluntary disclosures. Furthermore, the customer's EA could arguably increase information asymmetry

between the managers of the supplier and its investors. Compared to managers, investors have less information with which to evaluate the implications of the customer's EA news, such as details of transactions with the customer, the size of relationship-specific investments for the customer, order backlog for the customer, and the amount of receivables from the customer.[6] Thus the customer's EA news could result in a higher level of information asymmetry between the supplier and its investors, increasing the investors' demand for public disclosures from the supplier.

We hypothesize that the likelihood that a supplier issues earnings guidance in a short period subsequent to its customer's EA increases with the magnitude of the news conveyed at its customer's EA. If the customer's EA news deviates more from the market's expectation, investors with diverse priors and/or limited ability to interpret the news are likely to search for more information to assess how the customer's news would influence the supplier's future prospects, for example, by affecting the supplier's strategic decisions to cut or expand relationship-specific investments, the supplier's ability to collect receivables from the customer (or to extend credit terms for the customer), or the sustainability of any existing long-term contracts with the customer. The supplier would be more likely to provide earnings guidance as a response to higher investor demand for additional information. Thus, we propose our hypothesis in an alternative form as follows:

H1: A supplier is more likely to issue earnings guidance subsequent to its major customer's earnings announcement when the announcement conveys news that deviates more from the market's expectation, other things being equal.

We acknowledge, however, that the opposite prediction is also possible. If the customer's EA news provides relevant, useful information about the supplier's future prospects (Olsen and

[6] In contrast, the supplier's managers are equipped with more information to assess the implications of the customer's EA news for future prospects, and thus they are in a better position to process the news. Moreover, managers are likely to have private channels to obtain the customer's other information, because their employees often interact with each other to facilitate the development and delivery of goods and the supplier and the customer sometimes share board directors.

Dietrich 1985; Pandit et al. 2011), this information transfer could *substitute* as a source of information available to investors and therefore reduce their demand for disclosures (Pownall and Waymire 1989; Land and Lundholm 1996; Jorgensen and Kirschenheiter 2012).[7] Under this scenario, the material news delivered by the customer's EA would decrease, not increase, the investors' demand for the supplier's earnings guidance. Thus the effect of the customer's EA news on its supplier's disclosure decision is an empirical question.

We next examine whether the effect of the customer's EA news on the supplier's disclosure varies depending on whether the news is positive or negative. Hui et al. (2012) suggest that a supplier incurs substantial costs when its customer experiences poor performance or financial distress but gains only moderately when the customer performs better than expected, causing the supplier's asymmetric payoffs with respect to the customer's performance. In addition, suppliers are known to suffer from hold-up problems, which result in underinvestment due to the uncertainty regarding their customers' future performance and payment (Drake and Haka 2008). The lower than optimal investment, in turn, can limit the benefits that suppliers could enjoy when they face a positive demand shock from their customers who perform better than expected. In contrast, the potential downside associated with the customer's poor performance comes in various adverse forms, including the disruption of long-term contracts, delayed payments, lower returns from relationship-specific investments, and customer switching costs.[8] Therefore, we expect investors to be more

[7] Pownall and Waymire (1989) estimate information transfers using annual EAs of other firms in the same industry and find that non-forecasters receive a greater magnitude of information transfers from other firms' EAs than forecasters. They argue that their result is consistent with managers being less likely to release forecasts when alternative sources of information from other firms are available to investors in forming earnings expectations. Lang and Lundholm (2006) show that after controlling for a firm's own earnings, the earnings of other firms in the same industry offer incremental explanatory power for the firm's returns, suggesting that intra-industry information transfers can serve as a signal to meet investors' information demands. A theoretical paper by Jorgensen and Kirschenheiter (2012) shows that when two managers' private signals are positively correlated, the follower free rides by disclosing less frequently, thereby avoiding the exogenously specified cost of disclosure.

[8] In addition, major customers who experience poor performance are more likely to request their dependent suppliers to provide contracting concessions, such as lowering prices and extending trade credit.

concerned about negative news and thus demand more disclosure when the customer's EA news is negative than when it is positive. Thus, we posit the following hypothesis in an alternative form:

H2: The effect of a major customer's earnings announcement on its supplier's earnings guidance (as stated in H1) is stronger when the customer's EA news is negative than when it is positive, other things being equal.

We also predict that the strength of information demand by investors further explains cross-sectional variations in the effect of the customer's EA news on its supplier's propensity to issue earnings guidance. We expect this effect to be more pronounced when investors' demand for disclosure is stronger. To capture the strength of investors' demand, we first use transient institutional investors' ownership. Prior studies show that institutional investors have a strong preference for firms with more disclosure and that this preference exerts pressure on managers to increase disclosure (Healy, Hutton, and Palepu 1999; Ajinkya, Bhojraj, and Sengupta 2005). In particular, Bushee and Noe (2000) classify institutional investors into three groups – transient, dedicated, and quasi-indexers – based on their trading behavior and show that firms' disclosure levels (measured by analysts' ratings on disclosure) increase only with transient institutional investors' ownership. Thus, we expect the effect of the customer's EA news to be stronger when the supplier's shares are owned more by transient institutional investors, who tend to pursue short-term profits based on short-term information and thus have a stronger demand for earnings guidance.

In addition, we expect investors' demand for disclosure to be greater when the customer's EA increases information asymmetry between more and less informed investors, measured by the change in bid-ask spreads for the supplier's stocks around the customer's EA.[9] If the increase in spreads suggests a greater risk of trading with more informed investors, investors' demand for

[9] Research on bid-ask spreads suggests that the spread is comprised of three types of costs facing the dealer – order-processing costs, inventory holding costs, and adverse selection costs – and that the adverse selection component reflects the degree of information asymmetry risk perceived by the dealer (Callahan, Lee, and Yohn 1997). Our empirical proxy (the change in bid-ask spreads) differences away the first two components and isolates the adverse selection component.

public disclosure will likely increase. Consistent with this argument, Coller and Yohn (1997) show that when information asymmetry risk is higher, firms are more likely to issue earnings guidance and that this voluntary disclosure is effective in lowering information asymmetry.

The above discussion leads to the following hypotheses in alternative forms:

H3a: The effect of a major customer's earnings announcement on its supplier's earnings guidance (as stated in H1) is stronger for suppliers with higher transient institutional investors' ownership.

H3b: The effect of a major customer's earnings announcement on its supplier's earnings guidance (as stated in H1) is stronger for suppliers that experience an increase in bid-ask spreads after the customer's earnings announcement.

Despite its capital market benefits, voluntary disclosure is costly. It incurs dissemination costs and costs to correct potential misinterpretation, as well as litigation and reputation costs associated with failing to meet expectations set by earnings forecasts. Managers compare the benefits against the costs when they make disclosure decisions. When the information transfer from the customer has greater implications for the supplier's future earnings, the benefit-to-cost ratio of voluntary disclosure decreases, because information transfers from the customer's disclosure could readily replace other sources of information. Empirical evidence in the intra-industry setting is consistent with this prediction. Gong, Li, and Zhou (2013), for example, find that managers are less likely to issue earnings guidance when their firms' earnings have high covariance with the earnings of other firms in the same industry.

Therefore, we expect the effect of the customer's EA news on the supplier's disclosure to be weaker when the two firms share more commonalities and thus the customer's news provides more revealing (or more value-relevant) information about the supplier's future prospects. To examine this prediction, we focus on industry- and location-specific commonalities between the customer and the supplier. For a customer and supplier pair operating in the same industry, the customer's EA is likely to be more revealing for the supplier's future prospects, because the EA reflects industry-

specific information in addition to the supply-chain specific information. Similarly, the customer's EA can convey additional location-specific information when the customer and the supplier are located in the same geographic area. Location-specific information can make the customer's EA more revealing, because both firms are affected by the same features of the local environment (such as local economic conditions, local labor and product markets, and local regulations), as well as the sentiment of geographically proximate investors. This argument is consistent with prior studies finding that firms headquartered in the same geographic area exhibit stronger return comovement than other firms (Pirinksky and Wang 2006; Barker and Loughran 2007).[10, 11]

The above discussion leads to the following hypotheses in alternative forms:

H4a: The effect of a major customer's earnings announcement on its supplier's earnings guidance (as stated in H1) is weaker when the two firms operate in the same industry.

H4b: The effect of a major customer's earnings announcement on its supplier's earnings guidance (as stated in H1) is weaker when the two firms are located in the same geographic area.

III. DATA AND RESEARCH DESIGN

Data and Sample Selection

SFAS No. 131 and SEC Regulation S-K require firms to report in their 10-K filings the sales to and identity of any customer that comprises more than 10% of total firm revenues. We obtain information on customer-supplier relationships from the Compustat segment customer file. Since the database reports only the names of the major customers without identifiers, we manually

[10] Prior studies also document a strong bias in the portfolio holdings of investors towards local companies because of their informational advantages (e.g., Coval and Moskowitz 1999, 2001; Baik, Kang, and Kim 2010). When the customer and the supplier share a larger pool of geographically proximate investors, the customer's EA news can be more revealing to the supplier's investors, who can better process the news with their information advantages.

[11] For H4, we focus on industry- and location-specific commonalities, instead of actual stock return comovement of customer-supplier pairs, because they are *ex ante* measures that can be easily observed by investors. Untabulated results show that the correlation of abnormal returns over the customer's EA window between the supplier and the customer is higher for pairs sharing the same industry or the same geographic location than for other pairs.

match customers to their Compustat identifier (i.e., GVKEY), following the identification and classification procedure discussed in Banerjee et al. (2008).[12] We next use the IBES Guidance file to identify firms that issue earnings guidance. Additional data are obtained from Compustat (for financial variables), CRSP (for stock return variables), Thomson Reuters (for institutional investor variables), IBES (for analyst variables), and SDC (for equity offering variables).

Our research design requires a one-to-one pair of a firm and its major customer in each year. In cases where a firm reports multiple customers, we select the customer that contributes the largest amount of sales to the firm during the firm's fiscal year.[13] We then merge these data with the customer's quarterly EAs from IBES. Specifically, for each supplier firm-year, we choose its major customer's first EA after 90 days from the supplier's previous fiscal year-end (which allows time for the customer information in the supplier's 10-K to be publicly available). To avoid the effect of the Fair Disclosure Regulation (Reg FD), we restrict the sample to firms covered by IBES between 2001 and 2012. After removing observations with missing values for control variables, we obtain a final sample of 8,570 supplier firm-years that have their major customers' EA data.

Regression Model

Our study examines a supplier's voluntary disclosure decision during a short period after its customers' information release. For this purpose, we focus on the customer's EAs as major information events providing news to the market (including the customer's management forecasts and any other information bundled with the EA) and use the management earnings guidance as a

[12] If the customer's GVKEY is not uniquely identified or the dollar amount of the sales to the customer is not available, we drop such firms from our sample.

[13] We choose this research design because when a supplier has multiple customers, the supplier is unlikely to issue multiple forecasts over a short-time period as separate responses to different customers. We recognize, however, that the occurrence of other customers' EAs over the same 45-day window can introduce noise into our tests. In untabulated analyses, we repeat our tests after removing such cases from the sample and find that our inferences remain the same.

proxy for the supplier's voluntary disclosure choice. To test H1 and H2, we estimate the following probit models in equations (1) and (2), respectively:

$$\begin{aligned} DISC &= \alpha_0 + \alpha_1 ABS(C\_CAR) + \alpha_2 RET45D + \alpha_3 INST + \alpha_4 ANALYST + \alpha_5 VOL \\ &+ \alpha_6 MTB + \alpha_7 LOG(AT) + \alpha_8 ROA + \alpha_9 RET + \alpha_{10} LOSS + \alpha_{11} EQISS \\ &+ \alpha_{12} NUMSEG + \alpha_{13} LIT + \text{Industry dummies} + \text{Year dummies} + \varepsilon \end{aligned} \quad (1)$$

$$\begin{aligned} DISC &= \beta_0 + \beta_1 P\_ABS(C\_CAR) + \beta_2 N\_ABS(C\_CAR) + \beta_3 RET45D + \beta_4 INST \\ &+ \beta_5 ANALYST + \beta_6 VOL + \beta_7 MTB + \beta_8 LOG(AT) + \beta_9 ROA + \beta_{10} RET + \beta_{11} LOSS \\ &+ \beta_{12} EQISS + \beta_{13} NUMSEG + \beta_{14} LIT + \text{Industry dummies} + \text{Year dummies} \\ &+ \varepsilon \end{aligned} \quad (2)$$

In equations (1) and (2), DISC is an indicator variable that equals one if the firm issues any voluntary earnings guidance (either quarterly or annual) within a 45-day period after its customer's quarterly EA, and zero otherwise.[14] In equation (1), ABS(C_CAR) is the absolute value of C_CAR, which is the customer's cumulative market-adjusted return over the two-day period starting from the customer's EA date. Compared to the news inferred from analyst forecast errors, this market-based measure provides a more comprehensive metric of the customer's EA news, which includes bundled management forecasts, if any, and any news related to the customer's revenue growth and operating investments disclosed over the EA window. Thus, ABS(C_CAR) captures the magnitude of total news available to the market as impounded in the customer's stock price. H1 implies $\alpha_1 > 0$ in equation (1).

In equation (2), P_ABS(C_CAR) is the product of ABS(C_CAR) and an indicator variable that equals one if C_CAR takes a positive value, and zero otherwise. Similarly, N_ABS(C_CAR) is the product of ABS(C_CAR) and an indicator variable that equals one if C_CAR takes a negative

[14] Consistent with prior work on management earnings guidance (e.g., Ajinkya et al. 2005), we exclude preannouncements (i.e., earnings guidance issued after the fiscal period end but before the actual EAs) in defining DISC. Preannouncements are regarded as a part of a firm's EA strategy rather than a guidance strategy (Houston, Lev, and Tucker 2010). Our inferences do not change, however, if we include preannouncements as earnings guidance.

value, and zero otherwise. Accordingly, these two variables capture the magnitude of good and bad news, respectively, impounded in the customer's stock price. H2 implies $\beta_2 > 0$ and $\beta_2 > \beta_1$.[15]

Following prior work on voluntary disclosures, (e.g., Ajinkya et al. 2005; Hutton 2005), we include a set of control variables in equations (1) and (2). First, RET45D is included to control for the effect of the supplier's stock performance during the same period DISC is measured. We measure RET45D as the firm's market-adjusted returns compounded over the 45-day period after its customer's EA. We expect a positive coefficient on RET45D, as firms with higher stock performance are more likely to make disclosures (Miller 2002). We control for INST (i.e., institutional investors' ownership) and ANALYST (i.e., number of analysts following the firm), because these variables are likely to be correlated with the demand for disclosures (e.g., Ajinkya et al. 2005; Hutton 2005).

In addition, we control for firm characteristics that are likely to be correlated with managers' disclosure incentives, such as VOL (i.e., stock return volatility), MTB (i.e., market-to-book ratio), LOG(AT) (i.e., natural logarithm of total assets), ROA (i.e., return on assets), RET (i.e., annual stock returns), LOSS (i.e., an indicator of loss incidence), EQISS (i.e., an indicator of equity issuance), NUMSEG (i.e., number of segments), and LIT (i.e., litigation risk). For example, while higher volatility (VOL) could make earnings forecasts more difficult and thus reduce the likelihood of forecast issuance, higher growth opportunities (MTB) are likely to incentivize managers to issue earnings forecasts to access external capital markets. Larger firms (LOG(AT)) are also more likely to issue earnings guidance, because they have more resources. In addition to RET45D (which captures short-term stock performance), we further include long-term accounting and stock performance variables, such as ROA, RET, and LOSS, to control for the effect of the firm's performance. A firm has a greater

[15] The regression models we use to test H3 and H4 are similar to equations (1) and (2), except that we further include interaction variables on the right-hand side of the equations. We discuss the regression models for H3 and H4 later in corresponding sections.

incentive to disclose to lower costs of capital upon equity issuance (EQISS). The number of segments (NUMSEG) is likely to have a negative effect on earnings guidance if this variable captures operational complexity and thus forecasting difficulty. Litigation risk (LIT) is expected to be positively associated with earnings guidance if silence is more likely to trigger litigation. Finally, we include industry (based on Fama French 48 industries) and year fixed effects to control for potential heterogeneity across industries and the time trends. The Appendix A provides detailed definitions of all variables. To avoid undue influences of outliers, we winsorize continuous variables at 1% and 99%. We calculate p-values with standard errors adjusted by clustering industry-year (based on Fama-French 48 industries).

Descriptive Statistics

Panel A of Table 1 reports the distribution of sample firms by industry. Durable manufacturers comprise 29% of our sample firms, followed by computer companies (25%), pharmaceuticals (10%), services (5%), and textile and printing/publishing (5%), suggesting that most of the sample firms operate in manufacturing industries. Their major customers, however, appear to operate in quite different industries. Durable manufacturers, computer companies, pharmaceuticals, services, and textile and printing/publishing comprise only 19%, 15%, 7%, 2%, and 1% of customers, respectively. In addition, not surprisingly given their customer-supplier relationships, roughly 30% of customers operate in the retail industry.

Panel B of Table 1 presents the summary statistics of the variables used in our analyses. The mean value of DISC is 0.1503, suggesting that 15% of the sample firms issue earnings guidance within a 45-day period after its customer's quarterly EA. This figure is smaller than the average proportion of sample firms issuing earnings guidance in other studies, because we restrict earnings guidance to that issued only within a short time period after the EAs. The mean value of ABS(C_CAR) is 0.0418, with 4,327 firm-years of positive C_CAR (with an average of 0.0420,

untabulated) and 4,243 firm-years of negative C_CAR (with an average of -0.0405, untabulated). Panel C of Table 1 shows the Pearson correlations of the variables. Consistent with our predictions, RET45D, INST, ANALYST, MTB, LOG(AT), ROA, and LIT are positively correlated with DISC, whereas VOL and LOSS are negatively correlated with DISC. The signs of the correlations between DISC and control variables are largely consistent with the results in prior research.[16]

IV. EMPIRICAL ANALYSES

Effect of the Customer's EA on Voluntary Disclosure: Tests of H1 and H2

Column (1) of Table 2 reports the result of the probit model estimating equation (1). It shows that the coefficient on ABS(C_CAR) is positive and significant at $p<0.10$ (two-sided), suggesting that the likelihood of management earnings guidance increases with the magnitude of the total news conveyed at its major customer's EA. To assess the economic significance of the effect, we calculate the change in the probability of earnings guidance as a result of a change in the magnitude of the customer's EA news. Holding the control variables at their respective means, the marginal change in the probability of earnings guidance is about 1 percent when ABS(C_CAR) increases from the first to the third quartile of the sample distribution. This marginal effect is economically meaningful and not too large to be plausible, given that the unconditional probability of earnings guidance is only about 15 percent in our sample. The results on control variables are, by and large, consistent with our expectations. We find that the likelihood of earnings guidance increases with short-term stock performance (RET45D), institutional ownership (INST), the

[16] There are two variables whose correlations with DISC are not consistent with our predictions. First, EQISS is negatively correlated with DISC. One potential explanation is that issuers may restrain themselves from issuing earnings guidance to avoid gun-jumping violations prior to equity offers. Second, NUMSEG is positively correlated with DISC. This variable, however, is highly correlated with LOG(AT), possibly capturing the size effect when considered at the univariate level.

number of analysts following (ANALYST), firm size (LOG(AT)), return on assets (ROA), and litigation risk (LIT), while the likelihood decreases with stock return volatility (VOL). Overall, the results in Column (1) are consistent with H1 that firms are more likely to issue earnings guidance when their major customers' EAs convey the greater amount of news.

Column (2) of Table 2 reports the results of the probit model estimating equation (2). It shows that while the coefficient on P_ABS(C_CAR) is not significantly different from zero, the coefficient on N_ABS(C_CAR) is positive and significant at $p<0.05$ (two-sided). The marginal effect is about 1 percent when N_ABS(C_CAR) increases from the first to the third quartile of the sample distribution while holding other independent variables at their respective means. In addition, when we test whether the coefficient on N_ABS(C_CAR) is greater than that on P_ABS(C_CAR), we find that it is indeed so at $p<0.10$ (two-sided, untabulated). These results support H2 that the effects of a major customer's positive versus negative EA news are asymmetric with respect to the propensity to issue earnings guidance; the effect is stronger when the EA news is negative than when it is positive, suggesting that the demands for and benefits of voluntary disclosure are greater when the customer's EA conveys negative news.

To ensure that these results are not driven by any confounding macroeconomic and/or industry-specific shocks common to both the customer and the supplier, we perform a series of falsification tests and report the results in Table 3. In Panel A, we measure ABS(PRE_C_CAR) as the absolute value of the customer's cumulative market-adjusted returns over the pre-EA period (-15, -2) and replace ABS(C_CAR) with ABS(PRE_C_CAR) in equation (1). We also measure P_ABS(PRE_C_CAR) and N_ABS(PRE_C_CAR) in a similar way and replace P_ABS(C_CAR) and N_ABS(C_CAR) with these two variables, respectively, in equation (2). If a common shock prior to the customer's EA is behind both the customers' EA news and the supplier's earnings guidance, we should observe a strong relationship between the magnitude of the customer news

measured over the pre-EA period and the incidence of the supplier's earnings guidance. The results reported in Panel A of Table 3, however, show that none of the coefficients on these falsification variables are statistically significant, suggesting the results in Table 2 are unlikely explained by common macroeconomic and/or industry-specific shocks prior to the customer's EA.[17]

In Panel B, we conduct another falsification test using a sample of pseudo-suppliers. Specifically, for each customer-supplier pair, we randomly select a pseudo-supplier from a group of firms matched based on the supplier's four-digit SIC code and its fiscal year-end. Then we examine the pseudo-supplier's earnings guidance decisions subsequent to the original customer's EA. If the supplier's earnings guidance is a response to a macroeconomic or industry-wide shock common to both the customer and the supplier, similar findings would be observed for pseudo-suppliers selected from industry peers. The results reported in Panel B of Table 3 show that none of the variables of interest have a significant coefficient, further mitigating a concern that our results in Table 2 are driven by common shocks.[18]

Role of the Strength of Information Demand: Tests of H3

H3a implies that the effect of a major customer's EA news on its supplier's voluntary disclosure is stronger when the supplier's shares are owned more by investors who tend to trade based on short-term earnings news. To test H3a, we define an indicator variable, High Transient, that equals one if the percentage shares of the supplier's stock held by transient institutional

[17] Alternatively, we include ABS(PRE_C_CAR) as an additional control variable in equation (1) and find that the coefficient on ABS(C_CAR) is still significantly positive, while the coefficient on ABS(PRE_C_CAR) is insignificant. Similarly, we include P_ABS(PRE_C_CAR) and N_ABS(PRE_C_CAR) as additional control variables in equation (2) and find that the coefficient on N_ABS(C_CAR) is still significantly positive, while the coefficients on P_ABS(PRE_C_CAR) and N_ABS(PRE_C_CAR) are insignificant. The results in Table 3, Panel A are qualitatively similar when ABS(PRE_C_CAR), P_ABS(PRE_C_CAR), and N_ABS(PRE_C_CAR) are measured over an alternative pre-EA period (-30, -2).

[18] Our results of the cross-sectional analyses involving industry commonalities (which are reported in Panel A of Table 5) also mitigate the possibility that the results in Table 2 are driven by industry common shock. We find that industry commonalities reduce the effect of the customer's material EA news on the supplier's earnings guidance, which is contradictory to what would be predicted if a common industry shock drives our main results.

investors, as classified by Bushee and Noe (2000) and Bushee (2001), is above the sample median, and zero otherwise. We then add High Transient and the interactions of High Transient with the variables of interest to equations (1) and (2).[19]

Panel A of Table 4 shows that the coefficient on ABS(C_CAR) × High Transient is positive and significant at p<0.01 (two-sided) for DISC in Column (1) and that the coefficient on N_ABS(C_CAR) × High Transient is also positive and significant at p<0.01 (two-sided) in Column (2). These results suggest that the effect of the customer's news on earnings guidance is stronger for suppliers with higher transient institutional investors' ownership, consistent with H3a.

H3b implies that the effect of the customer's news on voluntary disclosure is stronger when the customer's EA increases information asymmetry for the supplier. To test H3b, we define an indicator variable, High Spread, that equals one if the supplier's closing bid-ask spread one day after the customer's EA is higher than the supplier's closing bid-ask spread averaged over the 20 trading days before the customer's EA, and zero otherwise. We then add High Spread and the interactions of High Spread with the variables of interest examined earlier to equations (1) and (2). The mean value of High Spread is 0.3978, suggesting that about 40% of our sample suppliers experience an increase in the bid-ask spread immediately after their customers' EAs.

Panel B of Table 4 shows that the coefficient on ABS(C_CAR) × High Spread is positive and significant at p<0.10 (two-sided) in Column (1) and that the coefficient on N_ABS(C_CAR) × High Spread is also positive and significant at p<0.01 (two-sided) in Column (2). These results suggest that the effect of the customer's news is stronger for earnings guidance when the supplier's information asymmetry increases after the customer's EA, consistent with H3b.

[19] Ai and Norton (2003) argue that inferences from estimated interaction terms in a non-linear model are biased and suggest an alternative way to calculate the statistical significance of interaction terms. Subsequent studies, however, conclude that an overall statistical inference obtained from implementing the Ai and Norton (2003) method is unreliable and recommend drawing inferences directly from the estimated interaction terms in nonlinear models (Greene, 2010; Kolasinski and Siegel, 2010). We follow these subsequent studies and assess the directional effect and statistical significance of our interaction terms using the results from estimating our probit models.

Role of Industry- and Location-specific Commonalities: Tests of H4

H4a implies that the effect of the customer's news on its supplier's voluntary disclosure is weaker when both the customer and the supplier operate in the same industry. To test H4a, we define an indicator variable, Same Industry, that equals one if both the customer and the supplier operate in the same three-digit SIC code industry, and zero otherwise.[20] We then add Same Industry and the interactions of Same Industry with the variables of interest to equations (1) and (2). The mean value of Same Industry is 0.1839, suggesting that about 18% of our sample firms operate in the same industry as their major customers, based on the three-digit SIC code.

Panel A of Table 5 shows that the coefficient on ABS(C_CAR) × Same Industry is negative and significant at p<0.01 (two-sided) in Column (1) and that the coefficient on N_ABS(C_CAR) × Same Industry is also negative and significant at p<0.01 (two-sided) in Column (2). The sum of the coefficients on ABS(C_CAR) and ABS(C_CAR) × Same Industry is -1.5799 in Column (1) (p=0.1130, two-sided, untabulated). The sum of the coefficients on N_ABS(C_CAR) and N_ABS(C_CAR) × Same Industry is -2.0859 in Column (2), which is significantly different from zero at p<0.10 (two-sided, untabulated). The negative coefficient suggests that for a subset of suppliers that share industry commonalities with their customers, customers' EAs substitute for the earnings guidance of suppliers in the same industry (Pownall and Waymire, 1989). In general, the results in Panel A of Table 5 are consistent with H4a.

H4b implies that the effect of the customer's news on its supplier's voluntary disclosure is weaker when both the customer and the supplier operate in the same geographic region. To test H4b, we define an indicator variable, Neighborhood, that equals one if the distance between the

[20] A narrower definition of industry (such as the four-digit SIC code) captures higher commonalties between the firms, but it reduces the number of firms characterized as Same Industry = 1. Our results are robust when we define Same Industry based on the four-digit SIC code.

headquarters of the customer and that of the supplier is less than 100 miles or the headquarters of both the customer and the supplier are located in the same metropolitan statistical area (MSA), and zero otherwise. We then add Neighborhood and the interactions of Neighborhood with the variables of interest examined earlier to equations (1) and (2). The mean value of Neighborhood is 0.1198, suggesting that about 12% of our sample suppliers' headquarters are located less than 100 miles away from their customers' headquarters or in the same MSAs as their customers' headquarters. We obtain historical headquarters' location data from WRDS SEC Analytics Suite.

Panel B of Table 5 shows that the coefficient on ABS(C_CAR) × Neighborhood is negative and significant at $p<0.10$ (two-sided) in Column (1) and that the coefficient on N_ABS(C_CAR) × Neighborhood is also negative and significant at $p<0.05$ (two-sided) in Column (2). The sum of the coefficients on ABS(C_CAR) and ABS(C_CAR) × Neighborhood in Column (1) is negative but statistically insignificant at conventional levels (untabulated). The sum of the coefficients on N_ABS(C_CAR) and N_ABS(C_CAR) × Neighborhood in Column (2) is also negative and insignificant at conventional levels (untabulated). Consistent with H4b, these results suggest that the effect of the customer EA news on the supplier's disclosure is weaker when they are located in the same geographic region and thus share location commonalities.[21]

Additional Analyses and Robustness Checks

Role of Supply Chain Analysts

In this section, we examine the role of supply chain analysts (i.e., those following a customer-supplier pair) in the relation between the customer's EA news and the supplier's earnings guidance. Guan et al. (2015) argue that researching the customer of a supplier helps analysts better

[21] To validate our choice of industry and location as proxies for commonalities, we examine the correlations in monthly stock returns of the supplier and the customer over the one-year period before the customer's EA and find that the correlations are significantly greater for a pair of customer-supplier that share the same industry or geographic area than other pairs.

understand the supplier's revenue and profit drivers. Consistent with this argument, they find that an analyst who follows a customer-supplier pair along the supply chain provides more accurate earnings forecasts for the supplier, especially subsequent to the customer's EA. Therefore, to the extent that supply chain analysts better process the customer's EA news and provide more accurate forecasts for the supplier, the managers' incentives and the investors' demand for earnings guidance could be lower.

To test this prediction, we construct a variable, SC Analyst, which is defined as the number of supply chain analysts who issue at least one forecast for the customer as well as for the supplier during the one-year period around the customer's EA (i.e., from -180 to +180 days around the customer's EA). We then add SC Analyst and the interactions of SC Analyst with the variables of interest to equations (1) and (2). The mean (median) of SC Analyst is 1.04 (0). In our sample, 2,494 supplier-years are followed by at least one supply chain analyst. Table 6 shows that the coefficient on ABS(C_CAR) × SC Analyst is negative and significant at $p<0.05$ (two-sided) in Column (1) and that the coefficient on N_ABS(C_CAR) × SC Analyst is also negative and significant at $p<0.01$ (two-sided) in Column (2). These results suggest that the supplier is less likely to issue earnings guidance subsequent to the customer's EA when supply chain analysts better process the customer's EA news for the supplier's investors.[22]

[22] We also examine whether the customer's economic significance (i.e., sales from the customer divided by total sales) to the supplier moderates the effect of the customer's EA on its supplier's earnings guidance. The role of the customer's economic significance is *ex ante* not clear. On the one hand, when the supplier relies more on the customer in generating sales, the customer's material news is more likely to unsettle the supplier's investors, resulting in a greater demand for disclosures. On the other hand, when the supplier is more dependent on the customer, the customer's EA news provides more revealing information about the suppliers' future prospects, lowering the demand for disclosures. Untabulated results show that the customer's economic significance does not have a significant influence on the relation between the customer's EA news and the supplier's earnings guidance. It is possible that the two opposing effects discussed above (i.e., the information demand effect versus the substitution effect) cancel out each other and result in an insignificant effect.

Upward versus Downward Guidance Revision

We further investigate the directional change of the supplier's earnings guidance after the customer's EA and report the results in Table 7. Specifically, we replace the dependent variable with DISC_UP in Columns (1) and (2) and DISC_DOWN in Columns (3) and (4). DISC_UP (DISC_DOWN) equals one if the firm issues earnings guidance revised upward (downward) from the guidance issued previously for the same period before the customers' EA, and zero otherwise.[23] When DISC_UP is examined as the dependent variable in Columns (1) and (2), the coefficients on both ABS(C_CAR) and N_ABS(C_CAR) are significantly positive. When DISC_DOWN is examined in Columns (3) and (4), however, neither ABS(C_CAR) nor N_ABS(C_CAR) is significant. While Sletten (2012) argues that a negative shock to an industry peer (measured by restatements) lowers a firm's disclosure threshold by turning previously withheld bad news into good news, our results are unlikely to be explained by a lowered disclosure threshold after the customer's negative EA. For the analyses in Table 7, we already removed firms from the sample that are likely to withhold bad news (i.e., firms that do not issue guidance before the EA, but do issue guidance after the EA). That is, the upward-revised guidance released by the supplier is unlikely to be the result of the lowered disclosure threshold but is likely to reflect new information that managers obtain after the previous guidance issuance.

Moreover, in untabulated analyses, we find that earnings guidance with an upward revision is significantly more accurate than that issued before the customer's EA, regardless of whether the customer's EA news is positive or negative. Furthermore, we find that the forecast optimism is statistically indifferent between the guidance issued after the customer's positive vis-à-vis negative

[23] For firm-years with DISC = 1, if no guidance was issued previously, DISC_UP and DISC_DOWN take a missing value and the firm-year is removed from the sample. For 776 supplier-years that issue earnings guidance both before and after their customer's EA, 54% issue the same forecast (confirming forecast), followed by 29% of upward revision and 17% of downward revision.

EA news, indicating that upward revisions are unlikely to be more opportunistic subsequent to the customer's negative EA news compared to those issued after the customer's positive EA news. Taken together, these results suggest that managers are actively fending off the adverse effect of the information transfers from their customers' negative EA news by revising their guidance upward when they have favorable private information.

Components of EA News

ABS(C_CAR) captures the overall magnitude of customer news, which includes various news components disclosed at the customer's EA (e.g., earnings news, bundled forecast news, and seasonal changes in revenues, costs of goods sold, and other expenses). To provide further insights into the effect of the customer's EA, we re-estimate equation (1) after decomposing ABS(C_CAR) into several news components, and report the results in Table 8.

In Panel A of Table 8, we decompose the customer's EA news (C_CAR) into the customer's unexpected earnings (C_UE), bundled forecast news (C_MF), and all other news not explained by the first two news components.[24] Specifically, we regress C_CAR on C_UE and C_MF, estimating the residual (RESIDUAL1) as a proxy for all other news not explained by these two variables. As reported in Column (1) of Panel A, C_UE and C_MF are significantly positively associated with C_CAR. We then re-estimate equation (1) and report the results in Columns (2) of Panel A after replacing ABS(C_CAR) with ABS(C_UE), ABS(C_MF), and ABS(RESIDUAL1), which are absolute values of C_UE, C_MF, and RESIDUAL1, respectively. In Column (3) of Panel A, we further distinguish customers that regularly bundle earnings forecasts with EA from

[24] We define C_UE as the customer's actual earnings minus the customer's prevailing median analyst forecast, deflated by the customers' beginning stock price. We define C_MF as the customer's annual or quarterly earnings forecast issued at the EA for its future period minus the prevailing median analyst forecast for the same period, deflated by the customers' beginning stock price. If the customer issues forecasts for different future periods, we select the forecast with the largest news. If the customer does not issue any earnings forecasts, C_MF takes a value of zero.

those that do not. We define PR_BUNDLE as an indicator variable that equals one if the customer issued a bundled forecast at its previous EA date and zero otherwise, and interact ABS(C_MF) with PR_BUNDLE and (1 – PR_BUNDLE).

As reported in Columns (2) and (3) of Panel A, the coefficients on ABS(C_UE) is significantly negative, suggesting that information transfers from the customer's unexpected earnings substitute for the supplier's earnings guidance. In contrast, in Column (2) of Panel A, the coefficient on ABS(C_MF) is positive, although significant only at the 10 percent level with one-tailed test, implying that the customer's forward-looking disclosure bundled with the EA could trigger additional information searches by the supplier's investors. In addition, Column (3) of Panel A show that while the interaction of ABS(C_MF) and PR_BUNDLE is insignificant, the interaction of ABS(C_MF) and (1 – PR_BUNDLE) is significantly positive, suggesting that forward-looking information bundled with EA elicits the supplier's guidance particularly when not anticipated by the supplier's investors.

In Columns (2) and (3) of Panel A, the coefficient on ABS(RESIDUAL1) is significantly positive. To the extent that RESIDUAL1 reflects the news unexplained by the customer's earnings-related information (e.g., investments, new orders, and other qualitative non-earnings news released during the EA window), it would be more costly for investors to extract useful statistics from this component of the customer news and thus more difficult for them to draw inferences about the supplier's future outcome. The positive coefficient on ABS(RESIDUAL1) suggests that harder-to-interpret news at the customer's EA increases the supplier investors' demand for additional disclosure.

In Panel B of Table 8, we further take into account seasonal changes in revenues (C_REV), costs of goods sold (C_COGS), and other expenses (C_OTHER) as additional news components

revealed at the EA. Accordingly, we decompose C_CAR into C_UE, C_MF, C_REV, C_COGS, C_OTHER, and all other news not explained by these five news components (RESIDUAL2).[25] Consistent with the results in Panel A, the coefficient on ABS(C_UE) is significantly negative in Columns (2) and (3) of Panel B, whereas the coefficient on ABS(C_MF) is significantly positive in Column (2) of Panel B. In addition, the interaction of ABS(C_MF) and (1 – PR_BUNDLE) is significantly positive in Column (3) of Panel B. We also find that the coefficients on ABS(C_OTHER) and ABS(RESIDUAL2) are significantly positive in Columns (2) and (3) of Panel B.[26] Taken together, the results in Table 8 suggest that forward-looking information unexpectedly bundled with EA and harder-to-interpret information released at the customer's EA trigger additional information searches and lead suppliers to issue earnings guidance subsequently.

Robustness Checks

We perform several robustness checks and report the results in Table 9. First, if suppliers issue earnings guidance regularly at every EA, they likely issue guidance following the predetermined schedule, not as discretionary responses to the customers' EA news. Although such guidance is likely to make it more difficult for us to obtain significant findings, we perform a sensitivity check after excluding firms that issue guidance regularly at their EA, regardless of the customers' EA news, from the sample. Specifically, we regard a supplier firm as being committed to a predetermined disclosure schedule if the firm issues bundled forecasts at every EA over the past four fiscal quarters prior to the current quarter, and we remove those firms from the sample. Using this subsample, we re-estimate equations (1) and (2) and report the results in Panel A of

[25] Information contained in C_UE is not necessarily the same as C_REV – C_COGS – C_OTHER because C_UE is the unexpected earnings relative to analyst forecasts while C_REV, C_COGS, and C_OTHER represent seasonal changes from the previous year.

[26] The change in customer's other expenses would be harder to interpret when assessing its supplier's future outcome, compared with changes in the customer's sales or costs of goods sold.

Table 9. The coefficients on ABS(C_CAR) and N_ABS(C_CAR) remain positive and significant at p<0.05 (two-sided), suggesting that our main findings are not driven by firms committed to a predetermined guidance schedule.[27] Alternatively, we also regard a supplier as being committed to a predetermined disclosure policy if the firm issues earnings guidance within a 45-day period subsequent to each of the customer's EAs over the past four quarters. Our inferences remain unchanged when we exclude those firms from the sample in untabulated analyses.

Second, we examine the supplier's guidance decision over longer horizons subsequent to the customer's EA and report the results in Panel B of Table 9. In Columns (1) and (2) ((3) and (4)), we replace the dependent variable with DISC60 (DISC90), an indicator variable that equals one if the supplier issues earnings guidance within a *60-day* (*90-day*) period after the customer's EA, and zero otherwise. Consistent with the results based on a 45-day period, the coefficients on ABS(C_CAR) and N_ABS(C_CAR) are significantly positive for DISC60 in Columns (1) and (2), respectively. When we examine the guidance decision over a *90-day* period in Columns (3) and (4), however, the results become much weaker. The coefficient on neither ABS(C_CAR) nor N_ABS(C_CAR) is significant, although their signs are still positive. Measured over a long horizon, a firm's earnings guidance decision is likely affected by the firm's disclosure policy in place, as well as other confounding news, which potentially leads to insignificant results with earnings guidance examined over a 90-day period.

[27] Another concern involving bundled forecasts is the possibility that suppliers having their own EA in the 45-day period may have a higher chance to issue earnings guidance (bundled with EA) than other suppliers. To address this concern, in untabulated analyses, we examine a supplier's guidance decision over an alternative period that ends on the supplier's first EA date after the customer's EA date (so that every supplier has a chance to issue bundled forecasts, if they wish, on its own EA date). The mean value of this period in our sample is about 47 days, suggesting that suppliers release their own earnings 47 days after their customer's EA, on average. Our inferences remain unchanged when we use this alternative disclosure window.

Alternative Explanations

An alternative explanation for our finding is that suppliers learn information from their customers' EAs and thus are more likely to issue earnings guidance with improved accuracy when the customers' EAs convey material news. Although we find an improvement in the accuracy of the supplier's guidance issued after the customer's EA relative to the guidance issued before the EA, in an untabulated analysis, this improvement is no longer significant once we control for the effect of the shorter forecast horizon of later guidance. In addition, in another untabulated analysis, we find no evidence that the improvement in accuracy is increasing in ABS(C_CAR), mitigating the possibility of direct learning from the customer's EA as an alternative explanation for our finding.

Second, Tse and Tucker (2010) suggest that managers tend to herd in their warnings as an attempt to attribute their bad news to market or industry factors that are outside the managers' control. Given that the effect we document is more pronounced when the customer's EA is negative, one may argue that our result is likely driven by managers' herding to reduce apparent responsibility for bad news. As reported in Table 7, however, we find that managers are more likely to issue upward-revised guidance (not downward-revised guidance) shortly after the negative EA from their customers, mitigating the possibility that the herding in disclosures for a blaming game is the main driver of our results.

V. ANALYSES OF THE CUSTOMER'S CREDIT-RATING ANNOUNCEMENT

While the analyses so far focus on EA as the customer's major event, in this section we examine the customer's credit-rating announcement as another information event to test the effect of the customer news on a firm's voluntary disclosure decisions. A credit rating is an independent evaluation of a firm's ability to make debt payments in a timely fashion. A change to a credit rating

signals that the firm's creditworthiness has changed, and this event has information content, as it affects the firm's security prices (Holthausen and Leftwich 1986; Hand, Holthausen, and Leftwich 1992; Jorion, Liu, and Shi 2005).[28] The change in a major customer's creditworthiness can directly affect its supplier's ability to collect receivables from the customer and indirectly affect the stability of long-term contracts with the customer, as well as the supplier's plan for relationship-specific investments. In particular, the effect is likely to be stronger when the customer experiences a credit-rating downgrade rather than an upgrade, because downside credit risk is much more important to the supplier than the upside benefit.[29] Moreover, the credit-rating downgrade may harm the long-term sustainability of customer-supplier relationship to the extent that the customer's capacity for future financing and investing is adversely affected by the downgrade. Therefore, we expect the supplier's investors to demand more disclosures subsequent to the customer's credit-rating changes (especially after rating downgrades), so that they can better process the implication of the customer's news in valuing the supplier.

For this analysis, we collect the data of customer credit-rating announcements from the Mergent FISD Bond Rating database, which provides credit ratings issued by Standard and Poor's, Moody's, Fitch Ratings, and Duff and Phelps. We select credit ratings that are coded as "upgrade," "downgrade," and "affirmation," excluding other categories, such as "initial" and "withdrawn" ratings. Then, similar to our analysis of EAs, we identify a major customer's first credit rating announcement after 90 days from the supplier's fiscal year-end over the 2001-2012 period. After merging with IBES

[28] In particular, Jorion et al. (2005) find that market reactions to credit-rating changes increased after Reg FD was introduced in October 2000. They argue that this is because while Reg FD prevents firms from pre-releasing any price-sensitive information to analysts, brokers or institutions, firms are allowed to reveal the information to credit-rating agencies, leading to greater market reactions to credit-rating changes after Reg FD.

[29] If the credit risk associated with the downgrade is substantial, the supplier may consider limiting the supply of trade credit to the customer, backing away from entering into long-term contracts, or delaying shipments.

Guidance and other databases for control variables, we obtain a final sample of 2,181 supplier firm-years that have their major customers' credit-rating information and other necessary data.

Panel A of Table 10 reports the summary statistics of the variables used in this analysis. DISC is an indicator variable that equals one if the supplier provides earnings guidance (either quarterly or annual) within a 45-day period after its major customer's credit rating announcement, and zero otherwise. The mean value of DISC is 0.1609, similar to the mean of the same variable in Panel B of Table 1. C_CHANGE is an indicator variable that equals one if the credit rating is "upgrade" or "downgrade," and zero otherwise (i.e., "affirmation"). C_UP (C_DOWN) is an indicator variable that equals one if the credit rating is "upgrade" ("downgrade"), and zero otherwise. The mean values of these variables are 0.4590, 0.2251, and 0.2338, respectively.

Panel B of Table 10 reports the result of the probit model that examines the effect of the customer's credit-rating announcement on the likelihood of the supplier's earnings guidance. In Column (1), we replace ABS(C_CAR) with C_CHANGE and estimate equation (1). The coefficient on C_CHANGE is not significantly different from zero, suggesting that, on average, the customer's credit rating change has no significant effect on the supplier's voluntary disclosure. In Column (2), we replace P_ABS(C_CAR) and N_ABS(C_CAR) with C_UP and C_DOWN, respectively, and estimate equation (2). While the coefficient on C_UP is not significantly different from zero, the coefficient on C_DOWN is positive and significant at $p<0.01$ (two-sided), indicating that only the customer's rating downgrade has a significant effect on the supplier's earnings guidance. This asymmetric effect of the customer's rating upgrade versus downgrade on the supplier's disclosure mirrors the asymmetric effect of the customer's positive versus negative news at EA on the supplier's disclosure, consistent with the notion that adverse news on the customer is more likely to elicit the supplier's voluntary disclosures.

VI. CONCLUSION

This study examines the effect of a major customer's EA on its supplier's voluntary disclosures. The customer's EA can deliver to the market value-relevant information about the supplier (i.e., information transfers), which can substitute for the supplier's earnings guidance. To the extent that investors have diverse priors and/or limited ability to interpret the customer news, however, the customer's EA can increase the demand for earnings guidance.

We find that the supplier is more likely to issue earnings guidance subsequent to the customer's EA when the EA news deviates more from the market's expectation, suggesting that the customer's material EA news triggers a further information search by the supplier's investors. We also find that the effects are asymmetrically greater when the customer's EA news is negative rather than positive, reflecting investors' concerns about the supplier's asymmetric payoffs with respect to its customer's strong vs. poor performance. The effects are stronger for suppliers with greater transient institutional investors' ownership and/or that are experiencing an increase in bid-ask spread after their customers' EAs, but weaker for suppliers operating in the same industry and/or sharing the same geographic location with their customers. We further find that while the news component from the customer's realized earnings substitutes for the supplier's subsequent earnings guidance, forward-looking information irregularly bundled with EA and harder-to-interpret information revealed at the customer's EA trigger additional information searches. Our study makes contributions to the voluntary disclosure literature and the literature on customer-supplier relationships by being the first to document that information externalities from a major customer can influence its supplier's voluntary disclosure decisions.

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APPENDIX A
Variable Definitions

DISC	Indicator variable that equals one if the firm issues earnings guidance (either quarterly or annual) within a 45-day period after its customer's quarterly earnings announcement, and zero otherwise.
ABS(C_CAR)	The absolute value of C_CAR, which is the customer's cumulative market-adjusted returns over the two-day period starting from the customer's quarterly earnings announcement date.
P_ABS(C_CAR)	The product of ABS(C_CAR) and an indicator variable that equals one if C_CAR takes a positive value and zero otherwise.
N_ABS(C_CAR)	The product of ABS(C_CAR) and an indicator variable that equals one if C_CAR takes a negative value and zero otherwise.
RET45D	The firm's market-adjusted returns measured over the 45-day period after its customer's quarterly earnings announcement.
INST	The firm's institutional investors' ownership measured as the percentage shares held by institutional investors at the beginning of the firm's fiscal year.
ANALYST	The number of analysts following the firm at the beginning of the firm's fiscal year.
VOL	The firm's stock return volatility measured as the standard deviation of daily returns over the firm's fiscal year.
MTB	The firm's market-to-book ratio measured as the market value of common equity divided by the book value of common equity at the beginning of the firm's fiscal year.
LOG(AT)	The natural logarithm of the firm's total assets at the beginning of the firm's fiscal year.
ROA	The firm's return on assets measured as income before extraordinary items during the firm's fiscal year divided by the beginning-of-period assets.
RET	The firm's annual returns measured by compounding daily returns over the firm's fiscal year.
LOSS	Indicator variable that equals one if the firm's income before extraordinary items during the firm's fiscal year is negative and zero otherwise.
EQISS	Indicator variable that equals one if the firm made equity offerings during the firm's fiscal year, and zero otherwise.
NUMSEG	The firm's number of segments.
LIT	Indicator variable that equals one if the firm operates in one of high litigation industries (i.e., SIC code within 2833-2936, 3570-3577, 7370-7374, 3600-3674, 5200-5961, and 8731-8734), and zero otherwise.

TABLE 1
Descriptive statistics

Panel A: Distribution of Sample Firms by Industry

Industry Description	Sample Firms		Major Customers	
	Frequency	Percent	Frequency	Percent
Agriculture	32	0.37%	0	0.00%
Mining and construction	94	1.10%	20	0.23%
Food	352	4.11%	130	1.52%
Textile and printing/publishing	417	4.87%	107	1.25%
Chemicals	253	2.95%	174	2.03%
Pharmaceuticals	819	9.56%	575	6.71%
Extractive	516	6.02%	582	6.79%
Durable manufacturers	2,443	28.51%	1,626	18.97%
Transportation	372	4.34%	649	7.57%
Utilities	68	0.79%	217	2.53%
Retail	294	3.43%	2,513	29.32%
Finance, Insurance, Real Estate	350	4.08%	312	3.64%
Services	445	5.19%	161	1.88%
Computers	2,115	24.68%	1288	15.03%
Non-classifiable	0	0.00%	216	2.52%
Total	8,570	100.00%	8,570	100.00%

Panel B: Summary Statistics

	N	Mean	STD	P25	Median	P75
DISC	8,570	0.1503	0.3574	0.0000	0.0000	0.0000
ABS(C_CAR)	8,570	0.0418	0.0416	0.0135	0.0286	0.0545
P_ABS(C_CAR)	8,570	0.0212	0.0351	0.0000	0.0006	0.0314
N_ABS(C_CAR)	8,570	0.0201	0.0341	0.0000	0.0000	0.0268
RET45D	8,570	0.0173	0.2169	-0.1064	-0.0017	0.1095
INST	8,570	0.4469	0.3420	0.0760	0.4592	0.7579
ANALYST	8,570	5.7995	6.3816	1.0000	4.0000	8.0000
VOL	8,570	0.0378	0.0215	0.0229	0.0323	0.0464
MTB	8,570	2.6870	3.7744	1.1671	1.9547	3.3557
LOG(AT)	8,570	5.9272	1.9108	4.5350	5.8043	7.2965
ROA	8,570	-0.0325	0.2154	-0.0818	0.0265	0.0782
RET	8,570	0.1269	0.6877	-0.2922	0.0215	0.3572
LOSS	8,570	0.3879	0.4873	0.0000	0.0000	1.0000
EQISS	8,570	0.1250	0.3307	0.0000	0.0000	0.0000
NUMSEG	8,570	4.8089	2.9192	3.0000	4.0000	6.0000
LIT	8,570	0.4343	0.4957	0.0000	0.0000	1.0000

TABLE 1 (continued)

Panel C: Pearson Correlation Coefficients

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1)	DISC															
(2)	ABS(C_CAR)	0.010														
		(0.34)														
(3)	P_ABS(C_CAR)	-0.011	0.578													
		(0.33)	(0.00)													
(4)	N_ABS(C_CAR)	0.025	0.552	-0.355												
		(0.02)	(0.00)	(0.00)												
(5)	RET45D	0.018	0.020	0.064	-0.043											
		(0.09)	(0.06)	(0.00)	(0.00)											
(6)	INST	0.161	-0.046	-0.041	-0.010	-0.034										
		(0.00)	(0.00)	(0.00)	(0.34)	(0.00)										
(7)	ANALYST	0.213	-0.012	-0.021	0.009	-0.029	0.376									
		(0.00)	(0.26)	(0.06)	(0.42)	(0.01)	(0.00)									
(8)	VOL	-0.143	0.168	0.127	0.060	0.020	-0.361	-0.269								
		(0.00)	(0.00)	(0.00)	(0.00)	(0.06)	(0.00)	(0.00)								
(9)	MTB	0.029	-0.010	-0.006	-0.007	-0.038	0.036	0.115	-0.052							
		(0.01)	(0.35)	(0.60)	(0.50)	(0.00)	(0.00)	(0.00)	(0.00)							
(10)	LOG(AT)	0.180	-0.056	-0.042	-0.021	-0.038	0.447	0.651	-0.451	-0.013						
		(0.00)	(0.00)	(0.00)	(0.05)	(0.00)	(0.00)	(0.00)	(0.00)	(0.23)						
(11)	ROA	0.110	-0.070	-0.040	-0.038	0.069	0.252	0.164	-0.484	0.003	0.319					
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.79)	(0.00)					
(12)	RET	0.014	-0.047	-0.011	-0.043	0.390	-0.029	-0.058	-0.080	-0.092	-0.022	0.193				
		(0.19)	(0.00)	(0.30)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.04)	(0.00)				
(13)	LOSS	-0.113	0.084	0.055	0.039	-0.057	-0.261	-0.168	0.475	-0.034	-0.300	-0.686	-0.176			
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)			
(14)	EQISS	-0.022	-0.018	-0.014	-0.009	-0.002	0.042	0.034	-0.080	0.033	0.134	-0.017	0.061	-0.026		
		(0.04)	(0.09)	(0.19)	(0.42)	(0.83)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.12)	(0.00)	(0.02)		
(15)	NUMSEG	0.098	-0.002	-0.014	0.015	-0.013	0.163	0.248	-0.193	-0.051	0.389	0.174	0.010	-0.125	-0.010	
		(0.00)	(0.87)	(0.20)	(0.16)	(0.23)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.37)	(0.00)	(0.36)	
(16)	LIT	0.035	0.080	0.019	0.072	0.015	-0.073	0.125	0.181	0.090	-0.138	-0.225	-0.040	0.224	-0.065	-0.022
		(0.00)	(0.00)	(0.08)	(0.00)	(0.18)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.04)

This table shows the descriptive statistics. Panel A reports the distribution of sample firms by industry. Industry membership is determined by SIC code as follows: agriculture (0100-0999), mining and construction (1000-1999, excluding 1300-1399), food (2000-2111), textiles and printing/publishing (2200-2799), chemicals (2800-2824, 2840-2899), pharmaceuticals (2830-2836), extractive (1300-1399, 2900-2999), durable manufactures (3000-3999, excluding 3570-3579 and 3670-3679), transportation (4000-4899), utilities (4900-4999), retail (5000-5999), finance, insurance, and real estate (6000-6799), services (7000-8999, excluding 7370-7379), and computers (3570-3579, 3670-3679, 7370-7379). Panel B reports the summary statistics of the variables used in our analyses, and Panel C reports the Pearson correlation coefficients between variables with p-values in parentheses. All variables are defined in the Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles.

TABLE 2
Effect of Customer News on Suppliers' Disclosure Decision (Test of H1 & H2)

	(1) Dep. Var.: DISC		(2) Dep. Var.: DISC	
	Coef.	p-value	Coef.	p-value
ABS(C_CAR)	0.7683*	0.072		
P_ABS(C_CAR)			0.3564	0.519
N_ABS(C_CAR)			1.3321**	0.011
RET45D	0.1975*	0.085	0.2062*	0.075
INST	0.3396***	0.000	0.3391***	0.000
ANALYST	0.0234***	0.000	0.0234***	0.000
VOL	-6.3319***	0.000	-6.2965***	0.000
MTB	0.0017	0.725	0.0018	0.704
LOG(AT)	0.0726***	0.000	0.0729***	0.000
ROA	0.2895**	0.035	0.2925**	0.033
RET	0.0294	0.346	0.0298	0.340
LOSS	-0.0704	0.227	-0.0693	0.234
EQISS	-0.0414	0.469	-0.0412	0.471
NUMSEG	0.0016	0.850	0.0015	0.859
LIT	0.2461***	0.003	0.2446***	0.003
Industry Fixed Effects	yes		yes	
Year Fixed Effects	yes		yes	
No. of Obs.	8,570		8,570	
Pseudo R^2	0.0992		0.1225	

This table shows the results of the probit regression of DISC on customers' earnings announcement news. All variable are defined in the Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are calculated by clustering industry-year (based on Fama-French 48 industries). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 3
Falsification Test

Panel A: Pre-announcement Customer News

	(1) Dep. Var.: DISC		(2) Dep. Var.: DISC	
	Coef.	p-value	Coef.	p-value
ABS(PRE_C_CAR)	-0.0320	0.926		
P_ABS(PRE_C_CAR)			-0.1386	0.760
N_ABS(PRE_C_CAR)			0.1281	0.803
RET45D	0.2027*	0.079	0.2009*	0.085
INST	0.3397***	0.000	0.3398***	0.000
ANALYST	0.0236***	0.000	0.0236***	0.000
VOL	-6.1473***	0.000	-6.1518***	0.000
MTB	0.0017	0.720	0.0018	0.716
LOG(AT)	0.0724***	0.000	0.0723***	0.000
ROA	0.2914**	0.034	0.2912**	0.034
RET	0.0269	0.392	0.0276	0.387
LOSS	-0.0702	0.229	-0.0704	0.228
EQISS	-0.0408	0.476	-0.0410	0.474
NUMSEG	0.0016	0.855	0.0016	0.851
LIT	0.2491***	0.002	0.2488***	0.002
Industry Fixed Effects	yes		yes	
Year Fixed Effects	yes		yes	
No. of Obs.	8,569		8,569	
Pseudo R^2	0.1217		0.1218	

TABLE 3 (continued)

Panel B: Pseudo-supplier Sample

	(1) Dep. Var.: DISC		(2) Dep. Var.: DISC	
	Coef.	p-value	Coef.	p-value
ABS(C_CAR)	0.0288	0.957		
P_ABS(C_CAR)			0.5432	0.416
N_ABS(C_CAR)			-0.4337	0.502
RET45D	-0.0158	0.905	-0.0216	0.870
INST	0.6169***	0.000	0.6177***	0.000
ANALYST	0.0181***	0.000	0.0180***	0.000
VOL	-4.1618***	0.004	-4.1394***	0.004
MTB	-0.0053	0.322	-0.0053	0.321
LOG(AT)	0.0768***	0.000	0.0771***	0.000
ROA	0.5748***	0.000	0.5787***	0.000
RET	-0.0215	0.537	-0.0224	0.521
LOSS	-0.0230	0.748	-0.0209	0.770
EQISS	0.1153*	0.072	0.1158*	0.071
NUMSEG	0.0015	0.869	0.0013	0.881
LIT	0.0081	0.911	0.0107	0.884
Industry Fixed Effects	yes		yes	
Year Fixed Effects	yes		yes	
No. of Obs.	7,710		7,710	
Pseudo R^2	0.1437		0.1441	

This table shows the results of the falsification tests. In Panel A, ABS(PRE_C_CAR) is the absolute value of PRE_C_CAR, which is the customer's cumulative market-adjusted returns over the pre-announcement period (i.e., (-15, -2) window). P_ABS(PRE_C_CAR) is the product of ABS(PRE_C_CAR) and an indicator variable that equals one if PRE_C_CAR takes a positive value and zero otherwise. N_ABS(PRE_C_CAR) is the product of ABS(PRE_C_CAR) and an indicator variable that equals one if PRE_C_CAR takes a negative value and zero otherwise. In Panel B, the analysis is based on pseudo-supplier sample. For each pair of customer-supplier, a pseudo-supplier is randomly selected from a group of firms matched based on the supplier's four-digit SIC code and fiscal year-end. All other variables are defined in the Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are calculated by clustering industry-year (based on Fama-French 48 industries). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 4
Role of Information Demand (Test of H3)

Panel A: Transient Institutional Investor

	(1)		(2)	
	Dep. Var.: DISC		Dep. Var.: DISC	
	Coef.	p-value	Coef.	p-value
ABS(C_CAR)	-0.7358	0.305		
High Transient	-0.0282	0.662	-0.0278	0.673
ABS(C_CAR) × High Transient	2.4000***	0.004		
P_ABS(C_CAR)			-0.7927	0.407
N_ABS(C_CAR)			-0.5391	0.532
P_ABS(C_CAR) × High Transient			1.8857	0.102
N_ABS(C_CAR) × High Transient			2.9618***	0.004
RET45D	0.2033*	0.075	0.2114*	0.067
INST	0.2590***	0.002	0.2579***	0.002
ANALYST	0.0235***	0.000	0.0234***	0.000
VOL	-6.3422***	0.000	-6.3133***	0.000
MTB	0.0017	0.729	0.0019	0.688
LOG(AT)	0.0734***	0.000	0.0739***	0.000
ROA	0.2778**	0.044	0.2812**	0.042
RET	0.0285	0.367	0.0290	0.359
LOSS	-0.0730	0.213	-0.0719	0.219
EQISS	-0.0414	0.468	-0.0396	0.487
NUMSEG	0.0017	0.841	0.0015	0.859
LIT	0.2425***	0.003	0.2400***	0.003
Industry Fixed Effects	yes		yes	
Year Fixed Effects	yes		yes	
No. of Obs.	8,570		8,570	
Pseudo R^2	0.1234		0.1238	

TABLE 4 (continued)

Panel B: Information Asymmetry

	(1) Dep. Var.: DISC		(2) Dep. Var.: DISC	
	Coef.	p-value	Coef.	p-value
ABS(C_CAR)	0.0930	0.871		
High Spread	-0.0430	0.433	-0.0442	0.431
ABS(C_CAR) × High Spread	1.7531*	0.064		
P_ABS(C_CAR)			0.2006	0.778
N_ABS(C_CAR)			0.0847	0.904
P_ABS(C_CAR) × High Spread			0.4671	0.694
N_ABS(C_CAR) × High Spread			3.0872***	0.007
RET45D	0.1820	0.120	0.1968*	0.094
INST	0.3650***	0.000	0.3634***	0.000
ANALYST	0.0235***	0.000	0.0237***	0.000
VOL	-5.9226***	0.000	-5.9545***	0.000
MTB	0.0022	0.659	0.0023	0.645
LOG(AT)	0.0682***	0.000	0.0685***	0.000
ROA	0.2744**	0.046	0.2734**	0.047
RET	0.0303	0.363	0.0317	0.338
LOSS	-0.0842	0.152	-0.0834	0.157
EQISS	-0.0340	0.551	-0.0345	0.546
NUMSEG	0.0027	0.761	0.0028	0.755
LIT	0.2332***	0.005	0.2322***	0.005
Industry Fixed Effects	yes		yes	
Year Fixed Effects	yes		yes	
No. of Obs.	8,340		8,340	
Pseudo R^2	0.1231		0.1241	

This table shows the results of the probit regression of DISC, in which the role of the strength of information demand is examined. In Panel A, High Transient is an indicator variable that equals one if the percentage shares of the supplier's stock held by transient institutional investors as classified by Bushee and Noe (2000) and Bushee (2001) is above the sample median, and zero otherwise. In Panel B, High Spread is an indicator variable that equals one if the supplier's closing bid-ask spread one day after the customer's earnings announcement date is higher than the supplier's closing bid-ask spread averaged over the 20 trading days before the customer's quarterly earnings announcement date. Otherwise, this variable takes a value of zero. All other variables are defined in the Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are calculated by clustering industry-year (based on Fama-French 48 industries). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 5
Role of industry- and Location-specific Commonalities (Test of H4)

Panel A: Industry-specific Commonality

	(1) Dep. Var.: DISC		(2) Dep. Var.: DISC	
	Coef.	p-value	Coef.	p-value
ABS(C_CAR)	1.3281***	0.005		
Same Industry	0.2458***	0.001	0.2478***	0.001
ABS(C_CAR) × Same Industry	-2.9080***	0.007		
P_ABS(C_CAR)			0.7060	0.239
N_ABS(C_CAR)			2.1069***	0.001
P_ABS(C_CAR) × Same Industry			-1.8258	0.178
N_ABS(C_CAR) × Same Industry			-4.1928***	0.003
RET45D	0.1870	0.108	0.1925	0.101
INST	0.3391***	0.000	0.3392***	0.000
ANALYST	0.0239***	0.000	0.0239***	0.000
VOL	-6.4993***	0.000	-6.4998***	0.000
MTB	0.0024	0.634	0.0025	0.612
LOG(AT)	0.0729***	0.000	0.0727***	0.000
ROA	0.2858**	0.038	0.2849**	0.038
RET	0.0362	0.246	0.0375	0.229
LOSS	-0.0733	0.215	-0.0732	0.214
EQISS	-0.0515	0.357	-0.0503	0.368
NUMSEG	0.0022	0.801	0.0024	0.785
LIT	0.2320***	0.005	0.2301***	0.005
Industry Fixed Effects	yes		yes	
Year Fixed Effects	yes		yes	
No. of Obs.	8,544		8,544	
Pseudo R^2	0.1237		0.1243	

TABLE 5 (continued)

Panel B: Location-specific Commonality

	(1) Dep. Var.: DISC		(2) Dep. Var.: DISC	
	Coef.	p-value	Coef.	p-value
ABS(C_CAR)	1.0736**	0.014		
Neighborhood	0.1285	0.114	0.1317	0.108
ABS(C_CAR) × Neighborhood	-2.3878*	0.070		
P_ABS(C_CAR)			0.5877	0.295
N_ABS(C_CAR)			1.7306***	0.002
P_ABS(C_CAR) × Neighborhood			-1.7279	0.264
N_ABS(C_CAR) × Neighborhood			-3.3152**	0.049
RET45D	0.1977*	0.085	0.2060*	0.076
INST	0.3412***	0.000	0.3411***	0.000
ANALYST	0.0232***	0.000	0.0232***	0.000
VOL	-6.3455***	0.000	-6.2970***	0.000
MTB	0.0017	0.719	0.0018	0.707
LOG(AT)	0.0727***	0.000	0.0731***	0.000
ROA	0.2894**	0.035	0.2930**	0.033
RET	0.0295	0.347	0.0302	0.337
LOSS	-0.0697	0.233	-0.0685	0.240
EQISS	-0.0432	0.447	-0.0414	0.467
NUMSEG	0.0017	0.842	0.0017	0.841
LIT	0.2471***	0.002	0.2460***	0.003
Industry Fixed Effects	yes		yes	
Year Fixed Effects	yes		yes	
No. of Obs.	8,570		8,570	
Pseudo R^2	0.1226		0.1231	

This table shows the results of the probit regression of DISC, in which the role of industry- and location-specific commonalities is examined. In Panel A, Same Industry is an indicator variable that equals one if both the customer and supplier operate in the same three-digit SIC code industry, and zero otherwise. In Panel B, Neighborhood is an indicator variable that equals one if the distance between the customer and supplier is less than 100 miles or both the customer and supplier are located in the same metropolitan statistical areas (MSAs), and zero otherwise. All other variables are defined in the Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are calculated by clustering industry-year (based on Fama-French 48 industries). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 6
Supply Chain Analysts

	(1)		(2)	
	Dep. Var.: DISC		Dep. Var.: DISC	
	Coef.	p-value	Coef.	p-value
ABS(C_CAR)	1.1122**	0.019		
SC Analyst	0.0368***	0.000	0.0366***	0.000
ABS(C_CAR) × SC Analyst	-0.2543**	0.035		
P_ABS(C_CAR)			0.4242	0.509
N_ABS(C_CAR)			1.9225***	0.001
P_ABS(C_CAR) × SC Analyst			-0.0954	0.576
N_ABS(C_CAR) × SC Analyst			-0.4002***	0.007
RET45D	0.1922*	0.096	0.1987*	0.088
INST	0.3474***	0.000	0.3473***	0.000
ANALYST	0.0209***	0.000	0.0209***	0.000
VOL	-6.4302***	0.000	-6.4478***	0.000
MTB	0.0019	0.702	0.0018	0.709
LOG(AT)	0.0642***	0.000	0.0639***	0.000
ROA	0.2942**	0.031	0.2955**	0.031
RET	0.0294	0.346	0.0307	0.323
LOSS	-0.0700	0.232	-0.0699	0.232
EQISS	-0.0505	0.376	-0.0506	0.374
NUMSEG	0.0026	0.764	0.0027	0.760
LIT	0.2449***	0.002	0.2452***	0.002
Industry Fixed Effects	yes		yes	
Year Fixed Effects	yes		yes	
No. of Obs.	8,570		8,570	
Pseudo R2	0.1250		0.1257	

This table shows the results of the probit regression of DISC, in which the role of supply chain analysts is examined. SC Analyst is the number of supply chain analysts who issue at least one forecast for the customer as well as for the supplier during the one year period around the customer's EA date. All other variables are defined in the Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are calculated by clustering industry-year (based on Fama-French 48 industries). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 7
Upward versus Downward Guidance Revisions

	(1)		(2)		(3)		(4)	
	Dep. Var: DISC_UP		Dep. Var: DISC_UP		Dep. Var: DISC_DOWN		Dep. Var: DISC_DOWN	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
ABS(C_CAR)	1.4274*	0.086			0.0345	0.972		
P_ABS(C_CAR)			1.2346	0.232			-0.7067	0.591
N_ABS(C_CAR)			1.8243*	0.069			0.5250	0.635
RET45D	0.9240***	0.000	0.9295***	0.000	-0.4353*	0.078	-0.4287*	0.085
INST	0.4501***	0.000	0.4502***	0.000	0.2164*	0.073	0.2139*	0.075
ANALYST	0.0102	0.162	0.0102	0.162	0.0097	0.178	0.0096	0.180
VOL	-2.6204	0.346	-2.5865	0.353	-3.5069	0.272	-3.4227	0.287
MTB	0.0146**	0.032	0.0147**	0.031	-0.0176*	0.058	-0.0174*	0.061
LOG(AT)	0.0733**	0.014	0.0734**	0.014	0.0868***	0.005	0.0874***	0.004
ROA	0.2478	0.384	0.2531	0.374	0.1592	0.539	0.1595	0.539
RET	0.1558***	0.009	0.1557***	0.009	-0.2421**	0.035	-0.2395**	0.035
LOSS	-0.5153***	0.000	-0.5136***	0.000	-0.0233	0.835	-0.0233	0.836
EQISS	0.0225	0.806	0.0235	0.797	-0.0426	0.723	-0.0406	0.736
NUMSEG	-0.0040	0.771	-0.0041	0.766	-0.0154	0.452	-0.0154	0.451
LIT	0.2979**	0.048	0.2945*	0.051	0.3168**	0.036	0.3142**	0.037
Industry Fixed Effects	yes		yes		yes		yes	
Year Fixed Effects	yes		yes		yes		yes	
No. of Obs.	8,099		8,099		8,099		8,099	
Pseudo R^2	0.1708		0.1709		0.1071		0.1077	

This table shows the results of the analyses on the effect of upward and downward guidance revision. The dependent variable is DISC_UP in Columns (1) and (2), and DISC_DOWN in Columns (3) and (4). DISC_UP is an indicator variable that equals one if the firm issues earnings guidance (either quarterly or annual) within a 45-day period after its customer's quarterly earnings announcement, revised upward from the guidance issued previously for the same fiscal period, and zero otherwise. DISC_DOWN is an indicator variable that equals one if the firm issues earnings guidance (either quarterly or annual) within a 45-day period after its customer's quarterly earnings announcement, revised downward from the guidance issued previously for the same fiscal period, and zero otherwise. If there is no guidance issued previously, DISC_UP and DISC_DOWN take a missing value and the firm-year is removed from the sample. All other variables are defined in the Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are calculated by clustering industry-year (based on Fama-French 48 industries). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 8
Components of EA News

Panel A: Unexpended Earnings and Bundled Forecast News

	(1)			(2)		(3)	
	C_CAR			DISC		DISC	
	Coef.	p-val.		Coef.	p-val.	Coef.	p-val.
C_UE	0.3503***	0.000	ABS(C_UE)	-1.9648***	0.003	-1.9481***	0.003
C_MF	2.7619***	0.000	ABS(C_MF)	7.8735	0.118		
			ABS(C_MF) × PR_BUNDLE			2.0632	0.747
			ABS(C_MF) × (1 - PR_BUNDLE)			17.5236**	0.013
			ABS(RESIDUAL1)	0.9471**	0.047	0.9580**	0.043
			RET45D	0.1858	0.122	0.1854	0.123
			INST	0.3189***	0.000	0.3205***	0.000
			ANALYST	0.0218***	0.000	0.0219***	0.000
			VOL	-6.0454***	0.000	-6.0879***	0.000
			MTB	0.0032	0.513	0.0032	0.514
			LOG(AT)	0.0807***	0.000	0.0796***	0.000
			ROA	0.2421*	0.086	0.2386*	0.089
			RET	0.0494	0.135	0.0495	0.135
			LOSS	-0.0625	0.294	-0.0636	0.284
			EQISS	-0.0369	0.530	-0.0375	0.524
			NUMSEG	0.0009	0.916	0.0012	0.892
			LIT	0.2465***	0.002	0.2487***	0.002
			Industry dummies	yes		yes	
			Year dummies	yes		yes	
No. of Obs.	8,113		No. of Obs.	8,113		8,113	
Adjusted R^2	0.0655		Pseudo R^2	0.1200		0.1203	

TABLE 8 (continued)

Panel B: Unexpended Earnings, Bundled Forecast News, and Seasonal Changes in Revenue, COGS, and Other Expenses

	(1)			(2)		(3)	
	C_CAR			DISC		DISC	
	Coef.	p-val.		Coef.	p-val.	Coef.	p-val.
C_UE	0.3340***	0.000	ABS(C_UE)	-1.5669**	0.034	-1.5828**	0.031
C_MF	2.7668***	0.000	ABS(C_MF)	8.8313*	0.077		
C_REV	0.0119***	0.002	ABS(C_MF) × PR_BUNDLE			1.9437	0.754
C_COGS	-0.0093**	0.024	ABS(C_MF) × (1 - PR_BUNDLE)			20.1764***	0.005
C_OTHER	-0.0067	0.101	ABS(C_REV)	-0.2212	0.135	-0.2186	0.140
			ABS(C_COGS)	-0.0217	0.897	-0.0270	0.873
			ABS(C_OTHER)	0.2099*	0.081	0.2259*	0.064
			ABS(RESIDUAL2)	0.7952*	0.094	0.8090*	0.087
			RET45D	0.1858	0.122	0.1748	0.143
			INST	0.3189***	0.000	0.3078***	0.000
			ANALYST	0.0218***	0.000	0.0226***	0.000
			VOL	-6.0454***	0.000	-6.1950***	0.000
			MTB	0.0032	0.513	0.0051	0.322
			LOG(AT)	0.0807***	0.000	0.0780***	0.000
			ROA	0.2421*	0.086	0.2399	0.102
			RET	0.0494	0.135	0.0499	0.143
			LOSS	-0.0625	0.294	-0.0752	0.217
			EQISS	-0.0369	0.530	-0.0276	0.635
			NUMSEG	0.0009	0.916	0.0038	0.670
			LIT	0.2465***	0.002	0.2834***	0.001
			Industry dummies	yes		yes	
			Year dummies	yes		yes	
No. of Obs.	8,002		No. of Obs.	8,002		8,002	
Adjusted R^2	0.0678		Pseudo R^2	0.1237		0.1242	

This table shows the results of the probit regression of DISC. In Panel A, the customer's EA news is decomposed into the customer's unexpected earnings (C_UE), bundled forecast news (C_MF), and all other news not explained by these two news components (RESIDUAL1). In Panel B, the customer's EA news is decomposed into the customer's unexpected earnings (C_UE), bundled forecast news (C_MF), and seasonal changes in revenues (C_REV), costs of goods sold (C_COGS) and others expenses (C_OTHER), and all other news not explained by these five news components (RESIDUAL2). C_UE is the customer's actual earnings minus the customer's prevailing median analyst forecast, deflated by the customers' beginning stock price. C_MF the customer's annual or quarterly earnings forecast issued on the EA date for its future fiscal period minus the customer's prevailing median analyst forecast for the same future period, deflated by the customers' beginning stock price. If the customer issues forecasts for different future periods, we select the forecast with the largest news. If the customer does not issue any earnings forecasts, C_MF takes a value of zero. C_REV is the customer's revenues in the current quarter minus revenues in the same quarter last year, deflated by the beginning market value of equity (i.e., beginning stock price times the number of shares outstanding). C_COGS is the customer's COGS in the current quarter minus COGS in the same quarter last year, deflated by the beginning market value of equity. C_OTHER is the customer's other expenses (i.e., revenues minus COGS minus income before extraordinary items) in the current quarter t minus other expenses in the same quarter last year, deflated by the beginning market value of equity. RESIDUAL1 and RESIDUAL2 are residuals estimated from the regression in Column (1) in Panels A and B, respectively. To improve comparability with management forecast for annual earnings, we annualize all quarterly figures by multiplying them by four. ABS(C_UE), ABS(C_MF), ABS(C_REV), ABS(C_COGS), ABS(C_OTHER), ABS(RESIDUAL1) and ABS(RESIDUAL2) are the absolute values of C_UE, C_MF, C_REV, C_COGS, C_OTHER, RESIDUAL1, and RESIDUAL2, respectively. PR_BUNDLE is an indicator variable that equals one if the customer issued a bundled forecast at its previous EA date and zero otherwise. All other variables are defined in the Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are calculated by clustering industry-year (based on Fama-French 48 industries). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 9
Robustness Checks

Panel A: Excluding Suppliers Committed to Bundled Forecasts

	(1) Dep. Var.: DISC		(2) Dep. Var.: DISC	
	Coef.	p-value	Coef.	p-value
ABS(C_CAR)	0.9348**	0.041		
P_ABS(C_CAR)			0.699	0.2320
N_ABS(C_CAR)			1.3332**	0.0210
RET45D	0.2319*	0.061	0.2381*	0.0580
INST	0.2066***	0.001	0.2061***	0.0010
ANALYST	0.0214***	0.000	0.0214***	0.0000
VOL	-3.8393***	0.009	-3.8054***	0.0100
MTB	0.0056	0.315	0.006	0.3030
LOG(AT)	0.0929***	0.000	0.0931***	0.0000
ROA	0.2814*	0.087	0.2833*	0.0860
RET	0.0315	0.364	0.032	0.3620
LOSS	-0.1025*	0.099	-0.102	0.1010
EQISS	0.0498	0.416	0.050	0.4180
NUMSEG	0.0016	0.861	0.002	0.8670
LIT	0.1705*	0.055	0.1698*	0.0570
Industry Fixed Effects	yes		yes	
Year Fixed Effects	yes		yes	
No. of Obs.	8,159		8,159	
Pseudo R^2	0.1149		0.1151	

TABLE 9 (continued)

Panel B: DISC Measured over Longer Horizons

	(1) Dep. Var.: DISC60		(2) Dep. Var.: DISC60		(3) Dep. Var.: DISC90		(4) Dep. Var.: DISC90	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
ABS(C_CAR)	0.8649**	0.037			0.1972	0.620		
P_ABS(C_CAR)			0.5270	0.339			-0.3346	0.492
N_ABS(C_CAR)			1.3872***	0.006			0.7833	0.129
RET45D	0.1329	0.207	0.1403	0.188	-0.0129	0.887	-0.0036	0.969
INST	0.3817***	0.000	0.3816***	0.000	0.5040***	0.000	0.5041***	0.000
ANALYST	0.0256***	0.000	0.0256***	0.000	0.0393***	0.000	0.0393***	0.000
VOL	-6.7346***	0.000	-6.7020***	0.000	-7.6336***	0.000	-7.5889***	0.000
MTB	0.0023	0.662	0.0024	0.644	0.0049	0.342	0.0050	0.329
LOG(AT)	0.0778***	0.000	0.0780***	0.000	0.1114***	0.000	0.1117***	0.000
ROA	0.2701**	0.040	0.2718**	0.039	0.2325*	0.065	0.2354*	0.063
RET	0.0165	0.591	0.0172	0.576	0.0168	0.546	0.0174	0.530
LOSS	-0.1086**	0.040	-0.1078**	0.041	-0.2242***	0.000	-0.2232***	0.000
EQISS	-0.0348	0.537	-0.0346	0.540	-0.0742	0.165	-0.0744	0.163
NUMSEG	0.0026	0.739	0.0025	0.747	-0.0003	0.967	-0.0004	0.959
LIT	0.2210***	0.004	0.2198***	0.005	0.1987**	0.020	0.1974**	0.021
Industry Fixed Effects	yes		yes		yes		yes	
Year Fixed Effects	yes		yes		yes		yes	
No. of Obs.	8,570		8,570		8,570		8,570	
Pseudo R^2	0.1333		0.1336		0.2097		0.2101	

This table shows the results of robustness checks. In Panel A, the sample excludes firms that appear committed to issuing bundled forecasts. In Panel B, DISC60 (DISC90) is an indicator variable that equals one if the firm issues earnings guidance (either quarterly or annual) within a 60-day (90-day) period after its customer's quarterly earnings announcement, and zero otherwise. All other variables are defined in the Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are calculated by clustering industry-year (based on Fama-French 48 industries). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 10
Customers' Credit-rating Announcements

Panel A: Summary Statistics

	N	Mean	STD	P25	Median	P75
DISC	2,181	0.1609	0.3676	0.0000	0.0000	0.0000
C_CHANGE	2,181	0.4590	0.4984	0.0000	0.0000	1.0000
C_UP	2,181	0.2251	0.4178	0.0000	0.0000	0.0000
C_DOWN	2,181	0.2338	0.4234	0.0000	0.0000	0.0000
RET45D	2,181	0.0057	0.1991	-0.1053	-0.0021	0.0961
INST	2,181	0.4515	0.3381	0.1081	0.4746	0.7572
ANALYST	2,181	5.9858	6.5628	1.0000	4.0000	9.0000
VOL	2,181	0.0373	0.0222	0.0226	0.0313	0.0450
MTB	2,181	2.6761	3.8129	1.1365	1.8872	3.3806
LOG(AT)	2,181	5.9816	1.8768	4.5967	5.8044	7.3527
ROA	2,181	-0.0211	0.2000	-0.0701	0.0279	0.0793
RET	2,181	0.1132	0.6715	-0.2796	0.0156	0.3237
LOSS	2,181	0.3764	0.4846	0.0000	0.0000	1.0000
EQISS	2,181	0.1160	0.3203	0.0000	0.0000	0.0000
NUMSEG	2,181	4.7098	2.8395	2.0000	4.0000	6.0000
LIT	2,181	0.4768	0.4996	0.0000	0.0000	1.0000

TABLE 10 (continued)

Panel B: Probit Regression of DISC

	(1) Dep. Var.: DISC		(2) Dep. Var.: DISC	
	Coef.	p-value	Coef.	p-value
C_CHANGE	0.0887	0.265		
C_UP			-0.0714	0.521
C_DOWN			0.2306***	0.009
RET45D	-0.1231	0.556	-0.1106	0.599
INST	0.1132	0.375	0.1161	0.367
ANALYST	0.0350***	0.000	0.0361***	0.000
VOL	-8.4292***	0.000	-8.8419***	0.000
MTB	0.0072	0.465	0.0064	0.519
LOG(AT)	0.0967***	0.005	0.0903***	0.010
ROA	0.0223	0.942	0.0519	0.866
RET	0.0559	0.396	0.0588	0.376
LOSS	-0.1750*	0.093	-0.1673	0.107
EQISS	-0.0148	0.892	-0.0154	0.889
NUMSEG	-0.0244*	0.097	-0.0234	0.116
LIT	0.2294	0.187	0.2353	0.181
Industry Fixed Effects	yes		yes	
Year Fixed Effects	yes		yes	
No. of Obs.	2,181		2,181	
Pseudo R^2	0.1422		0.1615	

This table shows the results of analyses based on a sample of customers' credit-rating announcements. Panel A reports the summary statistics, and Panel B shows the results of the probit regression of DISC on customers' credit-rating announcements. DISC is an indicator variable that equals one if the firm issues earnings guidance (either quarterly or annual) within a 45-day period after its customer's credit-rating announcement and zero otherwise. C_CHANGE is an indicator variable that equals one if the customer's credit rating is announced as either "upgrade" or "downgrade" and zero otherwise (i.e., "affirmation"). C_UP is an indicator variable that equals one if the customer's credit rating is announced as "upgrade" and zero otherwise. C_DOWN is an indicator variable that equals one if the customer's credit rating is announced as "downgrade" and zero otherwise. All other variables are defined in the Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are calculated by clustering industry-year (based on Fama-French 48 industries). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.