11-2020

Information externalities and voluntary disclosure: Evidence from a major customer's earnings announcement

Young Jun Cho

Yongtae KIM

Yoonseok ZANG

Published in Accounting Review, 2020, 95 (6), 73-96. DOI: 10.2308/tar-2017-0129

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

Young Jun Cho
Singapore Management University

Yongtae Kim
Santa Clara University and Korea Advanced Institute of Science and Technology (KAIST)

Yoonseok Zang
Singapore Management University

ABSTRACT

We examine the relation between information externalities along the supply chain and voluntary disclosure. Information transfers from a major customer's earnings announcement (EA) can substitute for its supplier's disclosure. Conversely, if the customer's EA increases uncertainties regarding the supplier's future prospects, it can increase the demand for disclosure. After controlling for information incorporated in supplier returns, we find that the supplier is more likely to issue earnings guidance after the customer's EA when the EA news deviates more from the market's expectation. The positive effect of the customer's news on earnings guidance is weaker when common investors, supply-chain analysts, or a common industry allow investors to better understand the value implications of the news, while the effect increases with the importance of the customer to the supplier. The effect is also stronger when the EA news is negative than positive. Collectively, the results suggest that supply-chain relationships influence voluntary disclosure.

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.*

We thank the editor (Mohan Venkatachalam) and two anonymous reviewers for their guidance and constructive comments. We also appreciate comments from Ashiq Ali, Nerissa Brown (discussant), Alvis Lo, Hai Lu, Dawn Matsumoto, Partha Mohanram, Qiang Cheng, and workshop participants at Singapore Management University, Korea Advanced Institute of Science and Technology (KAIST), the 2016 AAA Annual Meeting, and the 2018 EAA Annual Congress for their constructive comments. Cho and Zang acknowledge financial support from the School of Accountancy Research Center (SOAR) at Singapore Management University. Cho acknowledges funding from the Lee Kong Chian Fellowship. Kim acknowledges financial support from Robert and Barbara McCullough Family Chair Professorship.

I. INTRODUCTION

This study examines how a major customer's earnings announcement (EA) influences its supplier's earnings guidance decision.[1] Prior research suggests that information transfers from economically linked firms substitute for a firm's voluntary disclosure, because the external signal can provide value-relevant information to investors (Olsen and Dietrich 1985; Pownall and Waymire 1989; Jorgensen and Kirschenheiter 2012). The customer's EA, however, could increase uncertainties regarding the supplier's future prospects, which would prompt investors to demand the supplier's disclosure. The voluntary disclosure literature documents that managers strategically increase disclosure to convey good news when an external signal is unfavorable but decrease disclosure when it is favorable (Bergman and Roychowdhury 2008; Sletten 2012). Extant studies, however, do not fully consider the demand side of disclosures. If investors demand additional disclosure to fully absorb an external signal (i.e., customer EA news in our setting), the signal would prompt an increase in disclosure regardless of whether the signal is favorable or unfavorable.

A major customer's EA is an ideal setting to examine the demand side of disclosure in a context of information externalities, because two separate signals from the market, i.e., the respective stock price changes of the customer and the supplier, have different implications for the demand for the supplier's disclosure. To the extent that investors can incorporate the customer's news in updating their beliefs about the supplier valuation, as reflected in supplier returns (Pandit, Wasley, and Zach 2011), the demand for disclosure would subside with the magnitude of supplier returns, which is consistent with the substitution effect of information transfers (Pownall and Waymire 1989;

[1] We refer to an individual customer that comprises 10% or more of firm sales as a major customer. 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 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 18% of the supplier's total sales, while the median proportion of the supplier's purchases is only 0.17% (0.31%) of its customer's total sales (cost of sales).

Jorgensen and Kirschenheiter 2012). The supplier valuation, however, would have an idiosyncratic component that is not fully impounded in the supplier's price reaction to the customer's EA. In response to the customer's EA news, for example, the supplier could alter its operating strategy, product mix, or investment decisions, all of which would be private information residing with the supplier's manager but not observed by external investors. Moreover, investors do not possess a full set of information on supply-chain specifics, such as details of transactions with the customer, relationship-specific investments, order backlog, and receivables related to the customer. Investors then would have diffuse priors about the supplier's anticipated actions in response to the customer's EA news. Therefore, when supplier returns are controlled for in our setting, customer returns are likely to be associated with the idiosyncratic component of the supplier valuation not reflected in supplier returns that increases the demand for additional information.[2] We thus predict that investors' demand for supplier disclosure is positively associated with the magnitude of customer returns around the customer's EA. Put differently, as the customer's EA news deviates more from the market's expectation, investors would demand more information to process the news, and the supplier's managers, in response, are more likely to issue earnings guidance.

Using 8,434 supplier firm-years that report the identity of a major customer in their 10-Ks over the 2001-2012 period, we examine the relation between the customer's quarterly EA news and its supplier's earnings guidance. We use the absolute value of the customer's market-adjusted returns over the customer's EA window to capture the magnitude of the EA news (irrespective of the sign of the news). Similarly, we measure the absolute value of the supplier's market-adjusted returns during the same window to capture the amount of the news already assimilated by the supplier's

[2] Our analyses in Online Appendix 2 provide support for this argument. Specifically, we find that the residual of customer returns, which represents the part of customer news that has not been impounded in supplier returns, is significantly and positively associated with our proxies for investors' opinion divergence.

investors. To capture the supplier's voluntary disclosure, we examine the supplier's earnings guidance issued within a 45-day period subsequent to the customer's EA. Earnings guidance is an important communication channel through which managers convey their expectations of firms' future performance to the capital market (Hirst, Koonce, and Venkataraman 2008).

After controlling for the customer's news already incorporated in supplier returns, we first find that a supplier is more likely to issue earnings guidance subsequent to its customer's EA when the EA news deviates more from the market's expectation. Given that investors are not fully informed about the details of supply-chain specifics and that they face uncertainty about the supplier's reactions to the customer's news, this result is consistent with the notion that a greater surprise reflected in the customer returns would increase investors' demand for the supplier's disclosure and that the supplier managers respond to such demands by providing earnings guidance.[3] In contrast, we find that the magnitude of the supplier returns included as a control variable has a significantly negative effect on earnings guidance, consistent with the substitution effect of information transfers. A series of falsification tests confirms that our results are unlikely to be attributable to common economic shocks to the customer and the supplier. The results are also robust to excluding suppliers that appear to pre-commit to issuing earnings guidance, ensuring that our results are not driven by pre-scheduled earnings guidance.[4]

We next examine whether the supply-chain information environment and characteristics explain cross-sectional variations of the relation between the customer's EA news and the supplier's earnings guidance. If the supply-chain information environment allows investors to better understand the value-implications of the news, investors will lower their demand for the

[3] The marginal change in the probability of earnings guidance is about 1% when the magnitude of customer returns over the EA window increases from the first to the third quartile. This marginal effect is economically meaningful and not too large to be implausible, given that the unconditional probability of earnings guidance is only about 14% in our sample.
[4] Our results are robust to changing the supplier's guidance window to a 30- or 60-day period subsequent to its customer's EA.

supplier's earnings guidance. Consistent with this prediction, we find that the positive effect of customers' EA news on its supplier's earnings guidance is less pronounced when the two firms share common investors, supply-chain analysts, or a common industry.[5] We also find that the positive relation is more pronounced when the supplier makes a larger amount of relationship-specific investments, but less pronounced when the supplier can easily replace the customer. These results suggest that the effect of a customer's EA news on the supplier's earnings guidance is greater when the customer is more important to the supplier. Furthermore, we find that the effect of the customer's news on its supplier's earnings guidance is significantly stronger when the customer's news is negative than when it is positive, although the effect is significantly positive in both cases, consistent with the notion that the supplier faces asymmetric payoffs with respect to the customer's performance (Drake and Haka 2008; Hui, Klasa, and Yeung 2012).

We perform several additional analyses. First, we examine upward and downward guidance revisions separately. We find that the customer's news increases upward (but not downward) earnings guidance, consistent with managers having a greater incentive to disclose good news than bad news (Kothari, Shu, and Wysocki 2009). Upward guidance revisions, however, are significantly associated with both positive and negative news from the customer's EA. Second, we decompose the customer's EA returns into various news components and examine the effect of each component separately. We find that while the customer news from realized earnings reduces the supplier's earnings guidance (and thereby substitutes for earnings guidance), forward-looking information irregularly bundled with EA and harder-to-interpret information (i.e., the news component unexplained by realized earnings and bundled earnings guidance) increase the guidance. Third, we find that part of

[5] We use these variables as proxies for the information environment, under the assumption that the supplier's investors can better process the customer's EA news when they have more knowledge about the customer-supplier relationship through their direct ownership in the customer, assistance from supply-chain analysts, and/or their expertise in the customer's industry. We also examine sharing a common location as another proxy for the information environment and find that the effect is not statistically significant at conventional levels (p-value = 0.13).

the customer news not incorporated in the supplier return is significantly and positively associated with supplier investors' opinion divergence, mitigating a concern that the residual only captures the irrelevance of the customer's news to the supplier. Lastly, we confirm that the supplier's direct learning from the customer's EA or herding in disclosure is unlikely to explain our results.

Our study contributes to the literature in the following ways. First, we contribute to the literature by examining how a customer's EA news affects investors' demand for supplier disclosure. Prior studies suggest that information transfers from an economically linked firm would substitute for voluntary disclosure (Pownall and Waymire 1989; Jorgensen and Kirschenheiter 2012). We find, however, that while customer news reflected in supplier returns substitutes for earnings guidance, part of customer news not impounded in supplier valuation is positively associated with investors' demand for earnings guidance. It is novel to document that the two signals created by the customers' EA (i.e., the respective stock price changes of the customer and the supplier) have opposite implications for the supplier's disclosure; extant research only documents that the two signals are positively correlated (Olsen and Dietrich 1985; Pandit et al. 2011).

While our study is related to studies that examine external signals as determinants of voluntary disclosure (e.g., Bergman and Roychowdhury 2008; Sletten 2012), our results are not easily inferred from prior studies. While Bergman and Roychowdhury (2008) and Sletten (2012) focus on managers' strategic disclosure, our study aims to explore the demand side of voluntary disclosure, i.e., whether investors who are less informed about the value implications of the external signal would demand earnings guidance. Furthermore, while these two studies document an increase in earnings guidance only after unfavorable external signals, we find that both positive and negative signals increase a manager's tendency to issue earnings guidance when investors face uncertainties while processing the news.

We also contribute to the literature on the customer-supplier relationship.[6] We extend the literature by documenting that the customer-supplier relationship has important implications for voluntary disclosure and hence information environment. For example, while Madsen (2017) investigates investors' acquisition of customer information around suppliers' EAs, we focus on investors' demand for supplier information after customers' EAs. With different focuses, Madsen (2017) and our study together help depict a more complete picture of how investors' information demands shape the information environment of firms along the supply chain. Given that nearly one half of public firms in the U.S. report the identities of their major customers in annual reports (Ellis, Fee, and Thomas 2012) and experience information externalities from the customer's EA on a regular basis, our results offer insights into how such a reporting environment and recurring information externalities affect a firm's voluntary disclosure decisions.[7]

The remainder of this paper is organized as follows. Section II reviews prior research and develops our hypotheses. Section III details the 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

[6] Prior studies in this literature examine the impacts of the customer-supplier relationship on firm performance and cost of equity (Patatoukas 2012; Dhaliwal, Judd, Serfling, and Shaikh 2016), capital structure (Titman and Wessels 1988; Banerjee, Dasgupta, and Kim 2008), bank loan contracting (Kim, Song, and Zhang 2015; Cen, Dasgupta, Elkamhi, and Pungaliya 2016), earnings management and accounting conservatism (Raman and Shahrur 2008; Hui et al. 2012), analysts' forecasts (Guan, Wong, and Zhang 2015), tax avoidance (Cen, Maydew, Zhang, and Luo 2017), and investors' information search (Madsen 2017).

[7] On some occasions, supplier managers discuss customers' news in the press release of earnings guidance. Qualcomm, for example, lowered its revenue forecasts for 2015 from a range of $26.3 billion to $28 billion to a range of $25 billion to $27 billion in April 2015, announcing that the lowered guidance was in response to the news from Samsung Electronics (Forbes, April 22, 2015). In December, 2014, MasTec, a telecommunications and energy infrastructure service provider, announced that the company expects its non-GAAP earnings per share for 2015 to be $1.87, lowering it from the previous guidance range of $2.00 to $2.15. As a reason for this lowered guidance, MasTec management states, "a major customer has announced reduced levels of 2015 expected wireless-project activity" (Dow Jones Newswires, December 17, 2014).

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. Since customers and suppliers establish economic links via various implicit and explicit arrangements, such as long-term contracts, strategic alliances, and relationship-specific investments, this disclosure is useful to investors, particularly when they assess the supplier's future performance (Ellis et al. 2012). When a major customer exhibits strong earnings growth, for example, the customer's demand for products from its supplier will likely grow and hence increase the supplier's revenue and earnings. In contrast, when the customer experiences an earnings decline or financial distress, the customer may take actions that negatively affect its supplier's performance, such as reducing product purchases, delaying payments, and defaulting on long-term contracts. If the relationship breaks down due to the customer's poor performance, the supplier must spend resources to find alternative customers. Such breakup and switching costs can have substantial, undesirable impacts on the supplier. Consistent with the above arguments, prior studies document that suppliers experience information spillover at the time of their customers' monthly sales announcements (Olsen and Dietrich 1985), bankruptcy filings (Hertzel, Li, Officer, and Rodgers 2008), or quarterly EAs (Pandit et al. 2011), as evidenced by suppliers' significant stock price responses to customers' news. Cohen and Frazzini (2008) further find that customers' stock returns predict their suppliers' stock returns in subsequent months.

Prior studies also investigate the effect of the supply-chain relationship on accounting policies. For instance, Raman and Shahrur (2008) find that suppliers and customers engage in earnings management to mislead their counterparts into undertaking suboptimal relationship-specific investments. Hui et al. (2012) find that suppliers and customers with bargaining power prefer more conservative financial reporting from their counterparts, because, like creditors, they are more concerned with bad news about their counterparts' prospects due to their asymmetric payoffs. In

addition, Dou, Hope, and Thomas (2013) find that to reduce suppliers' concerns about the breakdown of the supply-chain relationship, firms in countries with weak contract enforceability or 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 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 notably absent.

Literature on Voluntary Disclosure

Voluntary disclosure theories suggest that managers disclose information when the benefits of disclosures exceed their costs (Verrecchia 1983; 2001). Prior studies indicate that the main benefits from voluntary disclosures are a reduction in information asymmetry and a lower cost of capital (Fishman and Hagerty 1989; Diamond and Verrecchia 1991; Baiman and Verrecchia 1996). Consistent with this prediction, empirical studies document 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). Voluntary disclosures, however, incur dissemination costs and costs to correct potential misinterpretation, as well as litigation and reputation costs associated with failing to meet expectations set by earnings guidance (Healy and Palepu 2001). Proprietary costs arising from the product market competition are also an important deterrent to full disclosure (Verrecchia 1983). Moreover, disclosures reduce managers' information advantage and thus can decrease potential profits from insider trading (Baiman and Verrecchia 1996). By inviting investors' attention and monitoring, disclosures can also reduce managers' consumption of perks and control over the firm (Shleifer and Vishny 1989).

In addition to benefits and costs, prior studies also examine the determinants of voluntary disclosure. They find that managers provide voluntary disclosures to avoid large earnings surprises and high stock volatility (Ajinkya and Gift 1984), signal their ability (Trueman 1986), decrease information asymmetry and cost of capital (Diamond and Verrecchia 1991; Coller and Yohn 1997; Easley and O'Hara 2004), and reduce litigation risk (Skinner 1994). We add to this literature by examining how supply-chain relationships influence disclosure decisions. As we examine external signals from customers as determinants of voluntary disclosure, our study is related to the work of Bergman and Roychowdhury (2008) and Sletten (2012), who document an increase in earnings guidance following unfavorable external signals. In particular, Bergman and Roychowdhury (2008) examine whether firms react strategically to investor sentiment via disclosures and find that during low-sentiment (high-sentiment) periods, managers increase guidance to walk up long-horizon earnings estimates (reduce long-horizon guidance). Sletten (2012) examines whether a decline in stock price (due to financial restatement by an industry peer) prompts managers to voluntarily disclose information that was unfavorable prior to the event but became favorable at a lower stock price after the event. She finds that managers are more likely to release good news guidance following a stock price decline but that an increase in stock price does not affect earnings guidance.

While closely related, our study differs from these two studies, as we focus on information demand arising from uncertainties that investors face when incorporating a customer's news into the supplier valuation. Given that investors are not fully informed about the details of supply-chain specifics and that there exists uncertainty about the supplier's reactions to the customer's news, we examine whether an external signal from the customer's EA can lead to a greater information demand and thus more earnings guidance. In contrast, Bergman and Roychowdhury (2008) examine how managers react strategically to external signals, and Sletten (2012) focuses on how

managers, having a disclosure threshold (Dye 1985; Verrecchia 1983), make disclosure decisions in response to an exogenous stock price change.

Hypothesis Development

A major customer's EAs are important information events for its supplier's investors, because the EAs enable these investors to revise their expectations about the supplier's future earnings and cash flows on a regular basis (Pandit et al. 2011). To the extent that the customer's news is useful in valuing the supplier, the news can decrease investors' demand (and hence the supplier managers' incentive) for earnings guidance. That is, information transfers can substitute for voluntary disclosure. A few studies document evidence consistent with the substitution effect. Pownall and Waymire (1989), for example, estimate information transfers using the annual EAs of other firms in the same industry and find that non-guiders receive a greater magnitude of information transfers than guiders do. They argue that this result is consistent with managers being less likely to issue guidance when alternative sources of information are available to investors in forming earnings expectations. Lang and Lundholm (1996) find 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 that meets investors' information demands. Jorgensen and Kirschenheiter's (2012) model shows that when the private signals of two managers (a leader and a follower) are positively correlated, the follower free rides by disclosing less than the leader, thereby avoiding the cost of disclosure.

Although the customer's EA news provides useful information about the supplier's future prospects, there is also an idiosyncratic component in the supplier valuation that is not fully impounded in the supplier's price reaction to the customer's EA. For example, in response to the customer's EA news, the supplier could alter its operating strategy, product mix, or investment

decisions, all of which would be private information residing with the supplier's manager but not observed by external investors. Moreover, investors do not possess a full set of private information on supply-chain specifics, such as details of transactions with the customer, relationship-specific investments, order backlog, and receivables related to the customer. External investors then would have diffuse priors about the supplier's anticipated actions in response to the customer's EA news, which in turn would increase their demand for disclosure from the supplier's managers.

As discussed above, while disclosures can benefit investors, they are also costly. Therefore, when facing investors' demand for disclosure, the supplier's managers issue earnings guidance only if the benefits exceed the costs. We predict that as the customer's EA news deviates more from the market's expectation, investors would consider earnings guidance more useful and hence the benefit-cost ratio of disclosure would increase. This is because, given that investors are not fully informed about the details of supply-chain specifics and face uncertainty about the supplier's reactions to the customer's news, the customer's news with a larger surprise would exacerbate the information asymmetry between the supplier's managers and external investors. Thus, investors are more likely to demand disclosures when the customer's EA news is more surprising. Dye (1985) suggests that managers have a greater incentive to provide voluntary disclosures when market participants find the disclosures useful in assessing firm value. Chen, DeFond, and Park (2002) also argue that managers disclose information voluntarily when investors find such information more useful.[8]

If the supplier's managers do not respond to the disclosure demands following a large surprise in the customer's news, information asymmetry between investors and managers is likely to increase to a greater extent, which may result in a higher cost of capital, lower stock liquidity, greater earnings surprises at the supplier's own EA, and more volatile stock prices. Therefore, we

[8] Chen et al. (2002) find that managers include a balance sheet with quarterly EAs when current earnings are less informative and future earnings are more uncertain.

predict that managers' perceived benefits from earnings guidance (relative to its costs) are likely to increase in the magnitude of the customer's EA news. In other words, when the customer's EA news deviates more from the market's expectation, investors' information demands would be greater and the supplier's managers would be more likely to issue earnings guidance to meet those demands. Thus, we propose our first 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 next examine several factors that could explain the cross-sectional variations in the effect of the customer's EA news on its supplier's earnings guidance. The premise behind H1 is that supplier investors are not as informed about supply-chain specifics as managers and face uncertainties regarding the supplier's reactions to the customer's news. Given this premise, we expect investors to better interpret the customer's news and assess its value implications when the supply-chain information environment is rich. Cohen and Frazzini (2008), for example, suggest that common institutional investors (i.e., those owning shares of both the customer and the supplier) are more likely to collect information about customer-supplier relationships and monitor both firms more closely, allowing information about the relationships to be impounded into stock prices more quickly. Similarly, Guan et al. (2015) argue that compared to other analysts, supply-chain analysts (i.e., those following both the customer and the supplier) can better understand the customer's contribution to the supplier's revenue and profit; they find that supply-chain analysts provide more accurate earnings forecasts for the supplier, especially subsequent to the customer's EA, than other analysts. Therefore, for a given amount of the customer's EA news, to the extent that common investors and supply-chain analysts help facilitate information processing of the

customer's EA, both investors' demand for earnings guidance and managers' benefit-cost ratio of the guidance would be lower.

Another factor related to the supply-chain information environment is industry or geographic commonality between the customer and the supplier. When the customer operates in the same industry as its supplier, investors can better process the customer's EA news to gauge the supplier's future prospects, because investors are equipped with industry-specific knowledge with which they can better evaluate the industry-specific implications of the customer's news. Similarly, when the two firms are located in the same geographic area, they are affected by the same features of the local environment, such as local economic conditions, local labor and product markets, and local regulations. As a result, investors can better interpret location-specific implications of the customer's EA news.[9] Again, under these situations, for a given magnitude of the customer's EA news, both investors' demand for disclosure and the benefit-cost ratio of the guidance would be lower. The above discussion leads to 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 weaker when the two firms share common investors, supply-chain analysts, a common industry, or a common location, other things being equal.

We also explore the role of the importance of the relationship that a supplier maintains with its customer. A relationship with a major customer is likely more important to the supplier if the relationship results in higher and more persistent net cash flows or relatively lower risk. One of the factors affecting the supplier's cash flows or risk is the relationship-specific investments that the supplier often makes to serve its customers (Williamson 1975; Klein, Crawford, and Alchian 1978; Klein 2000; Raman and Shahrur 2008). When the supplier makes a larger amount of relationship-specific investments, its performance would be more sensitive to the customer's news and

[9] Prior studies find that firms headquartered in the same geographic area exhibit stronger return co-movement than other firms do (Pirinsky and Wang 2006; Barker and Loughran 2007).

accordingly, investors' demand for disclosure would be higher. Customer replaceability can also affect the importance of the relationship since the termination of the supplier-customer relationship incurs non-trivial costs to a supplier, including time, effort, and financial risk involved in switching from one major customer to another one (Ellis at al. 2012). Thus, if the supplier cannot easily identify an alternative customer, the current customer would be more important to the supplier. Conversely, if the supplier can easily replace the current customer, the customer's EA news would be less important to the supplier's future prospects, lowering investors' demand for disclosure. We, therefore, predict that the relation between the customer's EA news and the supplier's earnings guidance would be weaker when replacing the incumbent customer is relatively easier. The above discussion leads to the following hypothesis in an alternative form:

H3: The effect of a major customer's earnings announcement on its supplier's earnings guidance (as stated in H1) is stronger (weaker) when the supplier makes a larger relationship-specific investment (when the replaceability of the customer is higher), other things being equal.

Lastly, we examine whether the effect of the customer's EA news on its supplier's earnings guidance is asymmetric with respect to the direction of the news. 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 to have 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 uncertainty regarding their customers' future performance and payments (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 forms, including disruption of long-term contracts, delayed payments, lower returns on relationship-specific investments, and customer

switching costs.[10] Therefore, we expect investors to be more concerned about negative news and thus their demands for disclosure to be greater when the customer's EA news is negative than when it is positive. In line with this expectation, we posit the following hypothesis in an alternative form:

H4: 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.

III. DATA AND RESEARCH DESIGN

Data and Sample Selection

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 match customers to their respective Compustat identifiers (i.e., GVKEY) manually, following the identification and classification procedure discussed in Banerjee et al. (2008).[11] 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 supplier and its major customer in each year. In cases where a supplier reports multiple customers, we select the customer that contributes the largest amount of sales to the supplier during the fiscal year.[12] 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

[10] In addition, major customers who experience poor performance are more likely to ask their dependent suppliers to provide contracting concessions, for example, by lowering prices and extending trade credit.

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

[12] 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 qualitatively the same.

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 8,434 supplier firm-years that have their major customers' EA data.[13]

Regression Model

Our study examines a supplier's earnings guidance decision during a short period after its customer's 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 earnings guidance and any other information bundled with the EA). To test H1, we estimate the following probit model in equation (1):

$$\begin{aligned} DISC \quad &= \alpha_0 + \alpha_1 ABS(C\_CAR) + \alpha_2 ABS(S\_CAR) + \alpha_3 CORR + \alpha_4 RET45D + \alpha_5 INST \\ &+ \alpha_6 ANALYST + \alpha_7 VOL + \alpha_8 MTB + \alpha_9 LOG(AT) + \alpha_{10} ROA + \alpha_{11} RET + \alpha_{12} LOSS \\ &+ \alpha_{13} EQISS + \alpha_{14} NUMSEG + \alpha_{15} LIT + Industry \ \& \ Year \ dummies + \varepsilon \end{aligned} \quad (1)$$

In equation (1), DISC is an indicator variable that equals one if the supplier issues any voluntary earnings guidance (either quarterly or annual) within a 45-day period after its customer's EA, and zero otherwise.[14] Our main variable of interest, 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. We use the absolute return, not the signed (raw) return, to capture the customer's news, because H1 pertains to the magnitude of the news irrespective of its sign.[15] Compared to the

[13] We remove suppliers from the sample if they issue earnings guidance just one day after the customer's EA (i.e., on day +1). Because the customer's EA news is measured as the market reaction up to day +1, earnings guidance issued on day +1 is unlikely to be a response to the customer's EA news. Our inferences remain the same, however, when these suppliers are included in the sample.

[14] Consistent with prior work on management earnings guidance (e.g., Ajinkya, Bhojraj, and Sengupta 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.

[15] Specifically, H1 predicts that the supplier is more likely to issue earnings guidance when the customer's EA news deviates more from the market's expectation, regardless of whether the type of the news is good or bad. Our subsequent tests for H4 modify the model to examine whether the relation is asymmetric with respect to the type of news.

news inferred from analyst forecast errors, this market-based measure provides a more comprehensive metric of the customer's EA news, which includes the customer's bundled earnings guidance, if any, and any news related to the customer's revenue and operating investments disclosed over the EA window. Thus, ABS(C_CAR) captures the magnitude of the total news available to the market, as impounded in the customer's stock price. H1 implies $\alpha_1 > 0$ in equation (1).[16]

As a control variable, ABS(S_CAR) is the absolute value of S_CAR, the supplier's cumulative market-adjusted return over the two-day period starting from the customer's EA date, capturing customer-related information directly incorporated in the supplier's stock price over the customer's EA window. If information transfers substitute for disclosure from the supplier (Pownall and Waymire 1989; Jorgensen and Kirschenheiter 2012), the coefficient on this variable would be negative. Prior studies indicate that C_CAR is positively correlated with S_CAR (e.g., Pandit et al. 2011), and we find a similar correlation between ABS(C_CAR) and ABS(S_CAR).[17] Therefore, in the presence of ABS(S_CAR) in the same regression, ABS(C_CAR) captures the residual of ABS(C_CAR), i.e., the part of the customer's news that has not been impounded in the supplier valuation. In other words, we isolate the information demand effect of the customer's news from the substitution effect of information transfer as reflected in ABS(S_CAR). We also include CORR, the return correlation between the two firms over the one-year period prior to the customer's EA, to control for the normal (expected) co-movement of the two firms' returns (Pandit et al. 2011). Including this variable ensures that our test reflects the incremental effect of new information released via the customer's EA.[18]

[16] The regression models we use to test H2 to H4 are similar to equation (1), except that we further include interaction variables on the right-hand side of the equations for H2 and H3, and replace ABS(C_CAR) with P_ABS(C_CAR) and N_ABS(C_CAR) for H4. We discuss those models later in corresponding sections.

[17] In our sample, the correlation between C_CAR and S_CAR is 0.104, while the correlation between ABS(C_CAR) and ABS(S_CAR) is 0.144. Both correlations are significant at $p < 0.01$.

[18] The coefficient on this variable could be positive if a high correlation makes it easier for managers to produce earnings guidance, but it could be negative if it reduces the benefits of voluntary disclosures (Gong, Li, and Zhou 2013). Our results do not change when we use the absolute value of CORR instead of CORR.

Following prior work on voluntary disclosures (e.g., Ajinkya et al. 2005; Hutton 2005), we include a set of firm characteristics as control variables. RET45D, market-adjusted returns compounded over the 45-day period after the customer's EA, is included to control for the effect of the supplier's stock performance during the same period over which DISC is measured. We expect a positive coefficient on RET45D, because 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).

Further, we control for other firm characteristics, 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). While higher volatility (VOL) could make forecasting earnings more difficult and thus reduce the likelihood of earnings guidance, higher growth opportunities (MTB) are likely to incentivize managers to issue earnings guidance to access external capital markets. Larger firms (LOG(AT)) are more likely to issue earnings guidance, because they have more resources. In addition to RET45D, 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 incentive to disclose upon equity issuance (EQISS). The number of segments (NUMSEG) is likely to have a negative effect on earnings guidance if operational complexity increases 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 the Fama-French 48 industry classification) and year-fixed effects to control for potential heterogeneity across industries and time. Appendix A provides detailed

definitions of all variables. To avoid undue influences of outliers, we winsorize continuous variables at 1% and 99%. We calculate two-sided p-values with standard errors adjusted by clustering industry and year-month (based on the customer's EA date).

Descriptive Statistics

Panel A of Table 1 reports the distribution of sample firms by industry. Durable manufacturers comprise the largest number of our sample firms (28%), 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. The mean value of DISC is 0.140, suggesting that 14% of sample firms issue earnings guidance within a 45-day period after their customers' EAs. This figure is smaller than those in other studies, because we restrict earnings guidance to that issued within a short time period after the EAs. The mean ABS(C_CAR) is 0.042, with 4,265 observations of positive C_CAR (with an average of 0.042) and 4,169 observations of negative C_CAR (with an average of -0.041). In comparison, the mean ABS(S_CAR) is 0.035, with 4,198 observations of positive S_CAR (with an average of 0.036) and 4,236 observations of negative C_CAR (with an average of -0.033).

Panel C of Table 1 reports the Pearson correlations of the variables. ABS(C_CAR) and ABS(S_CAR) are significantly positively correlated, consistent with prior research. We note, however, that the directions of their correlations with the supplier's earning guidance (DISC) are

different. We find that ABS(C_CAR) is positively correlated with DISC, though this univariate correlation is statistically insignificant. In contrast, ABS(S_CAR) is significantly negatively correlated the DISC. This result is consistent with ABS(S_CAR) reflecting part of the customer's news impounded in the supplier's stock price and hence lowering investors' demand for disclosure. Thus, in a regression that includes ABS(S_CAR) as a control variable, ABS(C_CAR) would capture the residual of ABS(C_CAR), i.e., the part of the customer's news that has not been impounded in the supplier valuation. The signs of the correlations between DISC and other control variables are largely consistent with those in prior research.[19]

IV. EMPIRICAL ANALYSES

Effect of the Customer's EA News on Earnings Guidance: Test of H1

Table 2 reports the result from estimating equation (1). It shows that the coefficient on ABS(C_CAR) is positive and significant at $p < 0.01$, indicating that the likelihood of earnings guidance increases with the magnitude of customer EA news. As expected, the coefficient on ABS(S_CAR) is negative and significant at $p < 0.01$, suggesting that the customer's news impounded in the supplier valuation lowers investors' demand for disclosure and, as a response, the supplier's managers are less likely to issue earnings guidance (i.e., the substitution effect of information transfers). With ABS(S_CAR) being controlled for in the same regression, a significantly positive coefficient on ABS(C_CAR) implies that the part of the customer's EA news that has not been impounded in the supplier valuation is positively associated with investors' demand for supplier disclosure.

[19] 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.

Holding the control variables at their respective means, the marginal change in the probability of earnings guidance is about 1% 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 implausible, given that the unconditional probability of earnings guidance is only about 14% in our sample. The results on the control variables are, by and large, consistent with our expectations. We find that the likelihood of earnings guidance increases with institutional ownership (INST), the number of analysts following (ANALYST), firm size (LOG(AT)), and litigation risk (LIT), while the likelihood decreases with stock return volatility (VOL). Overall, the results in Table 2 are consistent with H1, which predicts that suppliers are more likely to issue earnings guidance when their major customers' EAs convey the news that deviates more from the market's expectation.[20, 21]

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 Column (1), 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). If a common shock prior to the customer's EA is behind both the customer's EA news and the supplier's earnings guidance,

[20] In an untabulated analysis, we calculate the changes in the magnitude of a customer's earnings news as the absolute value of the customer's EA returns in year *t* minus the corresponding returns in year *t-1*. If this change (i.e., ΔABS(C_CAR)) is positive (negative), we interpret it as larger-than-usual (smaller-than-usual) customer news. We also calculate the changes in earnings guidance in year *t* relative to year *t-1* (i.e., ΔDISC), which, by construction, takes a value of 1, 0, or -1. We find that the mean ΔDISC is 0.135 for firms with larger-than-usual customer news, suggesting that such news is likely to increase earnings guidance. In contrast, the mean ΔDISC is -0.002 which is not significantly different from zero for firms with smaller-than-usual customer news, consistent with voluntary disclosures being sticky.

[21] When we remove ABS(S_CAR) and re-estimate equation (1) in an untabulated analysis, we continue to find a significantly positive coefficient on ABS(C_CAR), mitigating a concern that our result may be driven by a high correlation between ABS(C_CAR) and ABS(S_CAR).

we should observe a strong relation between ABS(PRE_C_CAR) and DISC. The results reported in Column (1), however, show that the coefficient on ABS(PRE_C_CAR) is statistically insignificant, suggesting that the results in Table 2 are unlikely to be attributable to common macroeconomic and/or industry-specific shocks prior to the customer's EA.[22]

In Column (2), 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 three-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 Column (2) of Table 3 show that our variable of interest, ABS(C_CAR), has an insignificant coefficient, further mitigating the concern that our results in Table 2 are driven by common shocks.[23]

Robustness Checks

We perform several robustness checks and report the results in Table 4. First, we examine the robustness of our results to using an alternative measure of the customer's EA news not incorporated in supplier returns. When ABS(S_CAR) is controlled for in equation (1) for our main analysis, ABS(C_CAR) captures the residual of ABS(C_CAR) obtained from a regression of this variable on all other independent variables included in equation (1). To ensure that our results are driven by the customer's EA news not impounded in the supplier valuation, we re-estimate equation (1)

[22] Alternatively, we include ABS(PRE_C_CAR) as a 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. The results are also similar when ABS(PRE_C_CAR) is measured over an alternative pre-EA period (-30, -2).

[23] Our results of the cross-sectional analyses involving industry commonality (which are reported in Column (3) of Table 5) also mitigate the possibility that the results in Table 2 are driven by a common industry shock. We find that industry commonality reduces the effect of the customer's EA news on the supplier's earnings guidance, which is contradictory to what would be predicted if a common industry shock were driving our main results.

after replacing ABS(C_CAR) with ABS(C_RES), which is the absolute value of the residual of C_CAR, denoted as C_RES, obtained from a regression of signed C_CAR on signed S_CAR. As reported in Column (1), the coefficient on ABS(C_RES) is positive and significant at $p < 0.01$, while the coefficient on ABS(S_CAR) remains negative and significant, confirming that the likelihood of suppliers issuing earnings guidance increases with the magnitude of the residual of the customer's news not reflected in supplier returns.[24]

Second, if suppliers issue earnings guidance regularly at every EA, they likely issue guidance following a predetermined schedule, not as discretionary responses to the customer's EA news. Although the inclusion of such guidance would work against our finding, we perform a sensitivity check after excluding suppliers that issue guidance regularly at their EA, regardless of the customer's EA news, from the sample. Specifically, we regard a supplier as being committed to a predetermined disclosure schedule if it issues bundled earnings guidance at every EA over the past four fiscal quarters, and we remove those firms from the sample. Using this reduced sample, we re-estimate equation (1) and report the results in Column (2) of Table 4. The coefficient on ABS(C_CAR) remains positive and significant at $p < 0.01$, suggesting that our main findings are not driven by firms committed to a predetermined guidance schedule.[25]

Third, we examine the supplier's guidance decision over a shorter or a longer horizon subsequent to the customer's EA. In Column (3) (Column (4)) of Table 4, we replace the dependent

[24] ABS(C_RES) is highly correlated with the residual of ABS(C_CAR) obtained from a regression of ABS(C_CAR) on all other independent variables in equation (1), with a Pearson correlation coefficient of 0.94 (p-value < 0.01).

[25] We do not remove all bundled forecasts from our sample, because Rogers and Van Buskirk (2013) document that excluding bundled forecasts from the sample causes (1) a substantial loss of empirical power, as well as (2) the risk of drawing erroneous conclusions from a non-representative sample. Nevertheless, in an untabulated analysis, we identify suppliers with their own quarterly EAs during the 45-day period after their customers' EAs and exclude those firms from the sample. Untabulated results indicate that our inferences for H1 remain unchanged. In addition, we alternatively regard a supplier as being committed to a predetermined disclosure policy if it issues earnings guidance within a 45-day period subsequent to each of the customer's EAs over the past four quarters. Untabulated results after excluding those firms also confirm our inferences for H1.

variable with DISC30 (DISC60), an indicator variable that equals one if the supplier issues earnings guidance within a *30-day* (*60-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) is significantly positive in both Columns (3) and (4). Untabulated results, however, show that the coefficient becomes insignificant when we examine the guidance decision over a 90-day period. Measured over a longer 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 the insignificant result with earnings guidance examined over a 90-day period.[26]

Supply-Chain Information Environment: Test of H2

H2 suggests that the effect of a major customer's EA news on its supplier's earnings guidance is weaker when the supply-chain information environment allows investors to better process the news. To test H2, we define an indicator variable, High Common, which equals one if the two firms share common investors, supply-chain analysts, a common industry, or a common location. We then add High Common and the interaction of ABS(C_CAR) with High Common to equation (1).[27] Specifically, we estimate the following model in equation (2). H2 implies $\alpha_3 < 0$.

$$\begin{aligned} \text{DISC} \quad &= \alpha_0 + \alpha_1 \text{ABS(C\_CAR)} + \alpha_2 \text{High Common} + \alpha_3 \text{ABS(C\_CAR)} \times \text{High Common} \\ &\quad + \text{Control Variables} + \varepsilon \end{aligned} \tag{2}$$

In Column (1) of Table 5, High Common is an indicator variable that equals one if the proportion of common investors is in the top quintile of the sample distribution, and zero otherwise.

[26] In an untabulated analysis, when we examine the guidance decision over a 14- or 21-day period, the coefficient on ABS(C_CAR) is insignificant, though its sign is still positive. The insignificant coefficient is likely due to weak statistical power associated with a small number of guidance offered during these short windows.

[27] 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 Ai and Norton's (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.

The proportion of common investors is calculated as the number of institutional investors owning shares of both the customer and the supplier, divided by the number of institutional investors owning the shares of the supplier.[28] The results show that while the coefficient on ABS(C_CAR) remains positive and significant, the coefficient on ABS(C_CAR) × High Common is negative and significant at $p < 0.05$. This result is consistent with H2. Investors holding both the customer's and the supplier's shares are likely to be more informed about supply-chain specifics, with which they can better evaluate the value implications of the customer's EA news. Accordingly, for a given amount of the customer's EA news, their demand for disclosure is lower, leading to a weaker relation between the customer's news and the supplier's earnings guidance.

In Column (2) of Table 5, High Common is an indicator variable that equals one if the proportion of supply-chain analysts is in the top quintile of the sample distribution, and zero otherwise. The proportion of supply-chain analysts is calculated as the number of financial analysts covering both the customer and the supplier divided by the number of financial analysts covering the supplier. Similar to those in Column (1), the results in Column (2) show that while the coefficient on ABS(C_CAR) remains positive and significant, the coefficient on ABS(C_CAR) × High Common is negative and significant at $p < 0.10$. These results suggest that supply-chain analysts help investors better process the customer's EA news, lowering investors' demand for the supplier's disclosure. Thus, the result in Column (2) is also consistent with H2.[29]

[28] Consistent with Cohen and Frazzini (2008), the proportion is scaled by the number of institutional investors, which controls for institutional investors' tendency to have portfolio weights tilted toward large-cap liquid securities. In other words, our measure takes into account the differences in size and liquidity across suppliers in institutional holdings. We use a similar approach when we define High Common based on supply-chain analysts.

[29] The coefficient on High Common is significantly positive in Column (2). While we do not have a clear ex ante prediction for this coefficient, we conjecture that the positive coefficient may be due to supply-chain analysts demanding more disclosures or being more likely to follow firms with characteristics that are correlated with a propensity to issue earnings guidance. The positive main effect of High Common (which is unconditional on the customer's EA news) is not inconsistent with the negative interaction effect (which is conditional on the customer's EA news). While supply-chain analysts demand more disclosures from supplier managers (the main effect), their

In Column (3), High Common is an indicator variable that equals one if both the customer and the supplier operate in the same three-digit SIC code industry, and zero otherwise. By this definition, about 18% of our sample firms operate in the same industry as their customers. In Column (3), while the coefficient on ABS(C_CAR) remains positive and significant, the coefficient on ABS(C_CAR) × High Common is negative and significant at $p < 0.01$, consistent with the notion that investors better assess the customer's EA news if the customer and the supplier operate in the same industry, lowering their demand for disclosure. Again, this finding supports H2.

In Column (4), High Common is an indicator variable that equals one if the distance between the customer and the supplier is less than 100 miles or both the customer and the supplier are located in the same metropolitan statistical area (MSA), and zero otherwise. By this definition, about 12% of our sample includes suppliers and customers that operate in a common location. We use headquarters' location and obtain historical location data from WRDS SEC Analytics Suite. We find that the coefficient on ABS(C_CAR) × High Common is negative, as expected, but insignificant at conventional levels ($p = 0.13$), while the coefficient on ABS(C_CAR) is positive and significant.

Overall, the results in Table 5 are largely consistent with H2. The evidence indicates that when the customer and the supplier share common investors, supply-chain analysts, or a common industry, the supplier investors' demand for disclosure in response to the customer's EA is weaker, because supplier investors are likely more informed about supply-chain or industry specifics with which they can better predict the supplier's possible reactions and future prospects when evaluating the value

presence can weaken investors' demand for disclosure in response to the customer's EA news (the interaction effect), because investors can rely on information generated by supply-chain analysts, who better process the customer's earnings news (Guan et al. 2015). To put it differently, when investors are less informed due to the lack of supply-chain analysts, they are more likely to demand earnings guidance in response to the external signals. This seems to be the case for the common industry effect in Column (3) of Table 5 and also for the customer replaceability effect in Column (2) of Table 6.

implications of the customer's EA news. As a result, the effect of the customer's EA news on its supplier's earnings guidance is weaker.

Supply-Chain Characteristics: Test of H3

H3 predicts that supply-chain characteristics capturing the importance of supply-chain relationships affect the relation between the customer's EA news and the supplier's earnings guidance. To test this prediction, we first define an indicator variable, High RSI, which equals one if the supplier's relationship-specific investment (RSI) is in the top quintile of the sample distribution, and zero otherwise. A large number of studies suggest that suppliers' R&D intensity serves as a reasonable proxy for suppliers' RSI (e.g., Levy 1985; Bowen, DuCharme, and Shores 1995; Raman and Shahrur 2008; Gu, Sanders, and Venkateswaran 2017).[30] Because the magnitude of RSI for a customer is likely to increase with the amount of sales from the customer, following Gu et al. (2017), we multiply the ratio of R&D expenditures to total assets with the customer's sales weight (i.e., sales generated from the customer divided by total sales). We then add High RSI and the interaction of ABS(C_CAR) with High RSI to equation (1).

We also define an indicator variable, High Replace, which equals one if a supplier's customer replaceability is in the top quintile of the sample distribution, and zero otherwise. Customer replaceability is calculated as the number of firms in the customer's three-digit SIC code industry multiplied by the inverse of the customer's sales weight (i.e., total sales divided by sales generated from the customer). Note that we multiply the number of firms in the industry by the *inverse* of the customer's sales weight, because it is easier to replace the customer with another firm in the

[30] For example, Raman and Shahrur (2008) suggest that suppliers' R&D investments are often specific to their relationship with major customers in many industries, such as auto manufacturers, software, aircraft engines and parts, biotechnology, medical instruments, and semiconductors. Levy (1985) argues that R&D-intensive industries tend to involve specialized inputs that require suppliers to make transaction-specific investments. Bowen et al. (1995) use the firm's own R&D spending as a proxy for the extent to which the claims of its nonfinancial stakeholders are uniquely tied to the firm's business.

same industry when the customer generates a lower sales weight. We then add High Replace and the interaction of ABS(C_CAR) with High Replace to equation (1).

Specifically, to test H3, we estimate the following models in equations (3a) and (3b). H3 implies $\alpha_3 > 0$ in equation (3a) and $\alpha_3 < 0$ in equation (3b).

$$\begin{aligned} DISC &= \alpha_0 + \alpha_1 ABS(C\_CAR) + \alpha_2 High\ RSI + \alpha_3 ABS(C\_CAR) \times High\ RSI \\ &\quad + Control\ Variables + \varepsilon \end{aligned} \tag{3a}$$

$$\begin{aligned} DISC &= \alpha 0 + \alpha_1 ABS(C\_CAR) + \alpha_2 High\ Replace + \alpha_3 ABS(C\_CAR) \times High\ Replace \\ &\quad + Control\ Variables + \varepsilon \end{aligned} \tag{3b}$$

The results reported in Column (1) of Table 6 show that while the coefficient on ABS(C_CAR) remains positive and significant, the coefficient on ABS(C_CAR) × High RSI is also positive and significant at $p < 0.10$. These results suggest that the effect of the customer's EA news on the supplier's earnings guidance is more pronounced when the supplier makes a greater amount of RSI for the customer. The results reported in Column (2) show that while the coefficient on ABS(C_CAR) remains positive and significant, the coefficient on ABS(C_CAR) × High Replace is negative and significant at $p < 0.01$. These results imply that the effect of the customer's EA news on the supplier's earnings guidance is weaker when the supplier can easily replace the current customer with another firm in the same industry.

Overall, the results in Table 6 suggest that supply-chain characteristics capturing the importance of supply-chain relationships, such as the size of the relationship-specific investment and customer replaceability, influence the relation between the customer's EA news and the supplier's earnings guidance, consistent with H3.[31]

[31] In untabulated analyses, we find that the positive relation between the customer's EA news and the supplier's earnings guidance is more pronounced for suppliers with positive returns than those with negative returns, measured over the 45 days prior to the customer's EA. This result suggests that investors demand additional disclosure to evaluate whether the supplier's strong performance prior to the customer's EA would continue after the customer's EA. Moreover, we find that the positive relation is more pronounced for a supplier whose major customer is an industry

Asymmetric Effect of Positive versus Negative Customer's EA News: Test of H4

H4 predicts that the effect of the customer's EA news on the supplier's earnings guidance varies depending on whether the news is positive or negative. To test H4, we replace ABS(C_CAR) with P_ABS(C_CAR) and N_ABS(C_CAR) in equation (1). 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 value, and zero otherwise. Specifically, to test H4, we estimate the following model in equation (4).

$$DISC = \alpha_0 + \alpha_1 P\_ABS(C\_CAR) + \alpha_2 N\_ABS(C\_CAR) + Control\ Variables + \varepsilon \quad (4)$$

H4 implies $\alpha_1 < \alpha_2$. The results reported in Table 7 show that while the coefficients on P_ABS(C_CAR) and N_ABS(C_CAR) are both positive and significant, the coefficient on N_ABS(C_CAR), 1.471, is greater than the coefficient on P_ABS(C_CAR), 0.492. The Chi^2-test provided at the bottom of Table 7 indicates that the difference is statistically significant at $p < 0.05$. These results support H4, that the effects of the customer's positive versus negative EA news are asymmetric with respect to its supplier's propensity to issue earnings guidance. That is, the effect is stronger when the EA news is negative than when it is positive, suggesting that the demands for and benefits from earnings guidance are relatively greater when the customer's EA conveys negative news.[32]

leader (defined based on market share in sales), consistent with the industry leader's EA providing a stronger signal of the state of the economy, prompting a greater investors' disclosure demand.

[32] While Sletten (2012) argues that a negative shock to share price (triggered by the restatement of an industry peer) lowers a firm's disclosure threshold by turning previously withheld bad news into good news, the findings in Table 7 indicate that our results are unlikely to be explained by a lowered disclosure threshold after the customer's negative EA news, for the following reasons. First, we find that not only the customer's negative EA news but also its positive EA news induces more earnings guidance from the supplier, whereas Sletten (2012) finds a higher likelihood of earnings guidance only after a decrease in stock price and not after an increase in stock price. Second, in an untabulated analysis, we decompose ABS(S_CAR) into P_ABS(S_CAR) and N_ABS(S_CAR) and run equation (1) after replacing ABS(S_CAR) with P_ABS(S_CAR) and N_ABS(S_CAR). We find that the coefficients on both

V. ADDITIONAL ANALYSES

Upward versus Downward Guidance Revision

We investigate the directional change of the supplier's earnings guidance after the customer's EA. Specifically, we define DISC_UP (DISC_DOWN) as an indicator variable that equals one if the firm issues earnings guidance revised upward (downward) from the guidance issued previously for the same period before the customer's EA, and zero otherwise.[33] When we replace the dependent variable with DISC_UP in equation (1), as reported in Columns (1) and (2) of Table 8, all of the coefficients on ABS(C_CAR), P_ABS(C_CAR), and N_ABS(C_CAR) are significantly positive. We do not find such evidence, however, when we replace the dependent variable with DISC_DOWN in Columns (3) and (4) of Table 8. These results suggest that when managers have information more favorable than the news disclosed earlier, managers respond to investors' disclosure demand regardless of whether the customer's EA delivers positive or negative news.

Components of the Customer's EA News

ABS(C_CAR) captures the overall magnitude of the customer's news, which includes various news components disclosed at the customer's EA (e.g., earnings news, bundled guidance 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 Online Appendix 1. The results suggest that while the customer's realized earnings substitutes for the supplier's earnings guidance, forward-

P_ABS(S_CAR) and N_ABS(S_CAR) are significantly negative, while the difference between the two coefficients is statistically insignificant. That is, unlike Sletten (2012), we find that a negative shock to the supplier's stock price decreases the likelihood of earnings guidance.

[33] 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 713 supplier-years that issue earnings guidance both before and after their customer's EA, 55% issue the same forecast (confirming guidance), followed by 29% of upward revision and 17% of downward revision.

looking information unexpectedly bundled with EA and harder-to-interpret information trigger investors' information demands and hence lead suppliers to issue earnings guidance.

Alternative Explanations

Our result is subject to several alternative explanations. First, our finding is consistent with a substitution story, which predicts that when the supplier return incorporates less (more) of customer news, the supplier would make more (less) disclosures. While we suggest that the residual of ABS(C_CAR), part of customer news not fully impounded in supplier valuation, is associated with information demand, the residual may also reflect the irrelevance of customer news to the supplier, raising a possibility that our result arises from the substitution effect. In our analyses reported in Online Appendix 2, however, we find that the residual of ABS(C_CAR) is significantly and positively associated with proxies for the supplier investors' opinion divergence (or information demand), such as the supplier's unexpected trading volume and stock return volatility, mitigating the concern that the residual only captures the irrelevance of the customer's news to the supplier.[34] Nonetheless, we acknowledge that our story and the substitution effect story are neither mutually exclusive nor at odds with each other because even under the substitution story, it is plausible that the supplier's decision to issue earnings guidance in response to its customer EA is prompted by a perceived investor demand for disclosure.

Second, if suppliers learn information from their customers' EAs, they are more likely to issue earnings guidance and do so with improved accuracy when the customers' EAs convey more 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

[34] Alternative proxies for investors' opinion divergence include analysts' forecasts dispersion. However, given that the opinion divergence is measured over a short window subsequent to the customer's EA, using analysts' forecast dispersion is not feasible for our study because few analysts issue their forecasts for suppliers during the short period (e.g., within 5 or 10 trading days) immediately after their customers' EA dates.

improvement is no longer significant once we control for the effect of the shorter forecast horizon of the 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 that direct learning from the customer's EA serves as an alternative explanation for our finding.

Lastly, managers tend to herd in their warnings, in an attempt to attribute their bad news to market or industry factors that are outside the managers' control (Tse and Tucker 2010). One may then argue that our result is likely driven by managers' herding to reduce apparent responsibility for bad news. As reported in Table 8, however, we find that supplier managers are more likely to issue upward-revised guidance (not downward-revised guidance) shortly after the negative as well as the positive EAs from their customers, mitigating the possibility that the herding in disclosures for a blaming game is the main driver of our results.

VI. CONCLUSION

We examine the effect of a major customer's EA on its supplier's voluntary disclosures. The customer's EA delivers 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 the customer's EA increases uncertainties regarding the supplier's reactions to the news and the supplier's future prospects, however, it can increase the demand for earnings guidance. We find that after controlling for the customer's news reflected in the supplier's stock returns, the supplier is more likely to issue earnings guidance after the customer's EA when the EA news deviates more from the market's expectation. This result suggests that part of the customer's news that has not been impounded in the supplier valuation is positively associated with investors' demand for the supplier's disclosure.

The positive relation between the customer's EA news and the supplier's earnings guidance is less pronounced when supply-chain information environment is richer through common investors,

supply-chain analysts, or a common industry. In addition, the effect of the customer's EA news on the supplier's earnings guidance is stronger (weaker) for suppliers with greater relationship-specific investments (with higher customer replaceability), suggesting that the importance of the customer to the supplier influences investors' demand for the supplier's earnings guidance. Furthermore, the effect is stronger when the customer's EA news is negative than positive, which is consistent with the supplier's asymmetric payoffs with respect to the customer's strong vs. poor performance.

Our study makes contributions to the literature on voluntary disclosure as well as on the customer-supplier relationship by being the first to document that information externalities from a customer influence its supplier's earnings guidance. Given that nearly one half of public firms in the U.S. report the identities of their major customers in annual reports (Ellis at al. 2012) and experience information externalities from the customer's EA on a regular basis, our results help explain how such a reporting environment and recurring information externalities affect voluntary disclosure decisions.

REFERENCES

Ai, C., and C. Norton. 2003. Interaction terms in logit and probit models. *Economics letters* 80 (1): 123-129.

Ajinkya, B., and M. Gift. 1984. Corporate managers' earnings forecasts and symmetrical adjustments of market expectations. *Journal of Accounting Research* 22 (2): 425-444.

Ajinkya, B., S. Bhojraj, and P. Sengupta. 2005. The association between outside directors, institutional investors, and the properties of management earnings forecasts. *Journal of Accounting Research* 43 (3): 343-376.

Baiman, S., and R. Verrecchia. 1996. The relation among capital markets, financial disclosure, production efficiency, and insider trading. *Journal of Accounting Research* 34 (1): 1–22.

Banerjee, S., S. Dasgupta, Y. Kim. 2008. Buyer-supplier relationships and the stakeholder theory of capital structure. *Journal of Finance* 63 (5): 2507-2552.

Barker, D., and T. Loughran. 2007. The geography of S&P 500 stock returns. *Journal of Behavioral Finance* 8: 177-190.

Bergman, N., and S. Roychowdhury. 2008. Investor sentiment and corporate disclosure. *Journal of Accounting Research* 46 (5): 1057-1083.

Botosan, C. 1997. Disclosure level and the cost of equity capital. *The Accounting Review* 77: 323–349.

Bowen, R., L. DuCharme, and D. Shores. 1995. Stakeholders implicit claims and accounting method choice. *Journal of Accounting and Economics* 20: 255–295.

Cen, L., S. Dasgupta, R. Elkamhi, and R. Pungaliya. 2016. Reputation and loan contract terms: The role of principal customers. *Review of Finance* 20 (2): 501-533.

Cen, L., E. Maydew, L. Zhang, and L. Zuo. 2017. Customer-supplier relationships and corporate tax avoidance. *Journal of Financial Economics* 123: 377-394.

Chen, S., M. DeFond, and C. Park. 2002. Voluntary disclosure of balance sheet information in quarterly earnings announcements. *Journal of Accounting and Economics* 33: 229-251.

Cohen, L., and A. Frazzini. 2008. Economic links and predictable returns. *Journal of Finance* 63 (4): 1977-2011.

Coller, M., and T. Yohn. 1997. Management forecasts and information asymmetry: An examination of bid-ask spreads. *Journal of Accounting Research* 35 (2): 181-191.

Dhaliwal, D., J. Judd, M. Serfling, and S. Shaikh. 2016. Customer concentration risk and the cost of equity capital. *Journal of Accounting and Economics* 61 (1): 23-48.

Diamond, D., and R. Verrecchia. 1991. Disclosure, liquidity, and the cost of capital. *Journal of Finance* 46 (4): 1325-1359.

Dou, Y., O. Hope, and W. Thomas. 2013. Relationship-septicity, contract enforceability, and income smoothing. *The Accounting Review* 88 (5): 1629-1656.

Dow Jones Newswires. 2014. MasTec cuts views amid wireless, oil concerns – Market Talk (December 17, 2014).

Drake, A., and S. Haka. 2008. Does ABC information exacerbate hold-up problems in buyer-supplier negotiations? *The Accounting Review* 83 (1): 29-60.

Dye, R. 1985. Disclosure of nonproprietary information. *Journal of Accounting Research* 23: 123–145.

Easley, D., and M. O'Hara. 2004. Information and the cost of capital. *The Journal of Finance* 59 (4): 1553–15383.

Ellis, J., C. Fee, and S. Thomas. 2012. Proprietary costs and the disclosure of information about customers. *Journal of Accounting Research* 50 (3): 685-728.

Fishman, M., and K. Hagerty. 1989. Disclosure decisions by firms and the competition for price efficiency. *The Journal of Finance* 44 (3): 633–646.
Forbes. 2015. Qualcomm's 2015 forecast takes a hit again as Samsung moves towards own chips (April 22, 2015).
Gong, G., L. Li., and L. Zhou. 2013. Earnings non-synchronicity and voluntary disclosures. *Contemporary Accounting Research* 39 (4): 1560-1589.
Greene, W. 2010. Testing hypotheses about interaction terms in nonlinear models. *Economics Letters* 107 (2): 291-296.
Gu, T., N. Sanders, and A. Venkateswaran. 2017. CEO incentives and customer-supplier relations. *Production and Operations Management* 26: 1705-1727.
Guan Y., M. Wong, and Y. Zhang. 2015. Analyst following along the supply chain. *Review of Accounting Studies* 20: 210-241.
Healy, P., and K. Palepu. 2001. Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics* 31: 405–440.
Hertzel, M., Z. Li, M. Officer, and K. Rodgers. 2008. Inter-firm linkages and the wealth effects of financial distress along the supply chain. *Journal of Financial Economics* 87: 374-387.
Hirst, E., L. Koonce, and S. Venkataraman. 2008. Management earnings forecasts: A review and framework. *Accounting Horizons* 22 (3): 315–338.
Houston, J., B. Lev, and J. Tucker. 2010. To guide or not to guide? Causes and consequences of stopping quarterly earnings guidance. *Contemporary Accounting Research* 27 (1): 143-185.
Hui, K., S. Klasa, and P. Yeung. 2012. Corporate suppliers and customers and accounting conservatism. *Journal of Accounting and Economics* 53 (1-2): 115-135.
Hutton, A. 2005. Determinants of managerial earnings guidance prior to Regulation Fair Disclosure and bias in analysts' earnings forecasts. *Contemporary Accounting Research* 22: 867-914.
Jorgensen, B., and M. Kirschenheiter. 2012. Interactive discretionary disclosures. *Contemporary Accounting Research* 29 (2): 382-397.
Kasznik, R., and B. Lev. 1995. To warn or not to warn: Management disclosures in the face of an earnings surprise. *The Accounting Review* 70 (1): 113-134.
Kim, J., B. Song, and Y. Zhang. 2015. Earnings performance of major customers and bank loan contracting with suppliers. *Journal of Banking and Finance* 59: 384-398.
Klein, B., R. Crawford, and A. Alchian. 1978. Vertical integration, appropriable rents, and the competitive contracting process. *Journal of Law and Economics* 21: 297-326.
Klein, B. 2000. Fisher-General Motors and the nature of the firm. *Journal of Law and Economics* 43: 105-142.
Kolasinski, A. and A. Siegel. 2010. *On the economic meaning of interaction term coefficients in non-linear binary response regression models*. Working paper, University of Washington.
Kothari, S.P., S. Shu, and P.D. Wysocki. 2009. Do managers withhold bad news? *Journal of Accounting Research* 47: 241–276.
Lang, M., and R. Lundholm. 1996. The relation between security returns, firm earnings, and industry earnings. *Contemporary Accounting Research* 13 (2): 607-629.
Levy, D. 1985. The transactions cost approach to vertical integration: An empirical examination. *The Review of Economics and Statistics* 67: 438–445.
Madsen, J. 2017. Anticipated earnings announcements and the customer-supplier anomaly. *Journal of Accounting Research* 55 (3): 709-741.

Miller, G. 2002. Earnings performance and discretionary disclosure. *Journal of Accounting Research* 40 (1): 173-204.

Olsen, C., and J. Dietrich. 1985. Vertical information transfers: The association between retailers' sales announcements and suppliers' security returns. *Journal of Accounting Research* 23 (Supplement): 144-166.

Pandit, S., C. Wasley, and T. Zach. 2011. Information externalities along the supply chain: The economic determinants of suppliers' stock price reaction to their customers' earnings announcements. *Contemporary Accounting Research* 28 (4): 1304-1343.

Patatoukas, P. 2012. Customer-base concentration: Implications for firm performance and capital markets. *The Accounting Review* 87 (2): 363-392.

Pirinsky, C., and Q. Wang. 2006. Does corporate headquarters location matter for stock returns? *Journal of Finance* 61: 1991-2015.

Pownall, G., and G. Waymire. 1989. Voluntary disclosure choice and earnings information transfer. *Journal of Accounting Research* 27 (Supplement): 85-105.

Raman, K., and H. Shahrur. 2008. Relationship-specific investments and earnings management: Evidence on corporate suppliers and customers. *The Accounting Review* 83 (4): 1041-1081.

Rogers, J. L., and A. Van Buskirk. 2013. Bundled forecasts in empirical accounting research. *Journal of Accounting Research* 55: 43-65.

Sengupta, P. 1998. Corporate disclosure quality and the cost of debt. *The Accounting Review* 73 (4): 459–474.

Shleifer, A., and R. Vishny. 1989. Management entrenchment: The case of manager-specific investments. *Journal of Financial Economics* 25 (1): 123-139.

Skinner, D. 1994. Why firms voluntarily disclose bad news? *Journal of Accounting Research* 32 (1): 38-60.

Sletten, E. 2012. The effect of stock price on discretionary disclosure. *Review of Accounting Studies* 17 (1): 96-133.

Titman, S., and R. Wessels. 1988. The determinants of capital structure choice. *Journal of Finance* 43 (1): 1-19.

Trueman, B. 1986. Why do managers voluntarily release earnings forecasts? *Journal of Accounting and Economics* 8: 53-71.

Tse, S., and J. Tucker. 2010. Within-industry timing of earnings warnings: Do managers herd? *Review of Accounting Studies* 15: 879-914.

Verrecchia, R. 1983. Discretionary disclosure. *Journal of Accounting and Economics* 5: 365–380.

Verrecchia, R. 2001. Essays on disclosure. *Journal of Accounting and Economics* 32: 97–180.

Williamson, O. 1975. *Markets and Hierarchies: Analysis and Antitrust Implications*. New York, NY: Free Press.

APPENDIX A
Variable Definitions

Variable	Definition
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 (EA), 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 EA date.
ABS(S_CAR)	The absolute value of S_CAR, which is the supplier's cumulative market-adjusted returns over the two-day period starting from the customer's EA date.
CORR	The correlation of the market-adjusted daily returns between the customer and the supplier over the one-year period prior to the customer's EA date.
RET45D	The firm's market-adjusted returns measured over the 45-day period after its customer's EA date.
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	0.38%	0	0.00%
Mining and construction	94	1.11%	20	0.24%
Food	348	4.13%	128	1.52%
Textile and printing/publishing	413	4.90%	107	1.27%
Chemicals	250	2.96%	171	2.03%
Pharmaceuticals	805	9.54%	570	6.76%
Extractive	512	6.07%	578	6.85%
Durable manufacturers	2,381	28.23%	1581	18.75%
Transportation	370	4.39%	641	7.60%
Utilities	66	0.78%	214	2.54%
Retail	290	3.44%	2494	29.57%
Finance, Insurance, Real Estate	347	4.11%	305	3.62%
Services	436	5.17%	158	1.87%
Computers	2,090	24.78%	1277	15.14%
Non-classifiable	0	0.00%	190	2.25%
Total	8,434	100.00%	8,434	100.00%

Panel B: Summary Statistics

	N	Mean	STD	P25	Median	P75
DISC	8,434	0.140	0.347	0.000	0.000	0.000
ABS(C_CAR)	8,434	0.042	0.042	0.014	0.029	0.055
ABS(S_CAR)	8,434	0.035	0.041	0.009	0.021	0.044
CORR	8,434	0.083	0.152	-0.015	0.057	0.150
RET45D	8,434	0.017	0.217	-0.107	-0.002	0.110
INST	8,434	0.445	0.342	0.073	0.456	0.756
ANALYST	8,434	5.761	6.372	1.000	4.000	8.000
VOL	8,434	0.038	0.022	0.023	0.032	0.047
MTB	8,434	2.682	3.784	1.159	1.947	3.343
LOG(AT)	8,434	5.917	1.911	4.526	5.796	7.283
ROA	8,434	-0.033	0.216	-0.082	0.026	0.078
RET	8,434	0.128	0.689	-0.292	0.022	0.358
LOSS	8,434	0.389	0.487	0.000	0.000	1.000
EQISS	8,434	0.125	0.331	0.000	0.000	0.000
NUMSEG	8,434	4.798	2.918	2.000	4.000	6.000
LIT	8,434	0.435	0.496	0.000	0.000	1.000

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)	0.015														
		(0.18)														
(3)	ABS(S_CAR)	-0.069	0.144													
		(0.00)	(0.00)													
(4)	CORR	0.068	0.062	-0.008												
		(0.00)	(0.00)	(0.46)												
(5)	RET45D	0.016	0.019	0.073	0.011											
		(0.13)	(0.08)	(0.00)	(0.32)											
(6)	INST	0.152	-0.045	-0.175	0.113	-0.035										
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)										
(7)	ANALYST	0.206	-0.010	-0.105	0.288	-0.029	0.376									
		(0.00)	(0.36)	(0.00)	(0.00)	(0.01)	(0.00)									
(8)	VOL	-0.136	0.168	0.410	-0.114	0.022	-0.359	-0.267								
		(0.00)	(0.00)	(0.00)	(0.00)	(0.05)	(0.00)	(0.00)								
(9)	MTB	0.025	-0.008	-0.010	0.014	-0.037	0.035	0.114	-0.050							
		(0.02)	(0.47)	(0.35)	(0.20)	(0.00)	(0.00)	(0.00)	(0.00)							
(10)	LOG(AT)	0.169	-0.054	-0.202	0.307	-0.039	0.447	0.650	-0.450	-0.015						
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.17)						
(11)	ROA	0.105	-0.068	-0.181	0.121	0.069	0.249	0.162	-0.482	0.000	0.318					
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.97)	(0.00)					
(12)	RET	0.018	-0.045	0.012	-0.005	0.392	-0.030	-0.059	-0.076	-0.092	-0.023	0.192				
		(0.10)	(0.00)	(0.26)	(0.65)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.03)	(0.00)				
(13)	LOSS	-0.108	0.082	0.187	-0.094	-0.057	-0.258	-0.166	0.473	-0.034	-0.297	-0.686	-0.177			
		(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	-0.026	-0.016	-0.049	0.059	-0.003	0.042	0.036	-0.080	0.035	0.134	-0.017	0.060	-0.025		
		(0.02)	(0.13)	(0.00)	(0.00)	(0.78)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.12)	(0.00)	(0.02)		
(15)	NUMSEG	0.092	0.000	-0.088	0.135	-0.014	0.163	0.246	-0.191	-0.052	0.388	0.173	0.009	-0.122	-0.011	
		(0.00)	(0.98)	(0.00)	(0.00)	(0.21)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.42)	(0.00)	(0.31)	
(16)	LIT	0.040	0.080	0.100	-0.079	0.018	-0.070	0.127	0.178	0.089	-0.136	-0.227	-0.036	0.224	-0.065	-0.019
		(0.00)	(0.00)	(0.00)	(0.00)	(0.10)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.08)

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 Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles.

TABLE 2
Effect of a Major Customer's EA News on Its Supplier's Earnings Guidance (Test of H1)

	Pred.	Coef.	p-val.
ABS(C_CAR)	+	0.919***	0.002
ABS(S_CAR)	-	-1.013***	0.005
CORR	+/-	0.141	0.499
RET45D	+	0.160	0.391
INST	+	0.329***	0.004
ANALYST	+	0.024***	0.002
VOL	-	-5.579***	0.005
MTB	+	0.001	0.918
LOG(AT)	+	0.062**	0.020
ROA	+	0.259	0.150
RET	+	0.043	0.259
LOSS	-	-0.084	0.349
EQISS	+	-0.064	0.352
NUMSEG	-	0.001	0.931
LIT	+	0.219*	0.077
Industry Fixed Effects		yes	
Year Fixed Effects		yes	
No. of Obs.		8,434	
Pseudo R^2		0.1194	

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

TABLE 3
Falsification Test

		(1) Pre-Announcement Customer News		(2) Pseudo-Suppler Sample	
	Pred.	Coef.	p-val.	Coef.	p-val.
ABS(PRE_C_CAR)	?	-0.029	0.930		
ABS(C_CAR)	?			-0.105	0.812
ABS(S_CAR)	-	-0.932**	0.012	-1.032	0.168
CORR	+/-	0.158	0.433	0.092	0.539
RET45D	+	0.164	0.381	0.084	0.518
INST	+	0.329***	0.004	0.580***	0.000
ANALYST	+	0.024***	0.002	0.022***	0.000
VOL	-	-5.423***	0.007	-3.985**	0.024
MTB	+	0.001	0.913	-0.006	0.394
LOG(AT)	+	0.062**	0.023	0.063***	0.010
ROA	+	0.261	0.150	0.315**	0.029
RET	+	0.041	0.291	-0.050	0.215
LOSS	-	-0.085	0.345	-0.158**	0.014
EQISS	+	-0.063	0.362	0.201**	0.013
NUMSEG	-	0.001	0.938	-0.004	0.737
LIT	+	0.223*	0.074	0.089	0.202
Industry Fixed Effects		yes		yes	
Year Fixed Effects		yes		yes	
No. of Obs.		8,434		7,929	
Pseudo R^2		0.1188		0.1392	

This table shows the results of the probit regression of DISC as a falsification test. In Column (1), 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). In Column (2), the analysis is based on the 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 three-digit SIC code and fiscal year-end. All other variables are defined in Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are clustered by industry (based on Fama-French 48 industries) and year-month (when customer's EA occurred). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 4
Robustness Checks

		(1) Using Absolute Residual of C_CAR		(2) Excluding Suppliers Committed to Bundled Forecasts		(3) Using DISC Measured over a 30-Day Period		(4) Using DISC Measured over a 60-Day Period	
	Pred.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.
ABS(C_RES)	+	0.881***	0.008						
ABS(C_CAR)	+			1.139***	0.000	0.729**	0.041	1.000***	0.004
ABS(S_CAR)	-	-0.994***	0.006	-0.542*	0.060	-1.283***	0.000	-1.009**	0.034
CORR	+/-	0.145	0.486	0.243	0.202	0.057	0.812	0.135	0.528
RET45D	+	0.161	0.388	0.186	0.280	0.206	0.301	0.098	0.571
INST	+	0.329***	0.004	0.211**	0.031	0.268**	0.028	0.372***	0.000
ANALYST	+	0.024***	0.002	0.022***	0.002	0.023***	0.002	0.026***	0.000
VOL	-	-5.563***	0.005	-3.767*	0.050	-6.611***	0.001	-5.964***	0.003
MTB	+	0.001	0.916	0.005	0.522	0.001	0.918	0.002	0.814
LOG(AT)	+	0.062**	0.020	0.080***	0.001	0.050	0.111	0.069***	0.005
ROA	+	0.258	0.149	0.244	0.160	0.231	0.245	0.245	0.156
RET	+	0.043	0.267	0.047	0.246	0.048	0.180	0.028	0.473
LOSS	-	-0.085	0.347	-0.117	0.166	-0.051	0.618	-0.121	0.142
EQISS	+	-0.064	0.355	0.031	0.602	-0.045	0.538	-0.056	0.419
NUMSEG	-	0.001	0.935	0.001	0.931	0.004	0.734	0.002	0.856
LIT	+	0.219*	0.076	0.150	0.229	0.223	0.139	0.196*	0.088
Industry Fixed Effects		yes		yes		yes		yes	
Year Fixed Effects		yes		yes		yes		yes	
No. of Obs.		8,434		8,066		8,434		8,434	
Pseudo R^2		0.1192		0.1136		0.1121		0.1320	

This table shows the results of the probit regression of DISC as a robustness check. In Column (1), ABS(C_CAR) is replaced with ABS(C_RES). C_RES is the residual of C_CAR obtained from a regression of C_CAR on S_CAR. In Column (2), the sample excludes firms that appear to commit to issuing bundled guidance. In Column (3), the dependent variable is redefined as an indicator variable that equals one if the firm issues earnings guidance (either quarterly or annual) within a 30-day period after its customer's quarterly earnings announcement, and zero otherwise. In Column (4), the dependent variable is redefined as an indicator variable that equals one if the firm issues earnings guidance (either quarterly or annual) within a 60-day period after its customer's quarterly earnings announcement, and zero otherwise. All other variables are defined in Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are clustered by industry (based on Fama-French 48 industries) and year-month (when customer's EA occurred). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 5
Role of Supply-Chain Information Environment (Test of H2)

		(1) High Common Defined Based on Common Inst. Investors		(2) High Common Defined Based on SC Analysts		(3) High Common Defined Based on Common Industry		(4) High Common Defined Based on Common Location	
	Pred.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.
ABS(C_CAR)	+	1.140***	0.001	1.286**	0.012	1.486***	0.001	1.167***	0.007
High Common	?	0.072	0.242	0.247***	0.008	0.230**	0.020	0.073	0.541
ABS(C_CAR) × High Common	-	-1.564**	0.010	-1.431*	0.078	-2.988***	0.000	-1.967	0.130
ABS(S_CAR)	-	-1.000***	0.005	-0.998***	0.006	-0.945***	0.008	-1.000***	0.005
CORR	+/-	0.144	0.488	0.019	0.930	0.114	0.569	0.148	0.467
RET45D	+	0.161	0.390	0.156	0.406	0.160	0.389	0.159	0.394
INST	+	0.327***	0.004	0.312***	0.005	0.332***	0.004	0.330***	0.004
ANALYST	+	0.024***	0.002	0.025***	0.001	0.024***	0.001	0.024***	0.003
VOL	-	-5.563***	0.005	-5.652***	0.005	-5.630***	0.005	-5.604***	0.005
MTB	+	0.001	0.910	0.001	0.904	0.001	0.932	0.001	0.921
LOG(AT)	+	0.062**	0.021	0.058**	0.038	0.064**	0.018	0.062**	0.021
ROA	+	0.262	0.146	0.265	0.147	0.268	0.143	0.259	0.150
RET	+	0.044	0.250	0.042	0.281	0.045	0.245	0.044	0.259
LOSS	-	-0.083	0.358	-0.082	0.370	-0.086	0.342	-0.084	0.358
EQISS	+	-0.064	0.352	-0.069	0.311	-0.065	0.352	-0.065	0.346
NUMSEG	-	0.001	0.937	0.003	0.813	0.002	0.912	0.001	0.928
LIT	+	0.219*	0.076	0.217*	0.074	0.210	0.100	0.221*	0.072
Industry Fixed Effects		yes		yes		yes		yes	
Year Fixed Effects		yes		yes		yes		yes	
No. of Obs.		8,434		8,434		8,434		8,434	
Pseudo R^2		0.1196		0.1219		0.1208		0.1197	

This table shows the results of the probit regression of DISC, in which the role of the supply-chain information environment is examined. In Column (1), High Common is an indicator variable that equals one if the proportion of common institutional investors is in the top quintile of the sample

distribution, and zero otherwise. The proportion of common institutional investors is calculated as the number of institutional investors holding the shares of both the customer and supplier divided by the number of institutional investors holding the shares of the supplier. In Column (2), High Common is an indicator variable that equals one if the proportion of supply-chain (SC) analysts is in the top quintile of the sample distribution, and zero otherwise. The proportion of common SC analysts is calculated as the number of financial analysts covering both the customer and supplier divided by the number of financial analysts covering the supplier. In Column (3), High Common 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 Column (4), High Common 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 Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are clustered by industry (based on Fama-French 48 industries) and year-month (when customer's EA occurred). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 6
Role of Supply-Chain Characteristics (Test of H3)

		(1)		(2)	
		Relationship-Specific Investment		Customer Replaceability	
	Pred.	Coef.	p-val.	Coef.	p-val.
ABS(C_CAR)	+	0.620*	0.089	1.478***	0.000
High RSI	?	-0.077	0.565		
ABS(C_CAR) × High RSI	+	1.391*	0.086		
High Replace	?			0.410***	0.000
ABS(C_CAR) × High Replace	-			-2.294***	0.000
ABS(S_CAR)	-	-1.009***	0.004	-0.944***	0.010
CORR	+/-	0.141	0.503	0.089	0.662
RET45D	+	0.162	0.387	0.162	0.385
INST	+	0.330***	0.004	0.320***	0.004
ANALYST	+	0.024***	0.002	0.024***	0.001
VOL	-	-5.566***	0.005	-6.111***	0.001
MTB	+	0.001	0.910	0.001	0.873
LOG(AT)	+	0.062**	0.011	0.063**	0.020
ROA	+	0.259	0.185	0.268	0.156
RET	+	0.042	0.284	0.041	0.277
LOSS	-	-0.083	0.324	-0.105	0.245
EQISS	+	-0.061	0.368	-0.063	0.359
NUMSEG	-	0.001	0.954	-0.000	0.989
LIT	+	0.222*	0.068	0.198	0.115
Industry Fixed Effects		yes		yes	
Year Fixed Effects		yes		yes	
No. of Obs.		8,434		8,434	
Pseudo R^2		0.1196		0.1262	

This table shows the results of the probit regression of DISC, in which the role of supply-chain characteristics is examined. In Column (1), High RSI is an indicator variable that equals one if the supplier's relationship-specific investment for the customer is in the top quintile of the sample distribution, and zero otherwise. The supplier's relationship-specific investment is calculated as the firm's R&D expenditures divided by total assets, multiplied by the customer's sales weight (i.e., sales generated from the customer divided by total sales). In Column (2), High Replace is an indicator variable that equals one if the supplier's customer replaceability is in the top quintile of the sample distribution, and zero otherwise. Customer replaceability is calculated as the number of firms in the customer's three-digit SIC code industry multiplied by the inverse of customer's sales weight (i.e., total sales divided by sales generated from the customer). All other variables are defined in Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are clustered by industry (based on Fama-French 48 industries) and year-month (when customer's EA occurred). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 7
Asymmetric Effect of Positive versus Negative Customer's EA News (Test of H4)

	Pred.	Coef.	p-val.
P_ABS(C_CAR)	+	0.492**	0.046
N_ABS(C_CAR)	+	1.471***	0.003
ABS(S_CAR)	-	-0.995***	0.004
CORR	+/-	0.140	0.502
RET45D	+	0.169	0.370
INST	+	0.329***	0.004
ANALYST	+	0.024***	0.002
VOL	-	-5.550***	0.005
MTB	+	0.001	0.905
LOG(AT)	+	0.063**	0.020
ROA	+	0.262	0.144
RET	+	0.044	0.262
LOSS	-	-0.083	0.356
EQISS	+	-0.064	0.352
NUMSEG	-	0.001	0.938
LIT	+	0.218*	0.081
Industry Fixed Effects		yes	
Year Fixed Effects		yes	
No. of Obs.		8,434	
Pseudo R^2		0.1197	
Test: Coefficient on P_ABS(C_CAR) = Coefficient on N_ABS(C_CAR)			
chi^2-test statistic = 4.60			
p-value = 0.032			

This table shows the results of the probit regression of DISC and compares the effect of the positive versus negative customer's EA news. 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. N_ABS(C_CAR) is the product of ABS(C_CAR) and an indicator variable that equals one if C_CAR takes a negative value and zero otherwise. All other variables are defined in Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are clustered by industry (based on Fama-French 48 industries) and year-month (when customer's EA occurred). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

TABLE 8
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	
	Pred.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.
ABS(C_CAR)	+	1.742***	0.002			0.397	0.755		
P_ABS(C_CAR)	+			1.651*	0.068			-0.431	0.766
N_ABS(C_CAR)	+			2.059***	0.008			0.967	0.492
ABS(S_CAR)	-	-2.262**	0.050	-2.252*	0.053	-0.660	0.699	-0.634	0.706
CORR	+/-	0.243	0.316	0.243	0.316	0.127	0.704	0.130	0.701
RET45D	+	0.965***	0.000	0.970***	0.000	-0.483**	0.034	-0.475**	0.039
INST	+	0.436***	0.000	0.437***	0.000	0.227*	0.077	0.225*	0.081
ANALYST	+	0.011	0.313	0.011	0.315	0.004	0.375	0.004	0.393
VOL	-	-1.293	0.708	-1.270	0.716	-2.702	0.346	-2.601	0.372
MTB	+	0.014**	0.033	0.014**	0.032	-0.015	0.222	-0.015	0.232
LOG(AT)	+	0.061*	0.082	0.061*	0.082	0.099***	0.000	0.100***	0.000
ROA	+	0.162	0.312	0.167	0.312	0.196	0.425	0.193	0.440
RET	+	0.153*	0.054	0.153*	0.055	-0.243***	0.008	-0.239***	0.009
LOSS	-	-0.521***	0.000	-0.519***	0.000	-0.000	0.998	-0.000	0.997
EQISS	+	0.008	0.921	0.009	0.915	-0.055	0.635	-0.053	0.645
NUMSEG	-	-0.009	0.469	-0.009	0.470	-0.010	0.640	-0.010	0.639
LIT	+	0.244*	0.071	0.242*	0.066	0.301*	0.065	0.297*	0.066
Industry Fixed Effects		yes		yes		yes		yes	
Year Fixed Effects		yes		yes		yes		yes	
No. of Obs.		8,004		8,004		8,004		8,004	
Pseudo R^2		0.1679		0.1679		0.1130		0.1138	

This table shows the results of the analyses on the effect of upward versus 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. 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. N_ABS(C_CAR) is the product of ABS(C_CAR) and an indicator variable that equals one if C_CAR takes a negative value and zero otherwise. All other variables are defined in Appendix A. To avoid undue influence of outliers, all continuous variables are winsorized at the first and ninety-ninth percentiles. Standard errors are clustered by industry (based on Fama-French 48 industries) and year-month (when customer's EA occurred). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.