

Major Customers and Management Earnings Forecasts

Jian Cao

Florida Atlantic University

Shirley Hsieh

Florida Atlantic University

Mark Kohlbeck*

Florida Atlantic University

March 21, 2013

(Very Preliminary Draft)

* Corresponding author

mkohlbek@fau.edu

Major Customers and Management Earnings Forecasts

Abstract

Bowen et al. (1995) and Raman and Shahrur (2008) find that firms use discretionary accounting choices to enhance their reputation for fulfilling implicit claims in buyer-supplier relationships. We examine the effects of buyer-supplier relationships on voluntary disclosure by investigating whether the dependence on major customers affects a supplier firm's decision about disclosing earnings forecasts. We expect management of firms with major customers have incentives to disclose forthcoming earnings to signal the firm's future fulfillment of implicit claims. Consistent with our expectation, we find that the release of management forecasts is positively associated with major customer dependence. Furthermore, we find that this positive association is more pronounced in environments where suppliers display a tendency to maintain relationships by investing more in relationship-specific assets. Earnings forecasts by such firms are also more timely and frequent. In contrast, suppliers with lower relationship-specific investments exhibit a systematic tendency to issue more optimistically-biased earnings forecasts. Our results add to Bowen et al. (1995) and Raman and Shahrur (2008), suggesting that the need for protecting relationship-specific assets affect incentives for voluntary disclosure by dependent suppliers.

Key Words: Major Customers, Management Earnings Guidance, Forecast Bias

Data Availability: The data used in this study is available from public sources indicated in the paper.

Major Customers and Management Earnings Forecasts

I. INTRODUCTION

Bilateral buyer-supplier relationships can be characterized by the amount and type of information exchanged between the contracting parties (Baiman and Rajan 2002). Whereas previous studies show that buyer-supplier relationships shape corporations' financial policy and governance mechanisms (e.g., Titman 1984; Titman and Wessels 1988; Maksimovic and Titman 1991; Arora and Alam 2005; Fee et al. 2006; Kale and Shahrur 2007; Banerjee et al. 2008), limited empirical evidence exists on how these relationships affect financial reporting and disclosure practices. While prior research suggests that management has incentives to choose accounting methods to influence stakeholders' assessments of the firm's reputation for fulfilling its implicit claims (e.g., Bowen et al. 1995; Raman and Shahrur 2008), the effects of buyer-supplier relationships on the decisions that managers make about voluntary disclosures are less understood. We investigate whether buyer-supplier relationships as captured by the existence and extent of major customers affect suppliers' voluntary disclosure decisions.

Bowen et al. (1995) and Burgstahler and Dichev (1997) state that by managing earnings, firms are able to enhance their reputation with stakeholders, such as customers, suppliers and creditors, and hence get better terms of trade. A survey of corporate financial executives also suggests that concerns about stakeholders are a significant determinant of managers' accounting and disclosure decisions, especially when suppliers and customers need more reassurances about firms' future (Graham et al. 2005). Therefore, it is reasonable to expect that managers engaged in ongoing negotiations with customers or suppliers have incentives to disclose earnings forecasts to credibly signal the firm's future growth prospects to their stakeholders. Our focus is on the

incentives and disclosure practices on the supplier side of these relationships. Specifically, we investigate the release of earnings guidance by supplier firms that depend on major customers.

When a supplier transacts with a few large customers, the supplier depends on the major customers for a large proportion of its sales. The supplier may also undertake investments specific to the major customers (i.e., relation-specific investments) with the expectation of increased trade with these buyers. Breakdowns in buyer-supplier relationships are costly to suppliers, especially when these firms produce unique products for its major customers. Such suppliers are less diversified as they invest and produce according to certain customers' specification, not the market. Therefore, management in suppliers with major customers has incentives to disclose earnings forecasts as a credible signal to the buyers that the firm expects to fulfill their implicit claims and maintain ongoing customer relationships.

While suppliers with major customers have increased operational risk, these same suppliers also have an information advantage as a result of the buyer-customer relationship. The suppliers' primary business is to fill periodic orders of several major customers. Uncertainty about a significant portion of its future earnings is largely resolved when the supplier learns the details about the major customers' orders (Beyer and Dye 2010). As such, the supplier firms' management is able to act as a better prognosticator than analysts. This information advantage provides management a further incentive to increase voluntary disclosure as the additional disclosure reduces information risk (Barry and Brown 1985, 1986; Merton 1987) and help managers develop a reputation for being forthcoming (e.g., Miller and Bahnsen 2002; Graham et al. 2005).

We use customer-supplier relationship data from the *Compustat* Segment database for the period 2004-2009 and investigate how the existence of major customers affects the suppliers'

decision about disclosing earnings forecasts. Major customers for disclosure purposes are defined as a single customer who represents ten percent or more of a firm's consolidated revenue, or if the firm considers the sales important to its business (Financial Accounting Standards Board, FASB 1997). Consistent with our main expectation, we find that the probability of management issuing earnings forecasts is positively associated with the existence of major customers, the number of major customers, and the importance of sales to major customers.

We further examine whether the positive association between major customer dependence and management earnings guidance is more pronounced in environments where relationship-specific investments by suppliers are more likely (i.e., suppliers have higher stakes in the relationships). We use one industry-level measure (i.e., industries producing durable products) and one firm-level measure (i.e., a firm's research and development [R&D] intensity) of suppliers' relationship-specific investments to test our empirical predictions. We find that the positive association between management earnings guidance and major customer relationships is more pronounced in industries producing durable products and firms exhibiting greater R&D intensities.

Alternatively, managers may have the opportunity to behave strategically and decide whether to issue a timely earnings forecast depending on the effect of that disclosure (Beyer and Dye 2010). Raman and Shahrur (2008) suggest that firms are interested in managing earnings opportunistically to influence the perception of suppliers/customers about their growth prospects. However, earnings management adversely affects the duration of customer-supplier relationships. We examine whether management earnings forecasts by firms relying on major customers are more optimistically biased than those by firms without such dependence. We find that the optimism in management earnings forecasts increases with both the number of major customers

and the importance of sales to major customers. However, such relationships exist primarily in firms with low R&D intensity and in the nondurable goods industries, and are largely nonexistent for supplier firms have high R&D-intensity and produce durable goods. These results are consistent with less opportunistic behavior by firms that focus on long-term economic relations with customers.

We also perform a number of additional analyses. We find that supplier firms tend to issue more timely and frequent forecasts, but, here too, the result is primarily for supplier firms that produce durable products or have high-R&D intensity. In contrast to the influence that major customers have over suppliers' guidance decisions, there is little evidence that buyer-supplier relationships affect voluntary disclosure decisions by customer firms. Management earnings guidance is only associated with the existence of buyer-supplier relationships, but is not related to the number of dependent suppliers and the importance of purchases from dependent suppliers. Overall, our results suggest that major customer relationships are associated with supplier firms' earnings guidance practices, but the association is dependent upon product uniqueness and investment specificity.

Our findings contribute to the literature on voluntary disclosure and specifically to the empirical literature on the role of how buyer-supplier relationships affect accounting and disclosure choices. Prior research on management forecasts generally assumes that the supply of and the demand for forecasts is largely driven by stock price considerations and is used to reduce the asymmetry in information between managers and analysts and current or potential investors (Ajinkya and Gift 1984; Verrecchia 2001). To our knowledge, this is the first study to examine incentives for releasing earnings forecasts related to stakeholders' implicit claims.

Our findings suggest that suppliers undertaking high investments specific to major customers have incentives to disclose earnings forecasts to signal the firm's future growth prospects. However, suppliers with low relation-specific investments seem to disclose more systematically biased earnings forecasts to influence the perception of customers. Our results add to Bowen et al. (1995) and Raman and Shahrur (2008), suggesting that the need for protecting relationship-specific assets affect incentives for voluntary disclosure by dependent suppliers. We also add to the stream of research on the effects of buyer-supplier relationships on firm internal decisions and performance consequences, especially in regard to supplier firms (e.g., Kalwani and Narayandas 1995; Banerjee et al. 2008; Gosman and Kohlbeck 2009).

This paper is organized as follows. Section II develops the hypotheses and discusses the related literature. Section III describes our sample and research methods. Section IV and V present our results and additional analyses. We conclude in Section VI.

II. BACKGROUND AND HYPOTHESIS DEVELOPMENT

Since mid-1980s there has been a growing trend toward closer buyer-supplier relationships. Research has also evolved to address how a firm's relationship with its stakeholders affects the benefits accruing from such a relationship. The focus of much of research to date has revolved from the issues involved in customer firms—typically the initiators of buyer-supplier relationships—to those in supplier firms.

Early studies find that buyers in close buyer-supplier relationships can benefit from harnessed strengths and skills of suppliers, improved quality and process performance, and continuous cost reductions (e.g., Dwyer et al. 1987; Trevelen 1987; Newman 1988; Wilson et al. 1990; Dwyer 1993). Kalwani and Narayandas (1995) find that suppliers in close relationships

with select customers are able to achieve higher profitability through cost reductions compared to firms without major customers; but the reduction in costs could be bargained away through lower prices. Gosman and Kohlbeck (2009) examine how customers possess additional buyer power in the retail market affect suppliers' profitability. Overall, prior studies suggest buyer-supplier relationships result in benefits to the buyer but somewhat adverse supplier effects due, at least partially, to the supplier's dependence on the buyer.

Relationships with major customers can affect supplier firms in many different ways other than performance. Tying up with specific customers could force a supplier into a niche and preclude it from servicing other possible opportunities. Firms may therefore have a tendency to maintain an existing relationship by investing in relationship-specific assets (Anderson and Weitz 1989; Anderson and Narus 1990). The level of investments made by the supplier in a relationship might far exceed the potential long-term gains to the supplier.

Prior research has shown that the need for protecting relationship-specific assets can affect overall corporate strategy, such as capital structure. For example, Banerjee et al. (2008) argue that given concerns with expropriation and hold-up problems arising from relationship-specific investments, the supplier may prefer to remain less levered to reduce the cost of financial distress and may also prefer the major customer to be less levered.¹ Conversely, customers in durable sectors producing more unique products maintain conservative capital structures to encourage their suppliers to commit more relationship-specific investments (increasing leverage).

¹ Alternatively, a firm's customers likely face switching costs in the event the supplier is liquidated and will prefer the supplier to be less levered (Titman 1984; Titman and Wessels 1988).

Buyer-supplier networks are characterized by greater information exchange than other arms-length transactions (Baiman and Rajan 2002). The contracting party's reputation affects the value of the information exchanged. As a result, reputation affects the terms of trade between the supplier and its customers, employees, and vendors (e.g., Titman 1984; Cornell and Shapiro 1987). Stakeholders are likely to use multiple sources of information, both private and public, to help assess suppliers' reputation for fulfilling their implicit claims. Information about a firm's expected earnings provides information on the suppliers' ability to fulfill its implicit commitments (e.g., a negative EPS forecast is a key indicator of financial distress). Management guidance, if disclosed publicly, provides a credible signal and as such is relevant to stakeholders' assessment of reputation (e.g., Cornell and Shapiro 1987; Maksimovic and Titman 1991).

The buyer-supplier relationship has the potential to affect accounting information. Bowen et al. (1995) document that ongoing implicit claims between a firm and its stakeholders create incentives for management to choose long-run income-increasing accounting methods to signal the firm's ability for fulfilling future claims. Furthermore, Raman and Shahura (2008) suggest that earnings management is used opportunistically to influence the perception of suppliers/customers about the firm's prospects and to induce relationship-specific investments by suppliers/customers. Both studies focus on properties of reported earnings, suggesting that firms use discretionary accounting choices to enhance their reputation for fulfilling implicit claims with groups of major stakeholders as a whole.

We extend this research by focusing on whether the need for protecting relationship-specific assets affects voluntary disclosure decisions from a supplier's perspective. Some suppliers have only a few large stakeholders of any one type (e.g., several major customers) and different classes of stakeholders typically have different incentives. Our paper differs in that we

focus on suppliers' incentives to issue earnings forecasts (a major form of voluntary disclosure) due to concerns with expropriation and hold-up problems. Our study is therefore also similar to that addressed by Banerjee et al. (2008) in the capital structure literature.

We argue that suppliers with major customers are motivated to issue earnings forecasts to protect relationship-specific investments. Substantial revenue derived from one customer is a source of risk as such dependence creates uncertainty regarding future earnings (FASB 1997). Given the nontrivial level of relationship-specific investments and the resources that are potentially involved for supplier firms to maintain a relationship, the risk associated with the dependence on a few customers is difficult to diversify. Furthermore, the customer may terminate the relationship and seek alternative supply sources; but the termination likely has significant adverse impacts on the supplier firms (Banerjee et al. 2008). Dependence on major customers therefore introduces significant risk and uncertainty providing an incentive to increase voluntary disclosure.

Almazan et al. (2004) argue that when a firm's prospects depend on its long-term relationships with its stakeholders, influencing the process by which information about the firm is generated becomes important to the firm. As suppliers obtain details about orders from major customers, management is better able to forecast earnings (Beyer and Dye 2010). To protect ongoing customer relationships and long-term interests, suppliers' managers are therefore more likely to use their information advantage and issue earnings forecasts to signal about the firm's future fulfillment of implicit claims.

Combined, firms that depend on the major customers for a large proportion of sales have stronger signaling incentives and better information advantage, both increasing the likelihood of

a forecast being issued. In contrast, buyer firms do not face the same incentives and information advantage that supplier firms have. Our first hypothesis stated in the alternative.

H1: A supplier firm's likelihood to issue earnings forecast will be increasing in the degree of dependence on major customers.

The influence and importance of buyer-supplier relationships is not expected to be consistent across all firms. We therefore argue that the positive effect of major customer relationship on the likelihood of issuing management earnings guidance is more pronounced in environments for which relationship-specific investments are important. Individual firm characteristics as well as industry membership may affect the association.

Bowen et al. (1995) and Titman and Wessels (1988) identify durable and unique products as indicators of implicit claims related to ongoing relations between a firm and its customers. Relationship-specific investments are likely to exist in durable sectors and R&D intensive industries that procure and produce unique and sophisticated goods (John 1993; Titman and Wessels 1988; Dwyer et al. 1987). The strength of suppliers signaling incentive is expected to vary with the extent of the relationship-specific investments.

We state our second hypothesis in an alternative form as follows:

H2: The major customer effect on the likelihood to issue earnings forecast will be stronger for suppliers in durable goods industries and high R&D-intensive firms with high product uniqueness and investment specificity.

Opportunism complicates the flow of information between managers and stakeholders (e.g., Cornell and Shapiro 1987). Bowen et al. (1995) and Raman and Shahura (2008) suggest that managers choose income-increasing accounting methods to influence the perception and therefore, the actions of suppliers/customers. Whereas managers can indulge in earnings management to improve firms' financial image, it is not clear whether managers strategically forecast to achieve a similar desired result once they decide to provide earnings guidance.

In the context of our study, management may issue overly optimistic earnings forecasts to favorably influence the perception of key customers about the firm's future prospects, consistent with the arguments supporting favorable earnings management. Overconfidence about customers' orders and future terms of trade also increases the likelihood of issuing favorable management earnings forecasts. In either case, the result is optimistic management guidance.

However, Rogers and Stocken (2005) find that managers issue misleading earnings forecasts when it is difficult to detect bias, but not otherwise. Further, good news is considered informative only if they come from managers who have been accurate in the past (Ng et al. 2006). Thus, if detected, opportunism could hurt the firm's reputation and negatively affect customer perception of manager credibility. Raman and Shahura (2008) also argue that opportunistic behavior may shorten the duration of the relationship because firms cannot perpetually influence suppliers/customers by reporting higher earnings as accruals from prior periods would have to be reversed over time. Overall cost is that optimistic forecasts could ultimately lead to the breakdown of the relationship. We would therefore expect the likelihood of issuing overly optimistic management earnings forecasts to be smaller when firms have incentives to protect the relationship-specific investments they must make in closer relationships with major customers.

Because of the competing arguments discussed above on the choices that managers make related to forecast characteristics, especially with regard to the impact of buyer-supplier relationships, we are unable to predict whether major customers influence the optimism of management guidance. We therefore state our third hypothesis in the null as follows:

H3: Major customer relationships are not associated with the level of optimism in management earnings forecasts.

III. RESEARCH DESIGN

Sample and Data

Our sample construction starts with all firm years (excluding utilities and financial firms) with data available from Compustat for the period 2004–2009. Data on customer-supplier relationships are obtained from the Compustat Segment database. All firms (other than utilities or financial firms) must disclose segment information (including the sales to, but not necessarily the identity of, their principal customers) regardless of the number of segments operated (FASB 1997). The Compustat Segment database records the sales to and identities of customers as they are disclosed in the company’s original filings with the SEC.

Although the identities of major customers are frequently not disclosed (Ellis et al. 2012),² the Compustat Segment Customer file categorizes each customer as being a business/nongovernment entity or government agent (CTYPE = “GOVDOM”, “GOVFRN”,

² When a firm had a major customer but did not reveal the customer’s identity (e.g., coded as “NOT REPORTED” or “2 CUSTOMERS” by Compustat Segment), we review a selected sample of the segment disclosure in the 10-K to verify the major customer categorization in the Segment file.

“GOVSTATE, or “GOVLOC”) based on disclosed segment information in the 10-K. For each supplier firm reporting major customers, we calculate the total number of and the amount of sales to major customers under each customer category. We focus our analyses on suppliers relying on nongovernment customers. Government customers represent a more stable source of demand than other types of principal customers and are less likely to be concerned about the suppliers’ financial image (see Banerjee et al. 2008). As such, suppliers relying on government customers will be less concerned about the destabilizing effect on suppliers of losing principal customers and therefore have lower incentives to signal the firm’s future fulfillment of implicit claims.³

We use Thomson Reuters’ I/B/ES Guidance database to identify whether management issued quarterly earnings forecasts. Our analyses require financial statement data from the Compustat Industrial Annual database, and return data from the Center for Research in Security Prices (CRSP) database. We acquire the analyst forecast-related variables from the Institutional Brokers’ Estimate System (I/B/E/S) database to remain consistent with the source of earnings guidance data. We collect restatement data (as a control variable) from the GAO Financial Restatement Database. Our primary sample consists of 4,173 firms and 16,880 firm-years.⁴

As shown in Panel A, Table 1, of the 16,880 firm-years in our sample, 8,813, or 52.2 percent, are instances in which a firm (supplier) reported the existence of at least one non-

³ Whereas our focus is on nongovernment customers, we do control for the existence of government major customers for all our analyses reported later in this paper. Overall, the presence of the “government” as a large customer does not affect supplier firms’ earnings guidance decisions.

⁴ We conduct our analysis at the firm-year level because our goal is to assess the effect of major customer relationships on overall firm disclosure policy.

government major customer. This includes 3.8 percent firms-years reported both non-government and government customers (untabulated). Only 4.1 percent of the sample relies exclusively on government customers. Major customers are substantial as the average company reporting non-government major customers has 2.6 major customers that represent a total of 39.7 percent of their sales.

We report the five industries, based on two digit Standard Industrial Classification (SIC) codes, with the highest and lowest proportion of their participants reporting major customers in Panel B of Table 1. Forestry, coal mining, heavy construction, agriculture production, and transportation report the highest frequency of major customers. The industries where participants least frequently report customers are dominated by those that sell directly to individual consumers, e.g., hotels, services, and restaurants. Overall, firms reporting major customers do not appear to operate in a random set of industries.

<Insert Table 1 about here>

Model Specification

To test whether major customer relationships are associated with the probability of management disclosing earnings forecasts (our first hypothesis), we develop the following determinant model derived from prior research to explain the firm's decision to issue management guidance.

$$\begin{aligned}
 GUIDE = & \alpha_0 + \alpha_1 MAJORCUSTOMER + \alpha_2 SIZE + \alpha_3 LITIGATION + \alpha_4 EARNVOL \\
 & + \alpha_5 RET + \alpha_6 LOSS + \alpha_7 FOLLOW + \alpha_8 BM + \alpha_9 PRIOR + \alpha_{10} PRCOST \\
 & + \alpha_{11} RESTATE + \alpha_{12} RESTRUCTURE + \alpha_{13} FOREIGN + \alpha_{14} LNSEGS \\
 & + \alpha_{15} GOVERN + Industries + Years + \varepsilon \qquad (1)
 \end{aligned}$$

Where GUIDE is an indicator variable equaling one if a firm issues quarterly earnings forecasts during the current year, and zero otherwise; MAJORCUSTOMER is a proxy for the supplier firm's dependence on major customers (nongovernment) as described below; SIZE is the natural logarithm of total assets at the beginning of the current year; LITIGATION is an indicator variable equaling one if the company operates in a litigious industry of the following SIC codes: 2833-2836, 3570-3577, 7370-7374, 3600-3674, 5200-5961, and 8731-8734, and zero otherwise; EARNVOL is the standard deviation of reported annual earnings per share for the five years preceding current year; RET is the 12-month size-adjusted return over the previous year; LOSS is the incidence of loss, calculated as the percentage of the past five years for which the firm reported negative net income; FOLLOW is the natural logarithm of one plus the number of analysts following the firm during the previous year; BM is ratio of book to market value of equity at the beginning of the current year (firm years with negative book value of equity are deleted); PRIOR is an indicator variable equaling one for firms that issue at least one quarterly earnings guidance in the previous year, and zero otherwise; PRCOST (proprietary cost) is measured as prior year's reported R&D expense divided by total assets at the beginning of the year; RESTATE is an indicator variable coded as one if a restatement is announced during the previous year, and zero otherwise; RETSTRUCTURE is an indicator variable equaling one if reported after-tax restructuring expense is non-zero in the previous year, and zero otherwise; FOREIGN is an indicator variable equaling one if a firm reports non-zero pretax foreign income in the previous year, and zero otherwise; LNSEGS is the natural logarithm of one plus the number of business segments; GOVERN is a proxy for the dependence on major government customer relationships, measured in accordance with MAJORCUSTOMER as described below; and Industries and Years are dummy variables for two-digit SIC industries and years.

Our test variable for the supplier firms' dependence on major customers is MAJORCUSTOMER which takes the value of one of the following: (i) MC is an indicator variable equaling one if the firm reports at least one major nongovernment customer, and zero otherwise; (ii) LOGNCUST is the natural logarithm of one plus the total number of major customers reported by a firm for a given year; and (iii) IMPORTANCE is the importance of sales to major customers, calculated as the percentage of the supplier firm's revenue accounted for by all reported major customers in each relationship-year. Consistent with H1, we predict positive coefficients on each of the three measures as we expect suppliers' incentives for maintaining ongoing relationships with major customers lead to increased disclosures of management earnings forecasts.

We include a number of firm- and industry-specific determinants of guidance issuance. We include size, market-to-book, analyst following, foreign operations, and number of business segments as larger, more complex, growth firms with greater analyst following are more likely to issue guidance (e.g., Ajinkya et al. 2005; Atiase et al. 2005). Following Brochet et al. (2011), we expect firms that previously issued guidance to continue issuing guidance. Prior studies have shown that firms are more likely to issue guidance when their ex ante litigation risk is high (Skinner 1997; Brown et al. 2005). We also include earnings volatility, loss incidence, and stock returns as firms with more volatile earnings and poor prior performance tend to be less likely to issue guidance (Waymire 1985; Miller 2002). Restatements and restructurings could impede the formation of guidance because of increased uncertainty around these events (Brochet et al. 2011). Moreover, high proprietary costs may negatively impact the decision to issue public earnings forecasts (Wang 2007). In addition, we control for the dependence on government agents as major customers.

We also use Equation (1) to test our second hypothesis as to whether the strength of suppliers signaling incentive (the association between major customers and the likelihood of management guidance) varies with the importance of relationship-specific investments. We estimate Equation (1) for subsamples based on whether or not the firms (i) are members of the durable goods sector, and (ii) have high (above-median) R&D intensity. As discussed earlier, firms in durable goods industries and R&D intensive firms typically produce more unique products and are more likely to commit more relationship investments (e.g., Bowen et al. 1995). Consistent with H2, we predict the likelihood of issuing earnings forecasts due to major customer relationships is greater for firms in the durable goods and the high-R&D intensity subsamples.

Our final hypothesis concerns whether or not major customer relationships are associated with the management earnings forecast bias (optimism). We draw on prior research and Equation (1) for the following model of forecast optimism.

$$\begin{aligned}
 OPTIMISM = & \beta_0 + \beta_1 MAJORCUSTOMER + \beta_2 SIZE + \beta_3 LITIGATION + \beta_4 EARNVOL \\
 & + \beta_5 RET + \beta_6 LOSS + \beta_7 FOLLOW + \beta_8 BM + \beta_9 HORIZON + \beta_{10} PRCOST \\
 & + \beta_{11} RESTATE + \beta_{12} RESTRUCTURE + \beta_{13} FOREIGN + \beta_{14} LNSEGS \\
 & + \beta_{15} GOVERN + Industries + Years + \varepsilon
 \end{aligned} \tag{2}$$

where OPTIMISM is the average forecast optimism in quarterly forecasts the firm issued during the year, where forecast optimism is measured as earnings forecast (or midpoint of the range forecast) less *ex post* realized earnings per share (EPS from I/B/E/S), scaled by stock price at the beginning of the quarter; and HORIZON measures the average forecast horizon of the quarterly earnings forecasts the firm issued during the year (following Baginski and Hassell (1997) and

Skinner (1997), we operationalize forecast horizon as the number of calendar days until fiscal quarter-end, scaled by 90).⁵ All other variables are as defined for Equation (1).

We don't predict a direction for the coefficient on the MAJORCUSTOMER measures consistent with H3. Following prior research (e.g., Ajinkya et al. 2005), we expect OPTIMISM to increase with HORIZON, LOSS, EARNVOL, but decrease with SIZE, LITIGATION, FOLLOW, and BM.

IV. PRIMARY RESULTS

Descriptive Statistics

In Table 2, we compare forecast and firm characteristics between the group with major nongovernment customers reported and the group without. Univariate results provide little support for our hypothesis. Approximately 28 percent of the major customer group issues earnings forecasts, while 27 percent of the non-major customer group is a forecaster—the difference in group means is not statistically different. We did not find significant mean differences in OPTIMISM and HORIZON, although the mean frequency for the major customer group is significantly lower.

The major customer group is quite different from the other group in many other respects. We find that supplier firms reporting major customers have significantly smaller size, greater book-to-market, lower analyst following, fewer business segments, higher R&D intensity, and greater incidence of loss and restructuring. On the other hand, these firms also tend to have greater sensitivity to litigation risk, more foreign operations, less volatile earnings, and are less

⁵ If more than one forecast were issued in a given quarter, only the first guidance is included in the calculation.

likely to restate. The higher R&D intensity is consistent with the profile of firms producing unique products for their principal customers.

<Insert Table 2 about here>

Table 3 presents a correlation matrix on the variables included in Equation (1). Consistent with our prediction, GUIDE is positively related to size, litigation risk, book-to-market, analyst following, stock returns, and business complexity, and negatively related to earnings volatility, loss and restatement incidences, and proprietary cost. However, the correlations between GUIDE and the MAJORCUSTOMER variables tend to not be statistically significant, before controlling for other variables. No unusual correlations among the control variables are noted that would affect our estimation.

<Insert Table 3 about here>

Issuing Management Earnings Forecast

We report the logistic regression results concerning the effect of major customers on the supplier firms' decision to issue a forecast (Equation 1) and report the results in Table 4, Panel A.⁶ The total number of observations is 16,880 firm-years. The pseudo R^2 is approximately 60 percent across all specifications. Most control variables are significant and consistent with prior research. The results show that larger, growth, more profitable firms followed by more analysts are more likely to issue management guidance. For all three measures of MAJORCUSTOMER,

⁶ We determine significance levels in all regressions using standard errors clustered by firm (Petersen 2009; Gow et al. 2010).

coefficient α_1 is significantly positive (p-values < 0.05). The likelihood of releasing a management forecast is increases with the existence of major customers, the number of major customers, and the importance of sales to major customers. In contrast, the existence and number of government principal customers (GOVERN_MC and GOVERN_LNNCUST) has a marginal negative effect on the guidance decision, whereas the importance of sales to government agents has no such effect.

Panel B of Table 4 reports the estimations from separate logistic regressions for the subsamples. We report results for those in durable goods industries compared to those in nondurable goods industries, and those with high R&D intensity compared to those with low R&D intensity. The coefficients on MAJORCUSTOMER proxies (MC, LNNCUST, and IMPORTANCE) are always positive and significant (p-values < 0.05) for suppliers in the durable sector and suppliers with high R&D intensity; however, the results are much weaker or largely non-existent for customer firms in industries that produce nondurable products (albeit not statistically significant). LNNCUST and IMPORTANCE are not statistically significant in the nondurable group. MC and LNNCUST are only marginally significant while IMPORTANCE is not statistically significant in the low R&D intensity group.

Overall, the results support H1 that suppliers relying on major customers are more likely to issue quarterly guidance. Our results are also consistent with H2 in that the effect is stronger for suppliers in durable goods industries and high R&D-intensive firms, although the difference does not reach statistical significance. Our findings are consistent with the idea that concern about stakeholder-driven losses and the difficulty to redeploy investments is likely to be greater for firms producing durable or unique products (Banerjee et al. 2008). The results suggest that the need to protect relation-specific investments provides management with an incentive to

disclose earnings forecasts, and the strength of this incentive varies with product uniqueness and investment specificity.

<Insert Table 4 about here>

Management Earnings Forecast Optimism

Table 5, Panel A reports the OLS results with robust standard errors clustered by firm concerning the effect of major customers on the optimism in management earnings forecast. The sample initially consists of 4,634 firm-years for which the company issued quarterly earnings forecasts (i.e., the management forecast sample). The computation of forecast optimism requires quantitative forecasts that occur as numerical point or range estimates, resulting in a final sample of 4,439 firm-year observations.⁷ In Panel B, we report results for subsamples partitioned by industry sector (durable goods) and R&D intensity. Overall, the economic determinants explain less of the cross-sectional variation in forecast bias (approximately 3 to 5 percent across various specifications and subsamples), consistent with the observation that we know less about determinants of the attributes of management forecasts than we do about the decision to issue a forecast (Hirst et al. 2008). Consistent with prior studies (Baginski and Hassell 1997; Bamber and Cheon 1998), the coefficient on HORIZON is significantly positive, suggesting the longer the forecast horizon, the greater management's uncertainty about earnings and thus the likelihood of more biased forecasts. Firms with greater analyst coverage are associated with less optimistic forecasts, attributed to management's desire to use its earnings forecasts as a device to

⁷ In additional analyses, we use the management forecast sample to test forecast horizon, frequency, and precision, while using the quantitative forecast sample to test forecast accuracy.

walk-down market earnings expectations (Matsumoto 2002; Cotter et al. 2006; Bergman and Roychowdhury 2008).

Specific to our third hypothesis, we see the coefficients on MC and LNNCUST are positively significant (p-values < 0.10), but the coefficient on IMPORTANCE is not statistically significant, for the full sample. This finding provide some support to the argument that suppliers have an incentive to release more optimistically biased forecasts to influence major customers' assessments of the firm's financial conditions. However, when we decompose the sample into those from durable and nondurable goods sectors and those with high and low R&D intensity, we find that the observed association between MAJORCUSTOMER and OPTIMISM in the full sample is driven by firms that are non-durable goods suppliers and have low R&D intensity. The coefficients on LNNCUST and IMPORTANCE are significantly positive for the non-durable sector, and all three MAJORCUSTOMER proxies are positive and significant for the group with low R&D intensity. None of the coefficients are significant for the durable goods group or the high R&D intensity group. The tendency to skew disclosure toward an optimistic bias differs dependent upon whether the supplier is in the durable sector or have high R&D intensity.

The difference in forecast optimism between these groups of firms is not surprising. Rather, our findings reiterate the role of incentives in understanding managers' forecasting behavior. Overall, our findings suggest forecasts are less likely to be optimistically biased when firms have incentives to protect the relationship-specific investments they must make in closer relationships with major customers. However, firms with less concern for such investments may strategically forecast to influence the perception of suppliers/customers about the firm's prospects. Our results are broadly consistent with Raman and Shahrur (2008), who find that

earnings management driven by opportunism could hurt the firm's reputation and ultimately lead to the breakdown of the relationship.

<Insert Table 5 about here>

V. ADDITIONAL ANALYSES

We perform a number of additional analyses to better understand the choices that managers make once they decide to issue earnings forecasts. In the following paragraphs, we examine whether or not major customer relationships are associated with forecast horizon, frequency, accuracy, and precision. We also perform a number of tests of the robustness of our reported results as well as a separate analysis of the customers' guidance decisions.

Forecast Horizon

We argue that supplier firm's management is more likely to act as a better prognosticator than analysts. Therefore, firms that depend on the major customers for a large proportion of sales have an information advantage, which in turn, translates into more timely forecasts. Furthermore, earlier signals also afford managers more time to negotiate for better terms of trade. To test this conjecture, we examine the effect of major customers on the length of the forecast horizon, where longer forecast horizons provide stakeholders with information on a timelier basis (Baginski and Hassell 1997; Skinner 1997). We replace the dependent variable, GUIDE, in Equation (1) with HORIZON and present a summary of the results of our OLS regressions in Table 6.

Our full sample tests do not provide any evidence that supplier firms are more apt to choose longer forecast horizons. However, variation does exist in our subsample tests. Consistent with our conjecture, the significantly positive coefficients on MC, LNNCUST, and

IMPORTANCE (p-values < 0.05 except for MC with p-value < 0.10) for the durable goods group indicate that supplier firms dealing with major customers are more likely to issue longer-horizon bad news forecasts within durable goods industries. Results from the R&D intensive group are weaker—two out of the three coefficients (MC and LNNCUST) are positive but with only marginal significance. However, such effect is totally nonexistent in the nondurable goods sector and among low R&D intensive firms. Overall, suppliers with dependence on major customers are more apt to choose longer forecast horizons to provide timelier information, but only when they commit more relationship-specific investments.

<Insert Table 6 about here>

Forecast Frequency

Botosan and Harris (2000) argue that although managers can proffer their commitment to disclosure, they can only credibly signal such commitment by providing disclosures more frequently. Whereas relationships with major customers play an important role in suppliers' decisions to issue earnings forecasts, wide variation may exist in how frequently managers choose to issue forecasts. We therefore examine the effect of major customers on forecast frequency. If management commits to disclosure to maintain long-term relationships with principal customers, the ongoing nature of this process is likely to create incentives for management to issue more regular (rather than sporadic) forecasts.

To test our prediction, we replace the dependent variable, GUIDE, in Equation (1) with FREQUENCY, measured as the number of quarterly earnings forecasts a firm issued in the year. Table 7 reports ordered logit estimations of the forecast frequency models. We find positive relations between MAJORCUSTOMER and FREQUENCY, but, here too, this result is only

present for suppliers in durable goods industries (for two out of three MAJORCUSTOMER measures; p-values < 0.05) and suppliers with high R&D intensity (for all three MAJORCUSTOMER measures; p-values < 0.01).

These findings provide further support for the inferences drawn from our earlier analyses concerning supplier firms' guidance choices. We confirm that suppliers relying on major customers are more likely to display a commitment to regular and timely disclosure when relationship-specific investments are high, but are less likely to do so (and instead issuing more sporadic and optimistic forecasts) when relationship-specific investments are low. As such, earnings forecasts by a dependent supply firm could be both a signal of quality and an opportunistic behavior dependent upon the incentives of managers in the ongoing relationship with its major customers.

<Insert Table 7 here>

Forecast Accuracy and Forecast Precision

Managers have interest to issue both more timely and accurate earnings forecasts to develop and maintain a reputation (e.g., Skinner 1994; Stocken 2000; Healy and Palepu 2001; Graham et al. 2005). However, managers face a tradeoff between timeliness and accuracy as longer-horizon forecasts have a greater chance of being ex post inaccurate.

We rerun Equation (2) by replacing OPTIMISM with ACCURACY (the average forecast accuracy of the forecasts that the firm issued during the year, measured as the absolute value of the difference between the management forecast [using point forecasts and the midpoint of the range forecasts] and actual EPS), scaled by beginning-of-the-quarter stock price and multiplied by -1). We find that supplier firms' forecasts tend to be less accurate for the durable goods

subsample and the R&D intensive subsample (untabulated). Overall, such firms exhibit a preference for disclosing forecasts over longer horizons even though the likelihood of inaccuracy increases in forecast horizon. The evidence is consistent with the benefits of providing outsiders with more timely information exceeding the cost of inaccuracies.

We also examine the effect of major customers on average forecast precision using a similar model specification. Less precise forecasts (e.g., a range, open-ended, or qualitative forecast) are less likely to turn out to be inaccurate than are point forecasts (e.g., Baginski and Hassell 1997; Baginski et al. 2002). Whereas more precise forecasts are generally perceived to reflect greater managerial certainty relative to less precise forecasts (Hughes and Pae 2004), managers may issue less precise forecasts due to concerns about the adverse effects of inaccuracy (King et al. 1990). Consistent with the mixed incentives, our results (untabulated) reveal no precision differences associated with major customers across various tests.

Customers' Guidance Decisions

The stream of research on buyer-supplier relationships claims that the bilateral relationship affects the reporting and policy choices of both buyers and suppliers (e.g., Banerjee et al. 2008; Raman and Shahrur 2008). In contrast, we argue that customer firms do not face the same signaling incentives and information advantage as dependent supplier firms. To examine the effect of purchases from suppliers on customer firms' guidance decisions, we create a secondary database for major customers whose identities are confirmed with *Compustat*.⁸

⁸ Since the raw customer list available from the Segment file is not in an immediately useable form (e.g., the reported customer could be a subsidiary of a public company or a private entity), we manually match each unique

We rerun Equation (1) by replacing MAJORCUSTOMER variables with KEYSUPPLIER variables created based on each customer firm's supplier information. As shown in Table 8, there is little evidence that the supplier network influence the customer firm's decision to issue earnings forecasts. The coefficient on KEYSUPPLIER is positive and significant only for the key supplier (KS) indicator variable, and is not statistically significant with the other two measures (LNNKS and IMPORTANCEKS). This finding generally holds across all subsamples. Our findings suggest that the incentives for voluntary disclosure are different between customers and suppliers.

<Insert Table 8 about here>

Other Sensitivity Analyses

Our results are robust to a number of sensitivity analyses. First, we rerun our main analyses controlling for the news in management forecasts. We also partition the sample based on bad versus good news management forecasts.⁹ We obtained similar results regardless of how news is handled in our analyses.

We employ the propensity-score matching method to compare firms relying on major customer with a group of firms that are similar along a set of firm characteristics but without

disclosed customer names to a company name from *Compustat*. For each identified customer, we invert the supplier database to calculate the total numbers of and the total amounts purchased from *Compustat*-listed suppliers that identify the firm as a principal customer in a given year. To reduce the influence of supplier firms, we exclude firms that are suppliers (i.e., firms reporting principal customers) but are not customers (i.e., firms reported as principal customers) from the sample.

⁹ News is operationalized by whether the first analysts' consensus EPS forecast exceeds actual realized EPS.

such dependence.¹⁰ We estimate propensity scores using a logistic regression in which the dependent variable equals 1 if the firm reports major customers and 0 otherwise. Following Ellis et al. (2012), we include firm characteristics that likely affect firms' disclosure incentives regarding major customers, including size, Big N auditor, seasonal equity offering, proprietary cost, industries, years, as well as other control variables in Equation (1). The untabulated logistic regression has reasonable explanatory power, with a pseudo-R² of 23.3 percent. We then match, without replacement, a major customer observation with a no major customer observation that has the closest propensity score within a maximum distance of 3 percent. These procedures result in 7,729 matched pairs with similar distributional properties. We rerun Equations (1) and (2) using the propensity matched sample. Our results are similar to those reported in Tables 4 and 5.

VI. CONCLUSION

Bowen et al. (1995) and Raman and Shahrur (2008) find that firms use discretionary accounting choices to enhance their reputation for fulfilling implicit claims in buyer-supplier relationships. We examine the effects of buyer-supplier relationships on voluntary disclosure by investigating whether the dependence on major customers affects a supplier firm's decision about disclosing earnings forecasts. We argue that the need for protecting relationship-specific assets affects dependent suppliers' incentives for voluntary disclosure. Such incentives, coupled

¹⁰ The propensity score procedure allows us to efficiently match along multiple dimensions. Such an approach alleviates misspecification that occurs when the regression framework specifies an incorrect functional form for the relationship between the variables of interest (including controls) and the outcome (Armstrong et al. 2010; Lawrence et al. 2011).

with dependent suppliers' information advantage, can proffer a commitment to disclosure among supplier firms with dependence on big customers.

Results show that the likelihood of releasing a management forecast is positively associated with dependence on major customers. Consistent with greater needs to protect relationship-specific investments, the positive association is more pronounced in environments where suppliers display a tendency to maintain a relationship by investing more in relationship-specific assets. Furthermore, in such environments dependent suppliers are more likely to (i) disclose forecasts over longer horizons even though the likelihood of inaccuracy increases in forecast horizon; and (ii) provide disclosures more frequently to credibly signal a commitment to disclosure. Interestingly, such properties are almost nonexistent in firms and industries with low relationship-specific investments and on the customers' side. In fact, firms with less concern for relationship-specific assets exhibit more optimism in issued forecasts, consistent with opportunistic behavior serving to influence the perception of major customers about the firm's prospects.

Taken together, our findings highlight the role of incentives in understanding managers' forecasting behavior, stemming from a supplier firm's unique relationships with its customers. Our study adds to Bowen et al. (1995) and Raman and Shahrur (2008), being the first study of which we are aware to examine the effects of buyer-supplier relationships on voluntary disclosure. Our study also contributes to management forecast research by investigating the relation between buyer-supplier relationships and specific management forecast disclosure properties.

REFERENCES

- Ajinkya, B., and M. Gift. 1984. Corporate managers' earnings forecasts and symmetrical adjustments of market expectations. *Journal of Accounting Research* 22: 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.
- Almazan, A., J. Suarez, and S. Titman. 2006. Stakeholder, transparency and capital structure. Working Paper, University of Texas at Austin.
- Anderson, E. and B. Weitz. 1989. Determinants of continuity in conventional industrial channel dyads. *Marketing Science* 8: 310-323.
- Anderson, J. C. and J. A. Narus. 1990. A model of distributor firm and manufacturing firm working partnership. *Journal of Marketing* 54: 42-58.
- Armstrong, C., A. Jagolinzer, and D. Larcker. 2009. Chief executive officer equity incentives and accounting irregularities. *Journal of Accounting Research* 48: 225-271.
- Arora, A., and P. Alam. 2005. CEO compensation and stakeholders' claims. *Contemporary Accounting Research* 22: 519-547.
- Atiase, R. K., H. Li, S. Supattarakul, and S. Tse. 2005. Market reaction to multiple contemporaneous earnings signals: Earnings announcements and future earnings guidance. *Review of Accounting Studies* 10: 497-525.
- Baginski, S. P., and J. M. Hassell. 1997. Determinants of management forecast precision. *The Accounting Review* 72 (2): 303-312.
- Baginski, S. P., and J. M. Hassell, and M. D. Kimbrough. 2002. The effect of legal environment on voluntary disclosure: Evidence from management earnings forecasts issued in U.S. and Canadian markets. *The Accounting Review* 77 (1): 25-50.
- Baiman, S., and M. V. Rajan. 2002. The role of information and opportunism in the choice of buyer-supplier relationships. *Journal of Accounting Research* 40: 247-278.
- Bamber, L., and Y. Cheon. 1998. Discretionary management earnings forecast disclosures: Antecedents and outcomes associated with forecast venue and forecast specificity. *Journal of Accounting Research* 36: 167-190.
- Banerjee, S., S. Dasgupta, and Y. Kim. 2008. Buyer-supplier relationships and the stakeholder theory of capital structure. *The Journal of Finance* 63: 2507-2552.
- Barry, C. and S. Brown. 1985. Differential information and security market equilibrium. *Journal of Financial and Quantitative Analysis* 20: 407-422.
- Barry, C. and S. Brown. 1986. Limited information as a source of risk. *The Journal of Portfolio Management* 12: 66-72.

- Bergman, N., and S. Roychowdhury. 2008. Investor sentiment, expectations, and corporate disclosure. *Journal of Accounting Research* 46 (5): 1057–1083.
- Beyer, A. and R. A. Dye. 2010. Reputation management and the disclosure of earnings forecasts. Working Paper, Stanford University and Northwestern University.
- Botosan, C. A., and M. S. Harris. 2000. Motivations for a change in disclosure frequency and its consequences: An examination of voluntary quarterly segment disclosures. *Journal of Accounting Research* 38 (2): 329–353.
- Bowen, R., L. DuCharme, and D. Shores. 1995. Stakeholders implicit claims and accounting method choice. *Journal of Accounting and Economics* 20: 255–295.
- Brochet, F., L. Faurel, and S. McVay. 2011. Manager-specific effects on earnings guidance: An analysis of top executive turnovers. *Journal of Accounting Research* 49 (5): 1123–1162.
- Brown, S., S. A. Hillegeist, and K. Lo. 2005. Management forecasts and litigation risk. Working paper, Emory University.
- Burgstahler, D., and I. Dichev. 1997. Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics* 24: 99–126.
- Cornell, B. and A. Shapiro. 1987. Corporate stakeholders and corporate finance. *Financial Management* (Spring): 5–14.
- Cotter, J., I. Tuna, and P. Wysocki. 2006. Expectations management and beatable targets: How do analysts react to public earnings guidance? *Contemporary Accounting Research* 23 (3): 593–624.
- Dwyer, R. F. 1993. *Soft and Hard Features of Inter-firm Relationships: An Empirical Study of Bilateral Governance in Industrial Distribution. Report 6-1993*. University Park, PA: Institute for the Study of Business Markets.
- Dwyer, R. F., P. Schurr, and S. Oh. 1987. Developing buyer-seller relationships. *Journal of Marketing* 51: 11-27.
- Ellis, J. A., Fee, C. E. and Thomas, S. E. 2012. Proprietary costs and the disclosure of information about customers. *Journal of Accounting Research* 50: 685–727.
- Fee, E. C., C. J. Hadlock, and S. Thomas. 2006. Corporate equity ownership and the governance of product market relationship. *The Journal of Finance* 61: 1217–1251.
- Financial Accounting Standards Board. 1997. Statement of Financial Accounting Standards No. 131, Disclosures about Segments of an Enterprise and Related Information. Norwalk, Connecticut: Financial Accounting Standards Board.
- Gosman, M., and M. Kohlbeck. 2009. Effects of the existence and identity of major customers on supplier profitability: Is Wal-Mart different? *Journal of Management Accounting Research* 21: 179–201.

- Gow, I. D., G. Ormazabal, and D. J. Taylor. 2010. Correcting for cross-sectional and time-series dependence in accounting research. *The Accounting Review* 85 (2): 483-512.
- Graham, J. R., C. R. Harvey, and S. Rajgopal. 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40: 3-73.
- 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.
- Hirst, E., L. Koonce, and S. Venkataraman. 2008. Management earnings forecasts: A review and framework. *Accounting Horizons* 22 (3): 315-338.
- Hughes, J., and S. Pae. 2004. Voluntary disclosure of precision information. *Journal of Accounting and Economics* 37: 261-289.
- John, T. 1993. Accounting measures of corporate liquidity, leverage, and costs of financial distress. *Financial Management* 9: 1-100.
- Kale, J., and H. Shahrur. 2007. Corporate capital structure and the characteristics of suppliers and customers. *Journal of Financial Economics* 83: 321-365.
- Kalwani, M. U. and N. Narayandas. 1995. Long-term manufacturer-supplier relationships: Do they pay off for supplier firms? *Journal of Marketing* 59 (1): 1-16.
- Lawrence, A., M. Minutti-Meza, and P. Zhang. 2011. Can Big 4 and non-Big 4 differences in audit-quality proxies be attributed to client characteristics? *The Accounting Review* 86: 259-288.
- Maksimovic, V., and S. Titman. 1991. Financial policy and reputation for product quality. *Review of Financial Studies* 2: 175-200.
- Matsumoto, D. 2002. Management's incentives to avoid negative earnings surprises. *The Accounting Review* 77 (3): 483-514.
- Merton, R.C., 1987. A simple model of capital market equilibrium with incomplete information. *The Journal of Finance* 42: 483-510.
- Miller, G. 2002. Earnings performance and discretionary disclosure. *Journal of Accounting Research* 40 (1): 173-204.
- Miller, P. & Bahnson, P. 2002. *Quality Financial Reporting*. New York: McGraw Hill Professional.
- Newman, R. G. 1988. Single source qualification. *Journal of Purchasing and Materials Management* 24: 10-16.
- Ng, J., I. Tuna, and R. Verdi. 2006. Management forecasts, disclosure quality, and market efficiency. Working paper, The Wharton School, University of Pennsylvania.

- Petersen, M. A. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22 (1): 435-480.
- Raman, K., and H. Shahrur, 2008. Relationship-specific investments and earnings management: evidence on corporate suppliers and customers. *The Accounting Review* 83: 1041–1081.
- Richardson, S, S. H. Teoh, and P. D. Wysocki. 2006. The walk-down to beatable analyst forecasts: The role of equity issuance and insider trading incentives. *Contemporary Accounting Research* 21(4): 885-924.
- Rogers, J. L., and P. C. Stocken. 2005. Credibility of management forecasts. *The Accounting Review* 80 (4): 1233–1260.
- Skinner, D. 1994. Earnings disclosures and stockholder lawsuits. *Journal of Accounting and Economics* 23 (3): 249–282.
- Skinner, D. 1994. Why firms voluntarily disclose bad news. *Journal of Accounting Research* 32: 38–60.
- Stocken, P. C. 2000. Credibility of voluntary disclosure. *The Rand Journal of Economics* 31 (2): 359–374.
- Titman, S. 1984. The effect of capital structure on a firm's liquidation decision. *Journal of Financial Economics* 13: 137–151.
- Titman, S., and R. Wessels. 1988. The determinants of capital structure choice. *The Journal of Finance* 43: 1–19.
- Trevelen, M. 1987. Single sourcing: A management tool for the quality supplier. *Journal of Purchasing and Materials Management* 23: 19-24.
- Verrecchia, R. 2001. Essays on disclosure. *Journal of Accounting and Economics* 32: 97-180.
- Wang, I. 2007. Private earnings guidance and its implications for disclosure regulation. *The Accounting Review* 82: 1299–1332.
- Waymire, G. 1985. Earnings volatility and voluntary management forecast disclosure. *Journal of Accounting Research* 23 (1): 268–295.
- Wilson D. T., S. P. Dant, and S. Han. 1990. *State-of-Practice in Industrial Buyer-Supplier Relationships. Report 6-1990*. University Park, PA: Institute for the Study of Business Markets.

TABLE 1
Descriptive Statistics for the Type and Industry Representation of Customer-Supplier Relationships

Panel A: Types of Customer-Supplier Relationships

	Reporting Non- government Major Customers¹	Reporting Government Major Customers Only	No Major Customers Reported	Overall
Number of Observations	8,813	687	7,380	16,880
Percentage	52.2%	4.1%	43.7%	100.0%
Average Number of Major Customers	2.61	2.04	0.00	1.45
Average Importance of Sales to Major Customers ²	39.7%	47.0%	0.00	22.7%

¹Firms with non-government customers may also have government customers (about 3.8 percent of the sample).

²The Importance of Sales to Major Customers is the percentage of supplier revenue accounted for by a customer in each relationship-year.

TABLE 1 (Continued)**Panel B: Industry Representation**

Rank	Five Highest Reporting Frequency Industries				Five Lowest Reporting Frequency Industries			
	SIC	Industry	Obs.	Major Customers Reporting Freq.	SIC	Industry	Obs.	Major Customers Reporting Freq.
1	8	Forestry	6	100.00%	9	Fishing and Hunting	3	0.00%
2	12	Coal Mining	23	95.65	70	Hotels	51	0.00
3	16	Heavy Construction	63	95.24	76	Repair Services	6	0.00
4	2	Agriculture Production	12	91.67	79	Recreational Services	136	1.47
5	42	Motor Freight Transportation	145	90.34	58	Restaurants	281	2.49

TABLE 2
Descriptive Statistics

<u>Variable</u>	No Major Customer (N =8,067)			Major Customer (N =8,813)			Full Sample		
	<u>Mean</u>	<u>Median</u>	<u>Std Dev</u>	<u>Mean</u>	<u>Median</u>	<u>Std Dev</u>	<u>Mean</u>	<u>Median</u>	<u>Std Dev</u>
GUIDE	0.27	0.00	0.44	0.28	0.00	0.45	0.27	0.00	0.45
OPTIMISM (N = 4,439)	0.00	0.00	0.01	0.00	0.00 ***	0.01	0.00	0.00	0.01
HORIZON (N = 4,634)	0.65	0.67	0.53	0.63	0.68 **	0.46	0.64	0.68	0.49
FREQUENCY (N = 4,634)	3.83	4.00	2.48	3.37 ****	4.00 ****	1.80	3.59	4.00	2.16
MAJORCUSTOMER:									
MC	0.00	0.00	0.00	1.00 ***	1.00 ****	0.00	0.52	1.00	0.50
LOGNCUST	0.00	0.00	0.00	1.15 ***	1.10 ****	0.43	0.60	0.69	0.65
IMPORTANCE	0.00	0.00	0.00	0.38 ***	0.33 ****	0.28	0.20	0.00	0.28
SIZE	6.37	6.23	2.15	5.61 ***	5.47 ****	1.88	5.97	5.84	2.05
LITIGATION	0.38	0.00	0.49	0.40 ***	0.00 ****	0.49	0.39	0.00	0.49
EARNVOL	1.07	0.56	1.59	1.00 ***	0.55	1.43	1.03	0.56	1.51
RET	0.04	-0.04	0.59	0.05	-0.08 ***	0.70	0.04	-0.06	0.65
LOSS	0.29	0.20	0.34	0.35 ***	0.20 ****	0.35	0.32	0.20	0.35
FOLLOW	0.74	0.00	1.23	0.68 ***	0.00	1.16	0.71	0.00	1.20
BM	0.57	0.44	0.61	0.60 ***	0.47 ****	0.59	0.59	0.45	0.60
PRIOR	0.29	0.00	0.45	0.29	0.00	0.45	0.29	0.00	0.45
PRCOST	0.05	0.00	0.11	0.07 ***	0.02 ****	0.11	0.06	0.01	0.11
RESTATE	0.09	0.00	0.28	0.08 **	0.00 **	0.27	0.08	0.00	0.27
RESTRUCTURE	0.26	0.00	0.44	0.28 **	0.00 **	0.45	0.27	0.00	0.44
FOREIGN	0.38	0.00	0.48	0.44 ***	0.00 ****	0.50	0.41	0.00	0.49
LNSEGS	1.11	0.69	0.47	1.05 ***	0.69 ****	0.43	1.08	0.69	0.45
GOVERN:									
GOVERN_MC	0.09	0.00	0.28	0.07 ***	0.00 ****	0.26	0.08	0.00	0.27
GOVERN_LOGNCUST	0.09	0.00	0.31	0.06 ***	0.00 ****	0.23	0.07	0.00	0.27
GOVERN_IMPORTANCE	0.04	0.00	0.16	0.02 ***	0.00 ****	0.10	0.03	0.00	0.13

TABLE 2 (Continued)

*** / ** / * Difference between means (medians) of the major customer sample and the no major customer sample is significantly different at the 0.01 / 0.05 / 0.10 level using a t-test of means (Wilcoxon rank sum test). The no major customer sample includes firm years for which no major customer is reported or the reported customer is the government. The major customer sample includes firm years for which a nongovernment customer is reported. Continuous variables are winsorized at 1 percent and 99 percent of the empirical distribution.

Variable definitions:

GUIDE is an indicator variable equaling one if a firm issues quarterly earnings forecasts during the current year, and zero otherwise; OPTIMISM is the average forecast optimism in quarterly forecasts the firm issued during the year, where forecast optimism is measured as earnings forecast (or midpoint of the range forecast) less *ex post* realized EPS (from I/B/E/S), scaled by stock price at the beginning of the year; HORIZON measures the average forecast horizon ($[\text{fiscal quarter end date} - \text{guidance date}] / 90$) of the quarterly earnings guidance. If more than one earnings forecasts were issued in a given quarter, only the first guidance is included in the calculation; FREQUENCY is the number of quarterly earnings forecasts issued by the firm during the year; MAJORCUSTOMER is a proxy for major customer relationships, including: MC is an indicator variable equaling one if the firm reports at least one major nongovernment customer, and zero otherwise; LOGNCUST is the natural logarithm of one plus the total number of nongovernment customers reported by a firm for a given year; IMPORTANCE is the importance of sales to major nongovernment customers, calculated as the percentage of the supplier firm's revenue accounted for by a customer in each relationship-year; SIZE is the natural logarithm of total assets at the beginning of the current year; LITIGATION is an indicator variable equaling one if the company operates in a litigious industry of the following SIC codes: 2833-2836, 3570-3577, 7370-7374, 3600-3674, 5200-5961, and 8731-8734, and zero otherwise; EARNVOL is the standard deviation of reported annual earnings per share for the five years preceding current year; RET is the 12-month size-adjusted return over the previous year; LOSS is the incidence of loss, calculated as the percentage of the past five years for which the firm reported negative net income; FOLLOW is the natural logarithm of one plus the number of analysts following the firm during the previous year; BM is ratio of book to market value of equity at the beginning of the current year (firm years with negative book value of equity are deleted); PRIOR is an indicator variable equaling one for firms that issue at least one quarterly earnings guidance in the previous year, and zero otherwise; PRCOST (proprietary cost) is measured as prior year's reported research and development expense divided by total assets at the beginning of the year; RESTATE is an indicator variable coded as one if a restatement is announced during the previous year; RETSTRUCTURE is an indicator variable equaling one if reported after-tax restructuring expense is non-zero in the previous year, and zero otherwise; FOREIGN is an indicator variable equaling one if a firm reports non-zero pretax foreign income in the previous year, and zero otherwise; LNSEGS is the natural logarithm of one plus the number of business segments; GOVERN is a proxy for the dependence on major government customer relationships, including GOVERN_MC, GOVERN_LOGNCUST, or GOVERN_IMPORTANCE, measured in accordance with MAJORCUSTOMER as described above.

TABLE 3
Pearson and Spearman Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. MC		0.88	0.69	0.01	-0.19	0.02	-0.03	0.01	0.09	-0.02	0.02	0.00	0.08	-0.02	0.02	0.06	-0.07
2. LOGNCUST	0.92		0.78	0.00	-0.16	0.04	-0.02	0.00	0.10	-0.03	0.04	0.00	0.09	-0.01	0.01	0.04	-0.07
3. IMPORTANCE	0.89	0.91		-0.04	-0.20	0.09	-0.01	-0.01	0.18	-0.07	0.03	-0.05	0.17	-0.01	-0.01	-0.03	-0.16
4. GUIDE	0.01	0.00	-0.02		0.18	0.12	-0.03	0.04	-0.15	0.69	-0.11	0.70	-0.06	-0.02	0.12	0.19	0.03
5. SIZE	-0.17	-0.16	-0.20	0.21		-0.14	0.20	0.02	-0.45	0.28	-0.04	0.20	-0.32	-0.02	0.25	0.26	0.40
6. LITIGATION	0.02	0.04	0.06	0.12	-0.15		-0.07	0.01	0.25	0.13	-0.08	0.11	0.39	0.01	0.03	0.03	-0.23
7. EARNVOL	-0.01	0.00	-0.01	0.02	0.35	-0.10		0.03	0.10	-0.02	0.05	-0.03	-0.03	0.01	0.13	0.05	0.11
8. RET	-0.03	-0.04	-0.05	0.05	0.15	-0.04	0.05		-0.03	-0.02	-0.24	-0.01	-0.04	-0.02	-0.03	0.00	0.00
9. LOSS	0.10	0.11	0.15	-0.15	-0.46	0.23	0.13	-0.15		-0.19	0.01	-0.17	0.49	0.04	0.05	-0.10	-0.24
10. FOLLOW	-0.02	-0.02	-0.04	0.70	0.28	0.12	0.03	0.00	-0.18		-0.10	0.93	-0.07	-0.02	0.14	0.21	0.05
11. BM	0.04	0.05	0.04	-0.09	0.00	-0.14	0.10	-0.35	-0.02	-0.08		-0.08	-0.15	0.01	0.03	-0.03	0.02
12. PRIOR	0.00	-0.01	-0.02	0.70	0.22	0.11	0.03	-0.01	-0.16	0.96	-0.05		-0.07	-0.01	0.13	0.19	0.04
13. PRCOST	0.15	0.16	0.17	0.04	-0.25	0.44	-0.07	-0.07	0.39	0.03	-0.23	0.03		-0.03	0.01	-0.01	-0.24
14. RESTATE	-0.02	-0.01	-0.01	-0.02	-0.01	0.01	0.02	-0.03	0.05	-0.02	0.01	-0.01	-0.03		0.02	-0.01	0.00
15. RESTRUCTURE	0.02	0.01	0.01	0.12	0.25	0.03	0.20	-0.04	0.07	0.14	0.07	0.13	0.13	0.02		0.26	0.15
16. FOREIGN	0.06	0.05	0.02	0.19	0.27	0.03	0.12	0.04	-0.08	0.21	0.00	0.19	0.21	-0.01	0.26		0.15
17. LNSEGS	-0.06	-0.07	-0.11	0.03	0.37	-0.23	0.18	0.07	-0.22	0.05	0.09	0.04	-0.15	0.00	0.15	0.15	

Pearson (Spearman) correlation coefficients are reported above (below) the diagonal. P-values (two-tailed) significant at the 1 and 5 percent levels are shown in bold. All variables are defined in Table 2.

TABLE 4
Dependence on Major Customers and the Decision to Provide Earnings Guidance

$$\begin{aligned}
 \text{GUIDE} = & \alpha_0 + \alpha_1 \text{MAJORCUSTOMER} + \alpha_2 \text{SIZE} + \alpha_3 \text{LITIGATION} + \alpha_4 \text{EARNVOL} + \alpha_5 \text{RET} + \alpha_6 \text{LOSS} + \alpha_7 \text{FOLLOW} + \alpha_8 \text{BM} \\
 & + \alpha_9 \text{PRIOR} + \alpha_{10} \text{PRCOST} + \alpha_{11} \text{RESTATE} + \alpha_{12} \text{RESTRUCTURE} + \alpha_{13} \text{FOREIGN} + \alpha_{14} \text{LNSEGS} + \alpha_{15} \text{GOVERN} \\
 & + \text{Industries} + \text{Years} + \varepsilon
 \end{aligned}
 \tag{1}$$

Panel A: Tests of H1 using Full Sample (N=16,880)

<u>Variable</u>	<u>Pred.</u>	<u>Coeff.</u>	<u>MC</u>		<u>MAJORCUSTOMER =</u>			<u>IMPORTANCE</u>		
			<u>Wald</u>	<u>Stat.</u>	<u>Coeff.</u>	<u>Wald</u>	<u>Stat.</u>	<u>Coeff.</u>	<u>Wald</u>	<u>Stat.</u>
INTERCEPT	?	-3.539	28.08	***	-3.480	27.23	***	-3.384	25.44	***
MAJORCUSTOMER	H1: +	0.212	13.71	***	0.145	11.03	***	0.224	4.43	**
SIZE	+	0.119	36.43	***	0.115	34.53	***	0.112	32.57	***
LITIGATION	+	0.098	1.10		0.096	1.06		0.096	1.06	
EARNVOL	-	-0.023	1.20		-0.023	1.24		-0.024	1.33	
RET	+	0.184	19.05	***	0.184	18.93	***	0.184	19.03	***
LOSS	-	-0.329	10.22	***	-0.329	10.19	***	-0.329	10.22	***
FOLLOW	+	0.438	52.76	***	0.439	52.79	***	0.440	52.76	***
BM	-	-0.443	26.93	***	-0.450	27.32	***	-0.447	27.25	***
PRIOR	+	2.377	259.08	***	2.375	257.88	***	2.378	257.61	***
PRCOST	-	-0.173	0.22		-0.211	0.33		-0.218	0.36	
RESTATE	-	-0.238	5.58	**	-0.238	5.60	**	-0.239	5.65	**
RESTRUCTURE	-	0.092	2.24		0.095	2.37		0.092	2.21	
FOREIGN	+	0.218	13.29	***	0.225	14.19	***	0.227	14.35	***
LNSEGS	+	-0.111	2.79	*	-0.113	2.86	*	-0.105	2.48	
GOVERN	?	0.077	0.62		0.109	1.18		0.126	0.43	
Industry and Year Fixed Effects			Yes		Yes			Yes		
Pseudo-R ²			0.60		0.60			0.60		

TABLE 4 (Continued)**Panel B: Tests of H2 using Subsamples**

	<u>MC</u>			<u>MAJORCUSTOMER =</u> <u>LNNCUST</u>			<u>IMPORTANCE</u>		
	<u>Coeff.</u>	<u>Wald Stat.</u>		<u>Coeff.</u>	<u>Wald Stat.</u>		<u>Coeff.</u>	<u>Wald Stat.</u>	
Durable Goods (N=7,306)	0.252	8.28	***	0.187	8.65	***	0.324	4.65	**
Non-Durable Goods (N=9,574)	0.165	4.77	**	0.095	2.45		0.064	0.17	
Durable > Non-Durable (Z-Stat.)	0.755			1.037			1.212		
High-R&D Intensity (N=8,440)	0.262	11.84	***	0.172	9.04	***	0.352	6.53	**
Low-R&D Intensity (N=8,440)	0.163	3.36	*	0.121	3.04	*	0.094	0.29	
High-R&D > Low-R&D (Z-Stat.)	0.842			0.568			1.534		

*** / ** / * denote significance at the 0.01 / 0.05 / 0.10 levels (two-tailed), respectively, and are based on robust standard errors clustered by firm. All variables are defined in Table 2.

Panel A reports results from estimating Equation (1) using the full sample. Panel B reports result from separate regressions we run separate regressions using Equation (1) for subsamples divided according to (i) whether the firms belong to the durable goods sector (three-digit SIC codes 150-179, 245, 250-259, 283, 301, and 324-399) or nondurable goods sector, (ii) whether the firms have high (above-median) versus low R&D intensity (Bowen et al. 1995). Coefficients on intercept, control variables, industry and year fixed effects are omitted from Panel B for brevity. Logistic regressions are estimated with standard errors clustered by firm.

TABLE 5
Dependence on Major Customers and the Optimism in Earnings Guidance

$$\begin{aligned}
 OPTIMISM = & \beta_0 + \beta_1 MAJORCUSTOMER + \beta_2 SIZE + \beta_3 LITIGATION + \beta_4 EARNVOL + \beta_5 RET + \beta_6 LOSS + \beta_7 FOLLOW \\
 & + \beta_8 BM + \beta_9 HORIZON + \beta_{10} PRCOST + \beta_{11} RESTATE + \beta_{12} RESTRUCTURE + \beta_{13} FOREIGN + \beta_{14} LNSEGS \\
 & + \beta_{15} GOVERN + Industries + Years + \varepsilon
 \end{aligned}
 \tag{2}$$

Panel A: Full Sample—Dependent Variable: OPTIMISM

<u>Variable</u>	<u>Pred.</u>	<u>MC</u>			<u>MAJORCUSTOMER =</u>			<u>IMPORTANCE</u>		
		<u>Coeff.</u>	<u>t Stat.</u>		<u>Coeff.</u>	<u>t Stat.</u>		<u>Coeff.</u>	<u>t Stat.</u>	
INTERCEPT	?	0.0005	0.55		0.0001	0.14		0.0008	0.90	
MAJORCUSTOMER	H3: ?	0.0005	1.72	*	0.0007	2.47	**	0.0008	1.09	
SIZE	-	-0.0002	-1.86	*	-0.0002	-1.71	*	-0.0002	-1.97	**
LITIGATION	-	-0.0006	-1.08		-0.0006	-1.11		-0.0006	-1.09	
EARNVOL	+	-0.0001	-0.55		-0.0001	-0.59		-0.0001	-0.62	
RET	?	0.0002	0.72		0.0002	0.68		0.0002	0.68	
LOSS	+	0.0000	-0.03		0.0000	-0.04		0.0000	-0.04	
FOLLOW	-	-0.0004	-2.94	***	-0.0004	-3.01	***	-0.0004	-2.97	***
BM	-	0.0013	1.48		0.0012	1.38		0.0013	1.44	
HORIZON	+	0.0018	4.94	***	0.0018	4.90	***	0.0018	4.99	***
PRCOST	?	-0.0099	-2.68	***	-0.0105	-2.84	***	-0.0101	-2.73	***
RESTATE	?	-0.0003	-0.64		-0.0003	-0.70		-0.0003	-0.69	
RESTRUCTURE	?	-0.0003	-1.03		-0.0003	-1.02		-0.0003	-1.05	
FOREIGN	?	0.0008	2.58	**	0.0008	2.64	***	0.0008	2.60	***
LNSEGS	?	0.0002	0.71		0.0002	0.76		0.0003	0.87	
GOVERN	?	0.0007	1.28		0.0004	0.92		0.0006	0.86	
Industry and Year Fixed Effects			Yes			Yes			Yes	
Sample Size			4,439			4,439			4,439	
Adj-R ²			0.04			0.04			0.04	

TABLE 5 (Continued)

Panel B: Tests using Optimism and Subsamples

	<u>MC</u>		<u>MAJORCUSTOMER =</u> <u>LNNCUST</u>			<u>IMPORTANCE</u>			
	<u>Coeff.</u>	<u>Wald Stat.</u>	<u>Coeff.</u>	<u>Wald Stat.</u>		<u>Coeff.</u>	<u>Wald Stat.</u>		
Durable Goods (N=1,852)	0.0006	1.34	0.0004	1.21		-0.0007	-0.72		
Non-Durable Goods (N=2,587)	0.0005	1.37	0.0011	2.51	**	0.0030	2.56	**	
High-R&D Intensity (N=2,221)	0.0002	0.44	0.0003	0.84		-0.0003	-0.30		
Low-R&D Intensity (N=2,218)	0.0009	1.99	**	0.0012	2.63	***	0.0027	2.41	**

*** / ** / * denote significance at the 0.01 / 0.05 / 0.10 levels (two-tailed), respectively, and are based on robust standard errors clustered by firm.

TABLE 6
Dependence on Major Customers and the Timeliness of Earnings Guidance

	<u>MC</u>		MAJORCUSTOMER = <u>LNNCUST</u>		<u>IMPORTANCE</u>	
	<u>Coeff.</u>	<u>t Stat.</u>	<u>Coeff.</u>	<u>t Stat.</u>	<u>Coeff.</u>	<u>t Stat.</u>
Full sample (N= 4,634)	0.03	1.27	0.02	1.51	0.03	0.84
Durable Goods (N=1,944)	0.05	1.81 *	0.04	2.14 **	0.10	2.08 **
Non-Durable Goods (N=2,690)	0.01	0.35	0.01	0.24	-0.05	-0.84
High-R&D Intensity (N = 2,318)	0.04	1.65 *	0.03	1.67 *	0.05	1.15
Low-R&D Intensity (N = 2,316)	0.02	0.67	0.02	0.85	0.04	0.55

*** / ** / * denote significance at the 0.01 / 0.05 / 0.10 levels (two-tailed), respectively, and are based on robust standard errors clustered by firm.

TABLE 7
Dependence on Major Customers and the Frequency of Earnings Guidance

	<u>MC</u>		MAJORCUSTOMER = <u>LNNCUST</u>		<u>IMPORTANCE</u>	
	<u>Coeff.</u>	<u>t Stat.</u>	<u>Coeff.</u>	<u>t Stat.</u>	<u>Coeff.</u>	<u>t Stat.</u>
Full sample (N= 4,634)	0.11	1.63	0.11	3.17 *	0.25	2.56
Durable Goods (N=1,944)	0.20	2.31	0.20	5.43 **	0.57	6.84 ***
Non-Durable Goods (N=2,690)	0.06	0.29	0.05	0.27	-0.04	0.03
High-R&D Intensity (N = 2,318)	0.31	8.03 ***	0.25	8.97 ***	0.57	7.13 ***
Low-R&D Intensity (N = 2,316)	-0.06	0.20	0.00	0.00	-0.15	0.36

*** / ** / * denote significance at the 0.01 / 0.05 / 0.10 levels (two-tailed), respectively, and are based on robust standard errors clustered by firm.

TABLE 8
Supplier Network and Major Customers' Decision to Provide Earnings Guidance (Dependent Variable: GUIDE)

<u>Variable</u>	<u>KS</u>			<u>LNNKS</u>			<u>IMPORTANCEKS</u>		
	<u>Coeff.</u>	<u>Wald Stat.</u>		<u>Coeff.</u>	<u>Wald Stat.</u>		<u>Coeff.</u>	<u>Wald Stat.</u>	
INTERCEPT	-2.544	10.55	***	-2.553	10.24	***	-2.617	10.77	***
KEYSUPPLIER	0.318	8.71	***	0.080	1.22		0.457	0.68	
SIZE	0.031	1.15		0.046	2.48		0.057	4.32	
LITIGATION	0.029	0.04		0.048	0.11		0.062	0.19	
EARNVOL	-0.012	0.21		-0.012	0.22		-0.013	0.24	
RET	0.230	11.95	***	0.229	11.79	***	0.229	11.74	***
LOSS	-0.542	11.88	***	-0.532	11.51	***	-0.525	11.27	***
FOLLOW	0.419	22.20	***	0.439	24.45	***	0.446	25.31	***
BM	-0.439	10.65	***	-0.445	11.00	***	-0.449	11.14	***
PRIOR	2.412	108.94	***	2.378	105.86	***	2.362	104.52	***
PRCOST	-0.552	0.98		-0.486	0.78		-0.460	0.71	
RESTATE	-0.157	1.20		-0.159	1.23		-0.162	1.27	
RESTRUCTURE	0.157	2.81	*	0.158	2.89	*	0.157	2.84	*
FOREIGN	0.200	4.98	**	0.207	5.37	**	0.209	5.45	**
LNSEGS	-0.128	1.87		-0.139	2.21		-0.141	2.29	
Industry and Year Fixed Effects	Yes			Yes			Yes		
Sample Size	8,227			8,227			8,227		
Likelihood Ratio	4,777.22			4,768.99			4,768.20		
Pseudo-R ²	0.63			0.63			0.63		

TABLE 8 (Continued)

*** / ** / * denote significance at the 0.01 / 0.05 / 0.10 levels (two-tailed), respectively, and are based on robust standard errors clustered by firm.

The table reports the results concerning the effect of purchases from dependent suppliers on customer firms' guidance decisions. Firms that are suppliers (i.e., firms reporting principal customers) but are not customers (i.e., firms reported as principal customers) are excluded from the sample. All variables are defined in Table 2 except that KEYSUPPLIER is a proxy for relationships with a network of dependent suppliers, including: KS is an indicator variable equaling one if a dependent supplier reports the firm as a principal customer in a given year, and zero otherwise; LNNKS is the natural logarithm of one plus the total number of dependent suppliers that report the firm as a principal customer in a given year; IMPORTANCEKS is the amount of reported purchases from dependent suppliers that report the firm as a principal customer, divided by the firm's sales in a given year.