Causes and Consequences of Disaggregating Earnings Guidance

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ABSTRACT

Whether managers should provide earnings guidance, especially quarterly guidance, has been a hotly debated policy issue. Influential organizations have urged firms to stop providing earnings guidance to reduce earnings fixation and short-termism in the capital markets. Little attention has been paid to an alternative proposal: instead of ceasing earnings guidance, companies could provide disaggregated earnings guidance. No archival evidence exists regarding the determinants of disaggregated earnings guidance and its effects on the firm and its information environment. We find that once managers provide guidance, the decision to disaggregate this guidance is primarily driven by demand-and-supply factors that exhibit little change from year to year rather than by opportunistic factors. We find more timely analyst forecast revisions (with no compromise of forecast accuracy), a greater magnitude of revisions, and a larger reduction in analyst disagreement for disaggregating firms than for non-disaggregating firms. These findings suggest that disaggregation enriches a firm’s information environment. We also find that disaggregation helps managers align analyst expectations with their own, but firms are punished by investors for providing multiple performance targets but missing them.

Keywords: management earnings forecasts, earnings guidance, disaggregation, voluntary disclosure.
1. INTRODUCTION

Whether managers should provide earnings guidance (forecasts), especially quarterly guidance, is a hotly debated policy issue. Critics argue that earnings guidance induces earnings fixation and short-termism in the capital markets (CFA Institute 2006; U.S. Chamber of Commerce 2007; Deloitte 2009; Cheng, Subramanyam, Zhang 2006). Influential organizations, including the Business Roundtable and the U.S. Chamber of Commerce, along with business leaders such as Warren Buffett and John Bogle, have urged firms to stop providing quarterly earnings guidance. Academic research finds that guidance cessation often follows poor performance and has negative consequences for the firm’s information environment (Houston, Lev, and Tucker 2010; Chen, Matsumoto, and Rajgopal 2011). Little attention has been paid to an alternative proposal: providing disaggregated earnings guidance (DEG), i.e., simultaneous guidance for earnings, revenue, and key expenses. Although Elliott, Hobson, and Jackson (2011) provide experimental evidence that DEG reduces fixation on earnings, no archival evidence exists. In this study we provide archival evidence about the factors associated with annual DEG and its effects on the firm and its information environment.¹

We distinguish the demand-and-supply factors from managers’ strategic use of their private information to alter investor and analyst perceptions as determinants of the decisions to disaggregate guidance. Higher demand is associated with a higher likelihood of disaggregated disclosure, assuming that managers respond to the demand. The supply of disaggregated disclosure is impacted by lack of precision in managers’ private information

¹ We examine guidance disaggregation conditional on firms’ providing earnings guidance. Following Elliott et al. (2011), we examine DEG of annual guidance. We choose not to examine quarterly DEG also because the sample size would be smaller in the midst of the quarterly earnings guidance debate.
and concerns about earnings component predictions benefiting competitors. The demand-and-supply factors include the decision-usefulness of earnings and revenue, institutional ownership, industry competition, and difficulties in forecasting earnings and revenue. The strategic factors include managers’ asymmetric treatment of good vs. bad earnings guidance news and analyst optimism in revenue forecasts.

Using disclosure data issued by S&P 500 companies, we find that DEG is associated with the demand-and-supply factors. DEG is associated with a low earnings-returns correlation, a high level of intangible assets, and a large magnitude of earnings news—indicating low decision-usefulness of earnings and high demand for earnings components. In contrast, the proxies used in prior research to capture strategic factors—the good- vs. bad-news nature of earnings guidance and analyst optimism in revenue forecasts—do not explain the disaggregation decision. Moreover, we observe that almost 70% of disaggregating firms continue to disaggregate guidance in the following year. This moderate stickiness is consistent with the demand-and-supply factors, which exhibit little change from year to year, contributing to DEG.

We examine the effects of DEG on analyst forecasts. We find that analysts revise earnings estimates more rapidly and by a greater magnitude for disaggregating than for non-disaggregating firms. We find no difference in analysts’ improvement of forecast accuracy between the two groups, suggesting that even though accuracy typically increases with more time available for collecting and analyzing information, the improvement in timeliness for disaggregating firms does not compromise accuracy. We find that the dispersion of analyst earnings and revenue estimates decreases more for disaggregating than for non-disaggregating firms, suggesting reduced analyst difficulties in forecasting. Our results of
more rapid and larger analyst forecast revisions and less disagreement suggest that DEG facilitates the activities of information intermediaries, consistent with our finding of the demand-and-supply factors contributing to DEG.

We examine the effects of DEG on the firm to better understand the benefits and costs of the decision. We find that analysts’ revised expectations after disaggregated disclosure deviate from managers’ to a lesser degree than for non-disaggregating firms. Disaggregating firms have a better chance of meeting or slightly beating analyst expectations than do non-disaggregating firms. In addition, we find that investors react negatively to disaggregating firms’ missing both analyst earnings and revenue expectations, whereas we do not find such evidence for non-disaggregating firms. These results, along with our finding of demand-and-supply determinants of disaggregation, help explain why some but not all firms provide DEG.

Our study makes three contributions to the voluntary disclosure literature. First, we provide the first comprehensive archival evidence on DEG. In particular, we consider nine income-statement line items subsequent to Regulation Fair Disclosure (FD). We consider the demand-and-supply factors, whereas prior research examines strategic factors (Han and Wild 1991; Hutton, Miller, and Skinner 2003). Moreover, we examine the effects of disaggregation on firms and their information intermediaries, whereas prior research examines the effect of additional disclosure on the credibility of earnings guidance (Hutton et al. 2003; Hirst, Koonce, and Venkataraman 2007).

Second, we extend limited prior research showing that managers use their discretion in financial reporting and disclosure to convey information rather than to obscure results (Chen, DeFond, and Park 2002; Lennox and Park 2006). Several recent studies conclude
that managers intervene in the financial reporting and disclosure process for opportunistic reasons (D’Souza, Ramesh, and Shen 2008; Li 2008; Chen, Doogar, Li, and Sougiannis 2008). For example, Li (2008) concludes that managers write complex Management Discussion and Analysis (MD&A) documents to draw attention away from poor earnings or earnings increases that are not expected to persist. Brown, Christensen, and Elliott (2012) find that the timing of pro forma earnings announcements is at least partially attributable to managerial opportunism. Chen et al. (2008) suggest that DEG is opportunistic: negative earnings guidance is less accurate and more optimistically biased when it is disaggregated than when it is not. Our evidence indicates that DEG is associated with a richer information environment.

Last, our study adds a voice to the debate on earnings guidance. Major institutions, such as the Conference Board and the U.S. Chamber of Commerce, have lauded guidance cessation as a way to break the focus on short-term earnings (CFA Institute 2006; Hsieh, Koller, and Rajan 2006). Our study complements the experimental evidence of Elliott et al. (2011) that DEG reduces earnings fixation. In particular, if the role of disaggregation is to reduce investors’ fixation on earnings, disaggregation should be sticky and primarily dependent on the demand-and-supply factors, which change little from year to year. We confirm that this is the case. Our finding of negative price reaction to disaggregating firms’ missing both analyst earnings and revenue expectations is consistent with investors placing weight on revenue forecasts when firms provide DEG, suggesting that the relative fixation on earnings has been reduced.

This paper proceeds as follows: Section 2 discusses the research issues, Section 3 describes the data, Section 4 presents the analyses and results, and Section 5 concludes.
2. RESEARCH ISSUES

Because DEG is not well documented and understood, identifying its determinants is our primary focus. We also consider the consequences of DEG for supplementary and corroborative purposes. Figure 1 illustrates this approach.

(i) Determinants of Earnings Guidance Disaggregation

Two prior studies have examined limited aspects of DEG. Han and Wild (1991) report that 40% of management earnings guidance is accompanied by revenue guidance and conclude that managers do so when the former is insufficient to reduce the earnings expectation gap between managers and analysts. They also report that the earnings and the accompanying revenue guidance tend to be good news. Hutton et al. (2003) collect but do not categorize disclosures that accompany earnings guidance. They find that managers tend to supplement good-news earnings guidance with forward-looking statements that are ex post verifiable. They also find that investors react to good-news earnings guidance only when the guidance is accompanied by verifiable forward-looking statements, suggesting that these statements enhance the credibility of earnings guidance.2

We categorize earnings component guidance and examine a wide range of disaggregation determinants. We separate these determinants into the demand-and-supply and strategic categories. It is important to distinguish these two types of determinants. Disclosures driven by demand-and-supply factors are often sticky because these factors exhibit little change from year to year. A firm’s prior practices set investors’ expectations for future disclosures even if the firm does not explicitly state its disclosure policy. With such expectations, investors can reduce their information search costs and therefore accept

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2 Hirst et al. (2007) provide experimental evidence consistent with Hutton et al. (2003).
lower returns. In contrast, disclosures driven by strategic factors are sporadic and investors have no reason to cut back their private information search. The theoretical benefits of voluntary disclosure in improving stock liquidity and reducing costs of capital arise from disclosure driven by demand-and-supply factors rather than strategic factors (Diamond 1985; Diamond and Verrecchia 1991).

(a) Demand-and-supply Disclosure Determinants

All else being equal, we expect firms to respond to investor and analyst demands for DEG, whereas supply-side constraints hinder managers’ issuance of DEG. We introduce four demand factors (decision-usefulness of earnings, decision-usefulness of revenue, institutional ownership, magnitude of the earnings news), one supply factor (industry competition), and two factors that can affect both the demand and supply of DEG (difficulties in predicting earnings and difficulties in predicting revenue).

Chen et al. (2002) argue that managers are more likely to voluntarily disclose balance-sheet information when earnings are relatively uninformative because under these circumstances investors demand such information. When earnings are uninformative, investors may demand disaggregated earnings information for valuation. We predict that the demand for DEG will be high when earnings usefulness is low.

The usefulness of revenue in valuation will vary with the firm’s operating strategy and its life-cycle stage. Revenue is critical for growth firms, while cost cutting is more critical for firms trying to turn around. We expect the demand for revenue guidance to increase with the decision-usefulness of revenue.

With large holdings, institutional investors are expected to be more active in monitoring firms than are individual investors. Before Regulation FD, institutional investors
had special access to managers’ information. After Regulation FD, private communication channels with managers were stifled and institutional investors now must rely on public corporate disclosures to actively monitor firms’ performance. Moreover, institutional investors are sophisticated. If they can adequately interpret DEG, we expect firms to respond to the demands of this clientele and provide DEG.

The demand for earnings components may increase with the magnitude of the earnings guidance news. When the news is large, investors may desire to know specifically what earnings components contribute to the news. For example, a large earnings increase without a revenue increase does not bode well for growth firms. We expect firms with a greater magnitude of earnings news to be more likely to provide DEG.

Earnings component guidance may incur significant proprietary disclosure costs. Revenue guidance can foretell a firm’s aggressiveness in product markets. R&D guidance can reveal the scale of new product developments. Such disclosures may help the firm’s competitors and discourage managers from disclosing (Verrecchia 1983). Because proprietary disclosure costs increase with the intensity of industry competition, we expect the supply of DEG to decrease with industry competition.

Earnings are more difficult to predict when operations are more complex and highly sensitive to external factors (e.g., input prices, regulation, and competition). Under these circumstances, investors and analysts are more likely to demand earnings component guidance to assist in their analyses. On the other hand, the underlying uncertainty of operations may affect managers’ confidence in their predictions. To avoid missing their own estimates, managers may be less likely to supply DEG (Waymire 1985; Verrecchia 1990).
Similarly, difficulties in predicting revenue increase investors’ demand for revenue guidance. On the other hand, managers may face many uncertainties that discourage them from providing revenue guidance because inaccurate guidance may damage their credibility (Hutton and Stocken 2009).³

(b) Strategic Disclosure Determinants

Prior research finds that managers supplement good-news earnings guidance with additional information to increase the credibility of the guidance (Han and Wild 1991; Hutton et al. 2003; Hirst et al. 2007). This finding suggests that managers are more likely to provide DEG when the earnings guidance is good news than when it is bad news.

Prior research concludes that managers use guidance to lower analyst expectations and increase their chances of meeting or beating analyst expectations at the earnings announcement date (Matsumoto 2002; Cotter, Tuna, and Wysocki 2006; Richardson, Teoh, and Wysocki 2004; Athanasakou, Strong, and Walker 2011).⁴ Analyst revenue forecasts have recently become common (Rees and Sivaramakrishnan 2007). If analyst revenue expectations are too high, managers can use revenue guidance to lower them.

On the other hand, managers’ incentive to lower analyst revenue expectations may be weak early in the fiscal year. Our disclosure data are one year before the annual earnings announcement. Richardson et al. (2004, Figure 1) show that analyst forecasts are predominantly optimistic at this time; the optimistic bias disappears three months before the earnings announcement and pessimistic bias then develops in time for managers to slightly

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³ According to Graham, Harvey, and Rajgopal (2005, pp. 53 and 59), one concern of chief financial officers about voluntary disclosure is that once the practice is initiated investors expect it to continue.

⁴ Analysts are willing to revise downward their estimates either because they perceive that managers know firm operations better than analysts or because analysts have incentives to help managers in the meeting/beating game to gain future access of information (Lim 2001). These incentives are assumed to be the same for disaggregating and non-disaggregating firms in our study.
meet or beat analyst expectations at the earnings announcement. This pattern suggests that managers may not be concerned with analyst optimism a full year before the earnings announcement date.\textsuperscript{5}

(ii) Consequences of Earnings Guidance Disaggregation

(a) Effects of Disaggregation on Analyst Forecasts

If DEG conveys useful information, DEG will help analysts predict earnings and revenue. If managers intend to disguise information, as Chen et al. (2008) and Li (2008) argue, DEG will only increase the challenge faced by analysts. We examine the speed and magnitude of analyst earnings revisions, improvement in forecast accuracy, and change in analyst disagreement associated with the disclosure event. The evidence will shed light on whether DEG is driven by demand-and-supply or strategic determinants, because demand-and-supply related incentives lead to disclosure that improves information efficiency and strategic incentives lead to disclosure that may undermine information efficiency.

(b) Effects of Disaggregation on the Firm

A primary reason for corporate guidance is to align sell-side analyst estimates and investor expectations with the firm’s realistic prospects (NIRI 2008). We examine three effects of disaggregation on the firm. First, we investigate whether DEG helps managers quickly align analyst expectations toward their own. Second, we examine the effect of disaggregation on firms’ meeting or slightly beating analyst earnings and revenue

\textsuperscript{5} According to First Call, firms providing annual earnings guidance do so about three or four times a year. For a subset of our sample firms, we observe that the disclosure items collected at the prior-year earnings announcement are often updated by managers at interim earnings announcements. Even though managing market revenue expectations may not be a motive for DEG at the prior-year earnings, the issuance of revenue guidance at this early date may lend credibility to subsequent disclosures when managers need to influence analyst expectations near the earnings announcement of the forecasted year.
expectations. Firms may issue disaggregated earnings guidance late in the fiscal year to influence analyst earnings and revenue expectations. However, we expect that firms that disaggregate earnings guidance as a policy (e.g., providing DEG at the beginning of the year when our disclosure is collected) are more effective in influencing analyst expectations late in the year. Finally, we examine the capital-market costs of providing DEG but missing expectations at the earnings announcement. These examinations will help us understand why some but not all firms provide DEG.

3. DATA

We collect earnings and earnings component guidance by S&P 500 firms for fiscal years 2006 and 2007 at their 2005 and 2006 annual earnings announcements. These disclosure events differ from those in Hutton et al. (2003), who examine press releases issued between quarterly earnings announcements (“special releases”). We choose the earnings announcement event because substantial guidance to the capital markets occurs at this time (Francis, Schipper, and Vincent 2002). Using First Call’s Company Issued Guidelines (CIG) database, we observe that 92% of the firms that provided annual earnings guidance during 2001-2007 did so at an earnings announcement. We also observe that for 2006 in particular 90% of our sample firms that provided annual earnings guidance did so at an earnings announcement and that firms seldom provided additional types of guidance beyond those provided at earnings announcements. We review the earnings announcement

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6 These firms in aggregate account for about 75% of the U.S. equity markets. Thus, our study describes the disclosure behaviors that affect a substantial portion of the capital markets.

7 In Compustat a firm’s fiscal year is the same as the calendar year of the fiscal-year-end (FYE) if FYE is between June and December and is the previous calendar year if FYE is between January and May. For 17 firms whose fiscal years end in April or May, we code the earnings announcements for fiscal year 2004 (2005).

8 For example, for 2006 we collect and code special releases issued in the first quarter of the forecasted year. Only six firms (1.2% of S&P 500 firms) provide new guidance in special releases beyond what they disclose at
press release and the presentation portion of the conference call transcript. We consider guidance issued in the form of point, range, and low-precision range estimates (e.g., “we expect mid- to high single-digit earnings growth”). If the same type of guidance appears in both sources, we select the one with higher precision.

We code each company’s earnings guidance (i.e., GAAP and non-GAAP earnings, EPS, or earnings growth) and earnings component guidance (see examples in Appendix A). We code guidance on total sales, comparable-store sales, or organic sales as revenue guidance. We identify guidance on major (i.e., frequently occurring) expenses: cost of goods sold (generally in the form of gross margin guidance); R&D; selling, general, and administrative expenses; depreciation; interest; and the effective tax rate. Firms also forecast minor (i.e., infrequently occurring) expenses, such as amortization expenses and other uncategorized items (e.g., pre-opening expenses and cost savings from acquisitions).

Table 1 summarizes the frequency of earnings and earnings component guidance by forecast period as well as the pooled sample. For the pooled sample, 57.5% provide earnings guidance and 37.6% give revenue guidance. With the exception of effective tax rate guidance, the frequency of expense guidance is much lower. For 2007 the percentage of firms with earnings guidance is 55.4%, lower than that for 2006, consistent with survey

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9 We obtain the majority of earnings announcement press releases from Business Wire or PR Newswire. For a few firms whose press releases are missing, we search on the companies’ websites and in 8-K filings. Almost all conference call transcripts are obtained from FD Wire. Quite often earnings component guidance appears exclusively in conference calls.

10 We do not include maximum, minimum, and qualitative guidance. Among our sample firms that provide earnings guidance, 11.4% are point estimates, 77.3% are range estimates, 4.3% are low-precision range estimates, 1.9% are maximum or minimum, and 5.2% are qualitative earnings guidance (e.g., “we expect our earnings to increase”). These percentages differ from those of Pownall, Wasley, and Waymire (1993), who report that 40% of their earnings guidance sample in 1979-1987 was maximums or minimums.

11 It is possible for a firm to have more than one “other items.”

12 We do not code stock option expense guidance because such guidance may have been provided as a one-time practice when SFAS 123R was adopted.
evidence of a slight decrease in earnings guidance frequency in 2007 (NIRI 2008). The two sample years have similar patterns for other disclosure items.

In Table 2 we sort the firm-year observations into five groups according to the degree of guidance disaggregation. For classification purposes, we treat two minor expense forecasts as one major expense forecast. Group 0 includes firms that do not provide earnings guidance and accounts for 42.5% of the sample. Group 1 includes those with only earnings guidance and is referred to as “non-disaggregating firms.” This group accounts for 10.5% of the sample. Groups 2 and 3 are partially disaggregating firms. Group 2 consists of firms with earnings guidance and at least one major expense forecast or two minor expense forecasts but no revenue guidance; this group accounts for 12.7% of the sample. Group 3 includes firms with earnings and revenue guidance but no expense guidance; this group accounts for 10.1% of the sample. Group 4, referred to as “disaggregating firms,” provides earnings, revenue, and at least one major expense forecast or two minor expense forecasts. Disaggregating firms account for 24.2% of the sample. These numbers indicate that once firms decide to provide earnings guidance, 42% fully disaggregate it.

Table 3 presents a snapshot of industry distributions for 2007. The table lists the 20 Fama-French (1997) industries with the largest number of S&P 500 firms in the order of their presence in the S&P 500 class. Business services and retail industries have the largest and second largest number of S&P 500 firms and have 47.1% and 38.2% disaggregating, respectively. Utilities and commercial banks are well represented in the S&P 500 class, but only 3.0% of utility companies and 6.1% of commercial banks provide disaggregated guidance. The low percentage for utilities is probably due to the little uncertainty in revenue.

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13 The NIRI surveys report that the percentage of their member firms providing earnings guidance was 66% in 2006 and 51% in 2007, indicating a decrease of earnings guidance in 2007. NIRI’s two-year average of 58.5% is close to the frequency of 57.5% for our two-year sample.
and expenses for utilities as a result of government regulation. Operating complexity perhaps discourages banks from predicting earnings and earnings components. The drug industry has the highest percentage (66.7%) of firms disaggregating earnings guidance. About half of the machinery and auto industries provide disaggregated earnings guidance. Thus, industries vary in disaggregating practices. Many of the demand-and-supply factors that we examine vary by industry and are expected to capture some of these industry variations.

4. ANALYSES AND RESULTS

(i) Determinants of Earnings Guidance Disaggregation

We focus on disaggregating vs. non-disaggregating firms in a probit analysis and examine the disaggregation decision conditional on firms’ providing earnings guidance. This analysis leaves out partially disaggregating firms to focus on the sharp contrast between instances of disaggregation and non-disaggregation. In supplementary analysis we add the two partially disaggregating groups, one at a time, and define the dependent variable at three ordinal levels in an ordered probit analysis. At the end of this subsection we consider the stickiness of DEG.

(a) Probit Analysis

Our probit model is Equation (1):

\[
\text{Prob (DEG)} = f \left( a_0 + a_1 \text{ERcorr} + a_2 \text{R&D} + a_3 \text{R'Rcorr} + a_4 \text{IO} + a_5 \text{|GuideNews|} + a_6 \text{Herf} \\
+ a_7 \text{DisperEPS} + a_8 \text{DisperSale} + a_9 \text{VarSale} + a_{10} \text{GoodEPS} + a_{11} \text{BadEPS} + a_{12} \text{OptimSale} + \varepsilon \right) \tag{1}
\]

We measure the decision-usefulness of earnings by the earnings-return correlation ("ERcorr") and R&D costs ("R&D"). ERcorr is the Spearman correlation of stock returns

\footnote{Han and Wild (1991) and Hutton et al. (2003) also condition their analyses on earnings guidance. Bouten, Everaert, and Roberts (2012) argue that whether to make a disclosure (e.g., issuing earnings guidance) and how much to disclose (e.g., the disaggregation level) are separate managerial decisions.}
and seasonally adjusted EPS changes in the 20 quarters before the disclosure event. Here, the stock return for quarter t is measured as the buy-and-hold return from three days after quarter t-1’s earnings announcement to three days after quarter t’s. The earnings change for quarter t is scaled by the share price at the beginning of quarter t, yielding a price-scaled EPS change. We expect a negative coefficient for ERcorr, that is, DEG is more likely to be provided if earnings are less useful. The immediate expensing of R&D costs and the considerable delay in recognizing the benefits of R&D projects increase the noise in earnings for R&D-intensive firms (Aboody and Lev 1998). We measure R&D as the R&D expenditures in the most recently reported fiscal year, expressed as a percentage of total assets, and expect a positive coefficient for R&D.

We measure decision-usefulness of revenue, RRcorr, by the Spearman correlation of stock returns with the seasonally adjusted revenue changes in the 20 quarters before the disclosure event. The revenue change for quarter t is scaled by the market capitalization at the beginning of quarter t. We predict a positive coefficient for RRcorr, that is, DEG is more likely to be provided if revenue is more useful.

We measure institutional ownership, IO, by the percentage of shares owned by institutions in the most recent fiscal quarter before the disclosure event, according to the CDA/Spectrum database. We predict a positive coefficient for IO.

The magnitude of the earnings guidance news, |GuideNews|, is the absolute difference between the company’s earnings estimate (the midpoint is used for range estimates) and the most recent analyst consensus before the disclosure event, scaled by the

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15 “Seasonally adjusted EPS change” means the change between the current quarter and the same fiscal quarter in the previous year. We require a minimum of five quarters of data to calculate ERcorr and RRcorr.
absolute realization.$^{16}$ In IBES, special items have typically been removed from realized earnings as well as from analyst estimates. To reduce measurement error, we use our non-GAAP earnings guidance as the company’s earnings estimate when it is available (49.7% of the time) and GAAP earnings guidance otherwise. We do not expect non-GAAP earnings guidance to be available for all firms because not all firms report special items, in which case there is no need for managers to distinguish non-GAAP from GAAP earnings.

We measure the intensity of industry competition by the Herfindahl index ($H$), the sum of squared product market shares of firms in the industry (48 Fama-French industry groupings). Here, product market shares are calculated from sales for the latest completed year. $H$ is bounded between $1/N$ and 1, where $N$ is the number of firms in the industry. To address a varying $N$ in cross-sectional analysis, we use the normalized index via the formula

$$H - \frac{1}{N}$$

and refer to the modified measure as $Herf$, which is bounded between 0 and 1. The lower the index, the higher the competition and the higher the expected proprietary disclosure costs. We predict a positive coefficient for $Herf$.

We use the dispersion of analysts’ earnings estimates, $DisperEPS$, to capture analysts’ difficulties in predicting earnings, because when earnings are difficult to predict there is more room for disagreement.$^{17}$ $DisperEPS$ is the standard deviation of annual earnings estimates in the most recent IBES consensus before the disclosure event. It is scaled by the absolute realization to address cross-sectional scale differences in EPS. We

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$^{16}$ We are not concerned about the small-scalar problem because the scalar is at least two cents for all observations and is above 10 cents for all but eight observations (less than 1% of the test sample). In our study we use price (or market value) as the scalar when returns are involved (Christie 1987) and use the absolute realization as the scalar in other cases to avoid the effect of mispricing on the constructed variable.

$^{17}$ Alternatively, we use the annual earnings volatility in the past three years and find similar results.
expect a positive coefficient for *DisperEPS* if the impact of demand factors is especially important.

We construct a variable, *DisperSale*, to measure the difficulties in predicting revenue. We construct another variable for the same purpose: revenue variability, measured as the average annual absolute change in sales in the past three years, scaled by average sales in the three-year period, *VarSale*.\(^\text{18}\) As for *DisperEPS*, we expect positive coefficients for *DisperSale* and *VarSale* if investors’ difficulties in predicting revenue increase their demand for revenue guidance. Negative coefficients are expected if these difficulties deter managers from supplying revenue guidance.

We use two indicators to capture the nature of earnings guidance news. The press and commercial databases (e.g., *earningswhispers.com* and First Call) typically classify earning guidance into good news, in line, and bad news. Consistent with First Call before 2008, we define earnings guidance as good news (*GoodEPS*=1) if the point estimate or the lower end of the range estimates exceeds the most recent analyst consensus before the guidance. Earnings guidance is bad news (*BadEPS*=1) if the point estimate or the upper end of the range estimates is below the analyst consensus. The remaining earnings guidance is referred to as “in-line guidance” and takes the value of 0 for *GoodEPS* and *BadEPS*. A positive coefficient for *GoodEPS* would indicate that firms with good-news earnings guidance are more likely to disaggregate guidance than those with in-line guidance. A positive coefficient on *BadEPS* would indicate that firms with bad-news earnings guidance are more likely to disaggregate guidance than those with in-line guidance. To determine

\(^{18}\) *VarSale* = \[
[(|S_{t-1} - S_{t-1}| + |S_{t-1} - S_{t-2}| + |S_{t-2} - S_{t-3}|)/3] / (S_{t} + S_{t-1} + S_{t-3})/3
\], where *S* is annual sales. The numerator is similar to a variance measure except that the lagged value instead of the mean is subtracted in calculating each difference term and that the differences are not squared to avoid undue influence of large differences. The denominator is a scalar to account for cross-sectional differences in size.
whether good-news firms are more likely to disaggregate guidance than bad-news firms, we examine whether the coefficient for GoodEPS is more positive than that for BadEPS.\(^{19}\)

We measure analyst revenue forecast optimism, OptimSale, as the difference between the pre-guidance IBES revenue consensus and the realized revenue, scaled by the realization.\(^{20}\) If firms with more optimistic analyst revenue forecasts are more likely to disaggregate earnings guidance, we expect a positive coefficient for OptimSale.

Table 4 presents sample means of the explanatory variables in Equation (1) for each disaggregation group. The last column reports the results of statistical tests between the disaggregating and non-disaggregating groups. Compared with non-disaggregating firms, disaggregating firms have significantly lower earnings usefulness (lower earnings-return correlation and higher R&D intensity), higher revenue usefulness, higher institutional ownership, a greater magnitude of earnings news, less industry competition, more analyst difficulty in predicting earnings, and less analyst difficulty in predicting revenue. Table 4 also presents firm size, analyst following for earnings, and analyst following for revenue for descriptive purposes. There is no size difference between disaggregating and non-disaggregating firms, but disaggregating firms have slightly higher analyst coverage for both earnings and revenue. Table 5 presents the Spearman correlations of the variables in Equation (1).

Table 6 reports the probit estimation, where the dependent variable is 1 for disaggregating firms and 0 for non-disaggregating firms and the estimation is robust to heteroskedasticity and within-firm error correlations.\(^{21}\) The marginal effect is calculated as

\(^{19}\) Han and Wild (1991) and Hutton et al. (2003) partition their samples by good vs. bad news and implicitly use dummies in their research designs.

\(^{20}\) Our results are similar if we use an indicator variable for analyst optimism in forecasting revenue.

\(^{21}\) The procedure is implemented in Stata by adding the “cluster” option in the probit estimation.
the change in probability of a firm’s being in the disaggregating group if a non-indicator variable changes from the 25th to 75th percentile or an indicator variable changes from 0 to 1, while the other non-indicator variables are held constant at the sample mean and the other indicator variables are held at 0. Among the demand-and-supply factors, earnings usefulness (ERcorr and R&D) is statistically significant in the predicted direction, indicating that low earnings relevance is associated with disaggregation. [GuideNews] is weakly positively associated with the likelihood of disaggregation. These findings are consistent with demand-related factors contributing to DEG.

The coefficient on DisperSale is negative, suggesting that managers are more likely to provide DEG when the uncertainty of revenue predictions is low—a supply-side consideration. However, VarSale is statistically insignificant, suggesting no difference in revenue volatility between disaggregating and non-disaggregating firms and clouding the sales-related supply-factor explanation for DEG.22

None of the strategic factors have significant explanatory power. The Wald test indicates that the coefficients on GoodEPS and BadEPS are not statistically different from each other and do not support prior findings that supplementary information is more likely to accompany good-news than bad-news earnings guidance. Therefore, we do not find evidence supporting strategic disclosure factors.

(b) Ordered-probit Analysis

We next consider two independent modifications of Equation (1). Both have three ordered levels of the dependent variable. In the first we add the earnings and expense guidance group to the model; in the second we add the earnings and revenue guidance

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22 VarSale remains statistically insignificant if DisperSale is excluded from the probit estimation.
group. Table 7 reports the test results. A positive coefficient in the ordered probit model indicates a shift of the distribution to the right toward more disaggregation as the variable increases; the opposite is true for a negative coefficient. The left columns in Table 7 (Model 1) use non-disaggregating (the lowest level of the dependent variable), “earnings and expense guidance,” and disaggregating firms (the highest level of the dependent variable). In addition to the coefficients that are significant in the probit analysis, $RRcorr$ and $IO$ are now weakly positively significant, consistent with demand factors contributing to DEG. The right columns (Model 2) replace “earnings and expense guidance” firms with “earnings and revenue guidance” firms. Although the coefficient on $GoodEPS$ is significantly positive, it is not statistically different from that on $BadEPS$ (the Wald test $\chi^2$ is 1.07). Our inferences are largely unchanged from the prior probit analysis.

(c) Stickiness of earnings guidance disaggregation

If the decision to disaggregate guidance is driven by demand-and-supply factors, which exhibit little change from year to year, DEG is expected to be sticky. Table 8 presents the DEG transition matrix from 2006 to 2007. Among firms providing earnings guidance, the disaggregating group is most persistent, with 69.3% of the group continuing the practice in 2007. The non-disaggregating group comes next with 61.1% of its member firms maintaining the practice in the subsequent year. For the 15 firms that changed from “disaggregating” to “no guidance,” we find that three were facing accounting investigations in the second sample year, three firms announced they were ceasing annual guidance because of high uncertainty in forecasting, and one firm was involved in M&A activities. It thus appears that guidance disaggregation is reasonably persistent and that it takes a significant event to change it.
In comparison, Chen et al. (2002) report that during 1992-1995 once a firm started to include balance-sheet data in the earnings announcement, 65.0% of the firms continued the practice throughout the remaining sample period. They conclude that the disclosure practice is sticky. Other studies, however, note that disclosure practices are sporadic. Hutton et al. (2003) find that among the 46 firms that issued earnings guidance multiple times during 1993-1997, only five firms consistently accompanied earnings guidance with verifiable forward-looking statements. The lack of consistency is probably due to their data collection at non-earnings announcement dates only. Wasley and Wu (2006) report that 65% (23%) of their firms issued cash flow guidance only once (twice) during 1999-2003. Our finding of moderate stickiness of DEG is consistent with our previous finding that DEG is driven by demand-and-supply factors.

(ii) Effects of Disaggregation on Analyst Forecasts

In Panel A of Table 9 we present the speed of individual analysts’ earnings estimate revisions after the disclosure event. Within two days of the event, 50.2% (32.3%) of the analysts with outstanding estimates for disaggregating (non-disaggregating) firms have revised their forecasts. The difference is statistically significant ($\chi^2=160.02$). Panel B shows the speed of analysts’ revenue estimate revisions after the disclosure event. The percentages of revisions within two days are 59.5% (43.1%) for disaggregating (non-disaggregating) firms. The difference is statistically significant ($\chi^2=90.02$). These results suggest that the additional information provided in DEG is associated with analysts more rapidly updating their forecasts.

We further test the differential analyst earnings revision speed in Equation (2):

$$
\text{LogDays} = b_0 + b_1 \text{DEG} + b_2 |\text{GuideNews}| + b_3 \text{OLD} + b_4 \text{GoodEPS} + b_5 \text{BadEPS} + \epsilon
$$

(2)
LogDays is the logarithm of (DAYS+1), where DAYS is the number of days after the disclosure event that an analyst revises an earnings estimate. We add 1 to accommodate revisions made on the event date. We control for the magnitude of earnings guidance news because we expect analysts to be more responsive to more news. We control for the number of days the analyst’s estimate was outstanding before the guidance (OLD) because analysts are expected to revise stale forecasts more quickly than recent forecasts. We control for the nature of earnings guidance (GoodEPS and BadEPS) in case analyst revision speed is asymmetric for good and bad news.23

We use the “robust regression” estimation method (also “MM-estimation”), which is robust to normality violations and outliers in the dependent and independent variables (Anderson 2008). The method is superior to traditional methods such as winsorization and truncation because it deals with outliers in a multivariate distribution, whereas winsorization/truncation deals with outliers in a univariate distribution. Leone, Minutti-Meza, and Wasley (2012) demonstrate that because of its effectiveness and efficiency the robust regression estimation method is the best choice when the distributions of regression variables are problematic. The estimation is conducted in iterations (in each iteration, influential observations are set aside or downweighted) until the estimated coefficients converge.24 If outliers and normality violations are not serious concerns, the robust-regression estimation achieves about 95% of the efficiency of the OLS estimation. We use this method because we are concerned about normality violations when the dependent variable is nonnegative.25 Panel C of Table 9 reports a

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23 We interact DEG with GoodEPS and BadEPS and find no difference in the coefficients (untabulated).
24 The estimation is implemented by the “rreg” procedure in Stata.
25 When the error term is assumed to be normally distributed, any value of the dependent variable should be possible. By definition, our dependent variable cannot be negative, violating the normality assumption.
negative coefficient on \( DEG \), suggesting that \( DEG \) is strongly associated with analyst revision speed.

We use Equation (3) to examine whether analysts revise their earnings estimates by a greater magnitude for disaggregating than for non-disaggregating firms:

\[
|\text{Revision}| = b_0 + b_1 \text{DEG} + b_2 |\text{GuideNews}| + b_3 \text{ReviseLag} + b_4 \text{GoodEPS} + b_5 \text{BadEPS} + \epsilon \quad (3)
\]

|\( \text{Revision} |\) is the absolute difference between an analyst’s first estimate after the disclosure event and his last estimate before the event, scaled by the absolute realization. Most of the control variables are the same as in Equation (2). We replace \( OLD \) with \( \text{ReviseLag} \), which is measured as the number of days between the analyst’s last forecast before the disclosure event and his first forecast after the event. The longer this period, the more information that has been accumulated and thus the larger the expected magnitude of revision. We use the robust-regression method because of our concerns with outliers after scaling and normality violations by the positively valued dependent variable. Panel D of Table 9 reports that \( DEG \) is positively associated with \( |\text{Revision}| \), suggesting that disaggregation induces analysts to revise their earnings estimates to a larger degree.

We use Equation (4) to examine whether analysts improve their forecast accuracy to a larger degree for disaggregating than for non-disaggregating firms after the corporate disclosure:

\[
\Delta \text{Accuracy} = b_0 + b_1 \text{DEG} + b_2 |\text{GuideNews}| + b_3 \text{ReviseLag} + \epsilon \quad (4)
\]

\( \Delta \text{Accuracy} \) is the difference between an analyst’s forecast error before and after the disclosure. Forecast error before the disclosure is the absolute difference between an analyst’s last forecast before the disclosure and the realization. Forecast error after the disclosure is the absolute difference between an analyst’s first forecast after the disclosure and the realization. Both errors are scaled by the absolute realization. We control for
and expect a larger improvement in analyst forecast accuracy when the management news is greater. We control for ReviseLag, expecting greater improvement in forecast accuracy if the time between an analyst’s two forecasts is larger. We use the robust-regression method because of our concerns with outliers after scaling. Panel E of Table 9 reports that DEG is not associated with ΔAccuracy, suggesting that DEG has no effect on analyst forecast accuracy changes.

Last, we compare the reduction of analyst disagreement for disaggregating and non-disaggregating firms. We measure changes in disagreement by comparing analyst forecast dispersion in the first consensus after the disclosure event with that in the last consensus before the event, scaled by the absolute realization. Panel F of Table 9 shows that for earnings estimates the reduction is significantly larger for disaggregating than for non-disaggregating firms and that for revenue estimates the reduction is weakly significantly larger for disaggregating firms.

Our results suggest that DEG affects several aspects of analysts’ activities. We find that analysts revise earnings and revenue estimates more rapidly. Forecast accuracy is not all that matters; if it were, analysts would wait to revise their estimates because the longer they wait, the more information they will have. Clement and Tse (2003) find that investors are willing to trade off forecast accuracy for timeliness. Timely estimates help reduce or resolve uncertainty for investors. We find no effect of DEG on analyst forecast accuracy, suggesting that even though analyst revisions are more timely for disaggregating firms, they are not less accurate. Our finding of greater magnitudes of analyst revisions for disaggregating than for non-disaggregating firms suggests that more useful information is available to analysts of disaggregating firms. Our finding of less disagreement among analysts for disaggregating
firms’ earnings and revenue than for non-disaggregating firms’ suggests that DEG reduces analysts’ difficulties in estimating earnings and revenue. Overall, the findings suggest that DEG facilitates the activities of analysts.

(iii) Effects of Disaggregation on the Firm

First, we examine in Equation (5) whether DEG helps quickly align analyst expectations with managers’ estimates:

\[
|\text{Deviate}| = b_0 + b_1 \text{DEG} + b_2 \text{DisperEPS} + b_3 \text{VarEPS} + b_4 \text{GoodEPS} + b_5 \text{BadEPS} + \varepsilon
\]

\(|\text{Deviate}|\) is the absolute difference between an analyst’s earnings estimate after the disclosure event and the company’s earnings estimate, scaled by the absolute realization. The company’s estimate is the non-GAAP earnings guidance if it is available and the GAAP earnings guidance otherwise. We control for uncertainty in predicting earnings, measured by \(\text{DisperEPS}\) and \(\text{VarEPS}\), and expect larger deviations in a more uncertain environment. \(\text{DisperEPS}\) has been defined for Equation (1) and \(\text{VarEPS}\) is similarly defined as \(\text{VarSale}\) in Equation (1) but uses earnings instead of sales. We control for the nature of earnings guidance news by including \(\text{GoodEPS}\) and \(\text{BadEPS}\) in case the deviations are asymmetric for good and bad news. We use the robust-regression method because of concerns with outliers after scaling and normality violations by the positively valued dependent variable. Panel A of Table 10 reports that the coefficient on \(\text{DEG}\) is weakly significantly negative,

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26 Disagreement reduction also benefits the firm and its investors. The finance literature has documented that opinion divergence may lead to mispricing (Miller 1977; Diether, Malloy, and Scherbina 2002). Many CFOs interviewed for Graham, Harvey, and Rajgopal (2005, p.54) admitted that “reducing uncertainty about the firm’s prospects is the most important motivation for making voluntary disclosures.”

27 Unlike Chen et al. (2008), we find no evidence that disaggregating firms’ earnings forecast errors are larger than those of non-disaggregating firms (untabulated). In our test we control for earnings volatility and analyst earnings forecast dispersion before the disclosure and both variables strongly explain cross-sectional differences in managers’ forecast errors. Note that our Equation (4) examines analysts’ forecast error rather than managers’ error.
suggesting that analysts’ revised estimates might be more aligned with managers’ estimates for disaggregating than for non-disaggregating firms.

Second, we examine whether disaggregating firms experience better outcomes than non-disaggregating firms in meeting or slightly beating the most recent analyst earnings and revenue estimates at the subsequent annual earnings announcement date. The expectations management literature has documented an investor focus on benchmarks, implying that meeting/beating analyst expectations is more important than the magnitude by which the benchmark is beat (Bartov, Givoly, and Hayn 2002). Successful expectations alignment may lead to meeting or slightly beating analyst expectations. We define “slightly beat” using the 75th percentile of the empirical distributions of EPSSurprise and SaleSurprise. EPSSurprise is the difference between realized earnings and the latest analyst consensus before the earnings announcement, scaled by the stock price at the beginning of the year. SaleSurprise is the difference between realized revenue and the latest consensus before the earnings announcement, scaled by the market value of common equity at the beginning of the year. The 75th percentile of EPSSurprise for our sample is 0.0015 and that of SaleSurprise is 0.005. We classify a firm as “meeting or slightly beating analyst earnings expectations” if EPSSurprise is between 0 and 0.0015 and “meeting or slightly beating analyst revenue expectations” if SaleSurprise is between 0 and 0.005. Panel B of Table 10 shows that 56.4% of disaggregating firms and 42.2% of non-disaggregating firms meet or slightly beat analyst earnings expectations. This difference is statistically significant with a p value of 0.016. The percentages of firms in the “meet or slightly beat” revenue category are 37.2% for disaggregating firms and 17.6% for non-disaggregating firms. The difference is strongly
statistically significant with a p value of 0.000. Thus, it appears that disaggregation helps managers achieve desirable outcomes in managing analyst expectations.  

Finally, we examine whether firms incur costs for providing DEG but failing to meet or beat analyst expectations. We follow the model in Rees and Sivaramakrishnan (2007, Table 6) and use Equation (6). We estimate the model separately for disaggregating and non-disaggregating firms because we are interested in the variation of penalties for missing benchmarks within the same disaggregating group (whose members face similar demand-and-supply factors).

\[
\text{CAR} = c_0 + c_1 \text{EPSSurprise} + c_2 \text{SaleSurprise} + c_3 \text{MissEPSonly} + c_4 \text{MissSaleonly} \\
+ c_5 \text{MissBoth} + \varepsilon 
\] (6)

We regress the three-day market-adjusted returns (\( \text{CAR} \)) on \( \text{EPSSurprise} \), \( \text{SaleSurprise} \), and three dummies representing missing analyst expectations. \( \text{MissEPSonly} \) is 1 if a firm misses the earnings consensus but not the revenue consensus and 0 otherwise. \( \text{MissSaleonly} \) is 1 if a firm misses the revenue consensus but not the earnings consensus and 0 otherwise. \( \text{MissBoth} \) is 1 if a firm misses both analyst earnings and revenue consensuses and 0 otherwise. We use the robust-regression method because of outliers after scaling the surprise variables. Table 11 shows that for disaggregating firms, after controlling for surprises, missing both earnings and revenue benchmarks is associated with a significantly negative return of \(-3.2\%\) (\( t = -2.22 \)), whereas missing only the earnings expectation is associated with a return of \(-1.1\%\) (\( t = -0.80 \)), which is insignificantly different from 0. We find no significant penalties arisen from missing both earnings and revenue forecasts for

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28 Our disclosure model suggests that analyst optimism in revenue forecasts before the guidance event has no explanatory power for disaggregation. However, we show in the consequence test that disaggregating firms meet or beat analyst revenue expectations more often than do non-disaggregating firms. These results are not conflicting. The disclosure model is estimated at the beginning of the fiscal year, while the consequence test is conducted at the end of the fiscal year.
non-disaggregating firms. This comparison suggests that although disaggregation helps managers adjust market expectations, managers will face some penalties if the alignment effort fails.

5. CONCLUSION

We collected annual earnings and earnings component guidance issued by S&P 500 firms in their earnings announcement press releases and conference calls. Almost a quarter of the sample firms provide disaggregated earnings guidance, consisting of earnings, revenue, and specific expenses. These firms account for 42% of those providing earnings guidance. We find that disaggregated earnings guidance is sticky and primarily associated with demand-and-supply factors: low decision-usefulness of earnings, a greater magnitude of earnings news, and lower sales uncertainty. We do not find evidence of strategic management motives for disaggregation.

We find that analysts respond to the additional information provided in disaggregated guidance. Subsequent to the disclosure event, analysts revise their earnings and revenue estimates more rapidly with no compromise of forecast accuracy and by a greater magnitude for disaggregating than for non-disaggregating firms. Disagreement among analysts decreases to a larger extent for the former group than for the latter. We also find that disaggregation allows managers to more successfully align analyst expectations with their own and experience more favorable outcomes of meeting or slightly beating earnings and revenue benchmarks at the subsequent annual earnings announcement. However, we also find that disaggregation appears to come with a cost: it increases investor disappointment when multiple targets are given but the expectations are missed. This, along
with our finding of the demand-and-supply disclosure determinants, explains why some but not all firms disaggregate earnings guidance.

Overall, our study provides evidence of the prevalence, determinants, and effects of disaggregated earnings guidance. We document that managers often use their voluntary disclosure discretion to provide information. In doing so, analysts experience fewer difficulties in forecasting earnings and revenue and firms better align analysts’ expectations with their own.
REFERENCES

APPENDIX A
Examples of Disaggregated Earnings Guidance

Example 1: Quest Diagnostics, earnings announcement press release, December 13, 2005

“In 2006, the Company expects:

-- diluted earnings per common share to be between $2.75 and $2.85, including the $0.20 per share estimated cost of adopting SFAS 123R,
-- revenues to grow between 12.5% and 13.5%,
-- the acquisition of LabOne is expected to contribute 8% revenue growth
-- NID is expected to reduce revenue growth by approximately 0.5%
-- operating income as a percentage of revenues to approximate 17%,
-- cash from operations to approximate $800 million,
-- capital expenditures to range from $225 million to $245 million,
-- amortization to approximate $10 million,
-- interest expense to approximate $100 million, and
-- the estimated impact of SFAS 123R to:
  -- reduce diluted earnings per common share by approximately $0.20,
  -- reduce operating income as a percentage of revenues by approximately 1%, and
  -- require the tax benefits associated with the exercise of stock options be included in cash flows from financing activities. In 2005, tax benefits from the exercise of stock options increased cash from operations by $33.8 million.”

Note: We coded the company as having provided GAAP earnings guidance (range), revenue guidance (range), amortization expense guidance (point), and interest expense guidance (point). The company is a disaggregating firm.

Example 2: L-3 Communications Holdings, earnings press release, January 31, 2006

“Financial Outlook for 2006:
The company also revised its financial guidance for the year ending December 31, 2006, as follows:

-- sales in excess of $12 billion including all acquisitions completed to date and SAM Electronics. The 2006 sales includes estimated organic sales growth for the year of between 8% and 10%, although actual organic sales growth could vary significantly each quarter;
-- diluted EPS of between $4.80 and $4.95, with operating margin of approximately 10.2%, interest expense of approximately $290 million, an estimated effective income tax rate of between 37.0% and 37.5% and weighted average diluted shares outstanding slightly above 123 million. The company’s diluted EPS and operating margin estimates for 2006 include the impact of adopting SFAS No. 123R, Share-Based Payment, which is expected to reduce diluted EPS for 2006 by approximately $0.20 and reduce operating margin by 30 basis points; and
-- free cash flow in excess of $800 million, comprised of net cash from operating activities in excess of $940 million, less net capital expenditures of about $140 million.”

Note: We coded the company as having provided GAAP earnings guidance (range), total revenue guidance (qualitative), comparable-store sales guidance (range), interest expense guidance (point), and effective tax rate guidance (range). The company is a disaggregating firm.
### Variable Definitions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEG</td>
<td>1 for disaggregating firms and 0 for non-disaggregating firms.</td>
</tr>
</tbody>
</table>

**1. Determinants of DEG**

**Demand and Supply factors:**

- **DisperEPS**  
  The standard deviation of analysts’ EPS forecasts for the forecasted year in the most recent consensus from the IBES summary data before the disclosure event, scaled by the absolute realization.

- **DisperSale**  
  The standard deviation of analysts’ revenue forecasts for the forecasted year in the most recent consensus from the IBES summary data before the disclosure event, scaled by the absolute realization.

- **ERcorr**  
  The Spearman correlation of quarterly stock returns and seasonal EPS changes, scaled by the price at the beginning of the quarter, in the 20 quarters before the disclosure event.

- **[GuideNews]**  
  The absolute difference between the company’s earnings estimate (the midpoint is used for range estimates) and the most recent analyst consensus from the IBES summary data before the disclosure event, scaled by the absolute realization. The value is missing for low-precision range estimates (e.g., “we expect mid- to high single-digit earnings growth”).

- **Herf**  
  The original Herfindahl index is calculated as the sum of squared product market shares (using sales for the year that has just ended) of firms in the 48-Fama-French industry. The lower bound for this measure is 1/N, where N is the number of firms in the industry. We normalize the measure so that the variable has a lower bound of 0 for all industries.

- **IO**  
  The percentage of shares owned by institutional investors for the most recent fiscal quarter before the disclosure event.

- **RRcorr**  
  The Spearman correlation of quarterly stock returns and seasonal revenue changes, scaled by the market value at the beginning of the quarter, in the 20 quarters before the disclosure event.

- **R&D**  
  The R&D expenditures as a percentage of total assets for the year that has just ended.

- **VarSale**  
  The average annual absolute change in sales in the past three years, scaled by average sales in the three-year period.

**Opportunistic factors:**

- **BadEPS**  
  1 if a firm’s point earnings guidance or the upper end of range guidance is lower than the most recent analyst consensus before the disclosure event and 0 otherwise. We assign 0 to a few firms providing low-precision range estimates (e.g., “we expect mid- to high single-digit earnings growth”).

- **GoodEPS**  
  1 if a firm’s point earnings guidance or the lower end of range guidance is higher than the most recent analyst consensus before the disclosure event and 0 otherwise. We assign 0 to a few firms providing low-precision range estimates (e.g., “we expect mid- to high single-digit earnings growth”).

- **OptimSale**  
  The difference between the most recent mean analyst revenue consensus from the IBES summary data before the disclosure event and the realized revenue, scaled by the absolute realization.
2. Effects of DEG on analyst behaviors

|Deviate| The absolute difference between an analyst’s first earnings forecast after the disclosure event and the company’s earnings estimate (the midpoint of range guidance is used), scaled by the absolute realization. The value is missing for low-precision range estimates (e.g., “we expect mid- to high single-digit earnings growth”).

ΔDisperEPS The difference between analyst disagreement in the first analyst earnings consensus (from the IBES summary data) after the disclosure event and that in the last analyst consensus before the disclosure event, scaled by the absolute realization.

ΔDisperSale The difference between analyst disagreement in the first analyst revenue consensus after the disclosure event and that in the last analyst consensus before the disclosure event, scaled by the absolute realization.

ΔAccuracy The difference between an analyst’s earnings forecast error before the disclosure and his forecast error after the disclosure. Forecast error before the disclosure is the absolute difference between his last forecast before the disclosure and the realization. Forecast error after the disclosure is the absolute difference between his first forecast after the disclosure and the realization. Both errors are scaled by the absolute realization.

LogDays Is \(\log(DAYS+1)\), where \(DAYS\) is the number of days after the disclosure event that it takes an analyst to revise his earnings estimate. We add 1 to accommodate revisions made on the disclosure date.

OLD The number of days that the analyst’s pre-event estimate was outstanding until the disclosure date.

ReviseLag The number of days between an analyst’s last forecast before the disclosure event and his first forecast after the disclosure.

|Revision| The magnitude of an analyst’s revision of earnings estimate for the subsequent year after the disclosure event. “Revision” is calculated as the difference between an analyst’s first estimate issued after the disclosure and his last estimate issued before it, scaled by the absolute realization.

3. Effects of DEG on the firm

CAR The three-day market-adjusted return around the earnings announcement of the forecasted year.

EPSSurprise The realized earnings of the forecasted year minus the latest analyst consensus from the IBES summary data before the earnings announcement of the forecasted year, scaled by the stock price at the beginning of the year.

MissBoth 1 if a firm misses both analysts’ earnings and revenue expectations and 0 otherwise.

MissEPSonly 1 if a firm misses analysts’ earnings expectations but not revenue expectations and 0 otherwise.

MissSaleonly 1 if a firm misses analysts’ revenue expectations but not earnings expectations and 0 otherwise.

SaleSurprise The realized revenue of the forecasted year minus the latest consensus from the IBES summary data before the earnings announcement of the forecasted year, scaled by the market value of common equity at the beginning of the year.
FIGURE 1
Outline of Research Issues

Demand/Supply factors

- Decision-usefulness of earnings
- Decision-usefulness of revenue
- Institutional ownership
- Magnitude of earnings news

Supply
- Industry competition

Demand or Supply
- Difficulties in predicting earnings
- Difficulties in predicting revenue

Strategic factors
- Nature of news
- Analyst revenue optimism

Disaggregated Earnings Guidance

Effects on analyst forecasts
- Speed of forecast revision
- Magnitude of earnings revision
- Change in forecast accuracy
- Change in forecast dispersion

Effects on the firm
- Expectations alignment
- Expectations meeting/ beating
- Costs of forecasting but missing

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TABLE 1
Frequency of Firms Providing Earnings and Earnings Component Guidance

<table>
<thead>
<tr>
<th>Category</th>
<th>Type</th>
<th>2006 (488 firms)</th>
<th>2007 (480 firms)</th>
<th>Pooled (968 firm-years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings</td>
<td>Earnings</td>
<td>291 (59.6%)</td>
<td>266 (55.4%)</td>
<td>557 (57.5%)</td>
</tr>
<tr>
<td>Revenue</td>
<td>Revenue</td>
<td>188 (38.5%)</td>
<td>176 (36.7%)</td>
<td>364 (37.6%)</td>
</tr>
<tr>
<td>Costs of Goods Sold</td>
<td></td>
<td>51 (10.5%)</td>
<td>60 (12.5%)</td>
<td>111 (11.5%)</td>
</tr>
<tr>
<td>Research &amp; Development</td>
<td></td>
<td>32 (6.6%)</td>
<td>34 (7.1%)</td>
<td>66 (6.8%)</td>
</tr>
<tr>
<td>Selling, General, and Admin.</td>
<td></td>
<td>56 (11.5%)</td>
<td>62 (12.9%)</td>
<td>118 (12.2%)</td>
</tr>
<tr>
<td>Depreciation Expense</td>
<td></td>
<td>68 (13.9%)</td>
<td>62 (12.9%)</td>
<td>130 (13.4%)</td>
</tr>
<tr>
<td>Interest Expense</td>
<td></td>
<td>68 (13.9%)</td>
<td>66 (13.8%)</td>
<td>134 (13.8%)</td>
</tr>
<tr>
<td>Effective Tax Rate</td>
<td></td>
<td>198 (40.6%)</td>
<td>194 (40.4%)</td>
<td>392 (40.5%)</td>
</tr>
<tr>
<td>Amortization Expense</td>
<td></td>
<td>28 (5.7%)</td>
<td>25 (5.2%)</td>
<td>53 (5.5%)</td>
</tr>
<tr>
<td>Other Recurring Items</td>
<td></td>
<td>155 (31.8%)</td>
<td>160 (33.3%)</td>
<td>315 (32.5%)</td>
</tr>
</tbody>
</table>

Notes:
2. Earnings guidance is a forecast of GAAP and non-GAAP earnings per share, earnings growth, or total earnings. Revenue guidance is a forecast of total sales, comparable store sales, or organic sales. Specific expense guidance is a forecast of a recurring cost/expense, including costs of goods sold (gross margin), research & development, selling, general, and administrative expenses, depreciation, interest, and effective tax rate. We also code forecasts of amortization expense and other specified recurring expense items. The code for “other recurring items” may repeat for a firm-year.
3. Guidance is in the form of point or range estimates. Occasionally, firms express guidance in a less specified range, such as, “expect mid- to high single-digit revenue growth”; we include such guidance and refer to it as “low-precision range guidance.”
<table>
<thead>
<tr>
<th>Descriptions</th>
<th>Obs.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. Provide no earnings guidance</td>
<td>411</td>
<td>42.5%</td>
</tr>
<tr>
<td>1. Provide earnings guidance, but no revenue or expense guidance</td>
<td>102</td>
<td>10.5%</td>
</tr>
<tr>
<td>(“non-disaggregating firms”)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Provide earnings guidance and a major expense forecast, but no revenue</td>
<td>123</td>
<td>12.7%</td>
</tr>
<tr>
<td>guidance (“partially disaggregating firms”)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Provide earnings guidance and revenue guidance, but no expense guidance</td>
<td>98</td>
<td>10.1%</td>
</tr>
<tr>
<td>(“partially disaggregating firms”)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Provide earnings, revenue, and a major expense forecast</td>
<td>234</td>
<td>24.2%</td>
</tr>
<tr>
<td>(“disaggregating firms”)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>968</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note: We treat two minor expense forecasts as one major expense forecast for classifying firms into disaggregation groups.
## TABLE 3
Industry Distribution of Disaggregation Groups for Forecasted Fiscal Year 2007

<table>
<thead>
<tr>
<th>Industry</th>
<th>No Earnings Guidance</th>
<th>Non-disaggregating Earnings &amp; Expense</th>
<th>Earnings &amp; Revenue</th>
<th>Disaggregating Total</th>
<th>Total</th>
<th>Disag. Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Services</td>
<td>10</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>16</td>
<td>16.1%</td>
</tr>
<tr>
<td>Retail</td>
<td>9</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td>13</td>
<td>16.1%</td>
</tr>
<tr>
<td>Utilities</td>
<td>6</td>
<td>19</td>
<td>7</td>
<td>0</td>
<td>1</td>
<td>5.8%</td>
</tr>
<tr>
<td>Commercial Banks</td>
<td>23</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4.7%</td>
</tr>
<tr>
<td>Chips</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>7.8%</td>
</tr>
<tr>
<td>Insurance</td>
<td>13</td>
<td>7</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>5.1%</td>
</tr>
<tr>
<td>Energy</td>
<td>21</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Drugs</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>14</td>
<td>5.2%</td>
</tr>
<tr>
<td>Computers</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>2.7%</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>9</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>3.0%</td>
</tr>
<tr>
<td>Invest. &amp; Trading</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>3.0%</td>
</tr>
<tr>
<td>Machinery</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>3.2%</td>
</tr>
<tr>
<td>Food</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>2.0%</td>
</tr>
<tr>
<td>Auto</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>2.9%</td>
</tr>
<tr>
<td>Chemical</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1.8%</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2.0%</td>
</tr>
<tr>
<td>Lab Equipment</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6.4%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>6.4%</td>
</tr>
<tr>
<td>Medical Equipment</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>8.7%</td>
</tr>
<tr>
<td>Wholesale</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>6.4%</td>
</tr>
<tr>
<td>Other</td>
<td>39</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>23</td>
<td>24.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>214</strong></td>
<td><strong>48</strong></td>
<td><strong>57</strong></td>
<td><strong>41</strong></td>
<td><strong>120</strong></td>
<td><strong>50.0%</strong></td>
</tr>
</tbody>
</table>

Note: The industry classifications follow the Fama-French 48-industry groupings, updated on Professor Kenneth French’s website (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french). For homogeneity we modify their mechanism by moving real estate investment trusts (REIT, SIC=6798) from “Investment & Trading” to “Real Estate” and by separating hotels from Restaurants to form a new industry group. The table displays Top 20 industries with the largest number of S&P 500 firms.
<table>
<thead>
<tr>
<th>Variable</th>
<th>No Earnings Guidance</th>
<th>Non-disaggregating Earnings and Expense</th>
<th>Earnings and Revenue</th>
<th>Disaggregating Earnings and Revenue</th>
<th>T-test (“disag.”-“non-disag.”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERcorr</td>
<td>0.078</td>
<td>0.115</td>
<td>0.030</td>
<td>0.059</td>
<td>0.022</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>0.026</td>
<td>0.008</td>
<td>0.010</td>
<td>0.021</td>
<td>0.034</td>
</tr>
<tr>
<td>RRcorr</td>
<td>0.083</td>
<td>0.043</td>
<td>0.047</td>
<td>0.142</td>
<td>0.121</td>
</tr>
<tr>
<td>IO</td>
<td>0.755</td>
<td>0.729</td>
<td>0.741</td>
<td>0.782</td>
<td>0.805</td>
</tr>
<tr>
<td>[GuideNews]</td>
<td>N/A</td>
<td>0.103</td>
<td>0.467</td>
<td>0.184</td>
<td>0.356</td>
</tr>
<tr>
<td>Herf</td>
<td>0.054</td>
<td>0.037</td>
<td>0.051</td>
<td>0.080</td>
<td>0.054</td>
</tr>
<tr>
<td>DisperEPS</td>
<td>0.115</td>
<td>0.036</td>
<td>0.070</td>
<td>0.045</td>
<td>0.075</td>
</tr>
<tr>
<td>DisperSale</td>
<td>0.040</td>
<td>0.057</td>
<td>0.040</td>
<td>0.027</td>
<td>0.023</td>
</tr>
<tr>
<td>VarSale</td>
<td>0.154</td>
<td>0.115</td>
<td>0.135</td>
<td>0.134</td>
<td>0.121</td>
</tr>
<tr>
<td>GoodEPS</td>
<td>N/A</td>
<td>21.6%</td>
<td>32.5%</td>
<td>19.3%</td>
<td>35.5%</td>
</tr>
<tr>
<td>BadEPS</td>
<td>N/A</td>
<td>29.4%</td>
<td>38.2%</td>
<td>27.5%</td>
<td>36.8%</td>
</tr>
<tr>
<td>OptimSale</td>
<td>-0.006</td>
<td>-0.001</td>
<td>-0.010</td>
<td>0.006</td>
<td>-0.005</td>
</tr>
<tr>
<td>MVE</td>
<td>26,276</td>
<td>19,628</td>
<td>24,321</td>
<td>29,643</td>
<td>20,542</td>
</tr>
<tr>
<td>Analyst Following (earnings)</td>
<td>18</td>
<td>15</td>
<td>14</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Analyst Following (revenue)</td>
<td>12</td>
<td>8</td>
<td>10</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Obs.</td>
<td>411</td>
<td>102</td>
<td>123</td>
<td>98</td>
<td>234</td>
</tr>
</tbody>
</table>

Note: See Appendix B for variable definitions. The continuous variables are winsorized at 1% and 99% except that positive variables are winsorized at 99%. We additionally collect three variables for descriptive purposes. Market value of equity (MVE) is measured at the end of the fiscal year that has just ended. Analyst following for earnings (revenue) is the number of analysts whose EPS (revenue) estimates for the forecasted fiscal year are included in the most recent consensus from the IBES summary data before the disclosure event.
### TABLE 5
Spearman Correlations

|        | ERcorr | R&D | RRcorr | IO | |GuideNews| | Herf | DisperEPS | DisperSale | VarSale | GoodEPS | BadEPS | OptimSale |
|--------|--------|-----|--------|----| |         | |      |         |           |         |         |        |           |
| DEG    | -0.168 | 0.392 | 0.129  | 0.207 | 0.036 | 0.388 | 0.033 | -0.473 | 0.065 | 0.141 | 0.066 | 0.001 |
| ERcorr | -0.025 | 0.106 | -0.053 | 0.104 | 0.138 | 0.197 | 0.083 | -0.002 | 0.081 | 0.026 | 0.022 |
| R&D    | 0.168  | -0.041 | -0.055 | 0.369 | 0.018 | -0.200 | 0.133 | 0.048 | 0.109 | -0.154 |
| RRcorr | 0.009  | -0.027 | 0.121  | -0.120 | -0.235 | 0.009 | 0.056 | 0.019 | -0.030 |
| IO     | 0.220  | 0.077 | 0.231  | -0.095 | 0.068 | 0.118 | 0.103 | 0.037 |
| |        | -0.064 | 0.382  | 0.184  | -0.055 | 0.458 | 0.188 | 0.049 |
| Herf   | -0.098 | -0.339 | -0.063 | 0.060 | -0.032 | -0.078 |
| DisperEPS | 0.309 | 0.052 | 0.073 | 0.143 | 0.173 |
| DisperSale | 0.122 | -0.023 | 0.059 | 0.003 |
| VarSale | -0.005 | 0.127 | -0.106 |
| GoodEPS |        | -0.269 | -0.024 |
| BadEPS |        |        | 0.021 |

Note: See Appendix B for variable definitions. The correlations significant at 5% are bolded.
### TABLE 6
Probit Disclosure Model

\[
\text{Prob (DEG)} = f(a_0 + a_1 \text{ERcorr} + a_2 \text{R&D} + a_3 \text{RRcorr} + a_4 \text{IO} + a_5 |\text{GuideNews}| + a_6 \text{Herf} + a_7 \text{DisperEPS} + a_8 \text{DisperSale} + a_9 \text{VarSale} + a_{10} \text{GoodEPS} + a_{11} \text{BadEPS} + a_{12} \text{OptimSale} + \epsilon)
\]

<table>
<thead>
<tr>
<th>Predicted sign</th>
<th>Variable</th>
<th>Coefficient</th>
<th>z-stat.</th>
<th>Marginal effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand (-)</td>
<td>ERcorr</td>
<td>-1.413***</td>
<td>-3.11</td>
<td>-18.2%</td>
</tr>
<tr>
<td>Demand (+)</td>
<td>R&amp;D</td>
<td>10.245***</td>
<td>2.72</td>
<td>12.9%</td>
</tr>
<tr>
<td>Demand (+)</td>
<td>RRcorr</td>
<td>0.369</td>
<td>0.91</td>
<td>4.5%</td>
</tr>
<tr>
<td>Demand (+)</td>
<td>IO</td>
<td>0.863</td>
<td>1.21</td>
<td>5.8%</td>
</tr>
<tr>
<td>Demand (+)</td>
<td>GuideNews</td>
<td>0.666*</td>
<td>1.72</td>
<td>1.7%</td>
</tr>
<tr>
<td>Demand (+)</td>
<td>Supply (+)</td>
<td>1.047</td>
<td>0.27</td>
<td>1.1%</td>
</tr>
<tr>
<td>Demand (+)</td>
<td>Supply (-)</td>
<td>4.329</td>
<td>1.63</td>
<td>4.1%</td>
</tr>
<tr>
<td>Demand (+)</td>
<td>Supply (-)</td>
<td>-26.182***</td>
<td>-4.39</td>
<td>-22.5%</td>
</tr>
<tr>
<td>Demand (+)</td>
<td>Supply (-)</td>
<td>0.079</td>
<td>0.05</td>
<td>0.2%</td>
</tr>
<tr>
<td>Strategic</td>
<td>GoodEPS</td>
<td>0.251</td>
<td>1.03</td>
<td>8.4%</td>
</tr>
<tr>
<td>Strategic</td>
<td>BadEPS</td>
<td>0.287</td>
<td>1.45</td>
<td>9.5%</td>
</tr>
<tr>
<td>Strategic</td>
<td>+ OptimSale</td>
<td>0.263</td>
<td>0.30</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

Likelihood ratio test ($\chi^2_{12}$) 51.68***
McFadden Pseudo $R^2$ 37.0%
Number of Observations 290

Note: See Appendix B for variable definitions. ***, **, and * denote statistical significance at 1%, 5%, and 10% in a two-tailed test. The estimation allows for heteroskedasticity and within-firm error correlations. For a non-indicator variable, the marginal effect is the change in disaggregating probability when the variable changes from the 25th to 75th percentile while the other variables are held constant at the mean and the other indicator variables are held at 0. For an indicator variable, the marginal effect is the change in disaggregating probability when the variable changes from 0 to 1.
**TABLE 7**

Ordered-Probit Disclosure Model

\[
\text{Prob (DEG)} = f (a_0 + a_1 \text{ERcorr} + a_2 \text{R&D} + \ldots + a_7 \text{DisperEPS} + a_8 \text{DisperSale} + a_9 \text{VarSale} + a_{10} \text{GoodEPS} + a_{11} \text{BadEPS} + a_{12} \text{OptimSale} + \varepsilon)
\]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1 Coeff.</th>
<th>Model 2 Coeff.</th>
<th>z-stat.</th>
<th>z-stat.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept 1</td>
<td>-0.190</td>
<td></td>
<td></td>
<td>-0.372</td>
</tr>
<tr>
<td>Intercept 2</td>
<td>0.751</td>
<td></td>
<td></td>
<td>0.428</td>
</tr>
<tr>
<td>ERcorr</td>
<td>-0.871***</td>
<td>-0.946***</td>
<td>-2.99</td>
<td>-3.28</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>12.412***</td>
<td>7.034***</td>
<td>3.80</td>
<td>2.94</td>
</tr>
<tr>
<td>RRcorr</td>
<td>0.503*</td>
<td>0.189</td>
<td>1.71</td>
<td>0.64</td>
</tr>
<tr>
<td>IO</td>
<td>0.922*</td>
<td>0.677</td>
<td>1.87</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td>GuideNews</td>
<td>0.227*</td>
<td>0.133</td>
<td>1.71</td>
</tr>
<tr>
<td>Herf</td>
<td>-0.326</td>
<td>-0.518</td>
<td>-0.16</td>
<td>-0.56</td>
</tr>
<tr>
<td>DisperEPS</td>
<td>2.371</td>
<td>3.218</td>
<td>1.46</td>
<td>1.57</td>
</tr>
<tr>
<td>DisperSale</td>
<td>-13.605***</td>
<td>-16.380***</td>
<td>-5.01</td>
<td>-4.94</td>
</tr>
<tr>
<td>VarSale</td>
<td>0.326</td>
<td>-0.016</td>
<td>0.47</td>
<td>-0.02</td>
</tr>
<tr>
<td>GoodEPS</td>
<td>0.233</td>
<td>0.453**</td>
<td>1.40</td>
<td>2.48</td>
</tr>
<tr>
<td>BadEPS</td>
<td>0.105</td>
<td>0.150</td>
<td>0.77</td>
<td>1.60</td>
</tr>
<tr>
<td>OptimSale</td>
<td>0.414</td>
<td>0.327</td>
<td>0.61</td>
<td>0.48</td>
</tr>
<tr>
<td>Likelihood ratio test ($\chi^2_{12}$)</td>
<td>73.94***</td>
<td>81.19***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McFadden Pseudo $R^2$</td>
<td>18.1%</td>
<td>16.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Observations</td>
<td>392</td>
<td>373</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: See Appendix B for variable definitions. In Model 1, DEG takes three ordered values for non-disaggregating firms (the lowest value), those with earnings and expense guidance but no revenue guidance, and disaggregating firms (the highest value). In Model 2, DEG takes three ordered values for non-disaggregating firms (the lowest value), those with earnings and revenue guidance but no expense guidance, and disaggregating firms (the highest value). The estimation allows for heteroskedasticity and within-firm error correlations. ***, **, and * denote statistical significance at 1%, 5%, and 10% in a two-tailed test.
TABLE 8  
Transition Matrix of Earnings Guidance Disaggregation Groups

<table>
<thead>
<tr>
<th>Disaggregation</th>
<th>Year = 2007</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Missing</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>171</td>
<td>8</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>197</td>
</tr>
<tr>
<td></td>
<td>(86.8%)</td>
<td>(4.1%)</td>
<td>(1.0%)</td>
<td>(1.5%)</td>
<td>(2.5%)</td>
<td>(4.1%)</td>
<td>(100%)</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>33</td>
<td>7</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>54</td>
</tr>
<tr>
<td>1</td>
<td>7</td>
<td>4</td>
<td>36</td>
<td>2</td>
<td>16</td>
<td>1</td>
<td>66</td>
</tr>
<tr>
<td>Year=2006</td>
<td>14</td>
<td>2</td>
<td>1</td>
<td>23</td>
<td>15</td>
<td>2</td>
<td>57</td>
</tr>
<tr>
<td>2</td>
<td>(10.6%)</td>
<td>(6.1%)</td>
<td>(54.5%)</td>
<td>(3.0%)</td>
<td>(24.2%)</td>
<td>(1.5%)</td>
<td>(100%)</td>
</tr>
<tr>
<td></td>
<td>(24.6%)</td>
<td>(3.5%)</td>
<td>(1.8%)</td>
<td>(40.4%)</td>
<td>(26.3%)</td>
<td>(3.5%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>1</td>
<td>8</td>
<td>11</td>
<td>79</td>
<td>0</td>
<td>114</td>
</tr>
<tr>
<td></td>
<td>(13.2%)</td>
<td>(0.9%)</td>
<td>(7.0%)</td>
<td>(9.6%)</td>
<td>(69.3%)</td>
<td>(0.0%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>4</td>
<td>Subtotal</td>
<td>214</td>
<td>48</td>
<td>54</td>
<td>41</td>
<td>119</td>
<td>12</td>
</tr>
</tbody>
</table>

Note: The disaggregation indicator is 0 for firms without earnings guidance, 1 for non-disaggregating firms, 2 for firms with earnings and expense guidance but no revenue guidance, 3 for firms with earnings and revenue guidance but no expense guidance, and 4 for disaggregating firms. The total missing observations in the transition matrix is 12: four firms in the 2006 sample do not have data for 2007 and eight firms in the 2007 sample do not have data for 2006. The table shows the number (percentage in parenthesis) of firms in a disaggregation group for 2006 that maintains or changes disaggregation practice for 2007. For example, 79 disaggregating firms for 2006 continue to disaggregate earnings guidance for 2007 and this number accounts for 69.3% of this group in the 2006 sample.
TABLE 9  
Effects of Disaggregation on Analyst Forecasts

Panel A: Percentage of individual analysts revising earnings estimates

<table>
<thead>
<tr>
<th></th>
<th>Disaggregating firms</th>
<th>Non-disaggregating firms</th>
<th>Statistical difference ($\chi^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revise within 2 days</td>
<td>50.2%</td>
<td>32.3%</td>
<td>160.02***</td>
</tr>
<tr>
<td>Revise within (2, 5]</td>
<td>3.7%</td>
<td>4.7%</td>
<td></td>
</tr>
<tr>
<td>Revise within (5, 10]</td>
<td>2.4%</td>
<td>3.1%</td>
<td></td>
</tr>
<tr>
<td>Revise within (10, 90]</td>
<td>16.3%</td>
<td>19.9%</td>
<td></td>
</tr>
<tr>
<td>Revise within [90, 360]</td>
<td>7.8%</td>
<td>18.9%</td>
<td></td>
</tr>
<tr>
<td>No revision</td>
<td>19.7%</td>
<td>21.2%</td>
<td></td>
</tr>
<tr>
<td>Total individual forecasts</td>
<td>4,634</td>
<td>1,718</td>
<td></td>
</tr>
<tr>
<td>Firm-year observations</td>
<td>234</td>
<td>102</td>
<td></td>
</tr>
</tbody>
</table>

Panel B: Percentage of individual analysts revising revenue estimates

<table>
<thead>
<tr>
<th></th>
<th>Disaggregating firms</th>
<th>Non-disaggregating firms</th>
<th>Statistical difference ($\chi^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revise within 2 days</td>
<td>59.5%</td>
<td>43.1%</td>
<td>90.02***</td>
</tr>
<tr>
<td>Revise within (2, 5]</td>
<td>3.4%</td>
<td>5.4%</td>
<td></td>
</tr>
<tr>
<td>Revise within (5, 10]</td>
<td>1.6%</td>
<td>2.1%</td>
<td></td>
</tr>
<tr>
<td>Revise within (10, 90]</td>
<td>10.4%</td>
<td>16.4%</td>
<td></td>
</tr>
<tr>
<td>Revise within [90, 360]</td>
<td>4.2%</td>
<td>8.9%</td>
<td></td>
</tr>
<tr>
<td>No revision</td>
<td>20.9%</td>
<td>24.1%</td>
<td></td>
</tr>
<tr>
<td>Total individual forecasts</td>
<td>3,760</td>
<td>1,058</td>
<td></td>
</tr>
<tr>
<td>Firm-year observations</td>
<td>234</td>
<td>102</td>
<td></td>
</tr>
</tbody>
</table>

Panel C: Multivariate analysis of individual analysts’ speed in revising earnings estimates

\[
\text{LogDays} = b_0 + b_1 \text{DEG} + b_2 |\text{GuideNews}| + b_3 \text{OLD} + b_4 \text{GoodEPS} + b_5 \text{BadEPS} + \varepsilon
\]

2.657*** -1.050*** - 0.035 0.001*** -0.368*** -0.320***

(32.23) (-14.46) (-0.95) (3.34) (-5.05) (-4.73)

Model-fit F statistic = 61.76***  Number of observations = 4,854

Panel D: Multivariate analysis of individual analysts’ earnings estimate revisions

\[
|\text{Revision}| = b_0 + b_1 \text{DEG} + b_2 |\text{GuideNews}| + b_3 \text{ReviseLag} + b_4 \text{GoodEPS} + b_5 \text{BadEPS} + \varepsilon
\]

0.026*** 0.003*** 0.003*** 0.000 0.005*** 0.005***

(22.68) (2.96) (6.57) (1.14) (5.52) (5.98)

Model-fit F statistic = 26.91***  Number of observations = 4,854
### TABLE 9
(Continued)

Panel E: Changes in individual analysts’ earnings forecast accuracy

\[
\Delta \text{Accuracy} = b_0 + b_1 \text{DEG} + b_2 |\text{GuideNews}| + b_3 \text{ReviseLag} + \epsilon
\]

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>T-stat</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$b_0$</td>
<td>0.012***</td>
<td>7.41</td>
<td>0.000***</td>
</tr>
<tr>
<td>$b_1$</td>
<td>-0.000</td>
<td>-0.15</td>
<td>0.001*</td>
</tr>
<tr>
<td>$b_2$</td>
<td>0.001*</td>
<td>1.77</td>
<td>0.000***</td>
</tr>
<tr>
<td>$b_3$</td>
<td>0.000***</td>
<td>2.66</td>
<td></td>
</tr>
</tbody>
</table>

Model-fit F statistic = 3.44** Number of observations = 4,567

Panel F: Changes in analyst forecast dispersion (median)

<table>
<thead>
<tr>
<th></th>
<th>Disaggregating firms</th>
<th>Non-disaggregating firms</th>
<th>Wilcoxon Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\Delta \text{DisperEPS}$</td>
<td>-0.0058</td>
<td>-0.0023</td>
<td>-2.60***</td>
</tr>
<tr>
<td>$\Delta \text{DisperSale}$</td>
<td>-0.0038</td>
<td>-0.0024</td>
<td>-1.65*</td>
</tr>
</tbody>
</table>

Note: “[” and “]” mean the date is included; “(” and “)” mean the date is excluded. See Appendix B for variable definitions. The regression estimations are robust to outliers in the dependent and independent variables and violations of normality in the error term. ***, **, and * denote statistical significance at 1%, 5%, and 10% in a two-tailed test.
TABLE 10
Outcomes of Expectations Adjustments

Panel A: Individual expectations alignments after the disclosure event

\[ |\text{Deviate}| = b_0 + b_1\text{DEG} + b_2\text{DisperEPS} + b_3\text{VarEPS} + b_4\text{GoodEPS} + b_5\text{BadEPS} + \epsilon \]

\[
\begin{align*}
0.021^{***} & \quad -0.002^* \\
(18.94) & \quad (-1.73)
\end{align*}
\]

\[
\begin{align*}
0.172^{***} & \quad 0.011^{***} \\
(46.91) & \quad (5.22)
\end{align*}
\]

\[
\begin{align*}
0.004^{***} & \quad 0.001 \\
(4.21) & \quad (1.18)
\end{align*}
\]

Model-fit F statistic = 470.82*** Number of observations = 4,504

Panel B: Proportion of firms that meet or *slightly* beat analyst expectations at subsequent annual earnings announcement

<table>
<thead>
<tr>
<th>Measure</th>
<th>Disaggregating firms</th>
<th>Non-disaggregating firms</th>
<th>Contingency-table $\chi^2$ (p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings</td>
<td>56.4%</td>
<td>42.2%</td>
<td>5.78** (0.016)</td>
</tr>
<tr>
<td>Revenue</td>
<td>37.2%</td>
<td>17.6%</td>
<td>12.61*** (0.000)</td>
</tr>
<tr>
<td>Firm-year obs.</td>
<td>234</td>
<td>102</td>
<td></td>
</tr>
</tbody>
</table>

Note: See Appendix B for variable definitions. The regression estimation is robust to outliers in the dependent and independent variables and to violations of normality in the error term. In Panel B, “meet or slight beat” means that the price-deflated earnings surprise is between 0 and 0.0015 for the earnings category and the market-value-deflated sales surprise is between 0 and 0.005 for the sales category. The values of 0.0015 for earnings surprise and of 0.005 for sales surprise are approximately the 75th percentile of the surprise variable for the sample of 968 firm-years. ***, **, and * denote statistical significance at 1%, 5%, and 10% in a two-tailed test.
TABLE 11
Capital-Market Costs of Disaggregating and Disappointing

Model:
\[ \text{CAR} = c_0 + c_1 \text{EPSSurprise} + c_2 \text{SaleSurprise} + c_3 \text{MissEPSonly} + c_4 \text{MissSaleonly} + c_5 \text{MissBoth} + \varepsilon \]

Robust-regression Estimation:

<table>
<thead>
<tr>
<th></th>
<th>Disaggregating Firms</th>
<th>Non-disaggregating Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.009</td>
<td>-0.002</td>
</tr>
<tr>
<td></td>
<td>(1.76)</td>
<td>(-0.45)</td>
</tr>
<tr>
<td>EPSSurprise</td>
<td>3.551*</td>
<td>1.71*</td>
</tr>
<tr>
<td></td>
<td>(1.88)</td>
<td>(1.78)</td>
</tr>
<tr>
<td>SaleSurprise</td>
<td>-0.284</td>
<td>0.007</td>
</tr>
<tr>
<td></td>
<td>(-1.47)</td>
<td>(0.20)</td>
</tr>
<tr>
<td>MissEPSonly</td>
<td>-0.011</td>
<td>-0.017</td>
</tr>
<tr>
<td></td>
<td>(-0.80)</td>
<td>(-1.43)</td>
</tr>
<tr>
<td>MissSaleOnly</td>
<td>-0.019**</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(-2.16)</td>
<td>(-0.04)</td>
</tr>
<tr>
<td>MissBoth</td>
<td>-0.032**</td>
<td>-0.005</td>
</tr>
<tr>
<td></td>
<td>(-2.22)</td>
<td>(-0.42)</td>
</tr>
<tr>
<td>Model F</td>
<td>3.15***</td>
<td>2.03*</td>
</tr>
<tr>
<td>Obs.</td>
<td>211</td>
<td>96</td>
</tr>
</tbody>
</table>

Note: See Appendix B for variable definitions. The regression estimation is robust to outliers in the dependent and independent variables and violations of normality in the error term. ***, **, and * denote statistical significance at 1%, 5%, and 10% in a two-tailed test.