Is the bottom line the top priority? Revenue versus earnings guidance*

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ABSTRACT

We study the decision by corporate managers to provide quarterly earnings or revenue guidance and market reactions to its provision. While much of the prior work focuses on earnings forecasts, more firms provide revenue than earnings guidance in recent periods. We model the optimal choice of guidance type, including the decision to not provide any, using a random effects multinomial logit model. A key finding is presence of industry herding around guidance policies for firms that choose to provide guidance. Using an instrumental variables approach that also corrects for selection bias, we then study the market response to optimal versus non-optimal guidance provision and the time it takes to correct non-optimal guidance choices. Our paper provides new insights on the managerial choice to provide quarterly forecasts of revenue or earnings and its implications for price discovery.

*** PRELIMINARY - PLEASE DO NOT QUOTE OR CIRCULATE ***

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1 Introduction

Research has long sought to understand the factors that drive managers' disclosure strategies and the associated consequences of those decisions (e.g., Verrecchia, 1983). Though regulators mandate that firms provide certain types of disclosures, managers can voluntarily provide additional information to market participants. For example, the SEC requires firms to file periodic reports of financial performance, but managers can elect to provide additional context and discussions of current and future performance.

One of the most value-relevant disclosures managers can supply is guidance on future cash flows. Such information enables investors to improve the accuracy of their security valuations and make informed decisions. Indeed, prior work illustrates how analysts and investors respond strongly to management earnings forecasts and that guidance accounts for the largest portion of a firm's quarterly stock price variation (Beyer et al., 2010).

Most empirical studies of management guidance focus exclusively on forecasts of earnings. While this bottom-line income measure is valuable to investors, we find a substantial number of firms choose to furnish guidance of other income statement items, such as revenue forecasts, in addition to or in lieu of earnings. In fact, despite the paucity of research into revenue guidance, we find that more firms provide voluntary revenue forecasts than earnings forecasts during our sample period 2004–2017.

This paper provides new evidence on the decision to provide guidance, which is more nuanced that a simple binary choice of whether or not to guide. Instead, once managers opt to provide a forecast, they must also determine the form of the estimate and anticipate the consequences of this decision. We find that 19% of firms issue some type of guidance. Across guidance types, 15% of firms issue revenue guidance and and 13% of firms issue earnings guidance. Thus, we model the optimal choice to provide guidance and the specific type along four dimensions: no guidance, revenue only, earnings only, and both revenue and earnings using a random effects multinomial logit model. We identify the decision

to guide using instrumental variables that we expect to correlate with characteristics of the underlying firm but are not explicit determinants of the guidance decision. This approach allows us to identify and measure differences in market reactions to the optimal or suboptimal choice of guidance and type.

Overall, our guidance choice model performs well. The model has an aggregate correct classification rate of about 82%. Moreover, the correct classification rates for individual guidance types range from a low of 73% for firms that we expect to only provide earnings guidance to a high of 94% for firms that we do not expect to offer any form of guidance.

We show that the decision to provide guidance, and the choice of forecast type, relate to important firm attributes. Large firms with significant levels of intangibles are more likely to provide some type of guidance (revenue and/or earnings). Because buy-side and sell-side analysts use valuation models to assist with investment choices, there could be greater demand for quantitative data to improve forecast performance. Consistent with this notion, we find that firms with high levels of institutional ownership are more likely to provide some type of guidance. Similarly, analyst following tends to be larger for firms that provide both earnings and revenue guidance.

There are important differences in firm characteristics between guidance types. Revenue guiders have high levels of intangibles, spend heavily on R&D, and are less profitable than other sample firms. Since forecasting cash flows for these firms is inherently more difficult, we posit that managers provide revenue forecasts to assist investors and analysts with more accurate information about "top-line" performance to mitigate valuation uncertainty. Indeed, firms with fewer growth options, proxied by high book to market ("BTM") ratios, are more likely to provide earnings guidance, indicating that that there is less uncertainty about the bottom-line estimate.

We also demonstrate that there is a type of guidance "herding." Firms that only provide earnings guidance tend to operate in industries where a high percentage of peer firms

also provide earnings guidance. Earnings guiders are more likely to augment earnings forecasts with revenue forecasts if a high percentage of peer firms provide revenue guidance. Similarly, firms that only provide revenue guidance tend to operate in industries where a high percentage of firms provide revenue guidance, and are less likely to be revenue-only guiders if a high percentage of peer firms provide earnings guidance. These relations are similar for firms that issue both earnings and revenue guidance.

To measure the capital market consequences of the guidance choice and type, we examine abnormal returns to announcements of earnings and revenue surprises on (1) the guidance date; and (2) the quarterly earnings announcement date. We implement this test via a two stage regression, where the first stage is a multinomial logistic regression of guidance determinants that includes instrumental variables, and the second stage uses a Dubin and McFadden (1984) correction to adjust for selection bias and correlated errors. We find that, regardless of whether guidance is provided, investors react positively to announcements of earnings and revenue surprises.

For earnings-only guiders, we find no significant stock price reaction on the guidance announcement date. The results are similar when we interact earnings guidance surprise with an indicator of the optimal choice of providing earnings guidance. However, a revenue guidance surprise yields a positive reaction to revenue-only guiders and those that that issue both revenue and earnings forecasts. Moreover, investors response is stronger when firms make the optimal revenue guidance decision as predicted by our model. These results show that, on net, investors view revenue and earnings guidance as informative, but to different degrees, and their response varies based on the optimality of the guidance choice.

We then consider how investors react to actual earnings and revenue surprises on the quarterly announcement date, and whether the provision of guidance during the quarter has a marginal effect. For example, investors may view "surprises" as more informative if a firm has previously provided guidance. Consistent with our conjecture, investor reactions to actual earnings and revenue surprises are more positive if the firm provides guidance

during the quarter.

Given that investors value guidance, we next explore whether firms adjust their guidance policy if they have made suboptimal guidance choices. In other words, if the model predicts that a firm will issue guidance but managers choose not to forecast, we want to measure the speed with which the firm adjusts its guidance policy. Alternatively, if a firm unexpectedly provides guidance, we wish to know how long it takes to stop providing guidance and the factors that expedite or delay this decision.

Using a hazard-based duration model, we find that non-guiders quickly switch to providing guidance when the model strongly suggests it is the optimal choice. By contrast, if the guidance-no guidance decision is essentially a toss-up, managers delay making changes from prior forecasting behavior, and behave as if they are content to see if the no-action choice eventually becomes optimal.

The rest of the paper is organized as follows. Section 2 provides a review of guidance literature. Section 3 describes the data and the primary empirical specification. Section 4 provides results of the guidance choice model. Section 5 reports investor reactions to the firm decisions to issue guidance and to quarterly announcement dates. Section 6 evaluates the determinants of a decision to adopt an optimal guidance policy when it was previously making an unexpected guidance choice. Section 7 offers conclusions.

2 Literature Review

Voluntary disclosures provide information that investors, analysts, and other market participants use to assess a firm's expected cash flows and investment opportunities. By mitigating information asymmetry, voluntary disclosures can improve stock liquidity and external monitoring, and reduce the cost of raising capital (Beyer et al., 2010). Thus, managers might choose to provide supplemental disclosures, such as forecasts of expected future sales or earnings, to obtain such benefits.

When determining whether to provide guidance, managers must trade off these potential benefits with certain costs. In addition to the resources used to prepare forecasts, managers likely consider the costs of possibly revealing proprietary information to competitors (Verrecchia, 1983), attracting litigation (Field et al., 2005; Skinner, 1994), and affecting the bargaining power between the firm and other stakeholders (e.g., unions).

Consistent with these trade-offs, prior research shows that managers are more likely to voluntarily disclose information when the perceived benefits outweigh the costs. For example, managers tend to voluntarily disclose good news more than bad news (Kothari et al., 2009). Managers might also be reluctant to provide voluntary disclosure when they are unsure how the market will interpret the information. For example, revealing that the firm has a significant backlog for its main product can be interpreted as favorable if it signals high demand, but unfavorable if it indicates problems with a firm's production process (Dutta and Trueman, 2002).

2.1 Propensity to provide earnings guidance

A large body of literature examines the determinants of providing management earnings forecasts. In their literature review on earnings guidance, Hirst et al. (2008) describe the factors that influence both the choice to provide guidance and the forecast characteristics and effects. Because management guidance is voluntary, the regulatory and legal environment has a significant influence on the propensity to provide a forecast.[1] For example, Baginski et al. (2002) find that U.S. firms are less likely to provide earnings guidance and issue earnings forecasts that are shorter-term and less-precise than similar firms in Canada due to the litigious nature of the U.S.

The firm's information environment also influences the decision to provide earnings

[1] Hirst et al. (2008) note that the SEC changed rules in the 1970s allowing forward-looking information and a safe harbor in regulatory filings. In 1996, the Private Securities Litigation Reform Act expanded the safe harbor on forward-looking statements to reduce liability for forecasts that do not come to fruition. In 2000, the SEC promulgated Regulation Fair Disclosure ("Reg FD") to prohibit selective disclosure of material nonpublic information to parties such as analysts.

guidance. Firms are more likely to issue earnings guidance when they have greater levels of information asymmetry (Coller and Yohn, 1997) and when analysts' initial forecasts are overly optimistic and when forecast dispersion is low (Cotter et al., 2006). Analysts respond by reducing their optimism and firms are more likely to beat the consensus forecast, which suggests that guidance plays a role in managing expectations.

External demand for information can also affect the decision to provide guidance. Boone and White (2015) show that exogenous increases in institutional ownership is linked to increased propensity and frequency of earnings guidance and other forms of voluntary disclosure. Providing greater transparency through earnings guidance and other forward-looking information is shown to reduce information asymmetry and the cost of capital and increase stock-price liquidity (e.g., Balakrishnan et al., 2014; Boone and White, 2015; Diamond and Verrecchia, 1991; Leuz and Verrecchia, 2000).

2.2 Propensity to disaggregate guidance

Most research on management guidance focuses on forecasts of earnings rather than the components of earnings itself. Hirst et al. (2008), for example, note that there is sparse literature examining revenue forecasts, and thus, relatively little is known about the circumstances under which managers provide revenue guidance.[2] One possible explanation for sparse research on revenue guidance is the relative lack of availability in major databases.

Some studies that examine revenue guidance attempt to identify the characteristics associated with this decision. Han and Wild (1991) posit that managers might provide revenue, in addition to earnings, guidance when they desire to reduce the gap between the analyst consensus forecast of earnings and that provided by management. The authors also find that revenue guidance provided simultaneously with earnings guidance tends to be good news. Consistent with this notion, Hutton et al. (2003) find that managers supplement

[2]Other work has focused on guidance of capital expenditures (Richard Lu and Wu Tucker, 2012), R&D activities (Jones, 2007), balance sheet information (Chen et al., 2002), and foreign cash holdings (Bjornsen et al., 2018)

earnings forecasts with verifiable disaggregated items when forecasts convey good news.

Other work examines how market factors are associated with the decision to provide revenue guidance. Acito et al. (2019) find that firms with greater market power, proxied by excess margins, have a greater likelihood of providing revenue guidance, which they suggest indicates that sales forecasts provide a more transparent sign of the firm's short-term expectations of demand. Lansford et al. (2013) examine supply/demand factors (e.g. institutional ownership, industry competition, volatility) and strategic factors (e.g. propensity to supply good versus bad news and managing analyst optimism) and find that once managers provide guidance, the decision to disaggregate forecasts into its components is driven more by demand and supply factors that vary little over time versus strategic factors. Lansford et al. (2013) also show that disaggregated guidance is associated with a low earnings-return correlation, high intangible asset intensity, and a larger response to earnings news. They find little evidence that the trade off between good and bad news or analyst optimism explains the decision to provide disaggregated guidance. Of note, Lansford et al. (2013) show that disaggregated guidance is moderately "sticky" as 70% of disaggregating firms tend to continue to disaggregate in the following year.

Another attenuating factor in providing revenue guidance is the proprietary cost of disclosure. Anantharaman and Zhang (2011) examine how managers respond to declines in analyst coverage, and thus a diminished information environment, after Reg FD prohibited selective disclosure of material information. They posit that current earnings guiders will hesitate to disaggregate guidance into its components, such as revenue, because it could reveal proprietary information about its operating structure or strategy and reduces flexibility in achieving targets.

2.3 Consequences of disaggregated guidance

One consequence of disaggregated guidance is that it can improve the information environment. Several studies find that disaggregated guidance enhances the credibility of

manager's earnings forecasts because these individual factors are ex-post verifiable (Hutton et al., 2003). For example, using an experimental design, Hirst et al. (2007) show that forecast disaggregation provides a positive signal of the precision of management's beliefs in the forecast, increases the clarity of forward-looking information, and improves investors' ability to evaluate financial reporting quality. In turn, these factors can mitigate managerial incentives to manage earnings to meet a guidance estimate.

Empirical evidence by Merkley et al. (2013) shows that disaggregated guidance increases analysts' sensitivity to news in the earnings guidance, which is consistent with enhanced credibility. They find disaggregated guidance is more important after Reg FD for firms where earnings are more difficult to forecast and for disclosures that convey bad news. Lansford et al. (2013) find that firms providing disaggregated guidance have more timely analyst updates with a greater magnitude of revisions and reduced analyst forecast disagreement versus firms that only provide earnings guidance.

Elliott et al. (2011) posit that investors are less fixated on earnings when managers disaggregate forecasted earnings into its components of revenue and expenses. They argue that if firms only provide net earnings per share guidance, then investors conceptualize this as a substantially more important measure of the company's prospects. When managers choose to disaggregate guidance, then investors conceptualize net income as one of several important components of results. They provide experimental evidence is consistent with this view.

Although these studies suggest that providing disaggregated guidance can have a positive effect on investors, recent evidence by Dong et al. (2017) highlights a potential unintended consequence. Their experimental evidence suggests that firms providing disaggregated guidance experience a stronger market reaction to a subsequent earnings surprise. Thus, while disaggregated forecasts can enhance credibility and investor trust, when this trust is violated with an earnings surprise, the reaction by investors is more severe. Alternatively, the stronger investor reaction does not necessarily convey a violation of "trust",

but could simply reflect the possibility that investors find the incremental information to be a less confounded signal.

Overall, extant literature has paid sparse attention to revenue forecasts and has mostly focused on it as a means to influence investors' perception. None of these studies have examine whether providing earnings and revenue guidance separately or combined is an optimal choice by management.

2.4 Market response to guidance surprise

Early literature documented that management earnings guidance contains value-relevant content that moves stock prices (Patell, 1976; Penman, 1980). In their literature review paper, Beyer et al. (2010) decompose quarterly return variance based on five sources of information: earnings announcements, earnings pre-announcement, management guidance, analyst forecasts, and SEC filings. They find that 28% of quarterly stock return variance occurs on days when these disclosures are made. Management forecasts explain 55% of the R^2 in this model, which is more than twice that of any other source of firm information.

The type of news contained within the guidance also influences the market response. Bad-news forecasts result in swift price movements, while optimistic, good-news forecasts tend to move prices more when the forward-looking information is viewed as credible. The literature has shown credibility is a function of the verifiable nature of supplemental information provided with guidance (Hutton et al., 2003), the propensity to disaggregate earnings into its components (Hirst et al., 2007), and managers with high prior forecast accuracy (Hirst et al., 1999).

Atiase et al. (2005) find that announcement period returns are more strongly associated with current earnings than simultaneously released earnings guidance, which they interpret as investors having a preference for actual and reliable financial reporting versus uncertain forecasts. Although they report no statistical differences in the market response to "stand-alone" earnings and earnings released with guidance, the market response to stand-alone

guidance is stronger than the response to guidance bundled with earnings.

2.5 Market response to actual earnings and revenue surprise

2.5.1 Earnings surprise

Work such as Rendleman et al. (1982) identify the effect of surprise unexpected earnings (SUE), which occurs when cumulative abnormal returns drift upwards when firms report a positive earnings surprise and drift downward when they report a negative earnings surprise. Bernard and Thomas (1989) note that possible explanations for this occurrence are a delayed price response to new information and an inability to specify a complete asset pricing model that explains variation in stock prices. They present information that is consistent with investors slowly incorporating information into stock prices.

2.5.2 Revenue surprise

Early literature examining revenue surprises found no significant market response (Hopwood and McKeown, 1985; Hoskin et al., 1986; Wilson, 1986), but these studies had limited sources for consensus forecasts. Over time, studies have documented a significant market response to surprise unexpected revenue (SUR) when firms released actual (Swaminathan and Weintrop, 1991) or preliminary (Ertimur et al., 2003) quarterly results. Jegadeesh and Livnat (2006) control for the earnings surprise and find a strong response to a revenue surprise at the announcement. They also find that analysts are slow to incorporate the revenue surprise in their forecasts.

Kama (2009) notes that, while prior work finds the market response to earnings surprises tends to be larger than for a revenue surprise, there are certain situations where a revenue surprise elicits a greater reaction. These instances include revenue surprises of firms with high R&D, those occurring in the fourth quarter where discretionary accruals tend to be higher, and when the firm is in an oligopolistic industry. Barton et al. (2010) examine which performance measures investors value around the world and find that no

single measure dominates among revenue, earnings, income, and operating cash flows.

2.6 Stopping guidance

Providing guidance can be seen as a pre-commitment, but not obligation, to future disclosure (Hirst et al., 2008; Leuz and Verrecchia, 2000). Few papers have explored the determinants and consequences of stopping guidance, and these papers focus on stopping quarterly earnings rather than revenue guidance. Firms that cease to provide quarterly earnings guidance (i.e., "stoppers") tend to have a recent decline in earnings, a poor record of meeting or beating analyst consensus forecasts, and a deterioration of anticipated future earnings (Houston et al., 2010). Moreover, stopping guidance is associated with management changes, negative guidance by industry peers, and challenges in predicting past earnings, or anticipated difficulties in predicting future earnings. Houston et al. (2010) note that most of the stoppers in their sample do not stop providing annual earnings or revenue forecasts.

Chen et al. (2011) also study firms that stop providing quarterly earnings guidance. Stoppers in their sample have poorer prior performance, more uncertain operating environments, and fewer informed investors compared to firms that continue providing quarterly earnings guidance. Firms that publicly announce the decision to stop providing guidance claim they do not expect future good news or have lower incentives to publicly disclose because of the presence of long-term investors . The announcement returns to stopping guidance are negative and statistically significant, which is consistent with investors viewing this decision as portending negative future cash flows. The information environment also suffers for stoppers, as analyst forecast dispersion increases and analyst forecast accuracy decreases. Chen et al. (2011) report scant evidence that firms stopping guidance attract more analysts as a substitute for the decline in the quality of the information environment.

3 Data and Empirical Specification

The initial sample represents all firms that are available in the Thomson Reuters I/B/E/S Academic database over 2004 to 2017. We identify 12,570 firms with non-missing assets or market capitalization above $10 million. These firms have 326,130 firm quarters, which is approximately 26 quarters per firm. The quarterly guidance data is derived from the I/B/E/S Guidance database. In our final sample, firms provide revenue and earnings guidance in 14.6% and 13.0% of all firm-quarters, respectively. We focus on quarterly guidance, but firms also provide annual forecasts. Our sample firms provide annual revenue and earnings guidance in 19.4% and 18.0% of all firm-quarters.

Table 1 provides summary statistics related to analyst activity based on the actual guidance choice. We define all variables in Appendix Table A1. Panel A reports that the average firm provides positive earnings guidance that is optimistically biased. For example, firms that provide both earnings and revenue guidance have an average guidance surprise (scaled by current stock price) of 0.317%, which results in an insignificant bad news guidance surprise (earnings guidance less actual quarterly earnings scaled by price) of -0.186% on the earnings announcement date. By contrast, the mean firm reports quarterly earnings that generate a good news earnings surprise of 0.149%. Although the mean quarterly earnings surprise is insignificantly different from zero, the point estimate suggests that analysts fail to fully incorporate the information contained in earnings guidance. In Panel B, the average revenue guidance values are qualitatively similar to those for earnings.

The main differences between firms that provide different types of guidance is that more analysts follow companies that only release earnings guidance (8.6 analysts) than firms that only release revenue guidance (5.4 analysts). Firms that release both earnings and revenue guidance attract the greatest analyst following (9.5 analysts). By contrast, firms that do not provide guidance only have an average of 6.7 analysts that provide earnings and 5.4 analysts that provide revenue forecasts.

3.1 First-stage random-effects multinomial logit model

We are interested in examining the market reaction to the provision of different types of guidance. Because firms electing to provide guidance likely have unobserved characteristics that influence this choice, we use a two-stage approach that employs a random-effects multinomial logit model in the first stage. The second-stage regression estimates the price response with a Heckman-type correction (Dubin and McFadden, 1984) to control for the endogenous choice to provide some type of guidance. The identification of the model is based on an instrumental variables approach.

In a cross-sectional setting, a multinomial logit model can be used to estimate the likelihood that specific guidance choices (guidance choice j) are selected by firms (firm i), i.e.,

$$P_{ijt} = \frac{exp\left(\alpha_j + X_{ijt}\beta_j\right)}{\sum_{k=1}^{J} exp\left(\alpha_k + X_{ikt}\beta_k\right)} \tag{1}$$

where X_{ijt} denotes the set of independent covariates associated with guidance choice j and firm i and the error term is assumed to be independently and identically distributed (i.i.d.) as a type I extreme value distribution (McFadden, 1973). Because the choice of guidance evolves over time as market conditions change, the data is better represented as panel data because unobserved firm-specific heterogeneity is likely present. We model the correlated errors that likely arise through a set of *random effects* where γ_{ij} represents the unobserved firm-specific random heterogeneity (Gonul and Srinivasan, 1993; Hartzel et al., 2001; Revelt and Train, 1998). For the random effects specification, the probability of a firm choosing guidance-type j is

$$P_{ijt} = \frac{exp\left(\alpha_j + \gamma_{ij} + X_{ijt}\beta_j\right)}{\sum_{k=1}^{J} exp\left(\alpha_k + +\gamma_{ik} + X_{ikt}\beta_k\right)}. \tag{2}$$

We assume the firm-specific random effects are the same in every period and are uncorrelated and independent across periods. Conditional on unobserved factors, the observations from the i^{th} firm are assumed to be independent.[3]

[3]It is well known that the multinomial logit model depends on the assumption of Independence of

3.2 Second-stage regression models

Dubin and McFadden (1984) show that when the choice model (guidance) and the second-stage model (abnormal returns) contain correlated error components and the choice model is estimated as a multinomial logit, the selection bias in the second stage can be corrected by adding a set of terms that are analogous to the standard Heckman-correction:

$$AR_{ijt} = \hat{\alpha}_j + \hat{X}_{it}\hat{\beta}_i + \sum_{k=1,k\neq j}^{J} \pi_{ijk}\lambda_{ijk} \tag{3}$$

where λ_{ijk} is the selection correction variable for choice k, i.e.,

$$\lambda_{ijk} = \frac{P_{ik} ln\left(P_{ik}\right)}{\left(1 - P_{ik}\right)} + ln\left(P_{ij}\right). \tag{4}$$

4 The Guidance Decision

The decision to provide specific types of guidance is an endogenous choice that depends on firm characteristics. We estimate a random-effects multinomial logit model to account for the fact that each firm makes a guidance choice every quarter. We categorize "no guidance" as the baseline decision. Thus, the response variables are the active decisions to provide guidance, which can be only earnings guidance, only revenue guidance, or both.

Table 2 reports the estimation results. It shows that the decision to provide guidance and the choice of guidance type are driven by firm attributes that investors are likely to consider important. The main takeaway is that large firms with significant levels of intangibles are more likely than not to provide some type of guidance (earnings and revenues), while research and development (R&D) intensive firms are more likely to only provide revenue guidance, possibly because they tend to have more growth options. Consistent with this conjecture, we find that firms with fewer growth options (high BTM) are more likely

Irrelevant Alternatives (IIA), which holds conditionally on all covariates and random errors, although it has been shown that the multinomial logistic regression model is relatively robust in many cases in which this assumption is implausible (McFadden, 1980). Because IIA does not hold marginally with respect to the random errors, the inclusion of random terms in the estimation model partially relaxes the IIA property (Grilli and Rampichini, 2007).

to provide earnings guidance.

Because it is inherently more subjective to forecast cash flows for firms that are in active growth phases (high intangibles and R&D spending with significant growth options), institutional investors could demand more accurate information about "top-line" and "bottom-line" performance to mitigate valuation uncertainty. Indeed, we find that firms with high levels of institutional ownership are more likely to provide earnings and revenue guidance. Because few foreign firms issue any type of guidance, we include a *domestic firm* indicator for those headquartered in the U.S.

Older firms tend to issue earnings guidance, which may be attributable to a historical focus on earnings forecasts, whereas investor interest in revenue forecasts could be a more recent phenomenon. As Figure 1 shows, more firms provided annual and quarterly earnings guidance than revenue guidance at the beginning of our sample period in 2004. Between 2005 and 2010, revenue guidance frequency increases and more firms provide both annual and quarterly revenue guidance through the end of our sample in 2017.

Firms that report large positive earnings and revenue surprises are less likely to issue guidance. It is unclear what is driving the negative statistical association. On the one hand, it could be the case that large surprises are an artifact of not providing guidance. On the other hand, it could be the case that firms with large negative surprises are more likely to minimize the damage caused by results that will be interpreted by investors as "bad news."

Table 2 shows that firms provide guidance that is consistent with what the proportion of peers providing the guidance type over the prior four quarters, which we label as *earnings guidance peers* and *revenue guidance peers*. We find that when a high percentage of peer firms operating in the same industry provide earnings or revenue guidance, a given firm is likely to follow suit. Moreover, firms are less likely to only issue one type of guidance if a high percentage of peer firms provide provide the the other type of guidance. For example,

a firm is less likely to only issue revenue guidance if a high percentage of peer firms also issue earnings guidance. Finally, firms that issue both earnings and revenue guidance tend to be in industries where high percentages of peer firms provide both earnings and revenue guidance. These results suggest that guidance "herding" exists within industries.

Table 2 also reports our instrumental variables ("IV") that account for factors correlated with a particular guidance type but are uncorrelated, at least in principle, with the actual decision to issue guidance. We posit that, conditional on the set of firm-characteristics included in our guidance choice model, the unobserved components in the second-stage abnormal return models are uncorrelated with the IVs. In effect, the model as whole is identifiable because the IVs, which are included in the first-stage estimation, are excluded in the second-stage specification. One econometric issue associated with this type of identification is that the instruments are specified at the municipality level and multiple firms can be headquartered in the same municipality and thus generate correlation of observations within a municipality. We address this problem in the second-stage by clustering standard errors at the municipality.[4]

The set of IVs includes: the minimum headquarter distance to a major metropolitan area (*city distance*), the minimum headquarter distance to a major university (*university distance*), the population size of the nearest major metropolitan area (*city size*), the population growth rate for the nearest major metropolitan area (*city growth*), the property tax rate of nearest major metropolitan area (*city tax*), the average headquarters state tax rate (*state tax*), and the average headquarter state wage rate (*state wage*). Distance to major metropolitan areas and universities address the propensity for firms to operate close to areas that reflect specialized labor pools and access to innovative technologies. Property and state tax rates also are factors that drive firm location choices and likely reflect the nature of the underlying infrastructure and industry type. Average wage rates provide a sense for the sophistication of the local labor pool. Taken together these instruments are

[4]The same argument holds at the state level since some of our instruments are calculated at the state level. Our results are robust if we cluster standard errors at the state level instead.

expected to correlate with the underlying firm type, none of which are directly linked to the guidance issue decision. Table 2 indicates that the IVs tend to be highly significant across all three guidance specifications. This suggests that the instruments are strong.

While the exclusion restriction is inherently untestable, a discussion is warranted. The exclusion restriction calls for the instruments to be uncorrelated with the true error of the second stage regression's dependent variable, announcement abnormal returns. The instruments we use − *city distance*, *university distance*, *city size*, *city growth*, *city tax*, *state tax*, and *state wage* − are all known well ahead of time. Therefore, even if new information about these instruments might affect prices, this price impact would have been realized long before the announcement date. Therefore, we would not expect the instruments to have an effect on announcement returns.[5]

Table 3 shows that the guidance choice model performs well. Panel A tabulates the number of firms that make actual guidance choices in rows and the predicted choices in columns. Panel B converts the tabulated numbers into percentages based on 326,310 firm quarters. Panel B indicates that the model has an aggregate correct classification rate of 82%. Moreover, the correct classification rates for individual guidance types ranges from 73% for firms that are only expected to provide earnings guidance to 94% for firms that are not expected to offer any guidance.

Panel B shows that most of the unexpected guidance choices are made by firms that are expected to provide some type of guidance but do nothing. For example, 17.09% of firms expected to issue earnings-only guidance do nothing. Similarly, non-guiders that are expected to be revenue-only or earnings and revenue guiders fail to provide guidance in 15.84% and 9.18% of the time. Further, some firms provide less guidance than expected (3.58% + 5.44%). In other instances, firms provide more guidance than is expected. Firms

[5]Formally, two conditions must be satisfied for valid instruments in a two-stage least squares regression: (1) the relevance condition and (2) the exclusion restriction. First, to meet the relevance condition, the instruments in the first stage of the regression must be sufficiently correlated with the dependent variable of guidance selection, as Table 2 suggests is the case. Second, the exclusion restriction requires that the instruments must be uncorrelated with the true error of the endogenous data generating process. That is, the IVs must not be correlated with the guidance decision.

provide both earnings and revenue guidance 8.43% (i.e., 796+1,099)/(9,182+13,292) of the time they are only expected to issue earnings or revenue guidance.

5 Investor Reactions to Guidance Type

5.1 Guidance Announcement Dates

In this section, we use an event study model to assess investor reactions to the decision to provide different types of guidance. Abnormal returns are estimated using the market-model, which uses the CRSP Market Index (NYSE, NYSE American, NASDAQ, and ARCA exchanges) to account for market factors. To estimate the abnormal returns for a given day, we take the difference between the firm's return less that for the market return. We then estimate cumulative abnormal returns for the three day period that begins the day before the announcement (day -1) to the day after the announcement (day $+1$). Since foreign firms tend not to issue guidance, we exclude them from this analysis.

Table 4 reports the results of the abnormal return regressions that include firm fixed effects. I report separate regressions for each guidance choice. Investors do not react significantly to earnings-only guidance. By contrast, there is a statistically significant positive reaction to revenue guidance, which is incrementally more important if the firm was predicted to only provide revenue guidance. Investors react positively to earnings and revenue guidance for firms that provide disaggregated guidance. This suggests that investors find disaggregated guidance to contain value relevant information. Moreover, firms that optimally choose disaggregated guidance are associated with a statistically significant positive abnormal return of 0.016% on the guidance announcement date. On net, investors find that earnings and revenue guidance are informative, but to different degrees.

Table 4 shows that, all else equal, all guidance announcement returns are negatively associated with firms having high return on assets, earnings forecast dispersion, and a relatively large number of analysts providing earnings forecasts. When forward guidance

is provided on the same date the firm announces quarterly performance (i.e., guidance is *bundled* with reported results), abnormal returns are higher. In addition, firms with low growth opportunities (i.e., high BTM) also tend to be associated with higher abnormal returns, especially for firms providing earnings only guidance or both earnings and revenue guidance.

The selection terms are insignificant for firms providing earnings-only guidance. The selection terms for revenue-only guiders (D-M Earnings and D-M Both) are significant. Similarly, the selection terms for earnings and revenue guiders (D-M Earnings and D-M No guidance) are statistically significant. These results indicate that selectivity in latent components matters for firms issuing revenue-only and disaggregated guidance and that their inclusion is necessary to prevent biased coefficient estimates.

5.2 Quarterly Announcement Dates

We next consider how investors react to earnings and revenue surprises on the quarterly earnings announcement date and whether the provision of guidance during the quarter has a marginal effect on their response.

Table 5 shows that regardless of whether guidance is provided, investors react positively to earnings and revenue surprises. Although we do not perform a formal test, one can see that investors react more to firms that issue some type of guidance compared to firms that do not issue guidance. For example, the coefficient for *earnings surprise* is 0.986 for non-guiders and 1.752 for earnings-only guiders. This suggests that, all else equal, the reaction to the same size earnings surprise is 77.7% higher for firms that issue earnings guidance.

If we make the same comparison using firms that issue earnings and revenue guidance, the response is 10.4% higher relative to non-guiders. Revenue surprises for firms providing guidance also result in incrementally higher stock market reactions. Revenue-only and disaggregated guiders have marginal reactions of 34.9% $(0.294-0.218)/0.218$) and 19.7% $(0.261-0.218)/0.218$) greater than non-guiders, respectively. These results are consistent

with the notion that guidance reduces asymmetric information and that surprises are more informative if the firm has previously tried to close the information gap with investors. In other words, surprises that follow guidance are more surprising.

Unlike the guidance announcement date results in Table 4, analyst uncertainty about earnings (*earnings forecast dispersion*) has a positive impact on quarterly announcement date returns. Although the reaction is more pronounced for firms providing earnings-only guidance, the results hold regardless of whether guidance was provided. By contrast, *revenue forecast dispersion* is positively correlated with abnormal returns for revenue-only guiders but insignificant for firms providing disaggregated guidance.

Similar to the guidance announcement date analysis, the selection terms are insignificant for firms providing earnings-only guidance. Whereas the selection terms for revenue-only guiders (D-M Earnings and D-M Both) and disaggregated guiders (D-M Earnings and D-M No Guidance) are statistically significant. Once again, these results indicate that selectivity in latent components matters for firms issuing revenue-only and disaggregated guidance.

6 Analysis of Suboptimal Guidance Choices

This section examines how long it takes for managers that make unexpected guidance choices to adjust their guidance policy. A manager can make an "optimal" guidance choice by actively selecting the guidance policy that conforms to the predicted choice from our multinomial logit model or by waiting for the predicted choice to align with the actual choice.

We look at two sub-groups: (1) non-guiders that are expected to provide some type of guidance; and (2) guiders that were expected not to do so. For simplicity, we focus on the "guide-no guide" choice, rather than examining all the possible subgroups.[6]

[6] In unreported results, we obtain qualitatively similar results if we examine specific guidance choices.

We estimate a duration model that assumes a proportional hazard rate. The hazard function is specified as

$$h\left(t,i\right)=h_{0}\left(t\right)exp\left(X_{i}\beta\right) \tag{5}$$

where $h_{0}\left(t\right)$ is the baseline hazard and $exp\left(X_{i}\beta\right)$ is a multiplicative and non-negative function of the covariates X_{i}. The Weibull distribution assumes that baseline hazard rate is monotonic and is specified as

$$h_{0}\left(t\right)=pt^{p-1} \tag{6}$$

where p is the shape parameter, and the corresponding survivor function is defined as:

$$S\left(t\right)=exp\left(h\left(t,i\right)t/p\right) \tag{7}$$

All else equal, when $ln(p)$ is greater than zero, the hazard of a change to the predicted guidance type increases with time. Since firms can repeatedly deviate from the predicted guidance, our specification explicitly accommodates multiple switches. Since many of the IVs used to calculate the predicted guidance choices are estimated at the municipality level and there can be multiple times a firm switches within a municipality as well as multiple firms within the same municipality that switch, we do not want to assume that guidance switches within the same municipality are independent. Thus, we cluster standard errors at the municipality level.

We examine decisions to switch using predictions from the guidance choice model. To do this we construct four key metrics. The first is the ratio of the probability that a firm issues guidance to the probability that it does not issue guidance (i.e., ratio of Guide to No Guide, or $RGNG$), which we define as:

$$RGNG_{it}=\frac{p_{it}^{EOG}+p_{it}^{ROG}+p_{it}^{ERG}}{p_{it}^{NG}} \tag{8}$$

where p_{it}^{EOG} is the probability of firm i providing earnings-only guidance at firm-quarter t, ROG denotes revenue-only guidance, ERG denotes earnings and revenue guidance, and NG denotes no guidance. $RNGG$ is the inverse of $RGNG$. Whereas $RNGG$ is used to

evaluate the speed with which a sub-optimal non-guider becomes a guider, $RNGG$ is used to evaluate the speed that a sub-optimal guider stops providing guidance.

We also create two indicator variables. The first variable *close* takes the value of one if the probability of providing guidance is between 45% and 55%, and zero otherwise. It is designed to consider whether firms are less likely to switch from guidance to no guidance (or vice versa) if investors are less likely to have strong opinions about whether to provide guidance. We predict that firms that face somewhat ambiguous guidance choices (i.e., a coin toss) are less likely to switch their guidance policy.

The second indicator is far, which equals one when the probability of making the optimal guidance choice is more than twice as likely as the current choice, and zero otherwise. We posit that non-guiders (guiders) that have a relatively high probability of providing (suspending) guidance are more likely to switch under this condition.

Table 6 reports the duration model estimates. Our main findings are three-fold: (1) the speed with which non-guiders make predicted guidance choices increases as the relative likelihood of providing guidance ($RGNG$) increases; (2) moreover, the hazard rate increases significantly when this likelihood is high ($far = 1$); and (3) by contrast, if the guidance-no guidance decision is a toss up ($close = 1$), firms delay making guidance policy changes, and behave as if they are content to see if the no-action choice eventually becomes optimal.

With the exception of main finding (1), the results for guiders that are expected to provide guidance are qualitatively similar. For sub-optimal guiders we find that the speed with which they make predicted guidance choices decreases as the relative likelihood of suspending guidance ($RNGG$) increases. One reason firms may resist suspending guidance is the tendency for the market to react negatively (Chen et al., 2011; Houston et al., 2010). Our results indicate, however, that once this imbalance becomes significant ($far = 1$), the rate at which a change is expected to occur increases.

7 Conclusion

We provide new evidence on the determinants of firm's choice to issue quarterly guidance, as well as the type of guidance, and the consequences of those decisions. While much of the prior literature focuses on earnings guidance, we show that in more recent periods, revenue guidance is more popular among firms. We model the optimal guidance policy among the choice to provide no guidance, earnings-only guidance, revenue-only guidance, or both earnings and revenue forecasts. Our model is based on firm characteristics and an instrumental variables approach. We then compare the modeled, or optimal, guidance decision to the firm's observed choice.

Our model performs with an aggregate correct classification rate of about 82%. Further, we find evidence of herding in guidance decisions, with firms more likely to provide particular forms of guidance when a greater proportion of peers within their industry provide such guidance. Duration tests show that firms that have made suboptimal guidance decision quickly adjust their guidance policy, while those firms where the guidance decision is essentially a coin toss delay making policy changes.

We find significant capital market consequences of the guidance choice. In general, there are positive stock price reactions to all forms of guidance, with revenue guidance having the most positive returns overall. Guidance also appears to condition the response to revenue and earnings surprises, with investor responding more positively for such firms.

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Table 1: Summary statistics related to analyst forecasting of earnings and revenues grouped by actual guidance choices.

	Actual Guidance Choices							
	Earnings Only		Revenues Only		Earnings & Revenues		No Guidance	
Variable definition	Mean	Std.	Mean	Std.	Mean	Std	Mean	Std.
Panel A: Earnings metrics								
Quarterly analyst surprise (%)	-0.035	0.661	0.019	1.210	0.149	0.744	-0.065	1.120
Quarterly guidance surprise (%)	-0.029	0.472	n.a.	n.a.	-0.186	0.569	n.a.	n.a.
Guidance surprise (%)	0.240	1.240	n.a.	n.a.	0.317	0.011	n.a.	n.a.
Analyst dispersion (%)	0.162	0.486	n.a.	n.a.	0.233	0.006	n.a.	n.a.
Number of analysts	8.57	6.94	n.a.	n.a.	9.46	8.83	6.71	6.74
Panel B: Revenue metrics								
Quarterly analyst surprise (%)	0.004	0.078	0.006	0.061	0.010	0.062	0.008	0.077
Quarterly guidance surprise (%)	n.a.	n.a.	-0.014	0.080	-0.025	0.074	n.a.	n.a.
Guidance surprise (%)	n.a.	n.a.	0.015	0.109	0.022	0.113	n.a.	n.a.
Analyst dispersion (%)	n.a.	n.a.	0.028	0.033	0.031	0.052	n.a.	n.a.
Number of analysts	n.a.	n.a.	5.35	5.85	9.46	8.83	5.44	5.74

Table 2: Multinomial logit model of guidance choice. The table reports the results from random effects multinomial logistic regression model. Robust standard errors are clustered by firm. The estimated variances for the random effects model are statistically significant.

	Guidance Choices					
	Earnings Only		Revenue Only		Earnings & Revenue	
Variable definition	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Firm-specific factors						
R&D to assets	-4.798	-5.67	0.575	2.19	3.083	9.40
Intangibles to assets	1.079	6.48	0.938	8.40	1.597	13.11
Book to market	0.279	6.58	0.028	0.91	0.139	3.53
log(market cap)	0.669	26.54	0.148	7.90	0.660	29.85
Domestic firm	6.284	25.33	3.455	17.28	6.671	32.32
log(Age)	-0.121	-3.00	0.046	1.58	-0.181	-5.57
Net income surprise	-0.595	-2.79			-0.722	-4.39
Revenue surprise			-0.133	-5.12	-0.206	-5.96
New executive	-0.013	-0.37	0.087	2.92	-0.002	-0.07
Institutional ownership	2.153	16.98	1.752	18.04	2.923	27.68
Litigation	0.097	1.30	-0.054	-0.88	-0.076	-1.22
Earnings guidance peers	10.680	27.76	-3.054	-7.39	7.329	19.08
Revenue guidance peers	-3.538	-10.41	9.246	26.40	4.704	15.35
Instrumental variables (coefficient × 100)						
City distance	-0.020	-0.52	-0.146	-4.25	-0.172	-4.55
University distance	-0.124	-5.62	-0.030	-1.96	-0.072	-4.03
City size	0.000	-2.20	0.000	-1.60	0.000	-4.64
City growth	9.345	4.09	-6.242	-2.48	-0.527	-0.24
City tax	32.983	3.32	-49.881	-6.14	-63.352	-6.75
State wage	-0.010	-30.63	-0.004	-12.74	-0.009	-29.98
Random-effects estimates						
Variance of random-effects						
Earnings-only	15.20					
Revenue-only	19.06					
Earnings & revenue	27.48					
Correlation between random-effects						
Earnings only, Revenue only	0.060					
Earnings only, Both	0.256					
Revenue only, Both	0.571					

Table 3: Classification accuracy of random-effects multinomial logit regression of quarterly guidance choices. The rows and columns respectively reflect the actual and predicted guidance choices. Panel A reports the number of firms in each category-pair; Panel B reports the classification rates for each category-pair. The diagonal elements in Columns (1) through (4) represent the rate of correct classification associated with each guidance type.

	Predicted Choice				
Actual Choice	Earnings Only	Revenue Only	Earnings and Revenue	No Guidance	Total
Panel A: Number of firms					
Earnings only	6,674	82	1,031	4,755	12,542
Revenue only	143	10,006	1,567	6,025	17,741
Both earnings and revenue	796	1,099	23,567	4,497	29,959
No guidance	1,569	2,105	2,645	259,749	266,068
Total	9,182	13,292	28,810	275,026	326,310
Panel B: Classification rates (%)					
Earnings only	72.69	0.62	3.58	1.73	3.84
Revenue only	1.56	75.28	5.44	2.19	5.44
Both earnings and revenue	8.67	8.27	81.80	1.64	9.18
No guidance	17.09	15.84	9.18	94.45	81.54
Total	100.00	100.00	100.00	100.00	100.00

Table 4: Regressions of three-day abnormal returns on guidance announcement dates by actual guidance choice decisions. The specifications include firm fixed effects. Robust standard errors are clustered by municipality.

	Guidance Choices					
	Earnings Only		Revenue Only		Earnings & Revenue	
Variable definition	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Earnings surprise	-0.004	-0.02			0.561	2.41
Earnings surprise × iOPT	0.093	0.28			-0.228	-0.89
Initiate earnings guidance	-0.003	-1.09			-0.005	-1.75
Earnings forecast dispersion	-0.060	-3.98			-0.153	-8.69
Number analysts - earnings forecasts	-0.001	-3.41			-0.001	-1.60
Revenue surprise			0.070	1.93	0.162	4.06
Revenue surprise × iOPT			0.109	2.37	0.026	0.61
Initiate revenue guidance			-0.004	-1.09	0.002	0.61
Revenue forecast dispersion			0.000	0.01	0.000	0.24
Number analysts - revenue forecasts			-0.001	-2.68	0.000	-0.83
iOPT	0.001	0.13	-0.009	-1.011	0.016	3.106
Bundled	0.015	3.97	0.018	2.83	0.022	6.23
Return on Assets	-0.056	-2.25	-0.039	-2.90	-0.001	-0.15
R&D to Assets	-0.212	-1.61	0.038	0.89	0.078	2.82
Cash to Assets	0.035	1.69	0.012	0.83	0.003	0.39
Book-to-Market	0.015	4.25	0.005	1.41	0.025	7.77
Institutional ownership	0.009	0.64	0.025	1.60	0.042	4.98
Durbin McFadden: Earnings			-0.141	-2.83	0.030	2.02
Durbin McFadden: Revenue	-0.010	-0.35			0.016	0.97
Durbin McFadden: Both	0.028	1.49	0.153	4.65		
Durbin McFadden: No guidance	-0.016	-0.91	-0.016	-0.59	-0.076	-5.45
Constant	-0.009	-0.65	-0.007	-0.28	-0.089	-8.02
Observations	6,756		7,014		20,077	
R-squared	0.015		0.020		0.030	
Number of firms	982		1,143		1,480	

Table 5: Regressions of three-day abnormal returns on quarterly announcement dates by actual guidance choice decisions. The specifications include firm fixed effects. Robust standard errors are clustered by municipality.

	Guidance Choices							
	Earnings Only		Revenue Only		Earnings & Revenue		No Guidance	
Variable definition	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Earnings surprise	1.586	12.11	0.781	6.58	1.089	6.59	0.988	8.09
Earnings surprise × iOPT	0.322	1.53	0.084	0.53	0.209	1.11	0.093	0.75
Initiate earnings guidance	0.002	0.94			0.003	1.07		
Earnings forecast dispersion	0.049	4.78	0.008	0.40	0.062	4.16	0.004	2.76
Number analysts - earnings forecasts	0.001	1.74			0.000	0.52	0.000	-1.42
Revene surprise	0.132	7.79	0.257	11.53	0.261	9.81	0.217	12.37
Revenue surprise × iOPT	-0.053	-2.53	0.027	0.86	0.158	5.25	-0.154	-8.72
Initiate revenue guidance			-0.003	-1.13	-0.005	-1.79		
Revenue forecast dispersion	0.000	-0.30	0.000	2.04	0.000	-0.70	0.000	0.37
Number analysts - revenue forecasts	-0.002	-3.44	-0.002	-1.82	-0.001	-1.93	-0.001	-4.30
iOPT	0.000	0.07	0.005	0.82	0.003	0.64	-0.003	-0.87
Bundled	-0.002	-1.17	-0.003	-0.99	0.000	-0.23		
Return on Assets	-0.076	-3.85	-0.052	-4.71	-0.023	-3.17	-0.046	-14.03
R&D to Assets	-0.043	-0.41	0.037	1.06	0.046	1.84	-0.014	-1.45
Cash to Assets	-0.017	-1.01	-0.018	-1.60	-0.022	-3.21	-0.036	-8.59
Book-to-Market	-0.001	-0.24	0.013	4.03	0.014	5.37	0.006	11.14
Institutional ownership	-0.001	-0.10	-0.056	-4.47	-0.019	-2.62	-0.013	-4.20
Durbin McFadden: Earnings			-0.067	-1.91	0.040	3.16	0.005	0.85
Durbin McFadden: Revenue	0.025	1.10			-0.025	-1.77	-0.023	-2.60
Durbin McFadden: Both	0.013	0.87	0.047	1.93			0.027	3.65
Durbin McFadden: No guidance	-0.034	-2.49	0.029	1.42	-0.024	-2.09		
Constant	0.005	0.38	0.069	3.52	0.005	0.57	0.026	6.62
Observations	9,333		9,673		22,505		74,906	
R-squared	0.053		0.071		0.075		0.064	
Number of firms	963		1,179		1,496		4,258	

Table 6: Duration model of the time it takes a firm that provides suboptimal guidance to make the predicted guidance choice. The hazard rate is assumed to be distributed Weibull. Robust standard errors are clustered by city.

	Guidance Choices							
	No Guidance Provided				Guidance Provided			
Variable definition	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Ratio Guide to No Guide	0.014	7.45	0.013	6.221				
Ratio No Guide to Guide					-0.002	-3.687	-0.001	-2.71
Close	-0.872	-3.63	-0.910	-3.209	-1.259	-7.964	-1.271	-5.76
iConverge × Close	3.665	17.30	3.630	13.963	2.774	16.615	2.715	12.59
Far	0.331	3.51	0.311	2.759	0.360	5.032	0.512	5.78
Earnings surprise			-1.055	-0.256			-3.256	-1.10
Revenue surprise			-0.350	-0.585			-0.523	-1.03
Earnings forecast dispersion			-1.670	-1.602			-1.574	-2.66
Number of earnings analysts			0.088	3.666			0.130	10.56
Revenue forecast dispersion			0.000	-2.543			0.000	-2.97
Number of revenue analysts			-0.112	-3.561			-0.182	-12.20
Book to market			0.146	1.734			0.004	0.06
Return on assets			0.366	1.149			0.407	1.34
R&D to assets			2.027	3.218			-1.533	-2.12
Cash to assets			0.075	0.339			0.107	0.46
Constant	-3.300	-33.12	-3.518	-18.773	-4.176	-59.99	-4.803	-32.38
Ln(p)	-0.029	-1.30	0.024	0.45	0.229	15.11	0.369	16.08
Observations	4,834		3,356		-		-	

Figure 1: Quarterly and Annual Earnings and Revenue Forecasts by Year. Indicates the number of times firms issue a specific type of guidance each year in the I/B/E/S Guidance database.

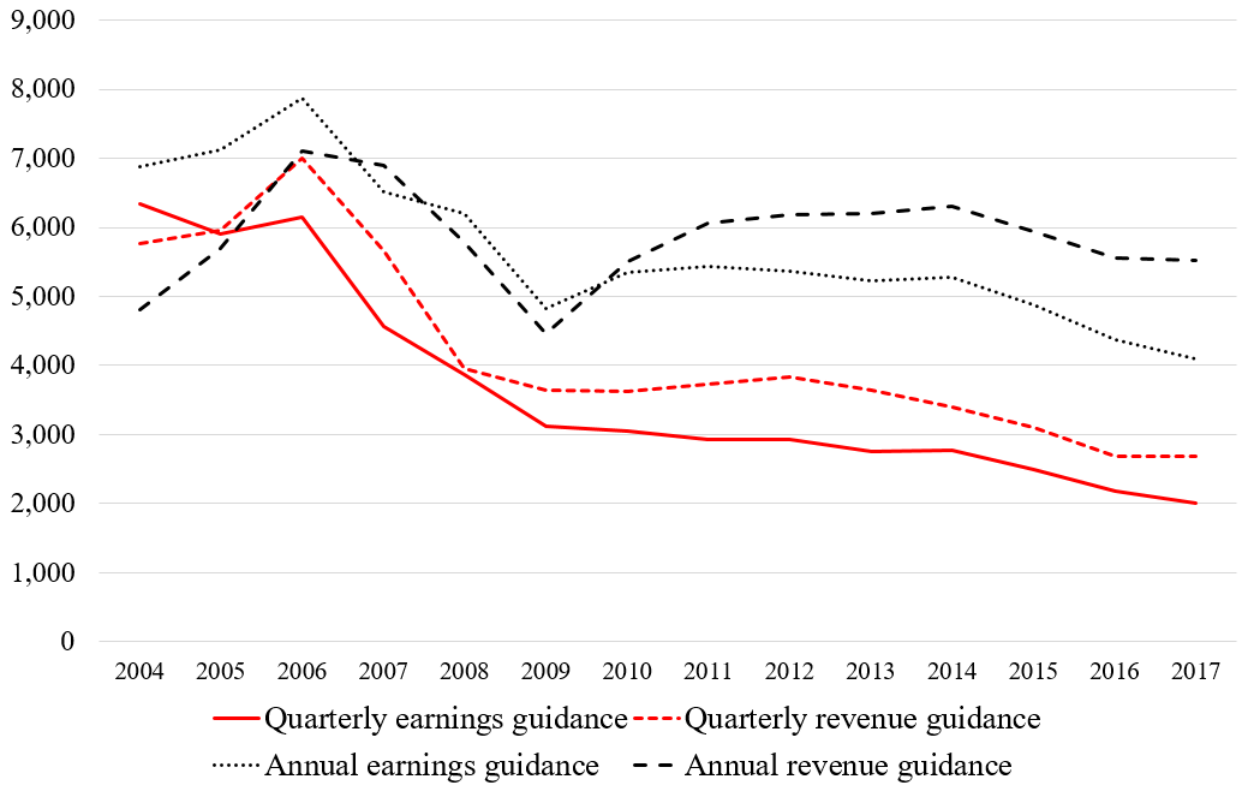

Table A1: Description of Variables

Variable	Description
Age	Maximum number of years firm data appears in CRSP or Compustat
Announcement date returns	Three day abnormal returns (net of CRSP returns) during the announcement period
Analyst dispersion	Standard deviation of analyst forecasts
Book to market	Book value of equity divided by market value equity at the end of the prior quarter
Bundled	Equals one if guidance is released within three days of announcing actual quarterly results
City distance	Distance between a firm's HQ and the nearest of the 25 metros with the most nearby headquarters
Close	Equals one if the estimated probability of providing guidance is between 45% and 55%
Domestic firm	Equals one if a firm is headquartered in the United States
Dubin-McFadden values	Correction terms following Dubin and McFadden (1984)
Earnings guidance peers	Percent of two-digit SIC peers providing earnings guidance over past four quarters
Earnings surprise	Difference in year-over-year quarterly net income, scaled by market cap at end of the prior quarter
ERG	Equals one if the firm issues earnings *and* revenue guidance in a given quarter
Far	Equals one if probability of providing guidance is at least 2x as likely as current guidance choice
Guidance choice	Indicates the firm's choice in guidance that quarter: sales only, earnings only, both, or neither
Initiate earnings guidance	Equals one if a firm did not provide earnings guidance in the prior quarter, but does this quarter
Initiate revenue guidance	Equals one if a firm did not provide revenue guidance in the prior quarter but does this quarter
Institutional ownership	Percentage of equity held by institutional owners using 13-F data
Intangibles to assets	Intangible assets in prior quarter scaled by total assets
iOPT	Equals one if a firm's actual guidance choice is the optimal choice predicted by the model
Litigation	Equals one if a firm was named in a securities class action lawsuit within the prior two years
Ln(p)	Shape parameter of hazard model predicting time it takes to transition to the optimal guidance type
Market cap	Natural log of firm's market capitalization at end of prior quarter
New executive	Equals one if the firm appointed a new CEO or CFO within the past year
NG	Equals one if the firm does not issue guidance during the quarter
Quarterly analyst surprise (%)	Mean consensus analyst forecast as of the time of the announcement less actual, scaled by price (for EPS) or actual revenue (for revenue)
Quarterly guidance surprise (%)	Guidance less actual, scaled by price (for EPS) or actual revenue (for revenue)
R&D to assets	Research and development expenses for prior quarter scaled by assets; or zero if missing in Compustat
Return on assets	Net income divided by assets over the prior 4 quarters
Revenue forecast dispersion	Standard deviation of analyst revenue forecasts
Revenue guidance peers	Percent of two-digit SIC peers providing revenue guidance over past four quarters
Revenue surprise	Difference in year-over-year quarterly revenue, scaled by market cap at end of the prior quarter
RGNG	Ratio of the probabilities of providing guidance to the probability of not providing guidance
RNGG	Ratio of the probability of not providing guidance to the probabilities of providing guidance
ROG	Equals one if the firm issues revenue guidance but not earnings guidance that quarter