What Guides the Guidance?

An Empirical Examination of the Dynamic Disclosure Theory

by

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Biographical Sketch

The author was born in Shanghai, China. He attended Fudan University in Shanghai and graduated with a Bachelor of Arts degree in Finance. He began doctoral studies in business administration at the University of Rochester in 2007. He received the Master of Science degree from the University of Rochester in 2010. He pursued his research in accounting under the direction of Professor Jerold L. Zimmerman.

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Abstract

I develop and explore a new dimension of earnings guidance – guidance consistency. Contrary to the conventional view that managers make an independent guidance decision each period, I find empirical support for the dynamic disclosure theory, which argues that managers consider earnings guidance as a multi-period decision and try to maintain consistency in guidance. Once I account for past guidance in a logistic model, several known guidance determinants are no longer significant in explaining management guidance decisions. In contrast, past guidance remains significant both statistically and economically across various specifications, suggesting that management guidance decisions are largely predetermined. Moreover, the guidance consistency measure is more robust than the conventional frequency-based "habitual" variable in explaining future guidance. The results still hold in a Heckman selection model and after propensity score matching, mitigating the concern that guidance consistency is merely driven by firms operating in stable environments. Moreover, firms with a history of consistent (inconsistent) guidance are less (more) responsive to various guidance determinants, and omit guidance primarily due to lack of private information (past unsuccessful expectation management).

Compared with inconsistent guiders, consistent guiders are more likely to: (a) guide earlier in the quarter; (b) bundle guidance with earnings announcements; (c) issue guidance even when analyst forecasts are already aligned with managers' own estimates; and (d) also maintain consistency in their guidance timing or specificity. After controlling for analyst forecasts before guidance, their forecasts after guidance are more likely to be aligned with guidance issued by consistent guiders than by inconsistent guiders. My evidence suggests that both managers and analysts view guidance as a multi-period decision, supporting the dynamic disclosure theory.

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1. Introduction

Earnings guidance is a firm's or a manager's disclosure (usually in the form of a press release or a conference call) that contains information about expected future earnings.[1] Earnings guidance serves as a major channel for managers to convey financial outlooks to investors and has significant impacts on capital markets (Pownall et al., 1993; Baginski and Hassell, 1990; Coller and Yohn, 1997). Around 55% of the financial-information-driven stock price variations during 1994~2007 are attributed to earnings guidance (Ball and Shivakumar, 2008; Beyer et al., 2010). Moreover, the prevalence of guidance increased dramatically after the passage of Regulation Fair Disclosure (Reg FD) in 2000 (Anilowski et al., 2007; Wang, 2007).

Despite the vast literature on earnings guidance, two main limitations hamper a comprehensive understanding of this common practice. First, as Hirst et al. (2008) suggest, most prior studies ignore the iterative nature of earnings guidance and implicitly assume that managers make an independent guidance decision each quarter, hence following a static or single-period disclosure theory. Second, most prior studies focus on guidance levels (e.g. guidance frequency), leaving the time-series variation of guidance practice (e.g. guidance changes) largely unexplored. This study fills these voids by examining the *variability* in earnings guidance over consecutive fiscal years and thereby empirically evaluates the dynamic or multi-period disclosure theory.[2]

[1] In this paper, I use "earnings guidance" and "management earnings forecasts" interchangeably.
[2] The purpose of this paper is to empirically examine whether the observed guidance decisions can be better explained with a multi-period model (as in a dynamic disclosure theory) or with a single-period model (as in a static disclosure theory). The terms "dynamic theory" and "static theory" in this study refer broadly to the notion that guidance is explained as a "multi-period" or a "single-period" decision. Such use of the terms "dynamic" and "static" is common in the game theory (e.g. Gibbons, 1992).

In contrast to the static theory, the dynamic theory assumes that managers consider earnings guidance as a multi-period decision and try to maintain consistency in their guidance practice. This dynamic view of guidance is evidenced in recent surveys. For example, Graham et al. (2005, page 4) find that managers "*work to maintain predictability in financial disclosure… [and] try to avoid setting disclosure precedents that will be difficult to maintain,*" similar to the notion that managers try to maintain consistent dividend practice (Brav et al., 2005). Einhorn and Ziv (2008) offer a dynamic theory whereby firms' past regular guidance signals that managers are informed about future earnings, and therefore investors will anticipate guidance to continue in future periods. Guidance omissions from such firms are more negatively interpreted by investors than omissions from firms without a regular guidance history. Moreover, current guidance creates a precedent that investors expect to continue in the future, especially if the firm has adhered to its guidance practice in the past. Therefore, under the dynamic disclosure theory, firms with past regular guidance are less likely to either decrease or to increase guidance subsequently.[3]

While prior studies rely on guidance frequency to classify "regular" guiders, I develop a new measure based on the time-series patterns in guidance. In particular, I use a 4×1 vector (4×2 matrix) of "guide" dummies for each firm-year to separately (jointly) examine quarterly or (and) annual guidance patterns, as illustrated in Figure 1 (Figure 2). The guidance pattern for a given firm-year is coded as consistent

[3] In this study, guidance decreases include the extreme case of "guidance stopping;" guidance increases include the special case of "guidance initiation." I use "drop", "omit", and "suspend" guidance interchangeably, in cases where a firm decreases its guidance frequency relative to the preceding year.

(inconsistent) if it is identical to (differs from) the pattern in the preceding year.[4] Using a balanced panel of 13,048 firm-years (1,864 firms over 2001~2007, post-Reg FD), I find that 66% of the guidance patterns are consistent (27% consistent non-guidance and 39% consistent guidance). Moreover, these patterns last for an average of 4 years and 69% persist until the end of my sample period. The number of consistent guiders increases over time from 188 to 560 (from 157 to 563) based on the quarterly (annual) guidance patterns.

To examine the dynamic disclosure theory, I include both *past* guidance consistency and *past* guidance frequency in a logistic regression of *current* guidance consistency, and control for various guidance determinants. Using last year's guidance pattern as the benchmark, I separately examine firms' decisions to either increase or decrease guidance this year. In both cases, I find that consistent guiders (consistent non-guiders) are more likely to maintain their existing guidance (non-guidance) practice and are 30% (20%) less likely to decrease (increase) guidance frequency, relative to inconsistent guiders.[5] Consistent with the dynamic disclosure theory (Einhorn and Ziv, 2008), including the past guidance consistency and frequency variables more than doubles (triples) the pseudo-R^2 of the logistic regression that explains subsequent guidance decreases (increases), and their marginal effects exceed other guidance determinants in economic magnitude.

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[4] Although both "consistent guidance" and "consistent non-guidance" are coded as consistent, I use these two terms distinctively because: (a) consistent non-guiders do not face the choice to drop guidance as consistent guiders do; and (b) I also examine the guidance timing and format, which do not apply to consistent non-guiders. Therefore, consistent non-guiders are excluded in these two analyses.

[5] Note that the classification of "consistent guiders," "consistent non-guiders" and "inconsistent guiders" is based on the guidance patterns in the *past* two years. Results are similar if I use the *past* three or four years' guidance patterns.

This finding is potentially subject to a selection bias – a firm that issued consistent guidance in the past is more likely to be operating in a stable environment, and hence is more likely to continue its guidance practice even if its manager is making an independent guidance decision each quarter, which is also consistent with the static theory. To distinguish the dynamic theory from the static theory, I use three approaches: (a) two-stage selection models that explicitly model the decision of past guidance consistency; (b) propensity scores to match firms that are equally likely to issue consistent guidance based on all other guidance determinants except past guidance consistency; and (c) measuring guidance determinants as changes from last year to this year, to examine whether it is the stability of the guidance determinants that drives guidance consistency. Across all of these tests, past guidance consistency remains significant in explaining subsequent guidance decisions but the changes in guidance determinants are largely insignificant. Hence the results support the dynamic disclosure theory over the static theory.

Feng and Koch (2010) document that firms are more likely to drop guidance if their past guidance failed to avoid earnings disappointments (so-called "once bitten twice shy" strategy). My evidence shows that this result is only significant for inconsistent guiders (i.e. firms with inconsistent past guidance), whereas consistent guiders (i.e. firms with consistent past guidance) drop guidance primarily due to lack of information endowment, proxied by information uncertainty (Chen, Matsumoto, and Rajgopal, 2011). Moreover, the guidance omission decisions by consistent guiders are more sensitive to various guidance determinants than by inconsistent guiders, consistent with the dynamic disclosure theory, which predicts that consistent guiders are more reluctant to drop guidance than inconsistent guiders. However, the above results reverse when I follow the conventional frequency-based classification of firms as either frequent guiders ("habitual" guiders) or infrequent guiders ("sporadic" guiders). In particular, "habitual" guiders are more sensitive to various guidance determinants than "sporadic" guiders, and the "once bitten twice shy" variables are significant only for "habitual" guiders, inconsistent with the predictions of the dynamic disclosure theory. Moreover, after excluding firms issuing guidance every quarter, past guidance frequency becomes positively associated with future guidance omissions, contradicting conventional wisdom. In contrast, past guidance consistency remains significant in predicted directions across various specifications, and hence appears to be a more robust proxy than the conventional frequency-based "habitual" variable in capturing firms issuing guidance as a routine.[6]

Finally, I find that compared with inconsistent guiders, consistent guiders are more likely to: (a) issue guidance earlier during the quarter; (b) bundle guidance with the previous quarter's earnings announcement; (c) issue guidance even when analyst consensus forecasts are already aligned with managers' own estimates; and (d) maintain consistency in their guidance timing and specificity (e.g. point, range, etc.). These results are consistent with the findings of Graham et al. (2005) that managers try to maintain consistency in financial disclosure. Consistent with analysts being

[6] This is not a criticism of prior literature because the frequency-based "habitual" variable is included in prior studies as a control variable rather than a main variable of interest. Moreover, prior literature focuses on explaining the *level* of guidance rather than the *variability* of guidance.

aware of guidance history when interpreting current guidance, I find that analyst consensus forecast is more likely to be aligned with management guidance issued by consistent guiders than by inconsistent guiders, after controlling for past guidance accuracy and frequency.

This paper contributes to the voluntary disclosure literature primarily in two ways. First, I provide empirical evidence consistent with the dynamic disclosure theory in the setting of earnings guidance (Einhorn and Ziv, 2008). My results suggest that managers unlikely make independent guidance decisions every quarter, but rather they tend to follow their previous practice, especially if the firm has already established a consistent (but not necessarily frequent) guidance history. This is consistent with the survey results in Graham et al. (2005) that managers try to maintain "predictability" in financial disclosure. The persistent guidance patterns and consistent guidance timing and format lend further support to the notion that consistent guiders are likely making *ex ante* decisions on their guidance practice instead of making *ex post* guidance decisions every quarter based on the underlying news, a distinction noted in prior theories (Leuz and Verrecchia, 2000; Core, 2001), but lacking empirical evidence.

Second, this paper makes a methodological contribution. Prior literature mainly examines guidance *levels* using pooled regressions of either a "guide" dummy variable or guidance frequency, thus implicitly assuming the decision benchmark (i.e. the default choice) is non-guidance for all firms. However, the dynamic disclosure theory and the survey evidence suggest that managers tend to follow their previous practice. Based on this notion, I use a firm's past guidance as the benchmark for its current guidance and examine the *changes* in guidance patterns by developing a new measure – guidance consistency. This new research design allows me to study guidance variability from a time-series perspective – a dimension of guidance overlooked in prior literature.[7] Moreover, my results suggest that compared with the conventional frequency-based "habitual" variable, past guidance consistency is more robust in explaining future guidance in directions predicted by the dynamic disclosure theory, and is also robust to empirical procedures that account for the endogeneity of past guidance consistency. Overall, both the statistical power and the economic magnitude of past guidance are paramount in the multiple logistic regressions; hence omitting guidance history variables in analyzing management guidance decisions is likely to result in spurious associations and misleading interpretations.[8]

Two caveats exist in interpreting my results as evidence for the dynamic theory. First, my sample covers only the post-Reg FD period (2001-2007), during which earnings guidance has become increasingly frequent and consistent. Therefore, the dynamic theory may not be supported in the pre-Reg FD period. Second, the finding that firms with past consistent guidance are less sensitive than firms with past inconsistent guidance to various guidance determinants and more likely to maintain their existing guidance practice (e.g. issuance, timing, and format) is consistent with three explanations: (a) these firms are making independent guidance decisions each

[7] Controlling for past guidance frequency on the right hand side of the regression as a control variable does not remedy the incorrect benchmark issue. See Appendix A for formal explanation.
[8] In particular, absent guidance history variables, I find that analyst following, the regulated industry dummy, and equity beta are all significant in explaining guidance decisions in the expected directions. However, once I account for guidance history, these determinants become statistically insignificant.

period but their business environments are so stable that their guidance decisions turn out to be consistent over time (static theory); (b) these firms are making *ex post* guidance decisions each period but are aware that their consistent guidance history will lead investors to more negatively interpret guidance omission; consequently they become more reluctant to omit guidance and less sensitive to various guidance determinants (dynamic theory and assuming managers are only backward-looking); and (c) aware that current guidance can affect future guidance, these firms are making *ex ante* decisions to guide consistently and hence they are less sensitive to various guidance determinants (dynamic theory and assuming managers are forward-looking). Finding robust results using the aforementioned empirical approaches mitigates the concern that my results are merely driven by explanation (a). However, my results are insufficient to distinguish between explanations (b) and (c), but both explanations are consistent with the dynamic disclosure theory.

The remainder of the paper is organized as follows. Section 2 provides the institutional background on earnings guidance practice, reviews related literature, and develops hypotheses. Section 3 describes my sample and the guidance patterns. I present and discuss the empirical results in Section 4. Section 5 concludes.

2. Institutional background, literature review, and hypothesis development

2.1 Earnings guidance practice and a review of related literature

The practice of issuing earnings guidance took root in the 1970s, when managers began privately communicating their forecasts to large investors. This practice grew during the stock-market boom in the 1990s, especially after the passage of the Private Securities Litigation Reform Act (PSLRA, 1995), which protects managers from liabilities of their forward-looking statements (McKinsey & Company, 2006). As analysts were gaining access to material non-public information through extensive private conversations with executives, the SEC passed Reg FD in 2000 to prohibit private and selective disclosure of material information by public companies.[9] Because investors consider analyst forecasts as an important earnings target (Brown and Caylor, 2005), there is a severe negative market reaction if reported earnings per share (EPS) falls short even by a penny (Skinner and Sloan, 2002). Hence many firms issue public guidance to adjust market expectations before earnings announcements (Fuller and Jensen, 2002; Matsumoto, 2002).

According to the surveys by the National Investor Relations Institute (NIRI), over 2003~2009, the percentage of firms providing earnings guidance decreased from 77% to 60%.[10] Among the guiders, however, the surveys find an opposite trend in quarterly guidance (75% drops to 30%) than in annual guidance (16% rises to 81%), consistent with practitioners' call to replace the practice of quarterly guidance with

[9] See Beyer et al. (2010) Section 4.2.1 for a literature review on Reg FD.

[10] Using the First Call data, Anilowski et al. (2007, Table 2) find much lower prevalence but an increasing trend in guidance (from 1.6% in 1994 to 27.2% in 2003), accounting for an increasing proportion of the total market cap in their sample (from 0.05% in 1994 to 46.4% in 2003). They also find an increasing trend in annual guidance over time and a decreasing trend in quarterly guidance after the passage of Reg FD.

annual guidance (CFA Institute, 2006; Deloitte, 2009). A major criticism against quarterly guidance is that it induces managers to fixate on the short term earnings numbers instead of creating firms' long term value (Fuller and Jensen, 2002; 2010).

However, once guidance is initiated, managers are under pressure from various market participants to maintain their guidance practice. Analysts and investors generally prefer firms with more guidance (Lang and Lundholm, 1993; Bushee and Noe, 2000), but holding constant the guidance level, most analysts and investors prefer *consistent* guidance practice because they can anticipate future guidance with more certainty (CFA Institute, 2006). There are negative price reactions to firms' guidance renouncements (Chen et al. 2011). Analysts would become more concerned with firms' outlooks if managers suspend guidance (MWW Group, 2009). Managers are more reluctant to suspend guidance if their peers continue to provide guidance (Houston et al., 2010). Confronted with these pressures, managers either endeavor to maintain earnings guidance or to avoid setting guidance precedents that are difficult to maintain (Graham et al., 2005).[11] The desirability of guidance consistency and continuation is similar to the inflexible nature of dividend policies in many ways (Brav et al., 2005; DeAngelo et al., 2009).

Recent studies have documented dramatic changes in earnings guidance practice after Reg FD. For example, Rogers et al. (2009) find a significant decrease (increase) in the number of sporadic (habitual) guiders, defined as firms providing

[11] This finding in Graham et al. (2005) is consistent with the notion that some managers are likely making *ex ante* decisions either to give guidance regularly or to abstain from guidance completely, as opposed to making *ex post* decisions to give guidance independently for each quarter based on the underlying news.

guidance for two or fewer (three or more) quarters per year. Rogers and Van Buskirk (2011) document that the percentage of guidance bundled with earnings announcements increased from 6.8% in 1995 to 74.8% in 2007, with a sharp increase after 2001. Berger (2011) attributes this trend to the difficulties in effectively regulating earnings guidance and earnings announcements independently; hence some firms likely formalize guidance as part of their standard disclosure practice. Besides, the numbers of stand-alone guidance and preannouncements (i.e. forecasts issued after fiscal quarter ends but before earnings announcements) declined substantially after 2001 (Rogers and Van Buskirk, 2011), indicating a distinct era for earnings guidance in the post-Reg FD period.

Given its extensive use and significant capital market impact, earnings guidance has been an important topic in accounting research.[12] As machine-readable data (e.g. First Call) became available in the late 1990s, the empirical literature on earnings guidance has proliferated. Empiricists often use earnings guidance as a setting to test theories of voluntary disclosure in general. Hirst et al. (2008) point out a major limitation in this literature – most prior studies ignore the iterative nature of earnings guidance and implicitly assume that managers make an independent guidance decision every period. In terms of research designs, prior studies typically use a "guide" dummy variable or the guidance frequency variable as the dependent variable, and pool firm-quarters or firm-years in a single regression on guidance

[12] Because comprehensive literature reviews on earnings guidance already exist in the literature (e.g. Beyer et al., 2010; Hirst et al., 2008; Healy and Palepu, 2001; Core, 2001; King et al., 1990; and Cameron, 1986), I need not repeat the literature review but rather I focus on an important omission in the existing empirical literature to motivate my study.

determinants. Both research designs are *level* specifications that implicitly assume the benchmark of the guidance decision (i.e. the default choice) is "non-guidance" for all firms and for all periods. In this study, I examine the *changes* in firms' guidance practice because the dynamic theory (explained below) implies that the benchmark for managers' guidance decisions should be their previous guidance; hence managers effectively decide on the *changes* of guidance rather than on the guidance *levels*.[13]

2.2 Dynamic disclosure theory and hypothesis development

Under a static theory (i.e. a single-period setting) with no disclosure cost, all private information is disclosed, regardless of the underlying news, as the "unraveling theory" predicts (Grossman and Hart, 1980; Milgrom, 1981). Dye (1985), as well as Jung and Kwon (1988), suggests that when investors are uncertain about managers' information endowment, informed managers can withhold bad news by pooling with uninformed managers, i.e. pretend to be uninformed. Given the iterative nature of earnings guidance, investors perceive the likelihood of informed managers to be positively correlated over time, e.g. due to managers' familiarity with the operations. Hence Einhorn and Ziv (2008) suggest that investors would form and update their beliefs of managers' information endowment based on guidance history. In particular, regular past guidance (non-guidance) reveals to investors that the manager likely

[13] The change specification also captures the information ignored in the level specifications (e.g. guidance frequency). For example, three firms gave quarterly guidance only for one quarter in 2005, but in 2004, RiteAid provided no guidance; Caterpillar provided guidance only once a year but for the same fiscal quarter; Motorola provided guidance every quarter. From a change perspective, RiteAid was initiating guidance; Caterpillar was maintaining consistent guidance practice; Motorola was decreasing guidance; although they all had the same guidance level in 2005.

(unlikely) possesses private information about future earnings; thus investors would rationally anticipate continued guidance (non-guidance) in future periods. Similarly, current guidance signals that managers are informed and sets a precedent that the market expects to continue (Graham et al., 2005). In summary, the dynamic theory suggests that managers view guidance as a multi-period decision and try to maintain consistency in their guidance practice, especially after a history of regular guidance.[14]

However, "regular guidance" is not clearly defined in the dynamic theory. One potential empirical measure for guidance regularity is guidance frequency, which is based on the notion that investors perceive frequent guiders as better informed of future earnings.[15] Previous studies typically use guidance frequency, either directly or transformed into a "habitual" dummy variable, to summarize guidance history (e.g. Wasley and Wu, 2006; Rogers et al., 2009; Chen et al., 2011). A drawback of the frequency measure is that it treats all fiscal quarters in a year as the same and hence ignores the time-series patterns in guidance. Moreover, the frequency threshold to classify a firm as a "habitual" guider is subject to researchers' discretion.

To address these shortcomings, I develop a new empirical measure for guidance regularity – guidance consistency, elaborated in Section 3. The consistency measure is based on the notion that if past guidance exhibits a consistent pattern (e.g. managers always issue guidance in the fourth quarter), then investors would infer that managers are informed of future earnings for *certain* quarters of the year. If managers

[14] This prediction constitutes the central hypothesis of this paper, but it is not the focus of Einhorn and Ziv, who focus on deriving conditions under which the anticipation of costly future guidance omission precludes firms from initiating guidance. Hence my paper extrapolates but does not test their model.
[15] Several studies also interpret a high frequency of voluntary disclosure as a proxy for firms following an *ex ante* policy of disclosure (e.g. Brown et al., 2004; Chen et al., 2011).

omit guidance in a fiscal quarter that they previously provided guidance consistently, investors will negatively interpret the omission as managers withholding bad news instead of managers being uninformed. Investors are less likely to negatively interpret non-guidance in the quarters with no guidance precedent. However, once managers initiate guidance in these quarters, investors will rationally update their beliefs of managers' information endowment and anticipate guidance to continue in these quarters in the following years.[16]

Because both consistency and frequency of past guidance can reveal managers' information endowment to investors, it is an empirical question as to which measure better captures the theoretical concept of "regular guidance" and explains managers' subsequent guidance decisions. Therefore, I use both measures to test my hypotheses and compare the results. To avoid repetition, I develop and test hypotheses focusing only on the new measure – guidance consistency, but all my hypotheses can also be stated and tested using guidance frequency.

H1 (Differential Likelihood of Guidance Changes): *Ceteris paribus*, after a history of consistent guidance, firms are ***(a)*** less likely to decrease guidance in the *current* period, and ***(b)*** less likely to increase guidance in the *current* period.

Because firms make conscious decisions on their past guidance, H1 is subject to an alternative explanation. In particular, firms with consistent past guidance are likely operating in stable environments. Therefore, even if their managers make

[16] Because many firms' operating cycles exhibit seasonal patterns, earnings are more unpredictable in certain quarters than in others. For example, holiday seasons (the fourth calendar quarter) are more difficult for retailers to forecast earnings than other seasons. As the likelihood of informed managers varies across quarters, guidance patterns also vary across firms depending on their operating cycles.

independent guidance decisions each period (i.e. following the static theory), they are still less likely to change their guidance practice. To distinguish the dynamic theory from the static theory, I employ several empirical approaches to isolate the effect of past guidance from other confounding effects (elaborated in Section 4), which include: (a) Heckman selection models; (b) propensity score matching techniques; and (c) first differencing specifications.

To further distinguish whether guidance consistency is driven by firms' strategic choice to be consistent in a multi-period disclosure setting (consistent with the dynamic theory), as opposed to driven by stable environments (consistent with the static theory), I examine whether the *sensitivity* of guidance decisions to various guidance determinants differs between firms with consistent *past* guidance (consistent guiders, henceforth) and firms with inconsistent *past* guidance (inconsistent guiders, henceforth). The dynamic theory predicts that consistent guiders should be less sensitive to various guidance determinants than inconsistent guiders, whereas the static theory predicts no difference in the sensitivity of guidance decisions between the two groups.

Dynamic disclosure theory also implies that inconsistent guiders are relatively more sensitive to certain guidance determinants compared with consistent guiders. Prior research suggests that managers withhold guidance for two primary reasons: (a) managers are *unable* to accurately predict earnings due to lack of private information (e.g. Chen et al., 2011); and (b) despite information endowment, managers are *unwilling* to provide guidance because the underlying guidance news is unfavorable (e.g. Kothari et al., 2009; Houston et al., 2010). Under the dynamic disclosure theory, investors interpret guidance omissions by consistent guiders as more negative signals than by inconsistent guiders. Aware of this, consistent guiders are more reluctant to drop guidance and their guidance omissions are more likely attributed to managers lacking sufficient information due to uncertainty, proxied by high analyst forecast dispersion, stock return volatility, and earnings volatility (Chen et al., 2011). In contrast, because investors are less certain about inconsistent guiders' information endowment, inconsistent guiders are more likely to withhold guidance intentionally despite their information endowment (Dye, 1985). A prominent disclosure theory with the assumption of informed managers is the expectation alignment hypothesis (e.g. Ajinkya and Gift, 1984; King et al., 1990): managers use guidance to align market expectation with their own estimates, or to adjust market expectation to a level that managers consider attainable, so-called "expectation management" (Matsumoto, 2002). Based on this hypothesis, I conjecture that, compared with consistent guiders, inconsistent guiders are more likely to drop guidance when managers perceive the "expectation management" value of guidance to be small, proxied by the failure of past guidance to avoid earnings disappointments (Feng and Koch, 2010) and lack of analyst following (Lang and Lundholm, 1993).[17]

H2 (Differential Sensitivity to Guidance Determinants – Consistent Guiders):[18]

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[17] Feng and Koch find that firms tend to drop guidance after past guidance failed to avoid earnings disappointments (so-called "once bitten twice shy" strategy). I expect such myopic behavior applies only to inconsistent guiders but not to consistent guiders.

[18] The predictions in H1~H3 concern the guidance issuance decision and all comprise two parts: (a) the decision to decrease guidance; and (b) the decision to increase guidance. Conceptually, H1 predicts

(a) *Ceteris paribus*, firms with consistent *past* guidance are less sensitive to various guidance determinants in their *current* decisions to omit guidance, and their guidance omissions are primarily attributed to high "information uncertainty."

H3 (Differential Sensitivity to Guidance Determinants – Inconsistent Guiders):

(a) *Ceteris paribus*, firms with inconsistent *past* guidance are more sensitive to various guidance determinants in their *current* decisions to omit guidance, and their guidance omission decisions are also attributed to low "expectation management" value of current guidance, after controlling for "information uncertainty."

Similar predictions also apply to the guidance increase decisions by consistent guiders and consistent non-guiders versus by inconsistent guiders (***H2b*** and ***H3b***, omitted to avoid repetition). However, Graham et al. (2005) find (also suggested by Einhorn and Ziv, 2008) that managers are generally reluctant to initiate guidance. Therefore I expect the contrast in the guidance increase decisions between these two groups of firms (H3b) to be less acute than the contrast in the guidance decrease decisions (H3a), but the reluctance to initiate guidance in itself is consistent with the dynamic disclosure theory that managers consider guidance as a multi-period decision. Note that the focus of H1~H3 is on how *past* guidance affects the incentives of *current* guidance issuance. I leave it to future research on what determines the firms' initial guidance choice, which is beyond the scope of this paper.

Finally, I conjecture that inconsistent guiders differ from both consistent guiders and consistent non-guiders in their timing of guidance decisions. Because

how current guidance decisions are *directly* affected by past guidance, whereas H2 and H3 predict how current guidance decisions are affected by other guidance determinants *conditional on* past guidance.

investors are less certain whether an inconsistent guider is informed, they interpret its guidance omissions less negatively. Hence, an inconsistent guider has more flexibility to turn guidance on and off, and is more likely to make guidance decisions after observing the underlying news (i.e. *ex post* decisions). In contrast, because investors anticipate continued guidance from a consistent guider and interpret its guidance omissions more negatively, the consistent guider will anticipate such behavior from investors and make *ex ante* decision either to issue guidance regularly or to abstain from guidance completely, regardless of the underlying news (Leuz and Verrecchia, 2000; Core, 2001). Hence, compared with consistent guiders, inconsistent guiders are likely to issue guidance later in the quarter (because they wait to observe their private signals) and are more likely to alter guidance timing and format (e.g. point, range, etc.) across periods.

H4 (Guidance Timing and Format): Compared with inconsistent guiders, consistent guiders: ***(a)*** are more likely to issue guidance earlier during the quarter, and ***(b)*** are less likely to change guidance timing and format over time.

Although the preceding discussion implies that inconsistent guiders are more likely than consistent guiders to guide selectively based on the underlying news, I do not have clear predictions on whether they are more likely to guide in the face of bad news or good news because the prior literature has provided evidence for both bad news (e.g. Skinner, 1994, 1997) and for good news (e.g. Miller, 2002). However, when there is no news or neutral news, I conjecture that consistent guiders are more likely than inconsistent guiders to give confirming guidance because omitting such guidance is more likely to be interpreted as "bad news" for consistent guiders than for inconsistent guiders.

H4(c): Compared with consistent guiders, inconsistent guiders are less likely to issue confirming guidance.

H1~H4 suggest that, compared with inconsistent guiders, consistent guiders have less flexibility in changing their guidance decisions because investors learn from their past consistent guidance and have strong expectations for such guidance practice to continue. Therefore, for consistent guidance to be the optimal choice for some firms, the lost flexibility of guidance must be offset by some benefits associated with consistent guidance. One benefit derived from a consistent guidance history is the reputation effect: investors and analysts recognize consistent guiders and thus react more strongly to guidance issued by consistent guiders. A detailed examination of the dynamic interaction between analyst and management forecasts is beyond the scope of this study. However, to shed light on the benefits of consistent guidance, I provide evidence but do not formally test hypotheses on how guidance history affects analyst reaction to management guidance.

3. Sample selection and descriptive statistics

3.1 Sample selection

I obtain the earnings guidance data from the First Call, Company Issued Guidelines (CIG) file. Previous studies verify its relatively complete and consistent coverage (e.g. Feng and Koch, 2010). Moreover, my sample covers the post-Reg FD period (2001~2007) and comprises larger firms followed by more analysts, all of which suggest a relatively more complete coverage by the CIG file (Chuk et al., 2010). Following Bhojraj et al. (2011), I require sample firms to exist in the Compustat/ CRSP merged file for the entire 7 years and to issue at least one earnings guidance during the sample period. These criteria result in a sample of 1,864 unique firms over 7 years, a total of 13,048 firm-year observations. Although this procedure induces survivorship bias, the balanced panel structure facilitates the interpretation of results because of a constant sample. Most of all, this procedure ensures that firms do not appear to provide inconsistent guidance because they were acquired or delisted in the middle of a fiscal year. The final sample size is larger than or comparable to those in recent studies (e.g. Houston et al., 2010; Chen et al., 2011).

I follow prior literature to construct the earnings guidance sample (see Table 1). Starting with all EPS forecasts in "USD" issued by the sample firms during the sample period, I exclude forecasts issued within or after the last 21 days of the fiscal quarters, following Li et al. (2012). These late forecasts are usually intended to preempt bad news rather than to provide guidance for the forthcoming earnings (Skinner, 1994, 1997), and contain much less uncertainty than forecasts issued earlier during the quarter. Following Gong et al. (2011), I exclude all guidance issued in prior quarters (or in prior years for annual guidance) as these long-term guidance contain more earnings uncertainty, and hence are incomparable to guidance issued during the current period.[19] Finally, I exclude guidance revisions in the same quarter.

3.2 Describing guidance patterns and measuring guidance consistency

I measure guidance patterns based on fiscal years for two reasons. First, it accounts for the seasonal patterns caused by the integral accounting method (the special accounting treatment in the last fiscal quarter). Second, measuring at the annual level preserves the guidance patterns, which are otherwise unobservable at the quarterly level or using guidance frequency (see footnote 13). To examine guidance changes, I compare two consecutive years to code my dependent variable $Consistent_{i,t}$ as one if firm i in year t provides guidance in the same pattern as in year t-1, and zero otherwise. As illustrated in Figure 1, consistent guidance patterns include consistent non-guidance, consistent partial guidance, and consistent full guidance; inconsistent guidance patterns include guidance increases, decreases, and switching order only. Following prior literature, I separately examine quarterly guidance and annual guidance, except in the fourth quarter, where a quarterly guidance is also considered as an annual guidance for the current year and vice versa.

To provide a more comprehensive analysis of earnings guidance, I jointly examine both annual guidance and quarterly guidance. As illustrated in Figure 2, $ConsistentJoint_{i,t}$ is coded as one if the joint pattern of quarterly and annual guidance

[19] Because firms usually update such long-term guidance during the forecasted period, my consistency measure does not materially change if I include long-term guidance in my analysis.

in year *t* is identical to the pattern in year *t-1*, and zero otherwise. Therefore *ConsistentJoint=1* if and only if *Consistent=1* for both annual and quarterly guidance.

Figure 3 Panel A (B) describes the annual (quarterly) guidance patterns. Over 2002~2007, the number of consistent patterns increases, mainly driven by consistent guidance rather than by consistent non-guidance.[20] The trend towards consistent guidance practice provides preliminary evidence for the dynamic disclosure theory that more managers are considering earnings guidance as multi-period decisions and try to maintain guidance consistency. This trend also highlights the importance of using a change specification that recognizes past guidance as the benchmark for management guidance decisions, as opposed to level specifications that assume non-guidance as the uniform benchmark for all managers and for all periods. In addition, the joint patterns in Panel C suggest consistent annual guidance has become more common (from 32 to 199) than consistent quarterly guidance (from 23 to 79) over the 2002~2007 period, with increasing numbers of firms consistently using both (from 26 to 141). Therefore it is important to include annual guidance in a more comprehensive analysis of the earnings guidance practice in the post-Reg FD period.

Of all 11,184 firm-years (1,864 firms × 6 years, leaving out the first year of my sample), 66% of the guidance patterns are consistent (27% consistent non-guiders and 39% consistent guiders). Untabulated firm-level analysis shows that 1,462 firms have consistent guidance patterns for at least 3 consecutive years (684 consistent

[20] I repeat my analysis using firms that do not survive through the entire 2001~2007 period, and I find a similar trend towards consistent guidance (untabulated). Because non-surviving firms are less stable than surviving firms, this result mitigates the concern that my results are solely driven by stable firms.

guiders and 778 consistent non-guiders). Limited by the sample period of 7 years, these patterns last for an average of 4 years and 69% persist until the end of my sample period, suggesting that once decided on a guidance or non-guidance practice, most managers tend to adhere to it for at least several years. This is consistent with recent survey findings (Graham et al., 2005) and dynamic disclosure theory (Einhorn and Ziv, 2008) that managers try to maintain consistency in their guidance practice.

3.3 Descriptive statistics on guidance consistency and guidance frequency changes

To examine how firms change guidance practice over consecutive years, I use a transition matrix, which calculates the empirical probability of this year's guidance frequency conditional on last year's guidance frequency (see Table 2). Take quarterly guidance for example, 67% of the firms that issued guidance every quarter last year (*LagFreq=4*) will issue guidance also for all quarters this year (*Freq=4*). Overall, the conditional probability declines as it moves away from the diagonal, suggesting that managers tend to stick to their previous guidance practice. Thus, past guidance seems more suitable than non-guidance as the benchmark for current guidance decisions.[21]

Table 2 also reveals a non-monotonic relation between *LagFreq* and *Consistent*. Prior studies classify firms as habitual guiders if and only if *LagFreq* ≥ 3

[21] Some prior studies on guidance stoppage do not control for the pre-stoppage guidance frequency; thus their results are subject to an alternative explanation: firms with less frequent past guidance are more likely to stop guidance. For example, the documented "once bitten twice shy" behavior (Feng and Koch, 2010) can be due to infrequent guiders who are also more likely to miss analysts' forecasts. In untabulated analysis, I replicate their results and find that the significant "*past guidance outcome*" variables become insignificant once I include *LagFreq* in their model (e.g. t-stat [p-value] of *MtBtAnalyst* changes from 2.30 to 0.82 [from 0.02 to 0.41]), consistent with the alternative explanation driving the "once bitten twice shy" phenomenon in the full sample. However, as I will discuss later, their results have some support even after controlling for past guidance frequency in some subsamples.

and suggest habitual guiders are likely following predetermined guidance strategies, and therefore should be more likely to issue consistent guidance (e.g. Brown et al., 2004; Chen et al., 2011). However, the results in Table 2 are inconsistent with this conjecture. Take quarterly guidance for example, only 9% (as many as 43%) of firms with *LagFreq=3* (*LagFreq=1*) issue guidance in consistent patterns in the next year. Besides, classifying habitual guiders based on guidance frequency fails to capture consistent guiders that guide only once a year, the number of which (1,163) exceeds that of 3- or 4-quarter-per-year consistent guidance combined (1,105=1,019+86). Finally, *Consistent* and *Freq* are nonlinearly related in the following sense: Pearson correlation coefficient (ρ) = -0.33 (0.09) when non-guidance (i.e. *Freq=0*) is included (excluded) for quarterly guidance, ρ = -0.26 (0.16) for annual guidance (unreported), suggesting that the two variables are likely capturing different dimensions of guidance. However, it is an empirical question as which variable is better in capturing the theoretical concept of "regular guidance" and in explaining managers' subsequent guidance decisions.

4. Research design and empirical results

4.1 Research design

I estimate the following logistic model in which $Consistent_{i,t}$ equals 1 when the guidance pattern for year t is identical to the guidance pattern in year t-1, and 0 otherwise (see Figure 1). (Note: $Consistent_{i,t}=1$ includes consistent non-guidance.)

$$Consistent_{i,t} = \alpha_0$$

H1: Guidance history: $+ \alpha_1 LagFreq_{i,t} + \alpha_2 LagConsistent_{i,t}$

H2: Information uncertainty: $+ \alpha_3 RetVol_{i,t-1} + \alpha_4 Disp_{i,t-1} + \alpha_5 EarnVol_{i,t-1}$

H3: Expectation management: $+\alpha_6 CAR\_EA_{i,t-1} + \alpha_7 MtBtAnalyst_{i,t-1} + \alpha_8 AnalystFollow_{i,t}$

Firm performance: $+ \alpha_9 Loss_{i,t-1} + \alpha_{10} EarnIncrease_{i,t-1} + \alpha_{11} AdjRet_{i,t-1}$

Corporate events: $+ \alpha_{12} MnA_{i,t-1,t} + \alpha_{13} ExecTurnover_{i,t-1,t}$

Alternative guidance motives: $+ \alpha_{14} Restate_{i,t-1} + \alpha_{15} \Delta InsideTrade_{i,t-1,t} + \alpha_{16} MtBtGuid_{i,t-1}$

Other control variables: $+ \alpha_{17} Size_{i,t-1} + \alpha_{18} MktBk_{i,t-1} + \alpha_{19} Leverage_{i,t-1}$

$+ \alpha_{20} Litigation_{i,t-1} + \alpha_{21} Regulation_{i,t-1} + \alpha_{22} Beta_{i,t-1}$ (1)[22]

Appendix B describes the variable definitions. Note that $LagConsistent_{i,t} = Consistent_{i,t-1}$ to emphasize *past* guidance. The dynamic disclosure theory predicts $\alpha_1>0$ ($\alpha_2>0$) if one uses past guidance frequency (consistency) to proxy for regular guiders (H1), as regular guiders should be more reluctant to change guidance. The dynamic disclosure theory also suggests that irregular guiders (*LagConsistent=0*) are more sensitive to various guidance determinants and are likely to drop guidance due to lower "expectation management" value of guidance (H3a), hence $\alpha_6 \sim \alpha_8 > 0$; while regular guiders (*LagConsistent=1*) are less sensitive to various guidance determinants

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[22] Note that the dependent variable captures guidance *changes*. In linear models, the dependent and independent variables must be measured either both in levels or both in changes (Plosser and Schwert, 1978). However, in a nonlinear binary model, the change in the discrete outcome mainly depends on the levels of the independent variables. See Appendix A for an algebraic explanation and Section 4.2.1 for empirical support. Because including the changes of guidance determinants does not change the tenor of my results but restricts my sample sizes, which reduces the statistical power, I include only the levels of guidance determinants in the main tests.

and more likely to drop guidance due to lack of information endowment (H2a), hence $\alpha_3 \sim \alpha_5 < 0$.[23] Regular and irregular guiders can also be classified by the conventional frequency-based "habitual" dummy. Because it is an empirical question whether the pattern-based consistency measure or the frequency-based habitual variable can better explain management guidance decisions, I conduct analyses using both measures and compare the results. Requiring two years' guidance history to compute *LagConsistent* reduces the sample period to five years (2003~2007).

To isolate the effect of past guidance from other confounding guidance determinants, I include a large set of control variables. Miller (2002) documents a positive association between firms' operating performance and voluntary disclosure levels. Following Feng and Koch (2010), I control for firm performance with both accounting measure (*Loss* and *EarnIncrease*) and capital market measure (*AdjRet*). Major corporate events such as merger and acquisition deals and executive turnover can potentially disrupt consistent guidance practice; hence I control for such events by including a dummy variable if such an event occurs over the past two years (*MnA* and *ExecTurnover*). Li et al. (2012) document that some earnings guidance are issued due to motives other than "voluntary," that is managers may issue guidance to comply with the SEC rule 10(b)5 when corporate insiders trade stocks of their own firms ("disclose-or-abstain" motive) or to issue guidance opportunistically ("opportunistic" motive). To account for such alternative guidance motives, I control for changes in

[23] Note that these predictions on H2/H3a reverse in explaining guidance increase decisions (H2/H3b). I will discuss this issue later in this section. I test H2 and H3 using two methods: (a) I partition the sample based on guidance history, and (b) I interact the partitioning variable with all independent variables in the full sample. Section 4.2.2 discusses this issue in more details.

insider trading (*ΔInsideTrade*) as well as whether the firm previously failed to meet or beat its own guidance or was even involved in a financial restatement (*MtBtGuid* and *Restate*). Finally I follow Feng and Koch to control for some firm characteristics that the prior literature suggests to affect management guidance decisions (*Size*, *MktBk*, *Leverage*, *Litigation*, *Regulation*, and *Beta*).[24] All continuous variables are winsorized at the 1^{st} and 99^{th} percentiles.

Table 3 Panel A reports the summary statistics of the dependent and independent variables in the logistic regression. 57% of the guidance patterns are classified as "consistent" (including consistent non-guidance). The average guidance frequency is 1.24 quarters per year. The summary statistics of the control variables are similar to those in prior studies (e.g. Feng and Koch, 2010). Consistent with my sample selection procedure inducing a survivorship bias, my sample firms tend to be larger (on average followed by 8.42 financial analysts) and more profitable (incurring losses in only 22% of all fiscal quarters).

Table 3 Panel B shows pair-wise Pearson correlations between all variables used in the logistic regressions. Consistent with H1, the Pearson correlation between *Consistent* and *LagConsistent* is significantly positive (ρ=0.39). *LagConsistent* is significantly correlated with 14 of the 20 guidance determinants at the 5% level, suggesting that failure to control for *LagConsistent* in a guidance issuance model is

[24] The differential sensitivity to guidance determinants developed in H2 and H3 (lack of information versus lack of incentive) also applies to some of the control variables. Specifically, firm performance and other guidance motives (major corporate events) are likely more important for inconsistent guiders (consistent guiders). My results on these control variables are similar, albeit weaker, than the variables specifically intended to capture "information uncertainty" and "expectation management," consistent with these two sets of variables capturing the most salient aspects of management guidance decisions (Feng and Koch, 2010; Chen et al., 2011). Hence I only discuss these variables for brevity.

likely to cause these correlated guidance determinants to be spuriously significant due to an omitted-correlated-variable problem (Wooldridge, 2002).

Note that a given guidance determinant usually has an opposite effect in causing a firm to increase versus to decrease guidance frequency. For example, firms' operating performance has been shown to be positively related to disclosure levels (Miller, 2002); hence good performance induces a firm to increase guidance (if not already a full guider), whereas poor performance induces a firm to decrease guidance (if not already a non-guider). Because in both cases *Consistent=0*, the effect of firm performance on *Consistent* is unclear in a pooled regression when both guidance increases and guidance decreases are included in the sample.

To address this issue, I divide the full sample into two subsamples as follows (see Table 3 Panel C). I use Sample I (labeled "Keep-or-Drop") to examine the determinants causing firms to "drop" guidance (given that they are not already non-guiders); hence I exclude observations for which *Freq>LagFreq* or *LagFreq=0*, resulting in 4,162 firm-year observations. I use Sample II (labeled "Keep-or-Increase") to examine the factors causing firms to "increase" their guidance frequency (given that they are not already full-guiders); hence I remove observations for which *Freq<LagFreq* or *LagFreq=4*, resulting in 6,660 firm-year observations.[25] Both samples contain a small number of "switching order only" observations (i.e. same frequency but inconsistent patterns), and all my results are robust to excluding these

[25] Imposing the data requirement of all independent variables further reduces the sample sizes. Sample II has a higher attrition rate because 48% of Sample II are consistent non-guiders, who are followed by fewer analysts and hence are more likely to miss analyst related data (see Table 3 Panel A for the data limitations of all variables).

observations. I discuss the results based on Sample I (Keep-or-Drop) at length in Sections 4.2.1 (for H1a) and 4.2.2 (for H2a and H3a). As the results based on Sample II (Keep-or-Increase) are similar, I discuss them in less detail in Section 4.2.3 for H1b~H3b. I discuss the results for H4 (guidance timing and format) in Section 4.2.4. I examine analyst reaction to earnings guidance issued by consistent guiders versus by inconsistent guiders in Section 4.3. I report and discuss the results for quarterly guidance only, because most results are similar for annual guidance and for the joint analysis of quarterly and annual guidance, elaborated in Section 4.4 along with other robustness tests.

4.2 Empirical results from testing H1~H4

4.2.1 Testing H1a: differential likelihood of guidance decreases

Table 4 Panel A presents the results for H1a using Sample I ("Keep-or-Drop," consistent non-guiders excluded). Model (1a) is based on all available observations. Consistent with H1a, *LagConsistent* is positive (t-stat=10.26), suggesting that firms with consistent past guidance are less (more) likely to drop guidance (to maintain guidance consistency) than firms with inconsistent past guidance.[26] *LagFreq* is also positively related to current guidance consistency (t-stat=10.86), consistent with prior literature (e.g. Chen et al., 2011). The economic magnitude of both *LagConsistent* and *LagFreq* is larger than that of any other guidance determinant. All else equal, a firm issuing consistent guidance over the past two years is 31 percentage points more

[26] All t-statistics in my regression analyses are based on standard errors clustered by firm and by year, following Feng and Koch (2010). Tests of multi-collinearity suggest no significant variance inflation.

likely to maintain its guidance practice this year. Including *LagConsistent* and/or *LagFreq* in the logistic regression significantly improves the model's explanatory power, as pseudo-R^2 increases from 12.66% to 27.68% after including both *Lag-Consistent* and *LagFreq*. The substantial explanatory power of guidance history is consistent with the dynamic disclosure theory that past guidance significantly affects current guidance decisions via investors' updated beliefs of managers' information endowment (Einhorn and Ziv, 2008). To the extent that the guidance history variables are significantly correlated with certain "guidance determinants" (see Table 3 Panel B), when guidance history is not adequately accounted for in a multiple regression, these "determinants" are likely to be significant due to omitted correlated variables (Wooldridge, 2002). Because this study focuses on examining the dynamic disclosure theory as whether and how past guidance affects current guidance decisions, I defer to Appendix C more detailed discussions on how the significance of other guidance determinants can be inflated when there is inadequate control for guidance history in a multiple regression analysis.

To better compare *LagFreq* and *LagConsistent* as proxies for regular guiders, I exclude full guiders (*LagFreq=4*) because 67% of full guiders are classified as regular guiders both by frequency and by pattern. Using this sample, *LagConsistent* remains significantly positive (t-stat=6.60) but *LagFreq* turns negative (t-stat= -2.82), suggesting that more frequent guiders are actually *more* likely to drop guidance subsequently than infrequent guiders.[27] I also rerun Model (1a) replacing *LagFreq* with dummy variables for lagged frequency equal to two-, three-, or four-quarter in the last year (unreported), and find the dummy variables for two- and three-quarter guidance significantly negative (t-stat= -5.00, and -2.87, respectively), whereas the dummy variable for four-quarter guidance significantly positive (t-stat= 8.10), with *LagConsistent* remaining positive (t-stat=7.35). Hence, the conclusion from prior literature that firms guiding more frequently are less likely to drop guidance seems solely driven by firms issuing guidance every quarter.

Because firms consciously decided on their past guidance, *LagConsistent* is an endogenous independent variable; therefore, the results in Table 4 Panel A are subject to the following selection bias. Firms issued guidance consistently in the past are more likely operating in more stable environments, and hence even if their managers are making independent guidance decisions every quarter, they are still more likely to issue consistent guidance in the current period, which is also consistent with the static disclosure theory. To distinguish the dynamic theory from the static theory and to mitigate the concern that *LagConsistent* is simply capturing the stability of the guidance determinants, I use three different empirical approaches as follows and report the results in Table 4 Panel B.

First, I use a first differencing specification to account for any time-invariant unobservable factors that are potentially driving guidance consistency (Wooldridge, 2002). If managers make decisions on guidance levels each period, as suggested in

[27] To mitigate the concern of multi-collinearity, I include *LagFreq* and *LagConsistent* one at a time and the results remain qualitatively the same. In particular, *LagFreq* remains negative (t-stat= -3.41).

the static theory, then guidance consistency should be explained, to a larger extent, by the changes in guidance determinants rather than by the levels. After including the unsigned changes of guidance determinants from year *t-1* to year *t* in the regression as before, Model (i) shows that *LagConsistent* continues to be significantly positive in predicting future guidance consistency (t-stat=7.70), whereas the change variables are largely insignificant.[28] This result does not support the static theory that guidance consistency is solely driven by the stability of guidance determinants. In contrast, the result is consistent with the dynamic theory that managers likely take past guidance as given and effectively make decisions on guidance *changes* rather than on guidance *levels*.

Second, I use a Heckman two-stage model to explicitly model the first stage decision of *LagConsistent* as a function of lagged guidance determinants, following Feng and Koch (2010). To implement the Heckman model, I need an instrumental variable (IV) that is correlated with the endogenous variable (*LagConsistent*) but uncorrelated with *Consistent* after controlling for current guidance determinants (Wooldridge, 2002). My main IV is the uncertainty about earnings in year *t-1*, proxied by lagged return volatility and analyst forecast dispersion. Uncertainty about earnings in year *t-1* should affect managers' guidance decision in year *t-1* (Chen et al., 2011), but should not affect managers' guidance decisions in year *t*, because any uncertainty about earnings in year *t-1* should be fully resolved after the earnings

[28] Results are similar when I (a) measure the change variables without taking absolute values and/or as ratios deflated by the levels in year *t-1*; and (b) include only changes of guidance determinants and exclude the levels. My inferences remain qualitatively the same using a fixed effect specification by demeaning all variables at the firm level.

announcement for year *t-1*. Unreported tests also provide empirical verification for the IV criteria: return volatility in year *t-1* significantly explains *LagConsistent* (t-stat = -2.68) but is insignificant in explaining *Consistent* after controlling for current guidance determinants (t-stat = 0.27). After accounting for the self selection using the Heckman two-stage model (Model (ii), Table 4 Panel B), *LagConsistent* remains significantly positive in the second stage (t-stat = 2.70), mitigating the concern that the results in Table 4 Panel A are merely driven by spurious associations or mechanical relations.

Third, I use a propensity score matching approach. The preceding main test essentially compares two types of firms and finds that consistent guiders (the treatment group, *LagConsistent=1*) are less likely than inconsistent guiders (the control group, *LagConsistent=0*) to drop guidance in the current period. However, the differential likelihood of guidance omissions could be due to some systematic differences between these two types of firms rather than due to the effect of guidance history as the dynamic theory suggests. To mitigate this concern, I need to identify two groups of firms that are equally likely to issue consistent guidance based on all other determinants, leaving only *LagConsistent* to differ across these two groups (Li and Prabhala, 2005). Hence in a pooled regression based on the propensity score matched sample, the effect of *LagConsistent* is isolated from other confounding determinants and thus can be more clearly interpreted as evidence of a lead-lag relation in guidance decisions as the dynamic theory predicts (Rosenbaum and Rubin, 1983). After a one-to-one matching procedure, I find that the mean propensity scores in the control and the treatment groups become statistically indifferent (t-stat drops from 51.95 to 0.07, Table 4 Panel C), suggesting that the matching procedure has successfully identified a comparable control group.[29] Based on this matched sample, I find that *LagConsistent* continues to load significantly positive in Model (iii) (t-stat=6.89), consistent with H1a that firms with consistent *past* guidance are more likely to remain consistent in the *current* period, compared with firms with inconsistent *past* guidance.

4.2.2 Testing H2a and H3a: differential sensitivity to guidance determinants

The previous section documents that firms with consistent past guidance (consistent guiders) are *less likely* than firms with inconsistent past guidance (inconsistent guiders) to drop guidance subsequently (H1a). I continue to explore whether such differential likelihood of guidance omission is attributed to their differential sensitivity to various guidance determinants (H2a and H3a), that is, whether the effects of some guidance determinants differ conditional on *LagConsistent*. To do so, I use two complementary approaches. First, based on *LagConsistent,* I partition the sample and statistically test the significance of the "information uncertainty" variables (*RetVol*, *Disp*, *EarnVol*) and the "expectation management" variables (*CAR_EA*, *MtBtAnalyst*, *AnalystFollow*) separately for consistent guiders and for inconsistent guiders. I also compare the pseudo-R^2 to

[29] Results are qualitatively the same if I use a one-to-two or one-to-three matching procedure, in which case, for each observation of *LagConsistent=1*, two or three observations of *LagConsistent=0* are matched based on the propensity scores.

assess whether the two groups of firms respond to various guidance determinants with different sensitivity. Second, rather than partition the sample, I interact *LagConsistent* with all guidance determinants in the model to statistically test the differential effect of each guidance determinant. In addition, I conduct likelihood ratio tests to jointly test the differential effects of the determinants predicted in H2 and H3, and to evaluate the explanatory power of *LagConsistent* as a conditioning variable. I then repeat all the above analyses using the conventional frequency-based habitual dummy variable as the conditioning variable and compare the results.

Table 5 reports the results using Sample I ("Keep-or-Drop", consistent non-guiders excluded). Model (2a) examines the guidance omission decisions by consistent guiders (i.e. *LagConsistent=1*). Consistent with H2a, difficulties in predicting future earnings (marked with †'s), proxied by stock returns volatility (*RetVol,* t-stat= -1.70) and analyst earnings forecast dispersion (*Disp,* t-stat= -2.65), are significant factors for consistent guiders to drop guidance. Correspondingly, Model (3a) examines the guidance omission decisions by inconsistent guiders (i.e. *LagConsistent=0*). Consistent with H3a, after controlling for information uncertainty, inconsistent guiders are also more likely to drop guidance if their previous guidance was ineffective in guiding analysts' forecasts to attainable levels (marked with #'s), proxied by cumulative abnormal returns around earnings announcement dates (*CAR_EA,* t-stat=1.75) and a dummy for meeting or beating guided analyst consensus forecasts (*MtBtAnalyst,* t-stat=2.72) in the last year. The number of analysts following (*AnalystFollow*) marginally affects guidance consistency only for inconsistent guiders (t-stat=1.83). Note that these expectation management variables (marked with #'s) are insignificant for consistent guiders. Most control variables are insignificant, hence omitted for brevity.[30] Together, the above results suggest that the failure of past guidance to avoid earnings disappointments is a significant factor for inconsistent guiders to drop guidance, whereas the difficulty in forecasting earnings is a more prominent reason for consistent guiders to drop guidance, consistent with H2a and H3a.[31] Note that the smaller pseudo-R^2 for consistent guiders (9.51%) than for inconsistent guiders (19.37%) is also consistent with H2a that consistent guiders are less responsive to various guidance determinants in their decisions to omit guidance.

To compare *LagConsistent* with the conventional frequency-based habitual dummy, I test the same models conditional on a habitual dummy based on past two years' guidance frequency (*LagFreq*+*Lag2Freq*; hereafter *LagFreq2*). Following Li et al. (2012), I use the common cutoff: guidance for 6 or more quarters over the past two years indicates a habitual guider, and otherwise a sporadic guider.[32] The results based on *LagFreq2* (Models 2a' and 3a') sharply contrast from those based on *LagConsistent* (Models 2a and 3a): habitual guiders (based on *LagFreq2*) are more likely to drop guidance when past guidance failed to avoid earnings disappointments

[30] An interesting finding on the operating performance variables is that, consistent guiders drop guidance when the *change* in earnings is negative (*EarnIncrease*, t-stat=2.09), whereas inconsistent guiders drop guidance when the *level* of earnings is negative (*Loss*, t-stat= -2.48), suggesting that the two groups use different earnings benchmarks.

[31] The results in Table 5 remain qualitatively the same when I also include the *changes* of guidance determinants. Most change variables are insignificant, except *ΔDisp* (t-stat= -2.67 only for consistent guiders), consistent with H2a that consistent guiders are more likely to drop guidance due to *higher* uncertainty.

[32] Because I measure *LagConsistent* over the past two years, I define *Habitual* also over the past two years for the results to be comparable. All results are similar if I define *Habitual* based on guidance frequency last year, using the common cutoff of at least three quarters' guidance indicating a habitual guider (e.g. Rogers et al., 2009).

(t-stat=2.12 [2.68] for *CAR_EA* [*MtBtAnalyst*]), but sporadic guiders are not (t-stat=1.67 and 0.73 respectively), opposite to the results based on *LagConsistent*. Also, the pseudo-R^2 for "habitual" guiders (23.96%) is larger than for "sporadic" guiders (13.12%), suggesting that they are more sensitive to guidance determinants. Overall the results based on the conventional habitual dummy as a conditioning variable are inconsistent with the dynamic disclosure theory, which predicts that habitual guiders should be more reluctant to drop guidance than sporadic guiders (H2a and H3a).

The purpose of H2 and H3 is to examine whether guidance determinants have conditional effects, in the sense that certain guidance determinants are significant only for inconsistent guiders but insignificant for consistent guiders. Hence it is not my primary interest whether the difference in the significance itself is significant. For completeness, I run a single regression with the conditioning variable (*LagConsistent* or the habitual variable) interacting with all the independent variables. I conduct t-tests (and likelihood ratio tests) to examine the difference in the effects of guidance determinants individually (and jointly) with results reported in the "Difference" column (and in the bottom panel) in Table 5. Although each of the variables predicted in H2a and H3a does not differ significantly in their effects on consistent guiders versus on inconsistent guiders, the likelihood ratio test on all interactive terms rejects the null that consistent guiders and inconsistent guiders are affected by guidance determinants in the same way (χ^2=42.137, DF=21, p=0.0004).

While the results based on *LagConsistent* are consistent with the theoretical predictions, the results based on *Habitual* are either inconsistent or weak. Note that the difference between the intercepts in Models (2) and (3) represents the main effect of the conditioning variable in the single regression with interactive terms. Theory predicts that regular guiders are more likely to maintain guidance and less likely to drop guidance; hence this main effect should be positive. Although this is true with *LagConsistent* (t-stat= 2.76), the main effect turns negative with the habitual dummy between Models (2a') and (3a') (t-stat= -4.40), suggesting that if classified based on guidance frequency, "habitual" guiders are actually more likely to drop guidance than "sporadic" guiders after controlling for guidance determinants, inconsistent with prior studies (e.g. Chen et al., 2011).[33] Moreover, *LagConsistent* is significantly positive in both "habitual" and "sporadic" subsamples (t-stat=3.27 and 7.45 in Models (2a') and (3a'), respectively), whereas the significance of *LagFreq* is substantially reduced in the subsample of consistent guiders (t-stat=1.86, Model (2a)), consistent with the notion that regular guiders are consistent guiders but not necessarily frequent guiders.

In summary, when I use past guidance to explain future guidance omissions, the results based on *LagConsistent* are more robust and more consistent with the dynamic disclosure theory (Einhorn and Ziv, 2008) – regular guiders are more reluctant to drop guidance and drop guidance primarily due to lack of information endowment. The result based on *LagFreq* (or the derived *Habitual* dummy) is not robust (as it is solely driven by firms issuing guidance every quarter and is only marginally significant when *LagConsistent=1*) and is inconsistent with Einhorn and

[33] The negative main effect of the habitual dummy remains significant (unreported t-stat = -3.44) when I exclude *LagConsistent* from the single regression with interactive terms, mitigating the concern that the result is due to the correlation between the habitual dummy and *LagConsistent* (unreported Pearson correlation = -0.31).

Ziv's predictions (as "habitual" guiders are more likely than "sporadic" guiders to drop guidance and are more responsive to various determinants in dropping guidance).

4.2.3 Testing H1b~H3b: differential likelihood and sensitivity of guidance increases

In this section, I examine how past guidance consistency (*LagConsistent*) affects subsequent guidance increase decisions by repeating the preceding analyses using Sample II ("Keep-or-Increase"; consistent full guiders excluded and consistent non-guiders included). Parallel to H1a~H3a, H1b~H3b predict that, compared to firms with past inconsistent guidance, firms with past consistent guidance (including consistent non-guidance) are less sensitive to various guidance determinants and are less likely to increase guidance (especially less likely for the purpose of expectation management). Results are reported in Table 6.

In Model (1b) in Panel A, *LagConsistent* is significantly positive (t-stat=8.49), consistent with H1b. All else equal, firms with consistent guidance (or non-guidance) over the last two years are 21 percentage points more likely to maintain their existing practice, exceeding the marginal effect of any other guidance determinant. Although *LagFreq* is also statistically and economically significant (t-stat= -14.91; marginal effect= -20 percentage points), its sign is inconsistent with H1b, suggesting that more frequent guiders are *less* likely to maintain their current practice, but *more* likely to further increase guidance.[34] Consistent with the dynamic disclosure theory, including

[34] To mitigate concerns of multi-collinearity, I include *LagFreq* and *LagConsistent* one at a time and the results remain qualitatively the same. In particular, *LagFreq* remains negative (unreported t-stat= -18.76).

the guidance history variables more than triples the pseudo-R^2 of the model (increasing from 7.25% to 23.41%), and these results are robust to the procedures that account for the endogeneity of *LagConsistent* (same approaches as in Section 4.2.1 and reported in Panels B and C of Table 6).

Unlike consistent guiders' guidance omissions are immediately subject to investors' negative interpretation, when firms increase or initiate guidance, investors likely build up their expectation for continued future guidance in a gradual manner (Bhojraj et al., 2011). Therefore, in contrast to Models (2a) and (3a) in Table 5, the likelihood ratio test result for all interactive terms for Models (2b) and (3b) in Table 6 is insignificant (χ^2=18.375, DF=20, p=0.5627), suggesting that guidance determinants have similar effects on the guidance increase decisions by inconsistent guiders as by consistent guiders and consistent non-guiders. However, the pseudo-R^2 for consistent guiders and consistent non-guiders (7.88%) is smaller than for inconsistent guiders (18.62%), consistent with their guidance increase decisions being less sensitive to guidance determinants than the decisions by inconsistent guiders (H2b).[35]

4.2.4 Testing H4: guidance timing and format of consistent and inconsistent guiders

The results thus far focus on guidance *issuance* – consistent guiders and consistent non-guiders adhere to their existing practice and are less responsive to various guidance determinants. Moreover, unreported firm-level analysis shows that,

[35] To the extent that the decision to initiate guidance is likely different than to increase guidance, I repeat my analysis by partitioning Sample II based on whether *LagFreq=0*. *LagConsistent* remains significant in both sub-samples: t-stat=4.69 (7.19) for the initiation (increase) subsample.

of all 1,864 sample firms, 684 (778) issued guidance (non-guidance) in consistent patterns for at least 3 consecutive years over the 7-year period, and 69% persist until the end of my sample. One possible explanation for such persistent guidance patterns is that, instead of making guidance decisions on a quarter-by-quarter basis, these firms have adopted predetermined guidelines to guide their guidance practice, as is suggested in recent surveys (e.g. Graham et al., 2005) and implied in the dynamic disclosure theory (Einhorn and Ziv, 2008).

As H4 predicts, if consistent guiders are following predetermined guidance strategies, then they are more likely to issue guidance earlier during the quarter and are less likely to change their guidance timing and format. To test H4, I examine both the means and the variances of the guidance timing and format variables at the firm level, and compare these statistics between consistent and inconsistent guiders (see Table 7).[36] Compared with inconsistent guiders, consistent guiders are less likely to change their quarterly guidance date across periods (t-stat= -2.39 or -3.28 when the guidance date is measured relative to the last quarter's earnings announcement date or relative to the current quarter end, *VarEAD* or *VarHorizon* respectively). Moreover, consistent guiders issue guidance earlier in the quarter by 3.56 days (*MeanHorizon*) or 1.37 days (*MeanEAD*), consistent with H4.

I also find that consistent guiders' guidance format is less volatile (*VarPrec*, t-stat= -4.17) and more specific, predominantly range and point forecasts (*MeanPrec*, t-

[36] In this subsection *only*, as I conduct firm level tests, I define both consistent guiders and inconsistent guiders also at the firm level, using a minimum of 3 years of consistent *joint* guidance patterns as the criterion for consistent guiders. The results remain qualitatively the same if I use quarterly guidance patterns instead. All results in Table 7 are also similar for annual guidance (unreported for brevity but available upon request).

stat= 2.47). Moreover, a significantly larger proportion of their guidance is bundled with the previous quarter's earnings announcement (*MeanBundled_EAD*) and is classified as confirming guidance (*MeanNoSurp*). This is consistent with consistent guiders following predetermined strategies to issue guidance even when the market expectation is already aligned with their own estimate (Clement et al., 2003). The large percentage of bundled forecasts by consistent guiders (86.60%) is consistent with the conjecture that earnings guidance is likely formalized as a standard practice at these firms and therefore managers do not make an independent decision to issue guidance on a quarter-by-quarter basis (Brown et al., 2004; Berger, 2011).[37]

4.3 Analyst reaction to guidance issued by consistent and inconsistent guiders

The empirical results in the preceding section provide evidence that managers consider earnings guidance as a multi-period decision and try to maintain consistency in their guidance (or non-guidance) practice. In this section, I explore whether capital market participants recognize the multi-period nature of earnings guidance and hence interpret guidance in the context of guidance history. There are several advantages to using financial analyst forecast reaction as opposed to using stock price reaction. First, stock price reaction consists of both revisions of expected future earnings or cash flows and revisions of perceived risk or discount rate. In contrast, analysts provide forecasts of the same earnings measure for the same period as management guidance,

[37] I contacted the investor relations personnel at several firms in my sample. They responded that they have adopted and been implementing the current guidance practice for some time (usually several years) and do not expect to change it anytime soon. However, they do not publicly disclose or commit to their existing guidance practice.

hence providing a cleaner setting to examine the direct impact of earnings guidance on capital markets (Yeung, 2009). Second, as Table 7 shows, most earnings guidance in my sample is bundled with the previous quarter's earnings announcement, and thus it is difficult to attribute stock price reaction solely to earnings guidance (Rogers and Van Buskirk, 2011). In contrast, when giving forecasts for the next quarter, analysts are likely to place more weight on managers' explicit earnings guidance than on the actual earnings reported for the past quarter (Cotter et al., 2006; Feng and McVay, 2010). Third, earnings guidance often takes the form of a conference call where the targeted audience is financial analysts (Bowen et al., 2002; Brown et al., 2004).

I consider three dimensions of analyst reaction to management earnings guidance. First, I examine whether the number of analysts issuing earnings forecasts increases after managers issue earnings guidance for the same quarter. To do so, for each quarterly earnings guidance observation, I match it to the First Call Summary File and identify the last observation *before* guidance and the first observation *after* guidance. Then I take the difference between these two observations to measure the change in analyst following after management guidance (*Chg_N*).

Second, I examine whether analyst consensus forecasts become aligned with management guidance. Because the majority of quarterly earnings guidance takes the form of a closed-end range (point guidance is considered as a range of zero width), I set the dummy variable *Consen_Aligned* as one if the analyst consensus forecast after guidance falls within managers' guidance range, and zero otherwise.

Third, I examine whether analyst forecast dispersion is reduced after earnings guidance. Following similar procedures as calculating *Chg_N*, I measure the change in analyst forecast dispersion (*Chg_Disp*) as the change in the standard deviation in analyst forecasts before and after management earnings guidance.

To examine how guidance history affects analyst reaction to guidance, I also consider three dimensions of guidance history (*LagFreq*, *LagConsistent*, and *Lag-Accuracy*) while controlling for guidance antecedents (*N_pre*, *Disp_pre,* and *Consen_ Aligned_pre*), guidance properties (*Bundled_EAD*, *Horizon*, and *RangeWidth*), and guidance contents (*GuidNews*, *Bad*, and *GuidNews**Bad*). Appendix B describes all variable definitions and all the continuous variables are winsorized at 1st and 99th percentiles. The regression models take the following form (firm and time subscripts omitted for brevity):

$$\begin{aligned}
&\textit{Dependent Variable} = \alpha_0 \\
&\text{Guidance history: } + \alpha_1\, \textit{LagFreq} + \alpha_2\, \textit{LagConsistent} + \alpha_3\, \textit{LagAccuracy} \\
&\text{Guidance antecedents: } + \alpha_4\, \textit{N_pre} + \alpha_5\, \textit{Disp_pre} + \alpha_6\, \textit{Consen_Aligned_pre} \\
&\text{Guidance properties: } + \alpha_7\, \textit{Bundled_EAD} + \alpha_8\, \textit{Horizon} + \alpha_9\, \textit{RangeWidth} \\
&\text{Guidance contents: } + \alpha_{10}\, \textit{GuidNews} + \alpha_{11}\, \textit{Bad} + \alpha_{12}\, \textit{GuidNews*Bad} \qquad (2)
\end{aligned}$$

I estimate this model using a pooled ordinary least square (OLS) regression when the dependent variable is *Chg_N* or *Chg_Disp*, and a pooled logistic regression when the dependent variable is *Consen_Aligned*. In all three cases, I cluster the standard errors by firm and by year.

Table 8 Panel A presents the summary statistics of all the dependent and independent variables. After management guidance, the number of analysts issuing forecasts increases by 0.74 on average. The mean (median) guidance range is 3 cents (2 cents) wide for the quarterly guidance sample. The likelihood that the analyst consensus forecast falls in this range prior to guidance is 41% and increases to 77% after guidance, suggesting that analysts closely follow management earnings guidance, consistent with prior literature (e.g. Cotter et al., 2006). Measured as the difference between analyst consensus prior to guidance and the midpoint of managers' range guidance, the mean (median) guidance news (in absolute terms) is 5 cents (3 cents), and 63% of the news is considered bad news (i.e. negative raw guidance news).

Table 8 Panel B reports the regression analysis results. Model (1) examines the changes in the number of analyst following after guidance. All else equal, firms with more frequent past guidance and with a consistent guidance history experience larger increases in analyst following after giving guidance (t-stat = 5.81 and 2.49, respectively), consistent with analysts respond more strongly to guidance issued by regular guiders. The economic magnitude of guidance history is also considerable, as consistent guiders attract 0.11 more analysts than inconsistent guiders, about 15% more than the average increase of 0.74 analysts. The results on the control variables are largely consistent with expectations.

Model (2) examines the likelihood that analyst consensus forecasts fall in the range of management earnings guidance. Consistent with analysts taking guidance history into account when interpreting management guidance, their forecasts are more likely to be aligned with guidance if the firm provided more frequent, more consistent, and more accurate guidance in the past (t-stat = 3.76, 2.98, and 9.31, respectively).

Hence guidance decisions are viewed as a multi-period decision by analysts rather than as an independent decision each period. The stronger response to consistent and frequent guidance by financial analysts in turn serves to better achieve expectation alignment (Ajinkya and Gift, 1984), and therefore provides managers the incentive to maintain guidance consistency and frequency. This finding on analyst reactions complements the results in the previous section on management guidance decisions in deriving an equilibrium outcome – both managers and analysts make decisions and exercise judgment on current guidance in the context of guidance history, consistent with the dynamic disclosure theory (Einhorn and Ziv, 2008).

The results on most control variables in Model (2) are also as expected. The likelihood of aligning analyst consensus with guidance decreases when the analyst forecast dispersion is higher before guidance and when guidance news is of a larger magnitude (t-stat = -2.87 and -16.17, respectively). However, it is puzzling that the likelihood is also lower when the analyst consensus forecast is already aligned before guidance (t-stat = -3.41). To alleviate the concern that analysts' reaction to such confirming guidance may fundamentally differ from their reaction to non-confirming guidance, I repeat Model (2) with confirming guidance excluded and all my results remain qualitatively the same. Finally, the likelihood that the analyst consensus falls in the guidance range mechanically increases in the range width (t-stat = 13.74). To mitigate the concern of this mechanical relation, in unreported tests, I repeat Model (2) with three subsamples equally partitioned by *RangeWidth*: [0, 0.02], (0.02, 0.04], and (0.04, up]. *LagConsistent* remains significant in the first subsample but not in the next two subsamples (t-stat = 2.50, -0.78, and 1.15, respectively), whereas *LagFreq* is insignificant in the first two of the three subsamples (t-stat = 0.86, 0.57, and 2.24, correspondingly). This result suggests that, when facing very narrow range guidance, analysts are more likely to follow guidance issued by consistent guiders than by inconsistent guiders. But when the range is wide enough, the likelihood that analyst consensus falls within the range does not significantly differ across these two types of guiders. In fact, *RangeWidth* becomes insignificant in the third subsample of ranges wider than 4 cents (t-stat = 0.60).

Model (3) examines how analyst forecast dispersion is reduced following management guidance. Note that from Panel A, the average reduction in forecast dispersion is small in magnitude (median = -0.0002). Therefore, the incremental effect of guidance history is also weak, only *LagFreq* significant at 0.05 level (t-stat = -2.11). The results on the control variables are also consistent with expectations. For example, the effect of dispersion reduction following guidance is more pronounced when analyst forecast dispersion is larger prior to guidance (t-stat = -8.71) and is lessened when the guidance range is wider (t-stat = 2.83).

In summary, I find evidence that guidance history affects analysts' reaction to current management guidance. In particular, analyst following increases more and analyst consensus forecast is more likely to follow guidance when the guidance is issued by consistent and/or frequent guiders. This result demonstrates the benefits of establishing and maintaining frequent and consistent guidance, because analysts take guidance history into consideration when interpreting guidance. This finding complements the results in the previous section that managers also consider guidance as a multi-period decision and try to maintain guidance consistency. Thus the interactions between managers and analysts form an equilibrium supported by the dynamic disclosure theory (Einhorn and Ziv, 2008).

4.4 Robustness checks

In this section, I test whether my results are robust to using alternative regression specifications, alternative samples, alternative variable definitions, and including additional control variables. While all results are available upon request, I report selected results in Table 9 for brevity.

4.4.1 Robustness to different samples and regression specifications

LagConsistent remains significantly positive when I rerun Model (1) using the following samples: (a) the joint set of Sample I and Sample II; (b) the intersection set of Sample I and Sample II; (c) removing the "switching order only" observations from either Sample I or Sample II; (d) removing guidance stoppers (i.e. *LagFreq≠0* but *Freq=0*) from either Sample I or Sample II; and (e) comparing consistent guiders only with guidance stoppers.

LagConsistent remains significantly positive when I modify Model (1) into the following research specifications: (a) probit models; (b) Poisson regression of guidance frequency; (c) replacing *LagConsistent* with *LagIncrease* and *LagDecrease*, both of which are dummy variables that are set equal to one if and only if the firm increased or decreased guidance over the last two years respectively; in this model, the coefficients on both dummies are significantly negative (t-stats= -7.54 and -5.05 respectively for Sample I; see Panel A). Therefore, the main result that inconsistent guidance is more likely to be followed by inconsistent guidance, is not solely driven by firms reverting to their previous practice after a temporary deviation: for example, a full guider issuing guidance every quarter may temporarily omit guidance only for one quarter in year *t*, thus exhibiting inconsistent patterns over the two consecutive two-year periods, i.e. year *t-1* and year *t*, and year *t* and year *t+1*.

4.4.2 Robustness to different variable measurement

LagConsistent remains significantly positive when I rerun Model (1) using the following alternative variable measurement: (a) replacing variables that are based *only* on quarters with guidance (*MtBtAnalyst* and *CAR_EA*) with variables based on *all* quarters regardless of guidance (*MtBtAnalyst_All* and *CAR_EA_All*); (b) defining the merger and acquisition dummy (*MnA*) as one only if the deal value is greater than or equal to 5% of the acquirers' total assets and zero otherwise; (c) replacing past guidance frequency (*LagFreq*) with a habitual dummy variable that is set to one if and only if a firm issued guidance for at least three quarters in the preceding fiscal year and zero otherwise, following Rogers et al. (2009); (d) replacing past guidance frequency (*LagFreq*) with a habitual dummy variable that is set to one if and only if a firm issued guidance for at least six quarters in the preceding two fiscal years and zero otherwise, following Li et al. (2012); (e) replacing *LagFreq* with a set of dummy variables that is set to one for each frequency measure (i.e. one, two, three, and four, but leave one out of the regression as the base group); and (f) matching to the current year with guidance determinants measured in the current year rather than measured in the preceding year.

4.4.3 Robustness to including additional variables

Rogers and Stocken (2005) develop a "forecasting difficulty" measure to capture whether managers have insufficient private information to provide accurate guidance. Although in my main test, I control for information uncertainty using stock return volatility, analyst forecast dispersion, and earnings volatility, following Feng and Koch (2010), I repeat my analysis with the inclusion of the "forecasting difficulty" measure, following Rogers and Stocken, and all my results remain qualitatively the same (see Panel B). Besides, I find the "difficulty" measure is negatively related to the likelihood of guidance consistency (t-stat= -2.30) (more likely to omit guidance), and is only significant for firms with consistent past guidance (t-stat= -2.97) but not for firms with inconsistent past guidance (t-stat= -0.14), consistent with H2a that consistent guiders are more likely to drop guidance due to lack of private information. However, requiring the "difficulty" variable reduces my sample sizes by 44.5%.

Duarte and Young (2009) show that both information asymmetry and stock liquidity affect the market-microstructure-based measure of probability of informed trading (PIN). In the main test, I use stock return volatility to proxy for the likelihood that managers lack sufficient private information and hence cannot issue guidance of adequate accuracy. To mitigate the concern that stock return volatility can be driven by stock liquidity, I repeat my analysis with the inclusion of two liquidity measures: trading volume and bid-ask spread. All my results remain qualitative the same (see Panel B). PIN measure is not appropriate for this purpose to capture managers' private information about future earnings because: (a) PIN measure captures the likelihood of informed trading, not necessarily conducted by managers; (b) it captures trading based on any private information, not necessarily about future earnings; and (c) according to the SEC rule 10(b)5, managers are prohibited from trading on their private information, and therefore PIN more likely captures the likelihood of informed trading conducted by other individuals or institutions rather than by managers.

Ajinkya et al. (2005) show that board structure affects management guidance decisions. My results are robust to including five board structure variables: board size (number of board members); board independence (percentage of independent board members); average age of the board members; board-audit-committee relation (percentage of board members also on the audit committee); and interlocked board (percentage of board members classified as interlocked per RiskMetrics). Consistent with Ajinkya et al., I find board independence positively correlated with guidance consistency, but only significant for inconsistent guiders in the quarterly guidance sample. In the annual guidance sample, however, this result is significant both for consistent and for inconsistent guiders, suggesting that annual guidance is more affected by board independence than quarterly guidance. A caveat follows because board structure variables are noisy proxies for corporate governance, hence readers should interpret the results with caution (Brickley and Zimmerman, 2010). Including board structure variables significantly reduces the sample sizes.

Wang (2007) suggests that R&D expenditure, a proxy for proprietary costs, affects firms' public guidance decisions. All my results are qualitatively the same after controlling for this variable; however, as Wang noted, requiring this variable substantially reduces the sample size. Bhojraj et al. (2011) show that the number of segments is positively related with guidance frequency. All my results are robust to controlling for the number of segments. However, the requirement of this additional variable also substantially reduces the sample size. My results are also robust to the inclusion of industry fixed effects.

4.4.4 Robustness to extending the guidance history measurement window

All results are robust to measuring past guidance consistency (*LagConsistent*) and past guidance frequency (*LagFreq*) over up to the past four years' of guidance history. Einhorn and Ziv (2008) predict that, as the length of regular guidance history increases, the incentive to maintain guidance consistency becomes stronger. To test this hypothesis, I rerun Models (1a) and (1b) with the inclusion of two additional dummy variables, namely, *LagConsistent2*, and *LagConsistent3*, which are set to one if the past three and four fiscal years exhibit an identical guidance pattern, and zero otherwise (reported in Panel C). All my results are qualitatively the same after including these two variables. In particular, *LagConsistent* remains significant (t-stats=6.71 and 6.76, respectively). However, *LagConsistent2* and *LagConsistent3* are insignificant at the 0.10 level for Sample I, suggesting that *LagConsistent* (based on the past two years) is an adequate proxy for consistent guidance history.[38] Next, I partition the sample into four groups based on the length of consistent past guidance and conduct similar analysis as in Section 4.2.2 (untabulated). I find that as the length of consistent past guidance increases, the likelihood of firms maintaining consistent guidance in the current year increases from 33.2% to 79.3% in Sample I, but most of the increase concentrates in whether the firm issued consistent guidance in the past *two* years (t-stat=10.21). There is some evidence that the likelihood of consistent guidance is higher as the length of consistent past guidance increases from two years to three years (t-stat=2.20), consistent with Einhorn and Ziv's prediction. There is also evidence that, as the length of consistent past guidance increases, firms are more likely to omit guidance due to information uncertainty rather than due to expectation management. Overall the results are consistent with the dynamic theory and suggest that guidance consistency over the past *two* years is an adequate proxy for regular guidance history that increases the costs of changing guidance practice.

4.4.5 Results of annual guidance and joint tests of annual and quarterly guidance

All inferences regarding *LagFreq* and *LagConsistent* are unchanged (in some cases even stronger) in the setting of quarterly updates of annual guidance (hereafter,

[38] The statistical reason behind the insignificant results on *LagConsistent2* and *LagConsistent3* is that most consistent guiders remain consistent for at least four years. Hence there is insufficient variation in the *length* of guidance consistency to identify statistical significance. However, *LagConsistent* remains significant because there is sufficient variation in guidance consistency over a two year period.

annual model) and the joint tests of annual and quarterly guidance (hereafter, joint model). Below I discuss only the results that differ from those in the quarterly model.

Model (1a) (testing H1a; see Panel D): I modify the annual model because the patterns of quarterly updates of annual guidance are less likely to be affected by the "expectation management" incentives, as annual earnings are reported only once a year, unlike quarterly earnings. Therefore, *MtBtAnalyst* and *CAR_EA*, which capture whether past guidance was successful at managing expectation, are excluded from the annual model. However, results are qualitatively similar if I include both variables. The results in Panel D are largely similar to the quarterly model in Table 4 Panel A. In particular, *LagConsistent* remains significant at the 0.01 level (t-stats=9.32 and 9.26, respectively). Besides, the explanatory power, as measured with pseudo-R^2, increases substantially after including the guidance history variables. For example, the pseudo-R^2 increases from 13.78% to 30.84% in the annual model. Although *LagFreq* is statistically in the full sample, its significance seems solely driven by full guiders (i.e. *LagFreq=4*). Instead of becoming significantly negative as in Table 4 Panel A, in Table 9 Panel E, *LagFreq* turns insignificant in the annual model (t-stat=0.70) and in the joint model (t-stat=1.03 [0.52] for quarterly [annual] guidance frequency), whereas *LagConsistent* remains significantly positive (t-stat=4.88 and 2.12) in both models. These results provide further evidences that *LagConsistent* is more robust than *LagFreq* in capturing the theoretical construct of *regular* guidance history and in explaining subsequent guidance decisions (Einhorn and Ziv, 2008).

Panel F (G) replicates Table 5 using annual guidance (joint analysis of annual and quarterly guidance) to test H2a and H3a. The results are qualitatively the same as the quarterly guidance analysis in Table 5. Take annual guidance for example, when partitioned based on *LagConsistent*, firms with inconsistent past guidance are more sensitive to various guidance determinants than firms with consistent past guidance (pseudo-R^2: 25.41% > 12.52%). I also interact the partitioning variable with all the guidance determinants, and find that the main effect of *LagConsistent* is significantly positve (t-stat=3.27), suggesting that after controlling for other guidance determinants, firms with inconsistent past guidance are more likely to drop guidance. However, this result reverses when the conventional frequency-based "habitual" variable is used as the partitioning variable. After controlling for other guidance determinants, firms with more frequent past guidance are more likely to omit guidance than infrequent guiders (t-stat= -4.40), contrary to the theoretical prediction. *LagConsistent* remains positive and significant in both subsamples partitioned by the "habitual" variable (t-stats=5.89 and 5.24). In contrast to the results with *LagConsistent* as the partitioning variable, pseudo-R^2 is of similar magnitude for the two subsamples partitioned by "*Habitual*" (19.08% vs. 20.79%). In summary, the results in Panel F suggest that in the annual guidance sample, *LagConsistent* is more robust than the frequency-based *Habitual* variable in capturing regular guiders, in the sense that they should be less sensitive to various guidance determinants and more likely to maintain their existing practice.

The above analyses are based on Sample I (Keep-or-Drop) to examine firms' decisions to omit guidance (H1a~H3a). When I replicate Table 6 using Sample II

(Keep-or-Increase) to examine guidance increase decisions (H1b~H3b) with annual guidance and joint analysis of annual and quarterly guidance, I obtain qualitatively similar results as the quarterly analysis in Table 6 (results untabulated). In particular, *LagConsistent* remains significantly positive in Model (1b) for the annual and joint models (t-stats=10.75 and 16.92, respectively).

Overall the tenor of these results in the annual model and the joint model is qualitatively the same as the main results of the quarterly model as reported in the main text.

4.4.6 Alternative specifications to mitigate the endogeneity of LagConsistent

Approach (i) – first differencing specifications: the results are robust to: (a) measure the change variables without taking absolute values or as ratios deflated by the levels in year *t-1*; (b) include different variants of change variables simultaneously in the model; (c) include only changes of guidance determinants and exclude the levels; (d) include only the change variables that are significant in the previous models.

Approach (ii) – Heckman selection models: the results are robust to: (a) exclude analyst-related variables and guidance outcome variables in the first stage, because these variables are also endogenous; (b) exclude *LagFreq* from the first stage and/or the second stage, because it is also endogenous; (c) include *Loss*, *EarnIncrease*, *EarnVol* averaged over the past three years as additional instrumental variables (IVs) in the first stage; and (d) include board variables in year *t-1* in the first stage as an additional IV (Ajinkya et al., 2005).

Approach (iii) – propensity score matching approaches: the results are robust to: (a) use one-to-two or one-to-three matching procedures; (b) include additional IVs indicated above in the matching procedure; and (c) exclude *LagFreq* in the matching procedure because it is also endogenous.

All the above results also apply to the annual model and the joint model. In particular, I replicate Table 4 Panels B and C for annual guidance (reported in Table 9 Panels H and I) and for the joint analysis of annual and quarterly guidance (reported in Table 9 Panels J and K).

5. Summary and conclusions

Hirst et al. (2008) point out that prior empirical literature overlooked the iterative nature of earnings guidance and hence focused on the levels (i.e. the first moment) of earnings guidance. This study fills these voids by empirically examining the dynamic disclosure theory (Einhorn and Ziv, 2008) and by investigating the variability (i.e. the second moment) of earnings guidance – a dimension that has been neglected in prior literature. Using a balanced panel of 13,048 firm-years (1,864 firms over the 7 years from 2001 to 2007) I find significant and persistent patterns in both annual and quarterly guidance. Of the 1,864 sample firms, 1,462 have consistent guidance patterns for at least three consecutive years within the seven-year period (684 consistent guiders and 778 consistent non-guiders) and 69% of them maintain their patterns until the end of my sample period. Even when guidance patterns are inconsistent over two consecutive years, I find firms change their guidance gradually, suggesting that managers tend to stick to their previous guidance practice; hence the benchmark of their guidance decision is likely their prior guidance practice.

Consistent with the dynamic disclosure theory (Einhorn and Ziv, 2008) and recent survey findings (Graham et al., 2005), I provide empirical evidence that past guidance significantly affects subsequent guidance decisions in both statistical and economic sense. Firms with consistent past guidance face higher costs of changing their guidance practice, and thus are more likely to maintain their existing practice and drop guidance only when managers lack private information (i.e. when managers are *unable* to provide guidance). In contrast, firms with inconsistent past guidance are more likely to drop guidance, more responsive to various guidance determinants, and more likely to withhold guidance after unsuccessful expectation management (i.e. more likely to *intentionally* withhold guidance). All else equal, having consistent guidance (non-guidance) patterns over the *past* two years reduces the likelihood of guidance decreases (increases) *this* year by 20 (30) percentage points, a larger effect than any other guidance determinant in economic magnitude. Moreover, compared with the conventional frequency-based "habitual" dummy variable, the pattern-based "consistency" variable is more robust in capturing "regular" guidance that increases the costs of changing guidance practice and thus causes managers to be reluctant to omit guidance subsequently, as predicted in the dynamic theory. Overall, including guidance history variables significantly improves the statistical power of the model that explains future guidance, as the pseudo-R^2 increases by 100~200%. To the extent that other guidance determinants are likely correlated with guidance history, failure to account for guidance history when studying management guidance decisions will lead to spurious results and misleading interpretations.

The results are robust to including the changes (besides levels) of guidance determinants, propensity score matching approaches, and two-stage selection models, mitigating the concern that guidance consistency is solely driven by firms operating in stable environments or due to the endogenous self selection of *LagConsistent*. Moreover, compared with inconsistent guiders, consistent guiders are more likely to (a) issue guidance earlier during the quarter; (b) bundle their guidance with earnings announcements; (c) issue guidance even when market expectations are already aligned with managers' belief; and (d) maintain consistency in their guidance timing and format over time. These results suggest it is unlikely that managers are making guidance decisions on a quarter-by-quarter basis after observing the underlying news each period. Instead, managers likely consider earnings guidance as a multi-period decision and try to maintain guidance consistency in both guidance issuance and other guidance properties across periods (Graham et al., 2005).

Two important caveats exist. First, my sample covers only the post-Reg FD period, during which earnings guidance practice has become increasingly popular and consistent. Therefore, the dynamic theory may not be supported in the pre-Reg FD period. Second, although *LagConsistent* remains significant in the predicted direction across various specifications that mitigate its endogenous nature and after controlling for numerous guidance determinants documented in the prior literature, to the extent that these determinants and empirical approaches cannot fully capture all aspects of management guidance decisions, I cannot completely rule out the possibility that some unobservable determinants are driving guidance consistency even though managers are making independent guidance decisions every period.[39] However, the significant explanatory power and economic magnitude of *LagConsistent* suggests it captures some important guidance determinant, even after controlling for *LagFreq*.

To the extent that *LagConsistent* and *LagFreq* are significantly correlated with certain guidance determinants, failure to account for guidance history in studying

[39] For this reason, instead of making inferences at the individual firm level, it is more appropriate to interpret my results at the subsample level: firms with consistent guidance patterns *as a group* are more likely than firms with inconsistent patterns to view earnings guidance as a multi-period decision.

earnings guidance decisions will likely lead to spurious results and misleading interpretations. Furthermore, given the increasing number of consistent guiders and their persistent guidance patterns in the post-Reg FD period, managers seem to follow their previous guidance practice. Therefore, using past guidance as the benchmark seems more reasonable in analyzing managers' current guidance decisions, than assuming non-guidance as the uniform benchmark for all firms and for all quarters, as implied by the level specifications (e.g. guidance frequency) that are widely used in the existing literature. The guidance consistency measure developed in this study provides future research with a new design that incorporates past guidance as the benchmark for managers' current guidance decisions. Finally, this study finds that past guidance can significantly affect subsequent guidance decisions. This suggests that future research can study what determines the firms' initial guidance choices to further understand firms' voluntary disclosure decisions.

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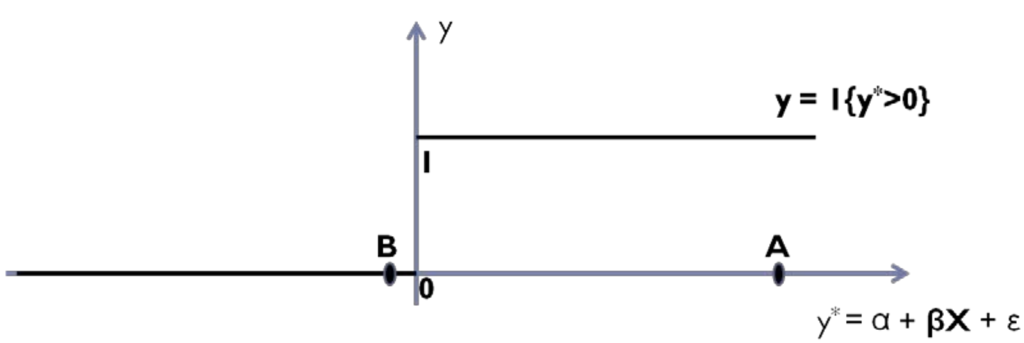
Appendix A – A Note on Change Specifications in a Binary Model

The guidance consistency model introduced in this study is a non-linear binary model with its dependent variable measured in changes (i.e. in first difference). Unlike linear models, in which the dependent and independent variables should be measured either *both* in levels or *both* in changes (Plosser and Schwert, 1978), in non-linear binary models, the change in the discrete outcome variable is a function of not only the changes but also the levels of the independent variables. In addition, the levels of the independent variables dictate whether the changes of the independent variables can explain the change of the discrete outcome.

Consider a non-linear binary model, where y = 1 if the latent variable $y^* = \alpha + \boldsymbol{\beta X} + \varepsilon > 0$, and y = 0 otherwise. Although $\Delta y^* = \boldsymbol{\beta \Delta X} + \Delta\varepsilon$, Δy is not just a function of $\boldsymbol{\Delta X}$ but also of $\mathbf{X}$. When $\mathbf{X}$ is of large magnitude, y^* will be far from 0; hence Δy will be insensitive to $\boldsymbol{\Delta X}$ (see point A in the graph below). Conversely, $\boldsymbol{\Delta X}$ will affect Δy only conditional on the level of $\mathbf{X}$ being close to satisfying $y^* = 0$ (see point B in the graph below), especially when $\mathbf{X}$ variables are sticky over time, in which case $\boldsymbol{\Delta X}$ is of small magnitude and exacerbates measurement error problems.



Appendix B – Variable Definitions and Data Sources

Panel A: Variables for Testing H1~H3 (Guidance Consistency Model)

Variable	Description
Dependent Variable	
$Consistent_t$	Indicator variable equal to 1 if the guidance pattern (including non-guidance) in year *t* is identical to that in year *t-1*, and 0 otherwise (see Figure 1 for examples).
Guidance History Variables	
$LagFreq_t$	Count variable equal to the number of fiscal quarters in which earnings guidance was provided in year *t-1*
$LagConsistent_t$	Indicator variable equal to 1 if the guidance pattern in year *t-1* is identical to that in year *t-2*, and 0 otherwise (see Figure 1 for examples).
Information Uncertainty Variables	
$RetVol_{t-1}$	Standard deviation of daily raw stock returns over year *t-1*.
$Disp_{t-1}$	Average over year *t-1* of analyst forecast dispersion at the beginning of each quarter.
$EarnVol_t$	Standard deviation of seasonal changes in quarterly EPS over year *t* (deflated by beginning-of-year total assets).
Expectation Management Variables	
$CAR\_EA^{*}_{t-1}$	[For Sample I] Average over year *t-1* of cumulative abnormal return (i.e. market-adjusted) around the earnings announcements ([-12, 1] trading day window) *only for quarters that the managers issued guidance*; [For Sample II] Average over year t-1 of cumulative abnormal return (i.e. market-adjusted) around the earnings announcements ([-12, 1] trading day window) of ALL quarters.
$MtBtAnalyst^{*}_{t-1}$	[For Sample I] Average over year t-1 of an indicator variable equal to 1 if realized quarterly EPS is greater than or equal to analyst consensus forecasts (based on the last forecast before the fiscal quarter ends) only for quarters that the managers issued guidance, and 0 otherwise. [For Sample II]Average over year *t-1* of an indicator variable equal to 1 if realized quarterly EPS is greater than or equal to analyst consensus forecasts (based on the last forecast before the fiscal quarter ends) for ***ALL*** quarters, and 0 otherwise.

Panel A (*Continued*)

Variable	Description
$AnalystFollow_t$	Average over year *t* of the number of analysts following the firm (i.e. issuing earnings forecasts for the firm) at the beginning of each quarter.
Firm Performance Variables	
$Loss_{t-1}$	Percentage of quarters with losses in year *t-1*.
$EarnIncrease_{t-1}$	Percentage of quarters with earnings increase relative to 4 quarters before during the year *t-1*.
$AdjRet_{t-1}$	Cumulative return adjusted for market return over year *t-1*.
Corporate Events Variables	
$MnA_{t-1,t}$	Indicator variable set to 1 if the firm engaged in a merger or an acquisition in year *t-1* or in year *t*, and 0 otherwise.
$ExecTurnover_{t-1,t}$	Indicator variable set to 1 if a CEO or CFO turnover occurs in year *t-1* or in year *t*, and 0 otherwise.
Alternative Guidance Motivation Variables	
$Restate_{t-1}$	Indicator variable set to 1 if the firm issued financial restatements in year *t-1*, and 0 otherwise.
$\Delta InsideTrade^{*}_{t-1,t}$	[For Sample I] Percentage of quarters in which a corporate insider traded the company's stocks in year *t-1* but not in the corresponding quarter in year *t*. [For Sample II] Percentage of quarters in which an insider trading occurred in year t but not in the corresponding quarter in year t-1.
$MtBtGuid^{*}_{t-1}$	[For Sample I] Average over year *t-1* of an indicator variable set to 1 if realized quarterly EPS is greater than or equal to *management* earnings guidance (the last guidance chosen if more than one exists), and 0 otherwise. [For Sample II] This variable is dropped in the tests because consistent non-guiders (48% of Sample II "Keep-or-Increase") issued no guidance in year *t-1*.
Other Control Variables	
$Size_{t-1}$	Natural logarithm of total assets at the end of year *t-1*.
$MktBk_{t-1}$	Ratio of market value to book value of equity at the end of year *t-1*.
$Leverage_{t-1}$	Ratio of total liabilities to total assets at the end of year *t-1*.

Panel A (*Continued*)

Variable	Description
Litigation$_{t-1}$	Indicator variable set to 1 for high litigious industries including Biotechnology (SIC 2833-2836), Computer (SIC 3570-3577), Electronics (SIC 3600-3674), Programming (SIC 7371-7379), R&D Services (SIC 8731-8734), and Retailing (SIC 5200-5961), and 0 otherwise.
Regulation$_{t-1}$	Indicator variable set to 1 for regulated industries including Telephone (SIC 4812-4813), Television (SIC 4833), Cable (SIC 4841), Communications (SIC 4811-4899), Gas (SIC 4922-4924), Electricity (SIC 4931), Water (SIC 4941), and Financial (SIC 6021-6023, 6035-6036, 6141, 6311, 6321, 6331), and 0 otherwise.
Beta$_{t-1}$	Slope coefficient from estimating Sharpe's (1964) market model using daily stock returns over year *t-1*.

Note: * indicates the variable is defined slightly different for Sample I ("Keep-or-Drop") than for Sample II ("Keep-or-Increase").

Panel B: Variables for Testing H4 (Guidance Timing and Format)

Variable	Description
Guidance Timing Variables	
VarEAD	Firm level variance of the earnings guidance date relative to the previous quarterly earnings announcement date (i.e. day 0 is the previous quarterly earnings announcement date).
VarHorizon	Firm level variance of the number of days between earnings guidance date and the forecast period end date.
MeanBundled_EAD	Firm level mean of an indicator variable that is set to one if and only if earnings guidance date concurs with the previous quarterly earnings announcement date.
MeanEAD	Firm level mean of the earnings guidance date relative to the previous quarterly earnings announcement date (i.e. day 0 is the previous quarterly earnings announcement date).
MeanHorizon	Firm level mean of the number of days between earnings guidance date and the forecast period end date.
Guidance Format Variables	
VarPrec	Firm level variance of a discrete measure of the precision of earnings guidance format, which takes value of 1 (qualitative), 2 (min, max), 3 (range), or 4 (point).

Panel B (*Continued*)

Variable	Description
MeanNoSurp	Firm level mean of an indicator variable that is set to one if and only if earnings guidance is classified as in line with market concurrent consensus by First Call.
MeanPrec	Firm level mean of a discrete measure of the precision of earnings guidance format, which takes value of 1 (qualitative), 2 (min, max), 3 (range), or 4 (point).

Note: Prefix *Var*- and *Mean*- refer to the firm level variance and mean.

Panel C: Variables for Examining Analyst Reaction to Guidance

Variable	Description
Analyst Reaction Variables (Dependent Variables)	
Chg_N	The change from before guidance to after guidance in the number of analysts issuing earnings forecasts with the same fiscal period end as management guidance.
Consen_Aligned	Indicator variable equal to 1 if the analyst consensus forecast (median forecast) after guidance falls within the range of management guidance, and 0 otherwise.
Chg_Disp	The change from before guidance to after guidance in the standard deviation of all analyst earnings forecasts with the same fiscal period end as management guidance.
Guidance History Variables	
LagFreq	Count variable equal to the number of fiscal quarters in which earnings guidance was provided in the prior year
LagConsistent	Indicator variable equal to 1 if the guidance patterns in the last two years are identical and 0 otherwise (see Figure 1 for examples).
LagAccuracy	Indicator variable equal to one if and only if the last guidance was accurate (i.e. the actual earnings fall within the guidance range).
Guidance Antecedent Variables	
N_pre	Number of analysts issuing earnings forecasts with the same fiscal period end as management guidance.
Disp_pre	Standard deviation of all analyst earnings forecasts with the same fiscal period end as management guidance.

Panel C (*Continued*)

Variable	Description
Consen_Aligned_pre	Indicator variable equal to 1 if the analyst consensus forecast (median forecast) before guidance falls within the range of management guidance, and 0 otherwise.
Guidance Property Variables	
Bundled_EAD	Indicator variable that is set to one if and only if earnings guidance date concurs with the previous quarterly earnings announcement date.
Horizon	Number of days between earnings guidance date and the forecast period end date.
RangeWidth	Width of earnings guidance ranges and zero for point guidance.
Guidance Content Variables	
GuidNews	Absolute value of the mid-point of management guidance and the analyst consensus forecast before guidance.
Bad	Indicator variable equal to one if and only if the mid-point of management guidance is below the analyst consensus forecast.

Note: Suffix *_pre* indicates the variable is measured from the last observation in the First Call Summary File before a given earnings guidance, which is then matched to the first observation in the Summary File after the same guidance. Prefix *Chg_* refers to the change from before the guidance to after the guidance.

Panel D: Data Sources

Database	Description
First Call	Management forecasts, analyst forecasts, actual earnings
Compustat	Financial data
CRSP	SIC codes, stock price data
I/B/E/S	Additional analyst data
SDC	Merger and acquisition dates
ExecuComp	CEO/CFO turnovers
RiskMetrics	Board structure data
GAO	Financial restatement data
Thomson Reuters	Insider trading data

Note: GAO is abbreviation for “Government Accountability Office.”

Appendix C – The Changing Significance of Guidance Determinants due to Omitted Correlated Guidance History Variables

The main purpose of this study is to empirically examine whether managers view earnings guidance as a single-period decision (static theory) or as a multi-period decision (dynamic theory). Consistent with the dynamic theory, I find significant and persistent patterns in both annual and quarterly guidance, suggesting that managers tend to stick to their guidance practice once it is decided. This is consistent with prior finding that past guidance levels are highly significant in explaining current guidance levels (i.e. autocorrelation in the first moment of guidance), which suggests that managers are likely to take prior guidance as given and effectively make decisions on guidance changes. Therefore, in this paper, I use past guidance as the benchmark and use guidance consistency as the dependent variable, which reflects the autocorrelation in guidance levels. In this consistency model, I find that past guidance consistency is highly significant in explaining subsequent guidance consistency (i.e. autocorrelation in the second moment of guidance) after controlling for past guidance frequency. My results provide new evidence for the dynamic theory that managers consider earnings guidance as a multi-period decision and become more reluctant to alter their guidance practice once they have established a consistent and frequent guidance record.

As guidance history has a significant effect on subsequent guidance decisions and because guidance history is correlated with most known guidance determinants (see Table 3 Panel B), it raises the concern that those guidance determinants can be spuriously significant in explaining management guidance decisions when guidance history is omitted from the regression. To assess whether and how the significance of the guidance determinants can be inflated or attenuated when guidance history is inappropriately accounted for, I compare Model (1a) (in Table 4 Panel A) with two alternative specifications (see Table C1). First, I modify the model to include only one of *LagFreq* or *LagConsistent* or neither. When guidance history is not fully controlled for, I find that the significance of several guidance determinants becomes inflated, consistent with the omitted correlated variable problem exacerbating when controls are insufficient. For example, *AnalystFollow* (*Regulation*), insignificant in Model (d) (same as Model (1a) in Table 4 Panel A), becomes significant at 5% level when only *LagFreq* (*LagConsistent*) is controlled for, and becomes significant at 1% level when both guidance history variables are omitted.

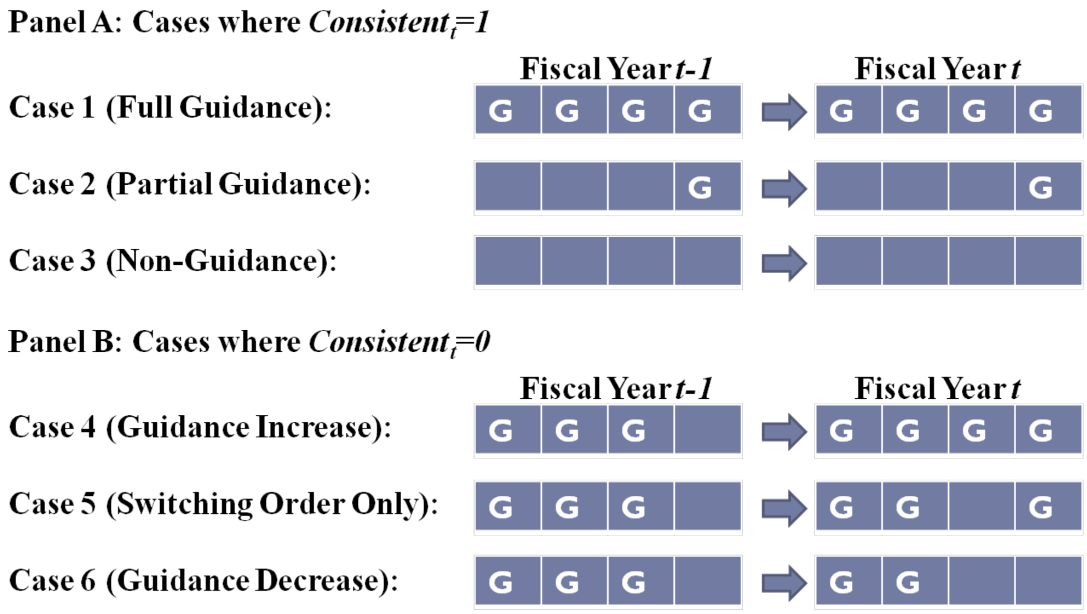
Second, I repeat the above analyses using a Poisson regression of guidance frequency, following prior literature (e.g. Bhojraj et al., 2011). The inferences are similar to the above analyses: the significance of guidance determinants becomes inflated when more guidance history variables are omitted. Comparing Model (f) with model (b) reveals that controlling for lagged guidance frequency on the right hand side of a frequency regression yields different results than the consistency model. Therefore, the consistency model developed in this paper is fundamentally different from the conventional frequency model with lagged frequency as a control variable. Moreover, even in explaining guidance levels, I find that past guidance consistency still has incremental power after controlling for past guidance frequency in Model (h). Results are similar in Sample II or in the full sample and are available upon request.

Table C1 – The Changing Significance of Guidance Determinants due to Omitted Correlated Guidance History

Depedent Variable (Regression Specification)			Consistent (Logistic Regression)				Frequency (Poission Regression)			
		Predicted Sign	(a) p-value	(b) p-value	(c) p-value	(d) p-value	(e) p-value	(f) p-value	(g) p-value	(h) p-value
(H1) Guidance History	*LagFreq*	+		**<.0001 *****		**<.0001 *****		**<.0001 *****		**<.0001 *****
	LagConsistent	+			**<.0001 *****	**<.0001 *****			**<.0001 *****	**0.0073 *****
Information Uncertainty	*RetVol*	-	<.0001 ***	<.0001 ***	0.0001 ***	0.0030 ***	<.0001 ***	0.0521 *	0.0092 ***	0.1248
	Disp	-	<.0001 ***	0.0004 ***	<.0001 ***	0.0002 ***	<.0001 ***	0.0018 ***	<.0001 ***	0.0015 ***
	EarnVol	-	0.5422	0.7356	0.8524	0.8961	0.7738	0.4946	0.3032	0.4527
Expectation Management	*CAR_EA*	+	0.2780	0.0531 *	0.1104	0.0295 **	0.3718	0.6315	0.6828	0.5769
	MtBtAnalyst	+	0.0007 ***	0.0141 **	0.0008 ***	0.0108 **	<.0001 ***	0.0285 **	0.0010 ***	0.0301 **
	AnalystFollowing	+	0.0098 ***	0.0190 **	0.1181	0.1018	0.0050 ***	0.0525 *	0.0972 *	0.0825 *
Operating Performance	*Loss*	-	0.0001 ***	0.0025 ***	0.0012 ***	0.0050 ***	<.0001 ***	0.0125 **	0.0011 ***	0.0136 **
	EarnIncrease	+	0.5983	0.5635	0.5636	0.5204	0.9783	0.9523	0.4543	0.9676
	AdjRet	+	0.4986	0.6355	0.3058	0.4161	0.0137 **	0.0188 **	0.0008 ***	0.0136 **
Corporate Events	*MnA*	-	0.1217	0.1249	0.3767	0.3103	0.6295	0.7989	0.0177	0.9147
	ExecTurnover	-	0.0098 ***	0.0985 *	0.0115 **	0.0670 *	0.0035 ***	0.3332	0.0109 **	0.3143
Alternative Guidance Motives	*Restate*	?	0.5703	0.6297	0.2889	0.3763	0.8798	0.8542	0.6777	0.9139
	ΔInsideTrade	-	0.4495	0.3341	0.3821	0.3340	0.0802	0.3451	0.0755	0.3909
	MtBtGuid	+	0.3417	0.5762	0.1566	0.3351	0.2266	0.5043	0.6811	0.4357
Other Control Variables	*Size*	+	0.8959	0.8874	0.9809	0.8666	0.7465	0.4490	0.6431	0.4259
	MktBt	-	0.4680	0.5498	0.4773	0.5172	0.1136	0.2879	0.3397	0.2777
	Leverage	?	0.7347	0.9003	0.7101	0.9935	0.2102	0.4993	0.2734	0.4808
	Litigation	?	0.7004	0.9179	0.7432	0.6075	0.4417	0.8268	0.8011	0.7028
	Regulation	?	<.0001 ***	0.0827 *	0.0132 **	0.3141	<.0001 ***	0.0728 *	<.0001 ***	0.1236
	Beta	?	0.0269 **	0.1373	0.1478	0.2905	0.0284 **	0.8271	0.8374	0.9159
	Intercept	?	0.4461	<.0001 ***	0.4572	<.0001 ***	<.0001 ***	<.0001 ***	0.0001 ***	<.0001 ***
	No. of Observations		1,892	1,892	1,892	1,892	1,892	1,892	1,892	1,892

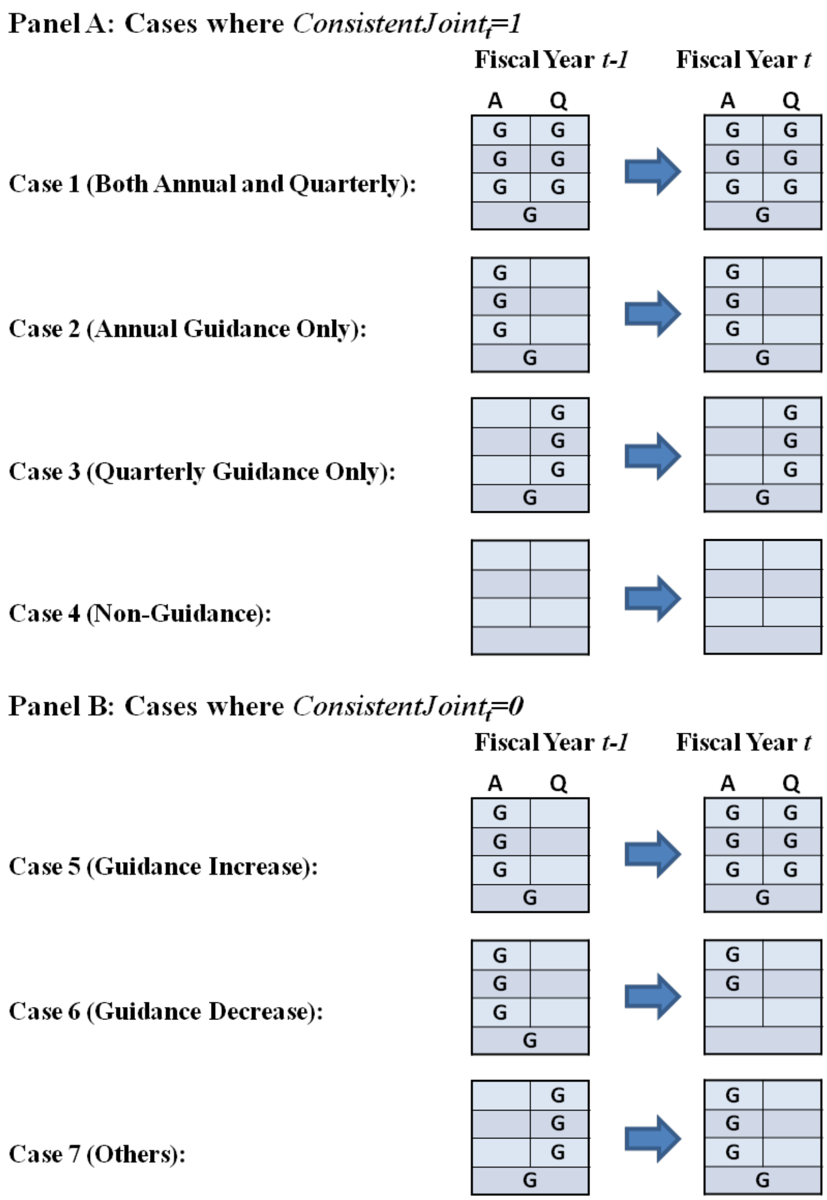
Note: Results are based on pooled regressions using Sample I – "Keep-or-Drop" (see Table 3 Panel C). See Appendix B for all variable definitions. P-values are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, under two-tailed tests, and marked only if the coefficient has the same sign as predicted.

Figure 1 – Measurement of Guidance Consistency (I)
***Separately* Examining Patterns of Quarterly or Annual Earnings Guidance**



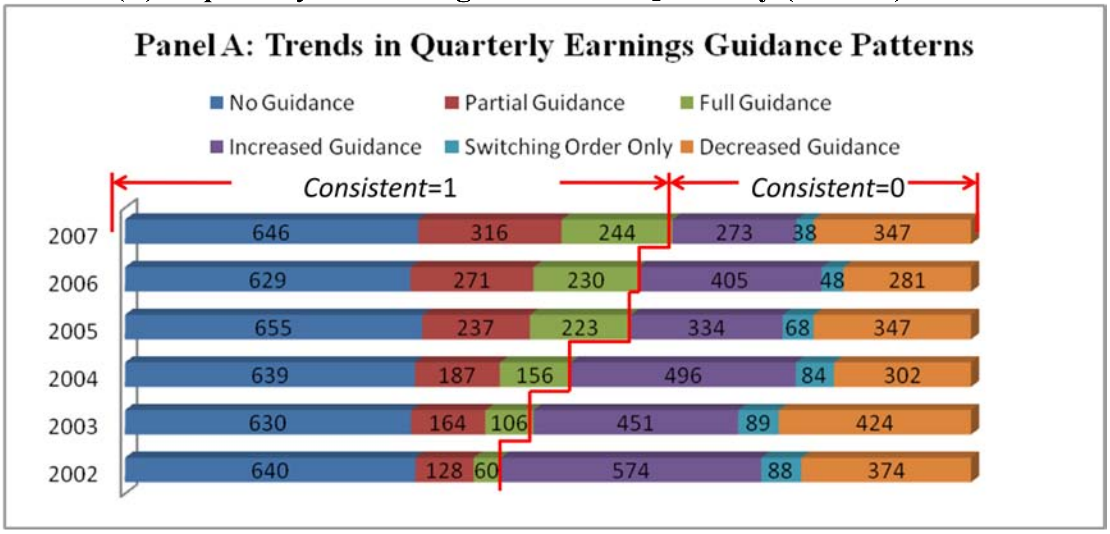
Notes: Guidance pattern for each year is described by a 4x1 vector with each cell corresponding to each constituting fiscal quarter of the year (Q1 to Q4 from left to right). "G" indicates that a management earnings forecast has been issued during that fiscal quarter. See Table 1 for details on the construction of the earnings guidance sample.

Figure 2 – Measurement of Guidance Consistency (II)
***Jointly* Examining Patterns of Quarterly and Annual Earnings Guidance**



Notes: Guidance pattern for each year is described by a 4x2 matrix with each row corresponding to each constituting fiscal quarter of the year (Q1 to Q4 from top to bottom), and each column corresponding to annual and quarterly guidance respectively (from left to right). The "matrices" in the figure above are technically not matrices because the two cells in the last row are combined to reflect the equivalence of annual and quarterly guidance in the fourth quarter. "G" indicates that a management earnings forecast for the corresponding earnings measure has been issued during that fiscal quarter. See Table 1 for details on the construction of the earnings guidance sample.

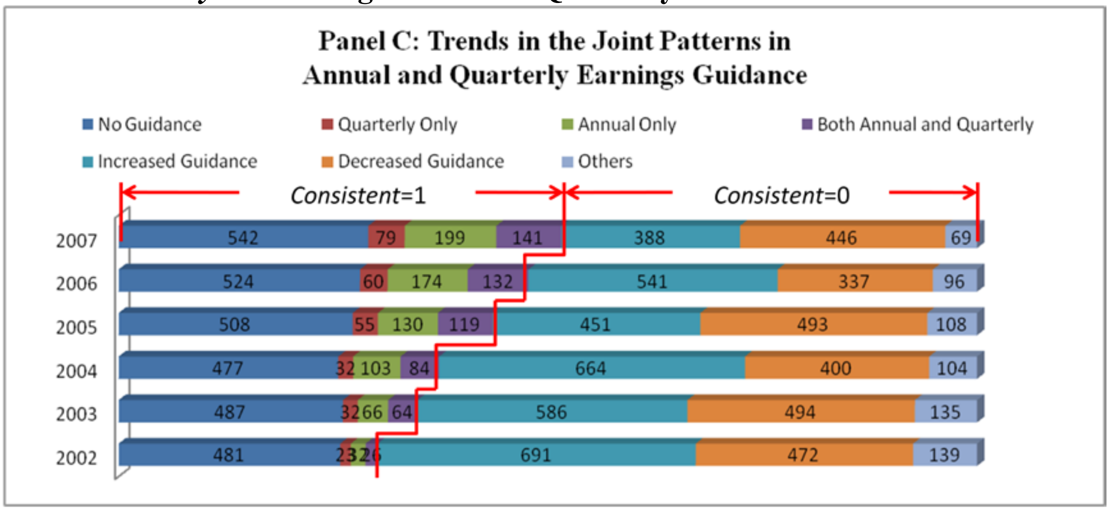
Figure 3 – Trends in Earnings Guidance Patterns
Panel A (B): *Separately* Examining Patterns of Quarterly (Annual) Guidance



Notes: The figure is based on a sample of 1,864 U.S. public firms that issued at least one earnings guidance during the period of FY2001 to FY2007. Panel A only examines quarterly earnings guidance, with the exception that annual guidance in the fourth fiscal quarter is also considered as quarterly guidance. Guidance patterns are classified based on the scheme illustrated in Figure 1.

Notes: The figure is based on a sample of 1,864 U.S. public firms that issued at least one earnings guidance during the period of FY2001 to FY2007. Panel B only examines annual earnings guidance, with the exception that quarterly guidance in the fourth fiscal quarter is also considered as annual guidance. Guidance patterns are classified based on the scheme illustrated in Figure 1.

Figure 3 – Trends in Earnings Guidance Patterns (Cont'd)
Panel C: *Jointly* Examining Patterns of Quarterly and Annual Guidance



Notes: The figure is based on a sample of 1,864 U.S. public firms that issued at least one earnings guidance during the period of FY2001 to FY2007. The joint patterns of annual and quarterly earnings guidance are classified based on the scheme illustrated in Figure 2.

Table 1 – Earnings Guidance Sample Selection

	No. of Forecasts		
Initial sample from First Call CIG database*	**95,703**		
Non-EPS forecasts	(4,262)		
Currency not in USD	(729)		
Not issued by firms existent over full period	(29,894)		
Not issued between 2001Q1 and 2007Q4	(12,375)	**Quarterly**	**Annual**
Forecasts for my sample firms	**48,443**	**23,419**	**25,024**
Earnings warnings**	(7,340)		
Forecasts not for the current period	(5,077)		
Duplicate forecasts in each quarter	(5,121)	**Quarterly**	**Annual**
Final sample	**30,905**	**13,241**	**17,664**

Notes: * The sample is based on the CIG file downloaded in 2008. ** I define earnings warnings as management earnings forecasts issued after 21 days before the end of the forecasted fiscal quarter, following Li et al. (2012)

Table 2 – Transition Matrix of Guidance Frequency and Guidance Consistency

Panel A: Quarterly Earnings Guidance

LagFreq\Freq	4	3	2	1	0	No. of Obs.	Consistent	% Consistent
4	**67%**	15%	6%	7%	4%	1,516	1,019	67%
3	42%	**23%**	13%	13%	9%	911	86	9%
2	19%	19%	**20%**	22%	20%	927	54	6%
1	4%	6%	9%	**49%**	32%	2,694	1,163	43%
0	1%	2%	4%	19%	**75%**	5,136	3,839	75%
Total	**14%**	**8%**	**8%**	**24%**	**46%**	**11,184**	**6,161**	**55%**

Panel B: Annual Earnings Guidance

LagFreq\Freq	4	3	2	1	0	No. of Obs.	Consistent	% Consistent
4	**72%**	13%	6%	5%	4%	2,179	1,565	72%
3	43%	**24%**	12%	10%	11%	1,145	95	8%
2	23%	21%	**17%**	18%	20%	1,042	52	5%
1	9%	8%	11%	**37%**	35%	2,044	592	29%
0	2%	4%	5%	16%	**73%**	4,774	3,478	73%
Total	**19%**	**10%**	**9%**	**18%**	**43%**	**11,184**	**5,782**	**52%**

Notes: The table shows the transition matrix for guidance frequency changes in two consecutive years (*LagFreq* and *Freq*). 11,184 firm-year observations are divided into five rows based on *LagFreq*. Within each row, relative frequency (i.e. empirical probability) is calculated based on *Freq* in five columns. "Total" shows the relative frequency of *Freq*, unconditional on *LagFreq*. The distributions of the total number of observations, the number of consistent observations, and the ratio of the two, grouped by *LagFreq* are reported to the right of the transition matrix, to facilitate the comparison between the frequency-based and the consistency-based measures of guidance regularity.

Table 3 – Logistic Regression Research Design
Panel A: Summary Statistics of the Dependent and Independent Variables

Variable Name		N	Mean	Std. Dev.	Q1	Median	Q3
Dept. Var.	***Consistent***	9,320	0.57	0.49	0	1	1
(H1) Guidance History	***LagFreq***	9,320	1.24	1.47	0	1	2
	LagConsistent	9,320	0.53	0.50	0	1	1
(H2) Information Uncertainty	***RetVol***	9,116	0.03	0.01	0.02	0.02	0.03
	Disp	7,725	0.03	0.03	0.01	0.02	0.03
	EarnVol *(×1,000)*	8,907	0.49	1.28	0.02	0.10	0.37
(H3) Expectation Management	***CAR_EA***	3,660	0.01	0.10	-0.04	0.01	0.05
	MtBtAnalyst	3,714	0.81	0.31	0.67	1	1
	AnalystFollow	7,866	8.42	6.26	3.50	6.50	11.50
Firm Performance	***Loss***	9,320	0.22	0.38	0	0	0.25
	EarnIncrease	9,320	0.61	0.40	0.25	0.75	1
	AdjRet	9,111	0.12	0.57	-0.19	0.02	0.28
Corporate Events	***MnA***	9,320	0.08	0.28	0	0	0
	ExecTurnover	9,320	0.17	0.38	0	0	0
Alternative Guidance Motives	***Restate***	9,320	0.03	0.18	0	0	0
	Δ InsideTrade	9,320	0.15	0.21	0	0	0.25
	MtBtGuid	3,714	0.63	0.42	0	0.75	1
Other Control Variables	***Size***	9,313	6.77	1.97	5.35	6.72	8.10
	MktBk	9,309	2.87	2.85	1.45	2.18	3.44
	Leverage	9,313	0.51	0.24	0.32	0.51	0.67
	Litigation	6,922	0.29	0.45	0	0	1
	Regulation	6,922	0.19	0.40	0	0	0
	Beta	9,142	1.11	0.57	0.73	1.06	1.45

Notes: See Appendix B for all variable definitions. The sample is a balanced panel of 9,320 observations of 1,864 unique firms over 2003~2007. Observations in 2001~2002 are dropped due to two years' guidance history required to calculate *LagConsistent*. *Consistent* is the dependent variable, followed by all independent variables. All continuous variables are winsorized at 1st and 99th percentiles.

Table 3 – Logistic Regression Research Design (Cont'd)
Panel B: Pearson Correlations between the Variables Used in the Logistic Regression

	Variable Name	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1)	*Consistent*																						
(2)	*LagFreq*	**-0.21**																					
(3)	*LagConsistent*	**0.39**	**-0.27**																				
(4)	*RetVol*	**-0.06**	**-0.14**	**-0.07**																			
(5)	*Disp*	**0.08**	**-0.17**	**0.07**	**-0.07**																		
(6)	*EarnVol*	**0.04**	**-0.15**	**0.05**	**0.39**	**0.05**																	
(7)	*CAR_EA*	0.03	0.00	-0.02	-0.02	-0.01	0.00																
(8)	*MtBtAnalyst*	**0.11**	**0.11**	**0.04**	**-0.04**	**-0.10**	**-0.04**	**0.29**															
(9)	*AnalystFollow*	0.01	**0.19**	-0.01	**-0.17**	**-0.05**	**-0.22**	-0.03	**0.11**														
(10)	*Loss*	**0.03**	**-0.22**	**0.02**	**0.51**	**0.08**	**0.31**	**-0.09**	**-0.14**	**-0.16**													
(11)	*EarnIncrease*	0.01	**0.03**	**0.04**	**-0.03**	**-0.10**	**-0.05**	**0.16**	**0.22**	**0.07**	**-0.23**												
(12)	*AdjRet*	-0.02	**-0.05**	0.01	**0.15**	0.00	-0.01	**0.41**	**0.19**	**-0.08**	**-0.05**	**0.23**											
(13)	*MnA*	0.00	0.00	-0.01	0.02	**-0.03**	-0.01	-0.03	0.01	0.02	0.01	0.00	-0.02										
(14)	*ExecTurnover*	**-0.02**	**0.04**	**-0.03**	**-0.13**	**0.05**	**-0.09**	**-0.05**	**-0.05**	**0.10**	**-0.05**	**-0.03**	**-0.09**	-0.01									
(15)	*Restate*	0.01	-0.01	-0.01	-0.01	0.01	0.00	-0.03	**-0.04**	0.00	0.02	**-0.03**	-0.02	-0.01	**0.03**								
(16)	*ΔInsideTrade*	**-0.04**	0.02	**-0.03**	**0.07**	-0.01	**0.03**	**-0.09**	-0.03	**-0.05**	**0.02**	**-0.02**	**-0.05**	0.01	0.01	**0.02**							
(17)	*MtBtGuid*	**0.05**	**0.04**	**0.04**	0.03	**-0.10**	**-0.03**	**0.08**	**0.33**	**0.05**	0.03	**0.14**	0.02	0.01	-0.01	-0.02	**0.06**						
(18)	*Size*	0.01	**0.17**	-0.01	**-0.56**	**0.22**	**-0.47**	**-0.05**	**0.05**	**0.53**	**-0.33**	**0.04**	**-0.11**	0.00	**0.21**	**0.04**	**-0.07**	**0.04**					
(19)	*MktBk*	0.00	**0.05**	**0.02**	-0.02	**-0.10**	0.00	**0.11**	**0.12**	**0.16**	**-0.04**	**0.10**	**0.22**	0.01	-0.01	**-0.04**	**-0.04**	**0.04**	**-0.05**				
(20)	*Leverage*	**0.08**	**-0.10**	**0.07**	**-0.21**	**0.23**	**-0.11**	-0.01	-0.02	-0.01	**-0.05**	0.00	-0.02	**-0.03**	**0.06**	**0.06**	**-0.02**	-0.01	**0.46**	**-0.02**			
(21)	*Litigation*	**-0.04**	**0.11**	**-0.04**	**0.24**	**-0.16**	**0.06**	-0.02	0.03	**0.24**	**0.17**	0.02	-0.01	0.02	0.00	0.02	0.01	**0.06**	**-0.15**	**0.11**	**-0.28**		
(22)	*Regulation*	**0.08**	**-0.19**	**0.10**	**-0.29**	**0.12**	**-0.11**	-0.01	-0.02	**-0.10**	**-0.12**	**-0.03**	**-0.03**	0.00	**0.02**	0.01	**-0.04**	0.00	**0.38**	**-0.13**	**0.47**	**-0.31**	
(23)	*Beta*	**-0.08**	**0.09**	**-0.09**	**0.20**	-0.02	**-0.15**	**0.06**	0.03	**0.04**	**0.12**	**0.07**	**0.17**	0.01	**0.04**	0.00	0.01	0.03	**0.06**	**0.08**	**-0.10**	**0.14**	**-0.13**

Notes: Tabulated values are Pearson correlation coefficients of all pairs of variables in the logistic regressions. Bold face indicates significance at the 5% level under two-tailed tests.

Table 3 – Logistic Regression Research Design (Cont'd)
Panel C: Constructing Samples to Separately Examine Guidance Decreases and Increases

	Sample I Keep-or-Drop (Used in T4~T5)	Sample II Keep-or-Increase (Used in T6)
Full Sample to Start with:	**9,320**	**9,320**
Exclude Guidance Increase (*Freq* > *LagFreq*)	(1,959)	
Exclude Guidance Decrease (*Freq* < *LagFreq*)		(1,701)
Exclude Non-Guidance (*LagFreq=0*)†	(3,199)	
Exclude Full-Guidance (*LagFreq=4*)‡		(959)
Sample I and Sample II before Data Constraints	**4,162**	**6,660**
Exclude Observations with Insufficient Data	(2,270)	(4,085)
Final Sample I and Sample II	**1,892**	**2,575**

Notes: † This step excludes consistent non-guiders from Sample I. ‡ This step excludes consistent full-guiders from Sample II. The starting sample is a balanced panel of 1,864 firms over 2003~2007 of 9,320 firm-year observations. I lose observations of 2001 and 2002 to calculate *LagConsistent*. Sample I ("Keep-or-Drop") is used in Table 4 & 5 to examine the determinants of guidance omissions as opposed to maintaining the same practice from the preceding year; therefore, Sample I is constructed by excluding two types of observations: (a) guidance increases, and (b) non-guidance. Sample II ("Keep-or-Increase") is used in Table 6 to examine the determinants of guidance increases as opposed to maintaining the same practice from the preceding year; therefore, Sample II is constructed by excluding two types of observations: (a) guidance decreases, and (b) full guidance. The reason why data constraints are more severe for Sample II is that a large portion of Sample II is consistent non-guiders, who are followed by fewer analysts and hence are more likely to have missing data on analyst-related variables.

Table 4 – Testing H1a: Differential Likelihood of Guidance Decreases
Sample: Sample I ("Keep-or-Drop"; Note: Consistent Non-guiders Excluded)
Model: Logistic Regressions

$$Consistent_{i,t} = \alpha_0$$
$$\textbf{H1: } \text{Guidance history: } + \alpha_1 LagFreq_{i,t} + \alpha_2 LagConsistent_{i,t}$$
$$\text{Information uncertainty: } + \alpha_3 RetVol_{i,t-1} + \alpha_4 Disp_{i,t-1} + \alpha_5 EarnVol_{i,t}$$
$$\text{Expectation management: } + \alpha_6 CAR\_EA_{i,t-1} + \alpha_7 MtBtAnalyst_{i,t-1} + \alpha_8 AnalystFollow_{i,t}$$
$$\text{Firm performance: } + \alpha_9 Loss_{i,t-1} + \alpha_{10} EarnIncrease_{i,t-1} + \alpha_{11} AdjRet_{i,t-1}$$
$$\text{Corporate events: } + \alpha_{12} MnA_{i,t-1,t} + \alpha_{13} ExecTurnover_{i,t-1,t}$$
$$\text{Alternative guidance motives: } + \alpha_{14} Restate_{i,t-1} + \alpha_{15} \Delta InsideTrade_{i,t-1,t} + \alpha_{16} MtBtGuid_{i,t-1}$$
$$\text{Other control variables: } + \alpha_{17} Size_{i,t-1} + \alpha_{18} MktBk_{i,t-1} + \alpha_{19} Leverage_{i,t-1}$$
$$+ \alpha_{20} Litigation_{i,t-1} + \alpha_{21} Regulation_{i,t-1} + \alpha_{22} Beta_{i,t-1}$$

Panel A: Main Results

		Predicted Sign	Model (1a) Coefficient	t-stat	Marginal Effects	Excluding *LagFreq=4* Coefficient	t-stat	Marginal Effects
(H1) Guidance History	***LagFreq***	+	**0.60 *****	**10.86**	**0.29**	**-0.32 *****	**-2.82**	**-0.08**
	LagConsistent	+	**1.26 *****	**10.26**	**0.31**	**1.58 *****	**6.60**	**0.20 ‡**
Information Uncertainty	*RetVol*	-	-23.88 ***	-2.97	-0.07	-35.26 ***	-2.65	-0.06
	Disp	-	-11.71 ***	-3.67	-0.04	-5.58	-1.34	-0.01
	EarnVol	-	23.09	0.13	0.00	133.10	0.53	0.00
Expectation Management	*CAR_EA*	+	1.91 **	2.18	0.04	1.32	1.22	0.02
	MtBtAnalyst	+	0.60 **	2.55	0.04	0.37	1.24	0.02
	AnalystFollow	+	0.02	1.63	0.05	-0.01	-0.50	-0.01
Firm Performance	*Loss*	-	-0.81 ***	-2.81	-0.20 ‡	-1.01 **	-2.08	-0.13 ‡
	EarnIncrease	+	0.10	0.64	0.02	0.11	0.44	0.01
	AdjRet	+	0.14	0.81	0.01	-0.01	-0.02	0.00
Corporate Events	*MnA*	-	-0.21	-1.01	-0.05 ‡	0.07	0.20	0.01 ‡
	ExecTurnover	-	-0.25 *	-1.83	-0.06 ‡	0.06	0.27	0.01
Alternative Guidance Motives	*Restate*	?	0.25	0.88	0.06 ‡	0.88 **	2.17	0.11 ‡
	ΔInsideTrade	-	-0.26	-0.97	-0.02	0.10	0.22	0.00
	MtBtGuid	+	-0.14	-0.96	-0.03	-0.12	-0.54	-0.02
Other Control Variables	*Size*	+	-0.01	-0.17	-0.01	-0.03	-0.25	-0.01
	MktBt	-	-0.02	-0.65	-0.01	-0.02	-0.39	0.00
	Leverage	?	0.00	-0.01	0.00	-0.14	-0.23	-0.01
	Litigation	?	-0.07	-0.51	-0.02	0.01	0.03	0.00
	Regulation	?	-0.23	-1.01	-0.06 ‡	0.15	0.52	0.02 ‡
	Beta	?	0.15	1.06	0.02	-0.20	-0.89	-0.02
	Intercept	?	-2.22 ***	-4.10		0.19	0.21	
	No. of Observations		1,892			893		
	Pseudo R-squared		**27.68%**			**10.95%**		
Pseudo R-squared w/o LagConsistent			**23.09%**			**6.62%**		
Pseudo R-squared w/o LagFreq			**22.57%**			**10.14%**		
Pseudo R-sqaured w/o LagConsistent & LagFreq			**12.66%**			**5.36%**		

Notes: Results are based on pooled logistic regressions using Sample I – "Keep-or-Drop" (see Table 3 Panel C). See Appendix B for all variable definitions. T-statistics are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, under two-tailed tests. Marginal effects are the incremental likelihood of issuing consistent guidance in year *t*, based on moving from the first quartile to the third quartile of the independent variables, except for dummy variables with no inter-quartile variation, which are then based on moving from 0 to 1, indicated with ‡'s.

Panel B: Mitigating the Endogeneity of *LagConsistent*

			(i) Including Change Variables				(ii) Heckman Selection Model				(iii) P-Score Matching	
		Predicted	Level Variables		Change Variables		First Stage		Second Stage		Sample I (Keep-or-Drop)	
		Sign	Coefficient	t-stat	Coefficient	t-stat	Coefficier	t-stat	Coefficier	t-stat	Coefficient	t-stat
(H1) Guidance History	***LagFreq***	**+**	**0.75**	**9.97 *****			**0.95**	**20.86 *****	**0.47**	**10.55 *****	**0.51**	**6.62 *****
	LagConsistent	**+**	**1.03**	**7.70 *****					**0.37**	**2.70 *****	**1.02**	**6.89 *****
Information Uncertainty	*RetVol*	-	-18.54	-1.82 *	5.42	0.38	-13.17	-2.68 ***	-14.13	-2.67 ***	-20.41	-1.87 *
	Disp	-	-7.49	-1.77 *	-16.31	-2.62 ***	-1.90	-1.00	-7.33	-3.52 ***	-12.31	-2.75 ***
	EarnVol	-	-160.90	-0.53	261.90	0.73	45.38	0.33	7.83	0.06	23.31	0.09
Expectation Management	*CAR_EA*	+	1.35	1.16	-0.63	-0.65	0.53	0.90	1.03	1.57	2.80	2.11 **
	MtBtAnalyst	+	0.72	2.22 **	-0.11	-0.37	0.25	1.40	0.43	2.68 ***	0.53	1.66 *
	AnalystFollow	+	0.02	1.26	-0.03	-0.52	0.01 .		0.01 .		0.01	0.51
Firm Performance	*Loss*	-	-0.88	-2.51 **	0.25	0.81	-0.21	-1.11	-0.40	-2.16 **	-0.98	-2.43 **
	EarnIncrease	+	0.05	0.26	-0.13	-0.71	0.07	0.63	0.07	0.71	0.01	0.04
	AdjRet	+	0.39	1.82 *	-0.22	-1.27	-0.04	-0.35	0.16	1.36	0.36	1.41
Other Control Variables			***INCLUDED***		***INCLUDED***		***INCLUDED***		***INCLUDED***		***INCLUDED***	
	Intercept	?	-2.48	-3.66 ***			-3.43	-8.81 ***	-1.70	-4.69 ***	-1.78	-2.46 **
							Rho (Inv. Mill Ratio)		**0.21**	**2.31 ****		
	No. of Observations		1,518				1,517		1,517		1,012	
	Pseudo R-squared		28.85%				41.34%		28.08%		16.07%	

Notes: Results are based on pooled logistic regressions. See Appendix B for all variable definitions. T-statistics are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, under two-tailed tests. In model (i), change variables are measured as the absolute values of changes of the independent variables from year *t-1* to year *t*, and are expected to be negatively related to *Consistent*. In model (ii), both the dependent variable and the independent variables in the "First Stage" are lagged by one more year than in the "Second Stage." Model (iii) is based on a propensity-score matched sample, as explained in the following Panel.

Panel C: Propensity Scores before and after Matching

	Treated Group LagConsistent=1	Control Group LagConsistent=0	Difference
Before Matching	0.7294	0.3036	0.4258***
	[680]	[1,210]	(51.95)
After Matching	0.5527	0.5518	0.0009
	[506]	[506]	(0.07)

Notes: Table values are propensity scores – fitted likelihood from a logistic model of *Consistent* on all guidance determinants except *LagConsistent*. The numbers of observations are in brackets and t-statistics are in parentheses. *** indicate statistic significance at the 0.01 level under two-tailed tests.

Table 5 – Testing H2a and H3a: Differential Sensitivity to Guidance Determinants
Sample: Sample I ("Keep-or-Drop"; Note: Consistent Non-guiders Excluded)
Model: Logistic Regressions

$$Consistent_{i,t} = \alpha_0$$

H1: Guidance history: $+ \alpha_1 LagFreq_{i,t}$ $(+ \alpha_2 LagConsistent_{i,t})$

†H2: Information uncertainty: $+ \alpha_3 RetVol_{i,t-1} + \alpha_4 Disp_{i,t-1} + \alpha_5 EarnVol_{i,t}$

#H3: Expectation management: $+ \alpha_6 CAR\_EA_{i,t-1} + \alpha_7 MtBtAnalyst_{i,t-1} + \alpha_8 AnalystFollow_{i,t}$

Firm performance: $+ \alpha_9 Loss_{i,t-1} + \alpha_{10} EarnIncrease_{i,t-1} + \alpha_{11} AdjRet_{i,t-1}$

Corporate events: $+ \alpha_{12} MnA_{i,t-1,t} + \alpha_{13} ExecTurnover_{i,t-1,t}$

Alternative guidance motives: $+ \alpha_{14} Restate_{i,t-1} + \alpha_{15} \Delta InsideTrade_{i,t-1,t} + \alpha_{16} MtBtGuid_{i,t-1}$

Other control variables: $+ \alpha_{17} Size_{i,t-1} + \alpha_{18} MktBk_{i,t-1} + \alpha_{19} Leverage_{i,t-1}$

$$+ \alpha_{20} Litigation_{i,t-1} + \alpha_{21} Regulation_{i,t-1} + \alpha_{22} Beta_{i,t-1}$$

	Conditioning Variable		*LagConsistent=1*		*LagConsistent=0*		Difference		*Habitual=1* *LagFreq+Lag2Freq≥6*		*Habitual=0* *LagFreq+Lag2Freq≤5*		Difference	
		Predicted Sign	Model (2a) Coefficient	t-stat	Model (3a) Coefficient	t-stat	(2a) - (3a) Coefficient	t-stat	Model (2a') Coefficient	t-stat	Model (3a') Coefficient	t-stat	(2a') - (3a') Coefficient	t-stat
(H1) Guidance History	*LagFreq*	+	0.20	1.86 *	0.79	11.28 ***	-0.59	-4.63 ***	2.07	8.54 ***	0.31	3.31 ***	1.76	6.79 ***
	LagConsistent	+							0.52	3.27 ***	2.21	7.45 ***	-1.69	-5.02 ***
(†H2) Information Uncertainty	*RetVol†*	-	-25.99	-1.70 *	-22.00	-2.28 **	-3.99	-0.22	-15.82	-1.34	-30.82	-2.48 **	15.00	0.87
	Disp†	-	-13.94	-2.65 ***	-10.91	-2.66 ***	-3.03	-0.45	-12.07	-2.60 ***	-11.22	-2.28 **	-0.86	-0.13
	EarnVol†	-	-220.20	-0.58	70.30	0.34	-290.50	-0.67	-240.90	-0.95	218.10	0.88	-459.00	-1.30
(#H3) Expectation Management	*CAR_EA#*	+	2.72	1.40	1.84	1.75 *	0.88	0.40	3.49	2.12 **	1.90	1.67 *	1.59	0.80
	MtBtAnalyst#	+	0.36	0.90	0.83	2.72 ***	-0.47	-0.92	1.03	2.68 ***	0.23	0.73	0.80	1.63
	AnalystFollow#	+	0.01	0.38	0.03	1.83 *	-0.02	-0.77	0.03	1.96 **	0.01	0.32	0.03	1.01
Other Control Variables			*INCLUDED*		*INCLUDED*		*INCLUDED*		*INCLUDED*		*INCLUDED*		*INCLUDED*	
	Intercept	?	0.49	0.51	-2.79	-4.08 ***	3.28	2.76 ***	-7.59	-6.52 ***	-1.26	-1.48	-6.34	-4.40 ***
	No. of Observations		680		1,212				1,066		826			
	Pseudo R-squared		9.51%		19.37%				23.96%		13.12%			
Likelihood Ratio Test (all interactive terms)			Chi-Square = 42.137	(DF = 21)	p-value =		0.0004	***	Chi-Square = 126.648	(DF = 22)	p-value <		0.0001	***

Notes: Results are based on pooled logistic regressions using Sample I – "Keep-or-Drop" (see Table 3 Panel C). See Appendix B for all variable definitions. Samples are partitioned into regular and irregular guiders in two ways. In the left panel, the partitioning variable is *LagConsistent*. In the right panel, the partitioning variable is the *Habitual* dummy, which is based on the past two years' guidance frequency. Following Li et al. (2012), *Habitual =1* if a firm issued guidance for at least six out of the past eight quarters, and equals 0 otherwise. Model (2a, 2a') is estimated for regular guiders. Model (3a, 3a') is estimated for irregular guiders. Determinants with †'s are predicted in H2a to be significant in both Model (2a, 2a') and Model (3a, 3a'), whereas determinants with #'s are predicted in H3a to affect only firms in Model (3a, 3a'). The difference in the effect of guidance determinants between Model (2a, 2a') and Model (3a, 3a') is tested by estimating a single logistic regression with the partitioning variable interacting with other determinants. Coefficients and t-statistics of the interactive terms are reported. Likelihood ratio tests are also based on the single logistic regressions with interactive terms. T-statistics are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels respectively, under two-tailed tests for t tests and under one-tailed tests for Chi-square tests. DF=degrees of freedom.

Table 6 – Testing H1b~H3b: Differential Likelihood and Sensitivity of Guidance Increases
Sample: Sample II ("Keep-or-Increase"; Note: Consistent Full-guiders Excluded and Consistent Non-guiders Included)
Model: Logistic Regressions

$$Consistent_{i,t} = \alpha_0$$

$$\textbf{H1: } \text{Guidance history: } + \alpha_1 LagFreq_{i,t} \; (+ \alpha_2 LagConsistent_{i,t})$$

$$\dagger\textbf{H2: } \text{Information uncertainty: } + \alpha_3 RetVol_{i,t-1} + \alpha_4 Disp_{i,t-1} + \alpha_5 EarnVol_{i,t}$$

$$\#\textbf{H3: } \text{Expectation management: } + \alpha_6 CAR\_EA_{i,t-1} + \alpha_7 MtBtAnalyst_{i,t-1} + \alpha_8 AnalystFollow_{i,t}$$

$$\text{Firm performance: } + \alpha_9 Loss_{i,t-1} + \alpha_{10} EarnIncrease_{i,t-1} + \alpha_{11} AdjRet_{i,t-1}$$

$$\text{Corporate events: } + \alpha_{12} MnA_{i,t-1,t} + \alpha_{13} ExecTurnover_{i,t-1,t}$$

$$\text{Alternative guidance motives: } + \alpha_{14} Restate_{i,t-1} + \alpha_{15} \Delta InsideTrade_{i,t-1,t}$$

$$\text{Other control variables: } + \alpha_{17} Size_{i,t-1} + \alpha_{18} MktBk_{i,t-1} + \alpha_{19} Leverage_{i,t-1} + \alpha_{20} Litigation_{i,t-1} + \alpha_{21} Regulation_{i,t-1} + \alpha_{22} Beta_{i,t-1}$$

Panel A: Main Results

			Full Sample			*LagConsistent=1*		*LagConsistent=0*		Difference	
		Predicted	Model (1b)		Marginal	Model (2b)		Model (3b)		Model (2b) - (3b)	
		Sign	Coefficient	t-stat	Effects	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
(H1) Guidance History	*LagFreq*	+	-0.82 ***	-14.91	-0.20	-0.69	-6.80 ***	-0.88	-13.06 ***	0.18	1.50
	LagConsistent	+	0.83 ***	8.49	0.21						
(†H2) Information Uncertainty	*RetVol†*	+	-20.85 ***	-3.73	-0.07	-37.70	-3.90 ***	-12.70	-1.87 *	-25.00	-2.12 **
	Disp†	+	5.61 ***	3.24	0.03	6.02	2.18 **	5.22	2.31 **	0.80	0.22
	EarnVol†	+	89.35	0.81	0.00	222.20	1.24	23.77	0.16	198.43	0.86
(#H3) Expectation Management	*CAR_EA#*	-	-0.42 **	-2.14	-0.05	-0.43	-1.44	-0.43	-1.66 *	-0.01	-0.02
	MtBtAnalyst#	-	0.32	0.38	0.01	-0.79	-0.60	1.25	1.12	-2.03	-1.18
	AnalystFollow#	-	0.01	0.99	0.02	0.01	0.32	0.02	1.21	-0.01	-0.52
Other Control Variables			*INCLUDED*			*INCLUDED*		*INCLUDED*		*INCLUDED*	
No. of Observations			2,575			1,170		1,405			
Pseudo R-squared			23.41%			7.88%		18.62%			
Pseudo R-squared w/o LagConsistent			21.09%								
Pseudo R-squared w/o LagFreq			15.18%								
Pseudo R-sqaured w/o LagConsistent & LagFreq			7.25%								
Likelihood Ratio Test (all interactive terms)						Chi-square = 18.375 (DF = 20) p-value =				0.5627	

Notes: Results are based on pooled logistic regressions using Sample II – "Keep-or-Increase" (see Table 3 Panel C). See Appendix B for all variable definitions. Determinants with †'s are predicted in H2b to be significant in both Model (2b) and Model (3b), whereas determinants with #'s are predicted in H3b to affect only firms in Model (3b). The difference in the effect of guidance determinants between Model (2b) and Model (3b) is tested by estimating a single logistic regression with *LagConsistent* interacting with other determinants. Coefficients and t-statistics of the interactive terms are reported. Likelihood ratio tests are also based on the single logistic regressions with interactive terms. T-statistics are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, under two-tailed tests. Marginal effects are the incremental likelihood of issuing consistent guidance in year *t*, based on moving from the first quartile to the third quartile of the independent variables. DF=degrees of freedom.

Panel B: Mitigating the Endogeneity of *LagConsistent*

		Predicted Sign	(i) Including Change Variables: Level Variables Coefficient	t-stat	Change Variables Coefficient	t-stat	(ii) Heckman Selection Model: First Stage Coefficient	t-stat	Second Stage Coefficient	t-stat	(iii) P-Score Matching: Sample I (Keep-or-Drop) Coefficient	t-stat
(H1) Guidance History	***LagFreq***	**+**	**-0.84**	**-14.74 *****			**-0.78**	**-23.06 *****	**-0.49**	**-13.93 *****	**-0.86**	**-7.00 *****
	LagConsistent	**+**	**0.83**	**8.18 *****					**0.52**	**4.32 *****	**0.97**	**4.93 *****
Information Uncertainty	*RetVol*	+	-20.78	-3.11 ***	-3.84	-0.44	-20.19	-6.64 ***	-10.42	-2.99 ***	-30.07	-2.94 ***
	Disp	+	5.85	2.81 ***	0.68	0.20	2.34	2.10 **	3.37	3.24 ***	4.92	1.74 *
	EarnVol	+	-6.47	-0.05	99.09	0.66	-7.75	-0.13	4.32	0.06	129.20	0.65
Expectation Management	*CAR_EA*	-	-0.36	-1.71 *	0.21	0.95	0.99	1.92 *	0.09	0.16	0.20	0.13
	MtBtAnalyst	-	0.67	0.75	-0.58	-0.71	-0.14	-1.13	-0.24	-2.04 **	-0.43	-1.24
	AnalystFollow	-	0.00	0.35	0.06	1.59	0.01	.	0.01	.	0.01	0.45
Firm Performance	*Loss*	+	-0.08	-0.44	-0.07	-0.36	0.07	0.61	-0.07	-0.61	-0.02	-0.07
	EarnIncrease	-	0.08	0.64	-0.20	-1.51	0.13	1.59	0.07	0.96	0.14	0.63
	AdjRet	-	-0.19	-1.28	0.07	0.62	-0.04	-0.50	-0.09	-1.13	-0.09	-0.45
Other Control Variables			***INCLUDED***		***INCLUDED***		***INCLUDED***		***INCLUDED***		***INCLUDED***	
	Intercept	?	1.01	2.20 **			1.07	4.40 ***	0.59	2.23 **	1.27	1.80 *
							Rho (Inv. Mill Ratio)		**-0.02**	**-0.26**		
	No. of Observations		2,468				2,463		2,463		760	
	Pseudo R-squared		24.17%				32.22%		23.67%		10.15%	

Notes: Results are based on pooled logistic regressions. See Appendix B for all variable definitions. T-statistics are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, under two-tailed tests. In model (i), change variables are measured as the absolute values of changes of the independent variables from year *t-1* to year *t*, and are expected to be negatively related to *Consistent*. In model (ii), both the dependent variable and the independent variables in the "First Stage" are lagged by one more year than in the "Second Stage." Model (iii) is based on a propensity-score matched sample, as explained in the following Panel.

Panel C: Propensity Scores before and after Matching

	Treated Group LagConsistent=1	Control Group LagConsistent=0	Difference
Before Matching	0.7316	0.3829	0.3487***
	[1,107]	[1,405]	(50.90)
After Matching	0.6001	0.5983	0.0018
	[380]	[380]	(0.17)

Notes: Table values are propensity scores – fitted likelihood from a logistic model of *Consistent* on all guidance determinants except *LagConsistent*. The numbers of observations are in brackets and t-statistics are in parentheses. *** indicate statistic significance at the 0.01 level under two-tailed tests.

Table 7 – Guidance Timing and Format of Consistent and Inconsistent Guiders

			Consistent Guiders	Inconsistent Guiders			
		No. of Forecasts	4,713	8,528			
		No. of Firms	280	1,108			
		Variables	Mean	Mean	Diff	t-stat	
Timing	Variance	*VarEAD*	111.14	169.22	-58.08	-2.39	**
		VarHorizon	128.80	173.75	-44.96	-3.28	***
	Mean	*MeanBundled_EAD*	86.60%	79.05%	7.55%	3.79	***
		MeanEAD	3.24	4.61	-1.37	-1.81	*
		MeanHorizon	60.90	57.34	3.56	4.73	***
Format	Variance	*VarPrec*	0.12	0.32	-0.21	-4.17	***
	Mean	*MeanNoSurp*	49.24%	38.42%	10.82%	5.16	***
		MeanPrec	3.09	2.98	0.11	2.47	**

Notes: ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, under two-tailed tests. This table only reports the results of quarterly earnings guidance. Results on annual earnings guidance is similar and is available from the author upon request. Consistent guiders are defined as firms issuing consistent joint guidance patterns (both annual and quarterly guidance) for at least 3 consecutive years over the 7-year sample period.

Variable definitions: Prefix *Var-* and *Mean-* refer to the firm level variance and mean. Guidance timing variables are defined as follows: *EAD* is the number of days between guidance date and the previous quarter's earnings announcement date; *Horizon* is the number of days between guidance date and the forecast period end date; *Bundled_EAD* is a dummy variable that is set to one if *EAD* is zero or one. Guidance Format variables are defined as follows: *Prec* is a discrete measure of the precision of guidance format, which takes value of 1 (qualitative), 2 (min, max), 3(range), and 4 (point); *NoSurp* is a dummy variable if a guidance is classified as in line with market concurrent consensus by First Call.

Table 8 – Analyst Reaction to Guidance Issued by Consistent and Inconsistent Guiders

Panel A: Summary Statistics

Variable Name		N	Mean	Std. Dev.	Q1	Median	Q3
Guidance Outcome (Dependent Variables)	*Chg_N*	9,598	0.74	1.52	0	0	1
	Chg_Disp	9,010	-0.0013	0.04	-0.0005	-0.0002	0
	Consen_Aligned	9,687	0.77	0.42	1	1	1
Guidance History	*LagFreq*	8,798	2.73	1.38	2	3	4
	LagConsistent	7,376	0.39	0.49	0	0	1
	LagAccuracy	8,924	0.36	0.48	0	0	1
Guidance Antecedents	*N_pre*	9,866	8.40	5.99	4	7	12
	Disp_pre	9,179	0.03	0.04	0.01	0.02	0.03
	Consen_Aligned_pre	9,866	0.41	0.49	0	0	1
Guidance Properties	*Bundled_EAD*	10,059	0.88	0.32	1	1	1
	Horizon	10,059	59.02	17.58	55	65	70
	RangeWidth	10,059	0.03	0.04	0.01	0.02	0.05
Guidance Contents	*GuidNews*	9,626	0.05	0.07	0.01	0.03	0.06
	Bad	10,059	0.63	0.48	0	1	1

Notes: See Appendix B for all variable definitions. All continuous variables are winsorized at the 1st and 99th percentiles.

Panel B: Regression Analyses

Dependent Variable (Regression Spec.)		Chg_N (1) - OLS		Consen_Aligned (2) - Logistic		Chg_Disp (3) - OLS	
		Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
	Intercept	0.14	1.72 *	1.30	7.11 ***	0.01	4.93 ***
Guidance History	*LagFreq*	0.09	5.81 ***	0.11	3.76 ***	-6.E-04	-2.11 **
	LagConsistent	0.11	2.49 **	0.23	2.98 ***	3.E-04	0.41
	LagAccuracy	-0.04	-0.93	0.80	9.31 ***	1.E-04	0.20
Guidance Antecedents	*N_pre*	0.01	2.87 ***	0.02	2.54 **	4.E-05	0.75
	Disp_pre	-0.89	-1.38	-3.54	-2.87 ***	-0.42	-8.71 ***
	Consen_Aligned_pre	0.02	0.41	-0.34	-3.41 ***	1.E-03	1.40
Guidance Properties	*Bundled_EAD*	1.47	13.2 ***	-0.19	-0.94	-0.01	-4.39 ***
	Horizon	-0.02	-9.29 ***	0.01	1.48	-5.E-05	-1.67 *
	RangeWidth	-1.01	-1.74 *	20.45	13.74 ***	0.07	2.83 ***
Guidance Contents	*GuidNews*	0.66	0.97	-20.05	-16.17 ***	0.15	5.78 ***
	Bad	0.02	0.44	-0.76	-7.69 ***	-2.E-03	-2.20 **
	*GuidNews*Bad*	0.19	0.27	12.15	9.33 ***	0.02	0.83
	No. of Observations	6,481		6,481		6,449	
	Adj. (Pseudo) R-squared	3.67%		13.49%		30.98%	

Notes: Results of *Chg_N* and *Chg_Disp* (*Consen_Aligned*) are based on pooled Ordinary Least Square (logistic) regressions using quarterly guidance sample. See Appendix B for all variable definitions. T-statistics are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, under two-tailed tests.

Table 9 – Robustness Checks

Panel A: Replacing *LagConsistent* with *LagIncrease* and *LagDecrease*

		Predicted Sign		Sample I (Keep-or-Drop)		Sample II (Keep-or-Increase)	
		SI	SII	Coefficient	t-stat	Coefficient	t-stat
(H1) Guidance History	*LagFreq*	+	+	0.67 ***	12.19	-0.94 ***	-16.05
	LagIncrease	-	-	-0.88 ***	-7.54	-0.43 ***	-2.99
	LagDecrease	-	-	-1.19 ***	-5.05	-0.60 ***	-5.90
(H2) Information Uncertainty	*RetVol*	-	+	-28.46 ***	-3.59	-23.16 ***	-4.18
	Disp	-	+	-10.87 ***	-3.47	5.72 ***	3.31
	EarnVol	-	+	53.79	0.31	90.62	0.83
(H3) Expectation Management	*CAR_EA*	+	-	2.11 **	2.41	0.33	0.40
	MtBtAnalyst	+	-	0.60 ***	2.58	-0.42 **	-2.17
	AnalystFollowing	+	-	0.02	1.64	0.01	1.00
Other Control Variables				*INCLUDED*		*INCLUDED*	
No. of Observations				1,892		2,575	
Pseudo R-squared				26.14%		22.34%	

Notes: This table replicates Model (1a) in Table 4 Panel A and Model (1b) in Table 6 Panel A, except replacing *LagConsistent* with *LagIncrease* and *LagDecrease*. *LagIncrease* is a dummy variable equal to one if guidance frequency has increased over the past two years and zero otherwise. *LagDecrease* is a dummy variable equal to one if guidance frequency has decreased over the past two years and zero otherwise. See Appendix B for all other variable definitions. T-statistics are based on standard error estimates that control for firm and year clustering effects. *** and ** indicate statistical significance at the 0.01 and 0.05 levels, respectively, under two-tailed tests.

Panel B: Including *Difficulty*, *Volume*, and *Spread* as Control Variables
Sample: Sample I ("Keep-or-Drop"; Note: Consistent Non-Guiders Excluded)

			Full Sample		*LagConsistent=1*		*LagConsistent=0*	
		Predicted Sign	Model (1a'') Coefficient	t-stat	Model (2a'') Coefficient	t-stat	Model (3a'') Coefficient	t-stat
(H1) Guidance History	*LagFreq*	+	0.77 ***	8.79	0.58 ***	3.62	0.88 ***	8.05
	LagConsistent	+	1.06 ***	6.48				
(H2) Information Uncertainty	*RetVol*	-	-6.88	-0.53	8.72	0.34	-17.38	-1.12
	Disp	-	-11.60 **	-2.21	-12.50	-1.45	-11.30 *	-1.72
	EarnVol	-	310.30	1.05	457.60	0.69	234.80	0.70
	Difficulty	-	-0.57 **	-2.30	-1.33 ***	-2.97	-0.04	-0.14
(H3) Expectation Management	*CAR_EA*	+	0.44	0.32	1.56	0.59	0.08	0.05
	MtBtAnalyst	+	0.63 *	1.77	0.12	0.20	0.89 **	1.98
	AnalystFollowing	+	0.01	0.78	0.03	0.89	0.01	0.39
Liquidity Control	*Volume*	-	0.00	-0.34	0.00	-0.50	0.00	-0.01
	Spread	-	0.05	1.22	0.02	0.28	0.06	0.96
Other Control Variables			*INCLUDED*		*INCLUDED*		*INCLUDED*	
	Intercept	?	-3.78 ***	-4.43	-2.08	-1.30	-3.99 ***	-3.82
	No. of Observations		1051		482		569	
	Pseudo R-squared		33.04%		16.46%		25.89%	

Notes: This table replicates Model (1a) in Table 4 Panel A and Models (2a) and (3a) in Table 5, except including additional control variables: *Difficulty*, *Volume*, and *Spread*. *Difficulty* is measured following Rogers and Stocken (2005) to capture managers' inability to forecast accurately. It is based on a factor analysis from seven latent constructs. *Volume* is the average trading volume in the previous year. *Spread* is the average bid-ask spread in the previous year. See Appendix B for all other variable definitions. T-statistics are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, under two-tailed tests.

Panel C: Extending Guidance History Measurement Window

		Predicted Sign		Sample I (Keep-or-Drop)			Sample II (Keep-or-Increase)		
		SI	SII	Coefficient		t-stat	Coefficient		t-stat
(H1) Guidance History	*LagFreq*	+	+	0.61	***	9.78	-0.88	***	-13.95
	LagConsistent	+	+	1.11	***	6.71	0.96	***	6.76
	LagConsistent2	+	+	0.14		0.57	0.04		0.21
	LagConsistent3	+	+	0.11		0.41	-0.48	**	-2.41
(H2) Information Uncertainty	*RetVol*	-	+	-22.33	*	-1.87	-18.10	**	-2.21
	Disp	-	+	-11.94	***	-3.41	5.65	***	2.89
	EarnVol	-	+	-38.17		-0.19	30.12		0.25
(H3) Expectation Management	*CAR_EA*	+	-	2.10	**	2.05	-0.36		-0.37
	MtBtAnalyst	+	-	0.52	**	1.96	-0.20		-0.91
	AnalystFollowing	+	-	0.02		1.18	0.00		0.29
Other Control Variables				*INCLUDED*			*INCLUDED*		
No. of Observations				1,484			2,097		
Pseudo R-Squared				36.11%			32.88%		

Notes: This table replicates Model (1a) in Table 4 Panel A and Model (1b) in Table 6, except including guidance consistency measured over the past three years (*LagConsistent2*) and over the past four years (*LagConsistent3*), both of which are dummy variables set equal to one if the guidance patterns are identical over the past three or four years, and zero otherwise (see Figure 1). See Appendix B for all other variable definitions. T-statistics are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, under two-tailed tests.

Panel D: Annual Model and Joint Model (Testing H1a)
Sample: Sample I ("Keep-or-Drop"; Note: Consistent Non-Guiders Excluded)

		Predicted Sign	Annual Model (1a) Coefficient		t-stat	Marginal Effects	Joint Model (1a) Coefficient		t-stat	Marginal Effects
(H1) Guidance History	*LagFreqQ*	+					0.63	***	9.94	0.31
	LagFreqA	+	0.99	***	11.98	0.24	0.12	**	2.43	0.09
	LagConsistent	+	1.19	***	9.32	0.29	1.23	***	9.26	0.30
(H2) Information Uncertainty	*RetVol*	-	-32.87	***	-3.41	-0.08	-20.30	***	-2.66	-0.07
	Disp	-	-3.90		-1.32	-0.02	-7.45	**	-2.46	-0.03
	EarnVol	-	-400.20		-1.58	-0.01	6.54		0.03	0.00
(H3) Expectation Management	*CAR_EA*	+					2.21	**	2.56	0.04
	MtBtAnalyst	+					0.50	**	1.98	0.04
	AnalystFollowing	+	0.00		0.35	0.01	0.01		0.86	0.02
Other Control Variables			*INCLUDED*				*INCLUDED*			
No. of Observations			1,807				1,873			
Pseudo R-squared			30.84%				27.47%			
Pseudo R-squared w/o LagConsistent			27.87%				23.95%			
Pseudo R-squared w/o LagFreq			23.33%				21.32%			
Pseudo R-sqaured w/o LagConsistent & LagFreq			13.78%				13.12%			

Notes: This table replicates Model (1a) in Table 4 Panel A using annual guidance (Annual Model) and joint analysis of annual and quarterly guidance (Joint Model). *LagFreqQ* is *LagFreq* measured with quarterly guidance. *LagFreqA* is *LagFreq* measured with annual guidance. *LagConsistent* is measured with annual guidance in Annual Model (see Figure 1), and is measured with both annual and quarterly guidance in Joint Model (see Figure 2). The dependent variable, *Consistent*, is measured similarly as *LagConsistent*. Because annual earnings are reported only once a year, the "expectation management" incentives for annual guidance are likely weaker than quarterly guidance. Therefore, *CAR_EA* and *MtBtAnalyst* are dropped from the Annual Model. See Appendix B for all other variable definitions. T-statistics are based on standard error estimates that control for firm and year clustering effects. *** and ** indicate statistical significance at the 0.01 and 0.05 levels, respectively, under two-tailed tests. Marginal effects are incremental likelihood of issuing consistent guidance in year *t*, based on moving from the first quartile to the third quartile of the independent variables.

Panel E: Annual Model and Joint Model (Testing H1a; Excluding Full Guiders)
Sample: Sample I ("Keep-or-Drop"; Note: Consistent Non-Guiders Excluded)

		Predicted Sign	Annual Model (1a') Coefficient		Annual Model (1a') t-stat	Joint Model (1a') Coefficient		Joint Model (1a') t-stat
(H1) Guidance History	*LagFreqQ*	+				0.21		1.03
	LagFreqA	+	0.11		0.70	0.09		0.52
	LagConsistent	+	1.58	***	4.88	1.27	**	2.12
(H2) Information Uncertainty	*RetVol*	-	-13.87		-0.87	0.48		0.04
	Disp	-	1.83		0.33	-0.08		-0.02
	EarnVol	-	-220.20		-0.49	72.39		0.24
(H3) Expectation Management	*CAR_EA*	+				1.83		1.36
	MtBtAnalyst	+				-0.29		-0.64
	AnalystFollowing	+	-0.03		-0.87	-0.01		-0.17
Other Control Variables			*INCLUDED*			*INCLUDED*		
No. of Observations			543			673		
Pseudo R-squared			9.15%			1.33%		

Notes: This table replicates Model (1a) (Excluding *LagFreq=4*) in Table 4 Panel A using annual guidance (Annual Model) and joint analysis of annual and quarterly guidance (Joint Model). *LagFreqQ* is *LagFreq* measured with quarterly guidance. *LagFreqA* is *LagFreq* measured with annual guidance. *LagConsistent* is measured with annual guidance in Annual Model (see Figure 1), and is measured with both annual and quarterly guidance in Joint Model (see Figure 2). The dependent variable, *Consistent*, is measured similarly as *LagConsistent*. Because annual earnings are reported only once a year, the "expectation management" incentives for annual guidance are likely weaker than quarterly guidance. Therefore, *CAR_EA* and *MtBtAnalyst* are dropped from the Annual Model. See Appendix B for all other variable definitions. T-statistics are based on standard error estimates that control for firm and year clustering effects. *** and ** indicate statistical significance at the 0.01 and 0.05 levels, respectively, under two-tailed tests. Marginal effects are incremental likelihood of issuing consistent guidance in year *t*, based on moving from the first quartile to the third quartile of the independent variables.

Panel F: Testing H2a and H3a – Annual Model

Sample: Sample I ("Keep-or-Drop"; Note: Consistent Non-Guiders Excluded)

			Annual Model						Annual Model					
			LagConsistent=1		LagConsistent=0		Difference		Habitual=1 LagFreq+Lag2Freq≥6		Habitual=0 LagFreq+Lag2Freq≤5		Difference	
		Predicted	Model (2a)		Model (3a)		Model (2a) - (3a)		Model (2a')		Model (3a')		Model (2a') - (3a')	
		Sign	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
(H1) Guidance History	*LagFreq*	+							1.45	7.07 ***	0.89	6.88 ***	0.56	6.79 ***
	LagConsistent	+	0.57	3.65 ***	1.16	11.35 ***	-0.59	-3.17 ***	0.87	5.89 ***	2.45	5.24 ***	-1.57	-5.02 ***
Information Uncertainty	*RetVol*	-	-47.71	-2.67 ***	-30.72	-2.67 ***	-16.99	-0.80	-28.09	-2.29 **	-40.75	-2.30 **	12.67	0.87
	Disp	-	-7.34	-1.52	-0.21	-0.06	-7.13	-1.17	-7.47	-2.08 **	-1.46	-0.26	-6.01	-0.13
	EarnVol	-	-762.10	-1.61	-279.00	-0.97	-483.10	-0.87	-551.80	-1.85 *	23.94	0.05	-575.74	-1.30
Expectation Mgmt	*AnalystFollowing*	+	-0.01	-0.51	0.01	0.70	-0.02	-0.83	-0.01	-0.32	0.02	0.80	-0.03	1.01
Other Control Variables			***INCLUDED***		***INCLUDED***		***INCLUDED***		***INCLUDED***		***INCLUDED***		***INCLUDED***	
	Intercept	?	-0.39	-0.35	-4.88	-5.98 ***	4.49	3.27 ***	-5.46	-5.16 ***	-3.86	-3.29 ***	-1.59	-4.40 ***
	No. of Observations		818		989				1,283		524			
	Pseudo R-squared		12.52%		25.41%				19.08%		20.79%			
Likelihood Ratio Test (all interactive terms)			Chi-Square = 32.941	(DF = 19)	p-value =		0.0244	**	Chi-Square = 47.456	(DF = 20)	p-value =		0.0005	***

Notes: This table replicates Table 5 using annual guidance. Because annual earnings are reported only once a year, the "expectation management" incentives for annual guidance are likely weaker than quarterly guidance. Therefore, *CAR_EA* and *MtBtAnalyst* are dropped from the annual model. See Appendix B for all variable definitions, except that guidance frequency is measured using annual guidance. The difference in the effect of guidance determinants between Model (2a, 2a') and Model (3a, 3a') is tested by estimating a single logistic regression with the partitioning variable interacting with other determinants. Coefficients and t-statistics of the interactive terms are reported. Likelihood ratio tests are also based on the single logistic regressions with interactive terms. T-statistics are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels respectively, under two-tailed tests for t tests and under one-tailed tests for Chi-square tests. DF=degrees of freedom.

Panel G: Testing H2a and H3a – Joint Model

Sample: Sample I ("Keep-or-Drop"; Note: Consistent Non-Guiders Excluded)

			Joint Model						Joint Model					
			LagConsistent=1		LagConsistent=0		Difference		Habitual=1 LagFreq+Lag2Freq≥6		Habitual=0 LagFreq+Lag2Freq≤5		Difference	
		Predicted	Model (2a)		Model (3a)		Model (2a) - (3a)		Model (2a')		Model (3a')		Model (2a') - (3a')	
		Sign	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
(H1) Guidance History	*LagFreqQ*	+	0.18	1.34	0.75	9.75 ***	-0.57	-3.64 ***	0.48	5.36 ***	0.41	3.21 ***	0.07	0.42
	LagFreqA	+	-0.13	-1.32	0.18	2.99 ***	-0.31	-2.69 ***	-0.05	-0.88	0.36	3.25 ***	-0.41	-3.26 ***
	LagConsistent	+							1.13	7.96 ***	1.92	2.61 ***	-0.79	-1.06
(H2) Information Uncertainty	*RetVol*	-	-42.10	-2.18 **	-16.27	-1.91 *	-25.82	-1.22	-25.42	-2.28 **	0.38	0.03	-25.80	-1.56
	Disp	-	-15.28	-2.59 ***	-5.36	-1.56	-9.91	-1.45	-9.19	-2.27 **	-6.00	-1.25	-3.19	-0.51
	EarnVol	-	-27.36	-0.06	38.69	0.18	-66.05	-0.14	-153.60	-0.57	246.30	1.00	-399.90	-1.09
(H3) Expectation Management	*CAR_EA*	+	2.00	0.89	2.18	2.25 **	-0.18	-0.07	2.79	2.14 **	1.64	1.33	1.15	0.64
	MtBtAnalyst	+	0.46	0.91	0.60	2.01 **	-0.14	-0.24	0.77	2.40 **	0.10	0.24	0.67	1.28
	AnalystFollowing	+	-0.01	-0.43	0.02	1.26	-0.03	-1.01	0.01	0.44	0.03	1.04	-0.02	-0.64
Other Control Variables			*INCLUDED*		*INCLUDED*		*INCLUDED*		*INCLUDED*		*INCLUDED*		*INCLUDED*	
	Intercept	?	0.69	0.55	-4.36	-6.44 ***	5.05	3.56 ***	-1.75	-2.29 **	-5.34	-5.33	3.59	2.85 ***
	No. of Observations		484		1,389				1,145		728			
	Pseudo R-squared		11.78%		18.51%				19.67%		9.39%			
Likelihood Ratio Test (all interactive terms)			Chi-Square = 42.612 (DF = 22) p-value =				0.0053 ***		Chi-Square = 38.972 (DF = 23) p-value =				0.0200 **	

Notes: This table replicates Table 5 using joint analysis of annual and quarterly guidance (Joint Model). *LagFreqQ* is *LagFreq* measured with quarterly guidance. *LagFreqA* is *LagFreq* measured with annual guidance. *LagConsistent* is measured with both annual and quarterly guidance in Joint Model (see Figure 2). The dependent variable, *Consistent*, is measured similarly as *LagConsistent*. See Appendix B for all other variable definitions. When partitioned by *Habitual* dummy variable in the Joint Model, a firm is classified as "*Habitual=1*" if *LagFreqA+Lag2FreqA≥6* or *LagFreqQ+Lag2FreqQ ≥6*, and "*Habitual=0*" otherwise. The difference in the effect of guidance determinants between Model (2a, 2a') and Model (3a, 3a') is tested by estimating a single logistic regression with the partitioning variable interacting with other determinants. Coefficients and t-statistics of the interactive terms are reported. Likelihood ratio tests are also based on the single logistic regressions with interactive terms. T-statistics are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels respectively, under two-tailed tests for t tests and under one-tailed tests for Chi-square tests. DF=degrees of freedom.

Panel H: Mitigating the Endogeneity of *LagConsistent* (Annual Model)

			(i) Including Change Variables				(ii) Heckman Selection Model				(iii) P-Score Matching	
		Predicted	Level Variables		Change Variables		First Stage		Second Stage		Sample I (Keep-or-Drop)	
		Sign	Coefficient	t-stat	Coefficient	t-stat	Coefficier	t-stat	Coefficier	t-stat	Coefficient	t-stat
(H1) Guidance History	***LagFreq***	**+**	**1.04**	**9.52 *****			**0.96**	**17.62 *****	**0.97**	**14.77 *****	**0.91**	**7.23 *****
	LagConsistent	**+**	**1.07**	**7.51 *****					**0.72**	**5.57 *****	**1.06**	**7.09 *****
Information Uncertainty	*RetVol*	-	-20.96	-1.63	-3.21	-0.20	-6.47	-1.07	-8.44	-0.98	-43.51	-3.49 ***
	Disp	-	-1.63	-0.39	-6.47	-1.11	4.02	1.86 *	-4.66	-2.31 **	-5.47	-1.59
	EarnVol	-	-657.60	-1.84 *	-44.77	-0.13	33.49	0.20	-57.09	-0.32	-305.50	-1.01
Expectation Mgmt	*AnalystFollow*	+	0.00	0.05	-0.08	-1.53	0.01	.	0.01	.	0.02	1.24
Firm Performance	*Loss*	-	-1.12	-2.11 **	0.37	0.81	0.05	0.17	-0.78	-2.85 ***	-0.73	-1.54
	EarnIncrease	+	0.43	2.15 **	0.34	1.72 *	0.21	1.89 *	0.18	1.60	0.26	1.30
	AdjRet	+	0.21	0.89	-0.33	-1.61	-0.21	-1.59	0.12	0.83	0.53	2.19 **
Other Control Variables			***INCLUDED***		***INCLUDED***		***INCLUDED***		***INCLUDED***		***INCLUDED***	
	Intercept	?	-3.62	-4.60 ***			-4.40	-10.32 ***	-3.97	-8.27 ***	-2.94	-3.45 ***
							Rho (Inv. Mill Ratio)		**-0.04**	**-0.45**		
	No. of Observations		1,471				1,451		1,451		1,136	
	Pseudo R-squared		28.65%				40.37%		54.19%		17.37%	

Notes: This table replicates Table 4 Panel B using annual guidance. See Appendix B for all variable definitions. T-statistics are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, under two-tailed tests. In model (i), change variables are measured as the absolute values of changes in the independent variables from year *t-1* to year *t*, and are expected to be negatively related to *Consistent*. In model (ii), both the dependent variable and the independent variables in the "First Stage" are lagged by one more year than in the "Second Stage." Model (iii) is based on a propensity-score matched sample, as explained in the next Panel.

Panel I: Propensity Scores before and after Matching (Annual Model)

	Treated Group LagConsistent=1	Control Group LagConsistent=0	Difference
Before Matching	0.7003	0.4744	0.2260 ***
	[818]	[989]	(20.20)
After Matching	0.6603	0.6595	0.0007
	[568]	[568]	(0.06)

Notes: This table replicates Table 4 Panel C using annual guidance. Table values are propensity scores – fitted likelihood from a logistic model of *Consistent* on all guidance determinants except *LagConsistent*. The numbers of observations are in brackets and t-statistics are in parentheses. *** indicates statistic significance at the 0.01 level under two-tailed tests.

Panel J: Mitigating the Endogeneity of *LagConsistent* (Joint Model)

			(i) Including Change Variables				(ii) Heckman Selection Model				(iii) P-Score Matching	
		Predicted	Level Variables		Change Variables		First Stage		Second Stage		Sample I (Keep-or-Drop)	
		Sign	Coefficient	t-stat	Coefficient	t-stat	Coefficier	t-stat	Coefficier	t-stat	Coefficient	t-stat
(H1) Guidance History	***LagFreqQ***	**+**	**0.15**	**3.66 *****			**0.50**	**11.91 *****	**0.56**	**12.30 *****	**0.44**	**2.60 *****
	LagFreqA	**+**	**0.31**	**6.89 *****			**0.15**	**5.02 *****	**0.12**	**4.13 *****	**0.02**	**0.11**
	LagConsistent	**+**	**1.38**	**11.51 *****					**0.63**	**3.59 *****	**0.90**	**2.17 ****
Information Uncertainty	*RetVol*	-	-18.12	-1.91 *	-7.35	-0.62	-5.11	-1.14	-8.94	-1.64	-38.09	-1.64
	Disp	-	-1.05	-0.37	-7.27	-1.62	-0.67	-0.37	-4.08	-1.98 **	-8.44	-1.17
	EarnVol	-	-19.60	-0.08	-301.10	-1.41	48.95	0.39	2.40	0.02	124.30	0.25
Expectation Management	*CAR_EA*	+	2.43	2.01 **	-2.23	-1.99 **	0.72	1.36	-0.18	-0.28	2.67	1.14 **
	MtBtAnalyst	+	0.98	3.51 ***	0.04	0.14	0.00	0.03	0.28	1.69 *	0.12	0.20 *
	AnalystFollow	+	0.01	0.81	-0.03	-0.81	0.00	.	0.00	.	0.01	0.35
Firm Performance	*Loss*	-	-1.12	-2.11 **	-0.02	-0.08	0.05	0.29	-0.49	-2.45 **	-1.77	-2.01 **
	EarnIncrease	+	0.43	2.15 **	-0.02	-0.11	0.04	0.44	0.08	0.80	-0.22	-0.54
	AdjRet	+	0.21	0.89	-0.26	-1.69 *	0.03	0.28	0.19	1.66 *	0.41	0.87
Other Control Variables			***INCLUDED***		***INCLUDED***		***INCLUDED***		***INCLUDED***		***INCLUDED***	
	Intercept	?	-2.32	-4.02 ***			-3.02	-8.59 ***	-3.20	-8.54 ***	-1.69	-1.04 **
							Rho (Inv. Mill Ratio)		**0.14**	**1.25**		
	No. of Observations		2,021				1,914		1,914		230	
	Pseudo R-squared		24.99%				26.24%		40.50%		13.78%	

Notes: This table replicates Table 4 Panel B using joint analysis of annual and quarterly guidance. *LagFreqQ* is *LagFreq* measured with quarterly guidance. *LagFreqA* is *LagFreq* measured with annual guidance. *LagConsistent* is measured with annual guidance in Annual Model (see Figure 1), and is measured with both annual and quarterly guidance in Joint Model (see Figure 2). The dependent variable is *Consistent* is measured similarly as *LagConsistent*. See Appendix B for all variable definitions. T-statistics are based on standard error estimates that control for firm and year clustering effects. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, under two-tailed tests. In model (i), change variables are measured as the absolute values of changes of the independent variables from year *t-1* to year *t*, and are expected to be negatively related to *Consistent*. In model (ii), both the dependent variable and the independent variables in the "First Stage" are lagged by one more year than in the "Second Stage." Model (iii) is based on a propensity-score matched sample, as explained in the next Panel.

Panel K: Propensity Scores before and after Matching (Joint Model)

	Treated Group LagConsistent=1	Control Group LagConsistent=0	Difference
Before Matching	0.6706	0.2248	0.4458 ***
	[818]	[989]	(51.01)
After Matching	0.3833	0.3755	0.0078
	[165]	[165]	(0.32)

Notes: This table replicates Table 4 Panel C using joint analysis of annual and quarterly guidance. Table values are propensity scores – fitted likelihood from a logistic model of *Consistent* on all guidance determinants except *LagConsistent*. The numbers of observations are in brackets and t-statistics are in parentheses. *** indicates statistic significance at the 0.01 level under two-tailed tests.