Management earnings guidance and preference for earnings predictability : the real effects on managerial decisions

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**MANAGEMENT EARNINGS GUIDANCE AND
PREFERENCE FOR EARNINGS
PREDICTABILITY:
THE REAL EFFECTS ON MANAGERIAL
DECISIONS**

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SUMMARY

Prior research finds that frequent and accurate earnings forecasts are beneficial for investors, analysts, and management. My study examines whether the issuance of frequent earnings guidance and the goal to achieve high earnings forecast accuracy may result in unintended negative consequences on firm value creation. One such effect could be that managers may pursue high short-term earnings predictability at the expense of firm value, in order to accomplish their earnings guidance goals. In order to investigate the role of management earnings guidance attributes in managers' trade-off between total expected earnings and quarterly earnings predictability, I conduct a between-subjects experiment that randomized guidance frequency (frequent or infrequent) and guidance goal (accuracy or beat/meet - when guidance is used to "walk down" the market expectations). I find that frequent guiders with either accuracy goals or beat/meet goals are more likely to sacrifice total expected earnings for quarterly earnings predictability, because they suffer from myopic loss aversion. On the other hand, although infrequent guiders with beat/meet goals are more likely to maximize total expected earnings, infrequent guider with accuracy goals still tend to pursue high quarterly earnings predictability to realize their challenging guidance goals. My study provides psychological and goal-related explanations for managers' trade-off between conflicting earnings attributes. This study contributes to the existing literature on earnings predictability, management earnings guidance and real economic effect of financial reporting.

1. INTRODUCTION

1.1 Motivation

Prior research indicates that frequent and accurate management earnings forecasts can reduce information asymmetry and cost of capital (Feng et al. 2009; Graham et al. 2005), build forecasting reputation and credibility (Hutton and Stocken 2009; Venkataraman 2008), and result in more responsive analysts' revisions and market's reactions (Williams 1996; Bhojraj et al. 2010). In this study, I examine whether the issuance of frequent and accurate earnings guidance can cause managers to sacrifice long-term firm value for short-term earnings predictability. Although this adverse impact of quarterly earnings guidance has not received attention in the literature, it is consistent with managers' argument that the pressure to beat or meet quarterly management earnings forecasts is detrimental to companies' long-term earnings growth and value creation.¹ As earnings guidance frequency and earnings guidance goal influence managers' emphasis on the outcome associated with quarterly earnings guidance, I posit that these two earnings guidance attributes may jointly determine managers' trade-off between short-term earnings predictability and long-term firm value creation.

Earnings predictability is the extent to which it is easy to predict future earnings from current earnings (Lipe 1990). It is considered a desirable earnings attribute by standard setters, investors, and analysts (Ashbaugh and

¹ See <http://feeds.harvardbusiness.org/harvardbusiness/hbr/restoring-american-competitiveness/>

Pincus 2001; Elliott and Philbrick 1990; Das et al. 1998).² As a result, it becomes an over-arching concern for managers (Graham et al. 2005). However, high earnings predictability may not be beneficial for firm value creation. As indicated in Francis et al. (2004), after controlling for the innate factors of earnings attributes, high earnings predictability has an adverse impact on cost of equity capital. This is consistent with their argument that managers may engage in opportunistic behavior to create high earnings predictability, which in turn increases information risk and the cost of equity capital. Since high earnings predictability can help managers realize earnings guidance goals, managers issuing earnings guidance may manipulate real business decisions that entail high earnings predictability, even if, at the margin, these result in lower earnings or firm value.³ In this thesis, I examine how two factors, earnings guidance frequency and earnings guidance goal, influence managers' preference for projects with high earnings predictability.

² As stated in the conceptual framework of Financial Accounting Standards Board (FASB), Statement of Financial Accounting Concepts No. 8 - Chapter 1, The Objective of General Purpose Financial Reporting, and Chapter 3, Qualitative Characteristics of Useful Financial Information, "The fundamental qualitative characteristics are relevance and faithful representation. Relevant financial information is capable of making a difference in the decisions made by users. Financial information is capable of making a difference in decisions if it has predictive value, confirmatory value, or both. Financial information has predictive value if it can be used as an input to processes employed by users to predict future outcomes." (SFAC No. 8, P17).

³ Managers have other opportunities to accomplish their earnings guidance goals. For example, managers can invest in the internal control system to increase forecast accuracy (Feng et al. 2009), manage earnings (Kasznik 1999) or manage expectations (Cotter et al. 2006). However, Das et al. (2008) document that earnings management has constraints and investors penalize firms using expectation management. With the more stringent regulation environment after SOX and the increasing costs of earnings or expectation management, managers may turn to real earnings management (i.e., change real business decisions) to accomplish their earnings guidance goals.

Frequent quarterly earnings guidance has been argued to be detrimental to firms' long-term earnings growth and value creation (e.g., Fuller and Jensen 2002). Pozen (2009) points out that corporate managers tend to take a short-term approach to business decisions when companies make projections of the next quarter's earnings.⁴ Nevertheless, many of these arguments are based on anecdotal evidence or perceptions (Miller 2009). Whether frequent earnings guidance will adversely affect managerial decisions remains a question. Recent studies try to address this question by comparing long-term firm performance of frequent guiders with that of infrequent guiders (Cheng et al. 2007; Bhojraj et al. 2010). However, it is difficult for archival studies to directly associate the poor long-term firm performance with the act of providing frequent earnings guidance, as the endogeneity problem cannot be effectively controlled (Miller 2009). I examine this issue by exogenously manipulating earnings guidance frequency in an experimental setting, and aim to investigate the impact of managers' commitment to prior earnings guidance frequency on their real business decisions.

The goal to issue earnings guidance also plays an important role in managerial decisions. Goal setting theory suggests that individuals receive a psychological benefit from attaining a goal, and goal difficulty affects resource allocation and performance (Locke and Latham 1990). Managers have different goals to provide earnings guidance (Healy and Palepu 2001). The difficulty in

⁴ See <http://blogs.hbr.org/hbr/restoring-american-competitiveness/2009/10/can-we-break-the-tyranny-of-qu.html>

realizing these goals varies, which may further influence managers' resource allocation and real business decisions. It is hard to identify management's *ex ante* guidance goal in the real world, as the *ex post* guidance outcomes can be attributed to either guidance goal or other factors, such as luck or managers' forecasting ability. An experimental method allows me to manipulate guidance goal, and establish guidance goal as the underlying cause for managers' preference for short-term earnings predictability.

1.2 Summary of Hypotheses and Findings

I experimentally test how two attributes of quarterly earnings guidance, guidance frequency and guidance goal, affect managers' real business decisions in a context of marketing strategy choice. Wide variation exists in the frequency with which quarterly earnings guidance is issued. Frequent guiders may issue earnings forecasts every quarter, while infrequent guiders may not provide earnings forecasts for several years (Hirst et al. 2008). In addition, the existing literature has documented several types of motivation for managers to issue earnings guidance, such as aligning market expectations with managers' private information, establishing forecasting and reporting reputation, and strategically biasing market expectations to achieve managers' desired outcomes (Healy and Palepu 2001). In this study, I specifically examine two types of earnings guidance goals: (a) a goal to establish an accurate forecasting reputation

(hereafter, accuracy goal), and (b) a goal to “walk down” the market’s earnings expectation to a beatable level (hereafter, beat/meet goal).⁵

Compared to infrequent guiders, I predict that frequent guiders are more likely to sacrifice total expected earnings for quarterly earnings predictability, because frequent guidance constrains managers to be excessively concerned about short-term negative consequences associated with future earnings guidance (i.e., myopic loss aversion). In terms of guidance goal, I predict that guiders with accuracy goals are more likely to sacrifice total expected earnings for quarterly earnings predictability than guiders with beat/meet goals, because accuracy goals are more difficult to achieve and predictability is more crucial for guiders with accuracy goals. Furthermore, I expect that the impact of guidance goal on managers’ marketing strategy decisions is contingent on guidance frequency. Specifically, the difference in the propensity to sacrifice total expected earnings for quarterly earnings predictability between guiders with accuracy goals and guiders with beat/meet goals is larger when guidance is infrequent than when it is frequent.

To test my predictions, I manipulate guidance frequency (frequent vs. infrequent) and guidance goal (accuracy vs. beat/meet) in a 2×2 between-subjects experiment using MBA students as participants. Study participants, in the role of managers, are faced with two alternative marketing strategies. One has higher quarterly earnings predictability but lower total expected earnings

⁵ The accuracy goal condition can be viewed as a control group where the opportunity to “walk down” earnings forecasts is prohibited.

(henceforth, the high-predictability strategy), and the other has lower quarterly earnings predictability but higher total expected earnings (henceforth, the low-predictability strategy). Given the company's earnings guidance policy, participants are asked to choose their preferred marketing strategy and answer related questions. Consistent with my expectations, frequent guiders are more likely to choose the high-predictability strategy than infrequent guiders, and guiders with accuracy goals are more likely to do so than guiders with beat/meet goals. Moreover, there is a significant interaction effect of guidance frequency and guidance goal. Specifically, while infrequent guiders with beat/meet goals tend to make value-maximizing decisions, guiders in all the other conditions tend to seek high quarterly earnings predictability at the expense of total expected earnings.

1.3 Contribution

My study contributes to the debate surrounding the issue on the frequency of financial disclosures. Proponents of more disclosures claim that frequent reporting enhances market efficiency, and reduces information asymmetry as well as cost of capital (Diamond and Verrecchia 1991; Leuz and Verrecchia 2000; Verrecchia 2001). On the other hand, opponents argue that frequent reporting may hurt shareholders' value (Gigler and Hemmer 1998) and result in short-term market volatility and uncertainty (Rogers et al. 2009). My study adds to the literature by providing theory and experimental evidence regarding the costs associated with frequent quarterly earnings guidance.

Specifically, I show that frequent guidance can induce myopic loss aversion, which causes managers to overemphasize short-term earnings guidance outcomes.

More related to the current study, Bhojraj and Libby (2005) find that when stock issuance pressure exists, either semi-annual or quarterly disclosures can cause managers to sacrifice total cash flow for short-term earnings, depending on whether they create a conflict between the two attributes. Similar to their results, I also find that when the guidance goal is more difficult to achieve (i.e., the pressure of accomplishing accuracy goal is high), both frequent and infrequent earnings guidance can result in managers' sacrifice of long-term expected earnings for short-term earnings predictability. However, as an extension of their paper, which did not find any effect of guidance frequency on managerial myopia when there is no capital market pressure, I document a situation where, even if the guidance goal is less difficult to achieve (accomplishing a beat/meet goal is less difficult and entails less pressure compared to accomplishing an accuracy goal), frequent guidance can still result in participants' preference for short-term earnings predictability. This difference is important, as it demonstrates that the negative consequences associated with issuing frequent earnings guidance may be pervasive, in that it does not depend on various earnings guidance goals or the pressures to accomplish those goals.

This study also contributes to the earnings guidance research by illustrating a potential negative consequence of issuing accurate earnings guidance. The existing literature primarily documents the beneficial impact of accurate earnings forecasts on investors' (or market's) reactions. For example, Venkataraman (2008) finds that investors will rate managers with a stronger guidance commitment to be more credible only when prior forecast accuracy is high, but not when prior forecast accuracy is low.⁶ Analysts and investors are also more responsive to management earnings guidance if it is issued by an accurate guider (Williams 1996; Bhojraj et al. 2010; Hutton and Stocken 2009). My study offers a different perspective, and documents the deleterious impact of pursuing high earning forecast accuracy on managerial decisions. Specifically, the goal to achieve high earnings forecast accuracy can increasingly focus managers' attentions on short-term earnings predictability, rather than overall firm value creation. This finding is consistent with the recent argument that specific and challenging goals can motivate people to engage in unethical behavior (Ordóñez et al. 2009).

Finally, this study has implications for the literature on managers' opportunistic behavior. Kasznik (1999) show that earnings guidance can cause managers to manipulate accruals due to reputation concerns. Acito (2010) also find that firms issuing earnings guidance recognize large abnormal accruals to beat management earnings forecasts. Rather than focusing on the accrual-based

⁶ He manipulates earnings guidance commitment and prior forecast accuracy in an experimental setting. The manipulation of earnings guidance commitment is either 12 or 4 earnings forecasts in the preceding 12 quarters. The manipulation of prior forecast accuracy is either high or low.

earnings management, my study provides evidence that quarterly earnings guidance can also result in managers' real earnings management due to their concerns over short-term earnings predictability. This result also presents a new form of real earnings management behavior that has not been documented in previous literature (See review in Libby and Seybert 2009).

Another related study is Cheng et al. (2007), which shows that dedicated guiders invest less in research and development (R&D) than occasional guiders, in order to beat or meet their earnings forecast near the end of an accounting period. My study proposes that managers are also motivated to seek high short-term earnings predictability at the beginning of an accounting period to ensure that their future earnings forecasts are deliverable.⁷ Moreover, instead of looking at the main effect of guidance frequency, I show that guidance frequency and guidance goal can jointly affect managers' trade-off between short-term earnings predictability and long-term expected earnings. This is important because it is shown that not only frequent earnings guidance but also the goal to achieve high earnings forecast accuracy can result in managers' preference for short-term earnings predictability.

⁷Managers usually do not know the realized earnings numbers when guidance is issued. As shown in Anilowski et al. (2007), over half of management earnings guidance is issued before the end of the fiscal quarter. Moreover, they also suggest that the quality of earlier earnings forecasts is important. As earnings become more predictable as projects unfold, I expect management's preference for short-term earnings predictability will be much greater if the guidance is issued at the beginning of the period.

1.4 Organization of the Study

Section Two will review the relevant literature on management earnings guidance and its influence on managers' resource allocation. This section also will discuss the role of earnings guidance frequency and earnings guidance goal in affecting managers' trade-off in preference for long-term expected earnings versus short-term earnings predictability. Section Three will describe the research design and present a discussion of the experimental materials and procedures. The results and findings are discussed in Section Four. Section Five concludes the study.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Management Earnings Guidance and Multiple Goals

The decision to issue management earnings guidance is initially determined by both environmental factors (i.e. legal, regulatory, investor, and analyst environment) and firm-specific characteristics (Hirst et al 2008).⁸ However, once a firm starts to issue guidance, it will make an implicit commitment to its existing earnings guidance policy (Einhorn and Ziv 2008). As indicated in interviews, managers believe it is costly to change a disclosure

⁸The firm-specific characteristics documented in previous literature includes earnings volatility (Waymire 1985), corporate governance (Ajinkya et al. 2005), firm earnings performance (Miller 2002), firm forecasting performance (Houston et al. 2010; Chen et al. 2011), and litigation risk (Skinner 1994, 1997). It is possible that earnings predictability is one factor companies may consider, particularly when they first issue earnings guidance and deliberate on an earnings guidance policy.

precedent (Graham et al. 2005; Libby and RenneKamp 2010). This is consistent with the empirical finding that the market reacts negatively to the announcement of stopping issuing earnings guidance (Chen et al. 2011). Furthermore, stoppers will subsequently experience a deteriorated information environment, as evidenced by decreased analyst following, decreased analyst forecast accuracy and increased analyst forecast dispersion (Chen et al. 2011; Houston et al. 2010). In fact, Houston et al. (2010) find that around 31% of guidance stoppers resume their quarterly earnings guidance after a quiet period of several quarters.

In the face of the costs associated with changing earnings guidance practice, firms generally provide quarterly earnings guidance consistently (Anilowski et al. 2007). Survey results also indicate that management rarely considers changing guidance policy such as guidance frequency (NIRI 2009).⁹ This commitment to earnings guidance policy constrains managers' ability to deliberately select periods that are easy to forecast. With the anticipation of issuing earnings guidance in the future, managers will try to accomplish their goals of issuing earnings guidance (i.e., either establish reputation or beat/meet market expectation). At the same time, as value-maximizing managers, they also want to create higher profitability in the long run. As a result, managers issuing earnings guidance have to consider both the short-term earnings

⁹ Specifically, 76% of the surveyed managers do not consider changing guidance policy, either in terms of frequency, estimate periods, range or measures on which to guide. See "National Investors Relations Institute 2009 Forward-Looking Guidance Practices Survey": <http://www.niri.org/media/News-Releases/NIRI-Releases-2009-Forward-Looking-Guidance-Practices-Survey-Results-2009May18.aspx>

guidance goal and the long-term earnings performance goal when making business decisions.

Recent psychological literature examines how individuals allocate their limited resources across competing goals. Although research on this issue is scarce, there is an emerging consensus that resource allocation is determined by the relative importance of the goal, which depends on how progress toward attaining that goal compares to progress toward an alternative goal (Schmidt et al. 2009). As earnings guidance frequency affects the salience of the short-term goal progress, and earnings guidance goal influences the difficulty to achieve the short-term goal, I expect these two factors will jointly affect the relative importance of the short-term earnings guidance goal versus long-term earnings performance goal, and thus influence managers' subsequent resource allocations.

Since quarterly earnings predictability helps managers realize their short-term guidance goals, and total expected earnings is important to assess the long-term earnings performance, I design an operating decision case which involves managers' trade-off in their preference for short-term earnings predictability versus long-term expected earnings.¹⁰ Below, I develop hypotheses regarding how earnings guidance frequency and earnings guidance

¹⁰ By design, I set up a conflict between short-term earnings predictability and long-term earnings performance, so that I can test the theory of how earnings guidance policy affects managers' trade-off between the two earnings attributes. Although the trade-off choice is an important aspect in managers' corporate decisions, I do not suggest that this conflict always arises (i.e., that high earnings predictability projects necessarily have lower long-term earnings performance).

goal affect managers' choices between the high-predictability strategy and the low-predictability strategy.

2.2 Earnings Guidance Frequency

Wide variation exists in terms of the frequency of management earnings guidance. As documented in Acito (2010), whose sample period is from fiscal year 2001 to fiscal year 2008, 62.8 percent of sample firms do not provide quarterly earnings guidance, while 9.8/6.4/6.8/14.2 percent of sample firms provide earnings guidance for one quarter/two quarters/three quarters/four quarters each year. Prior studies demonstrate several benefits of issuing frequent quarterly earnings forecasts. Managers can credibly signal their commitment to more disclosures by issuing frequent quarterly earnings forecasts (Botosan and Harris 2000). As a consequence, information asymmetry can be reduced (Coller and Yohn 1997), mispricing can be mitigated (Nagar et al. 2003), institutional ownership and analyst coverage can be attracted (Healy et al. 1999), and more opportunities to access to capital markets can be created (Frankel et al. 1995).

However, frequent quarterly earnings guidance can cause managers to be constrained by a short-term perspective. Compared to infrequent guiders, frequent guiders anticipate more evaluations and feedback in the future, as quarterly earnings announcements function as a feedback mechanism to assess the accuracy of management earnings guidance issued earlier. Frequent evaluation makes the progress towards short-term earnings guidance goal more

salient relative to the progress towards long-term earnings performance goal. Hence, managers will consider the short-term guidance goal as a priority and allocate resources to facilitate achieving that goal.

In addition, Bernartzi and Thaler (1995) argue that frequent evaluations and feedback result in myopic loss aversion. The underlying reasoning is mental accounting (Thaler 1985). Specifically, frequent evaluations cause people to overreact to losses and gains in each short period, and ignore the overall long-term value. Furthermore, prospect theory contends that people value gains and losses differently, with losses having more psychological impact than an equivalent amount of gains (Tversky and Kahneman 1991). As a result, people taking a short-term perspective will more likely exhibit myopic loss aversion. Gneezy and Potters (1997) supports the myopic loss aversion hypothesis in an experimental setting. They find that investors will be more risk averse if the returns are frequently evaluated. In a similar vein, Thaler et al. (1997) finds that the investors who get the most frequent feedback take the least risk and earn the least money. Furthermore, Bhojraj and Libby (2005) indicate that disclosure frequency-induced earnings/cash flow conflict can affect managerial myopic behavior. In summary, I expect that frequent guiders are more likely to be concerned about short-term earnings guidance goal and short-term negative consequences than infrequent guiders.

The failure to achieve the earnings guidance goal will result in short-term negative consequences. Irrespective of the goal to issue earning guidance,

management earnings guidance generally influences market expectations or analysts' consensus forecasts (Tan et al. 2002; Cotter et al. 2006; Tan et al. 2010). If managers cannot successfully realize their earnings forecasts, the actual earnings would probably miss market expectations. As a result, the stock market may question the firm's growth prospects and the manager's ability to run a stable company, hurting the stock price performance (Matsumoto 2002), the firm's forecasting credibility (Verrecchia 2001), and the managers' personal reputation (Trueman 1986). One way to avoid these short-term negative consequences is to keep the quarterly earnings path more predictable, as predictable earnings are associated with smaller earnings forecast errors and earnings benchmarks that are easy to deliver (Dichev and Tang 2008). Accordingly, I expect that frequent guiders have greater preference for high quarterly earnings predictability than infrequent guiders. Therefore, my first hypothesis concerning the main effect of earnings guidance frequency on managers' trade-off between quarterly earnings predictability and total expected earnings is stated as follows:

H1: Frequent guiders are more likely to sacrifice total expected earnings for quarterly earnings predictability than infrequent guiders.

2.3 Earnings Guidance Goal

Companies have different goals for providing management earnings guidance. One type of goal is to establish an accurate forecasting reputation, whereas another type of goal is to "walk down" the market expectation to a beatable level (Healy and Palepu 2001). Managers want to establish an accurate

forecasting reputation because it can reduce information asymmetry (Brown and Hillegeist 2007; Lambert et al. 2007), build forecasting credibility (Trueman 1986; Verrecchia 2001), and satisfy institutional investors' demand for high quality information (Bushee and Noe 2000; Ajinkya et al. 2005). On the other hand, managers also want to ensure that actual earnings can beat or meet market expectations to avoid negative consequences (Matsumoto 2002; Bartov et al. 2002; Kaznik and McNichols 2002). These two guidance goals have different impacts on managers' preference for short-term earnings predictability.

The manner in which accuracy goals and beat/meet goals are achieved differs. Accuracy goals can be achieved by minimizing *ex post* earnings forecast errors; i.e., the earnings realization should be as close to the earnings forecast as possible. In contrast, beat/meet goals can be achieved as long as actual earnings are no lower than analysts' earnings forecasts. Hence, accuracy goals are more difficult to accomplish than beat/meet goals. As the difficulty in realizing the two goals differs, the need for quarterly earnings predictability also varies. Guiders who are motivated to establish an accurate reputation need high earnings predictability to reduce the deviation between forecasted earnings and realized earnings. In contrast, less earnings predictability is required to achieve beat/meet goals. As documented in Cotter et al. (2006), analyst earnings forecasts usually follow management earnings guidance when managers issue pessimistic earnings guidance to "walk down" market expectations. Thus, managers can issue pessimistic earnings guidance (which

analysts likely follow with little adjustments; Tan et al. 2002, 2010) to achieve their goals of beating or meeting analyst earnings forecasts at actual earnings announcement dates, without requiring high earnings predictability. In summary, while it is difficult to accomplish accuracy goals without high earnings predictability, beat/meet goals are still achievable even with less predictable earnings.

Based on Locke and Latham's Goal Setting Theory (Locke and Latham, 1990, 2002), difficult goals lead to higher performance primarily because it directs the allocation of resources toward goal-relevant activities. As goal difficulty increases, a larger portion of one's resources must be allocated to the activity in question if the goal is to be met. Thus, the pursuit of difficult goals leaves relatively few resources available for other purposes (Schmidt and Dolis 2009), motivating decision makers to seek ways to simplify the alternative goal attainment. Since accuracy goals are more difficult to accomplish and require higher short-term earnings predictability, I expect guiders with accuracy goals will have greater preference for high quarterly earnings predictability relative to guiders with beat/meet goals. Therefore, my second hypothesis concerning the main effect of earnings guidance goal on managers' trade-off between quarterly earnings predictability and total expected earnings is stated as follows:

H2: Guiders with accuracy goals are more likely to sacrifice total expected earnings for quarterly earnings predictability than guiders with beat/meet goals.

2.4 Interaction Effect of Guidance Frequency and Guidance Goal

As stated above, two factors influence managers' emphasis on quarterly earnings predictability: first, whether management provides frequent quarterly earnings guidance; and second, whether achieving high earnings forecast accuracy is management's primary goal. I predict that these two factors operate interactively, with the impact of guidance goal depending on whether management issues quarterly earnings guidance on a frequent or an infrequent basis.

I posit that frequent guidance induces managers' concerns about short-term negative consequences, which mitigate the impact of guidance goal on managers' preference for earnings predictability. While guiders with accuracy goals require earnings predictability to establish an accurate forecasting reputation, frequent guiders with beat/meet goals also need earnings predictability to avoid short-term credibility and personal reputation loss. They need a justifiable forecasting reputation to convince the market to follow their earnings guidance in the future. Since the market can observe managers' historical forecasting track records, frequent but inaccurate earnings forecasts will reduce the credibility of management earnings guidance (Venkataraman 2008). Moreover, Tan et al. (2010, Experiment 2) shows that, although analysts generally do not adjust for downwardly biased earnings guidance, they do adjust if they learn about a consistent pattern of management guidance bias over time, even when they have incentives to develop a good relationship with management. As a result, it would be difficult for management to influence

market expectations if its forecasting reputation and credibility are low (Williams 1996; Hutton and Stocken 2009; Bhojraj et al. 2010). Thus, frequent guiders with beat/meet goals cannot issue pessimistic earnings forecasts all the time. They need to balance forecasts with downward bias and forecasts that have some degree of accuracy to achieve their beat/meet goals over time.

On the other hand, infrequent guiders' preference for quarterly earnings predictability is mainly influenced by guidance goal. Since infrequent guiders are unlikely to have a forecasting track record, they are less likely to care about forecasting credibility and personal reputation. Besides, infrequent guidance is less likely to induce myopic loss aversion compared to frequent guidance, because managers anticipate less evaluation in the future on the extent they meet or beat their earnings guidance. Given infrequent guidance, and consistent with my arguments in H2, guiders with accuracy goals prefer higher quarterly earnings predictability than guiders with beat/meet goals. Considering the different impact of guidance goal on frequent and infrequent guiders, I expect the difference in managers' preference for high quarterly earnings predictability between guiders with accuracy goals and guiders with beat/meet goals to be larger for infrequent guiders than frequent guiders. Therefore, I state my third hypothesis concerning the interaction effect of guidance goal and guidance frequency on managers' trade-off between quarterly earnings predictability and total expected earnings as follows:

H3: The difference in sacrificing total expected earnings for quarterly earnings predictability between guiders with accuracy goals and guiders with

beat/meet goals is greater when guidance is infrequent than when it is frequent.

3. RESEARCH METHOD

3.1 Design

My experiment is designed to investigate how earnings guidance frequency and earnings guidance goal affect managers' preference for quarterly earnings predictability versus total expected earnings. This requires me to construct alternative strategies that create a conflict between quarterly earnings predictability and total expected earnings, while controlling for other factors that might affect managers' preference between alternatives. To test my hypotheses, I administer a 2×2 between-subjects experiment. The two randomly assigned treatments are guidance frequency (frequent or infrequent) and guidance goal (accuracy or beat/meet). Participants are asked to assume the role of a general manager at a listed company that produces consumer electronics devices. Participants are instructed to analyze a marketing case which requires them to choose one marketing strategy from two alternatives.

3.2 Participants

Participants are 80 Master of Business Administration (MBA) students from a major Singapore university. Their mean working experience is 4.63 years. My participants include highly experienced managers whose previous working positions vary from managers, vice presidents, and directors to less

experienced professionals holding positions such as analysts, consultants, and assistant managers. They have taken an average of 3.05 accounting courses, 3.74 finance courses, 2.88 strategy courses, and 2.68 marketing courses. Most participants (87.5%) believe that companies should provide quarterly earnings guidance to investors, and the appropriate quarterly earnings guidance frequency is three times per year.

In order to examine whether participants have sufficient knowledge to complete the required task, after they finish the main task and debriefing questions, I ask participants to indicate their assessments of five statements in a post-experimental questionnaire on the extent that: (1) earnings predictability affects management's ability to accurately forecast future quarterly earnings; (2) earnings predictability affects management's ability to beat/meet analyst earnings forecasts; (3) management earnings guidance influences analyst earnings forecasts; (4) actual earnings that missed analyst earnings forecasts hurt the company's stock price; and (5) inaccurate management earnings guidance hurts the company's forecasting reputation. An 11-point scale is used to measure participants' assessments of the above statements ("0" indicating "not at all affect/influence/hurt" and "10" indicating "extremely affect/influence/hurt"). All the five statements and corresponding mean responses are listed in Appendix 1.

All responses are significantly above mid-point, indicating that participants in general understand the impact of earnings predictability on

quarterly earnings guidance and the capital market consequences associated with issuing quarterly earnings guidance.¹¹ In addition, there is no systematic difference in mean responses across conditions, suggesting that no systematic difference exists among participants across different conditions. My results still hold if low knowledge participants are excluded from the analysis, or if the working experience and the number of classes taken are controlled as covariates.¹² Overall, the analysis suggests that participants have sufficient knowledge to complete the task, and my results are not influenced by either participants' working experience or the number of courses they have taken.

3.3 Materials

The case first presents background information about the company. The case company (Dan Technology) has approximately \$25 billion in assets and reports an average of approximately \$1.49 billion of net income during the past three years. The earnings per share (EPS) amounts for years 2007, 2008, and 2009 are \$1.46, \$1.49, \$1.52, respectively.

Next, the case introduces the company's quarterly earnings guidance policy, which is manipulated by four different conditions. Two factors are varied between participants: (1) guidance frequency, and (2) guidance goal. To vary guidance frequency, I manipulate whether the company has a policy of

¹¹ Results testing the difference between the mean response and the mid-point are shown in Appendix 1. All the p-values are two-tailed.

¹² Low knowledge participants are defined as individuals whose responses are below mid-point for any one of the above mentioned five questions in the post-experimental questionnaire. The working experience has no impact on participants' marketing strategy preference ($p=0.15$) or choice ($p=0.32$). Similarly, the number of classes taken has no impact on participants' marketing strategy preference ($p=0.56$) or choice ($p=0.83$).

issuing earnings guidance on a frequent or an infrequent basis. Participants in the *frequent* guidance condition are told that the company has a policy of issuing quarterly earnings forecasts on a frequent basis. They are also told that this company has provided 12 quarterly earnings forecasts during the past three years, once every quarter. In contrast, participants in the *infrequent* guidance condition are told that the company has a policy of issuing quarterly earnings forecasts on an infrequent basis. They are also told that this company has only provided one quarterly earnings forecasts during the past three years.

To vary guidance goal, I manipulate whether the company has a policy of issuing unbiased or biased earnings guidance. Participants in the *accuracy* goal condition are told that the company has a policy of issuing unbiased earnings guidance that reflects management's genuine opinion of the company's earnings potential. They are also told that *accurate* earnings forecasts are used to establish a credible forecasting and transparent reporting reputation (Hirst et al. 2008). On the other hand, participants in the *beat/meet* goal condition are told that the company has a policy of issuing biased earnings guidance that may not reflect management's genuine opinion of the company's earnings potential. They are also told that *strategic* earnings forecasts are used to "walk down" analyst earnings forecasts so that actual earnings can beat or meet market expectations. I also provide an example to illustrate how guiders with accuracy goals provide different earnings forecasts compared to guiders with beat/meet goals. For example, if the manager truly believes that EPS for the next quarter is \$0.40, a guider with accuracy goal will provide earnings

forecast of \$0.40, while a guider with beat/meet goal will provide earnings forecast of \$0.20 or \$0.30. Finally, participants are told that top management expects managers to abide by the company's quarterly earnings guidance policy.¹³

Thereafter, the case describes a managerial operating decision, which requires participants to select one marketing strategy from two alternatives for the coming three years. The two alternative marketing strategies differ in two aspects. First, the high-predictability strategy (Strategy A) is expected to generate lower total earnings in the coming three years than the low-predictability strategy (Strategy B). Future annual earnings are estimated based on historical growth rate of annual earnings. Specifically, the total expected three-year EPS are \$4.80 for Strategy A and \$5.04 for Strategy B, as shown in Appendix 2, Panel A. In addition, it is stated in the case material that the estimated annual earnings for both strategies are believed to be realized at a 90% confidence interval. Second, future quarterly earnings associated with Strategy A are more predictable than those associated with Strategy B.¹⁴ Quarterly earnings are estimated according to forecasting models. Future quarterly

¹³ Both Ajinkya et al. (2005) and Karamanou and Vafeas (2005) document that corporate boards and audit committees can influence management earnings guidance practice. Thus, the "top management" here refers to corporate boards in general.

¹⁴ Managers believe project predictability is an important attribute for their business. As written by Avinoam, CEO of Clarizen: "In business, striving for a dependable level of predictability is what differentiates mediocre businesses from truly successful real-time enterprises. The ability to fully comprehend the changes and trends occurring around you, in real-time, and then respond to them appropriately, is what defines certain companies as leaders and others as stragglers. It is Clarizen's goal to provide clarity and predictability into an organization's business operation and execution to help companies become real time enterprises." <http://community.clarizen.com/Blog/PostID/183.aspx>

earnings associated with Strategy A are highly predictable, as realized earnings fit well with the forecasting model. In contrast, future quarterly earnings associated with Strategy B are highly unpredictable, as no well-fitting model can be used to estimate its future quarterly earnings. Hence, participants are informed that management can provide quarterly earnings forecasts with confidence if Strategy A is chosen, but not if Strategy B is chosen. The industry-level historical data analysis is also provided to further illustrate the above two differences between Strategy A and Strategy B, see Appendix 2, Panel B.¹⁵

Finally, participants are asked to indicate their strength of preference for each marketing strategy on an 11-point scale, which measures their preference judgments. Then participants are asked to select one marketing strategy from the two alternatives, which measures their choice. As a robustness test, participants are further asked to indicate their likelihood of choosing Strategy A versus Strategy B. In addition, participants are also asked to explain the rationale behind their choices.

¹⁵ One reason why Strategy B can have unpredictable quarterly earnings but relatively predictable annual earnings is that the short-term timing of the business transaction is uncertain. For example, some contracts require companies to deliver goods or services within a year, but the specific delivery timing is at the customers' discretion. One specific example would be the promotion strategy of selling gift cards. Companies can recognize the sales revenue only when consumers use the card or when the card expires (Kile 2007). Assuming the gift card expires in one year, it is relatively easy to predict annual profits from selling the gift card. However, it is difficult to forecast quarterly earnings as there is no way to predict when people will use the card to shop. Another specific example would be the promotion strategy used by movie theaters. Specifically, customers can purchase movie vouchers to enjoy a cheaper-than-normal ticket price. The voucher normally has a valid period for 6 or 12 months. Although the theater can record the sales of the voucher as liability, it can only recognize the revenues when the customer uses the voucher to watch movies. As a result, managers can predict annual earnings with confidence, but cannot confidently predict quarterly earnings.

3.4 Experimental Procedures

Each participant receives three sealed envelopes. They are instructed to start by opening the first envelope only. The first envelope includes a consent form, case materials and a dependent variable response sheet. After participants complete the consent form, they review the case materials. Once participants have finished responding to questions on the dependent variable response sheet, they place all materials back into the first envelope and seal it. Then they proceed to the second envelope, which includes a series of manipulation check questions. After participants complete all the questions in the second envelope, they seal it and proceed to the third envelope, which contains debriefing questions, knowledge tests, and demographic questions. Participants are instructed not to re-open the first envelope when responding to questions in the second and third envelopes. After participants complete all the questions in the third envelope, they seal it and return all three envelopes to the administrator. Participants are compensated with SGD 20 after they have completed the study.

4. RESULTS

4.1 Manipulation Checks

After responding to the main dependent variables in the first envelope, participants complete questions designed to indicate whether they have understood the case and the manipulated treatments. Regarding the guidance frequency manipulation, participants are asked whether the company has a

policy of issuing quarterly earnings forecasts on a frequent basis or an infrequent basis. Seventy-nine participants (98.75%) correctly respond to this question. In addition, participants are asked, in the role of a general manager for Dan Technology, to indicate the number of quarterly earnings forecasts that top management expects them to issue in the coming three years. The mean responses for participants in the frequent and infrequent earnings guidance conditions are 11.90 and 2.90, respectively. The means are significantly different from each other ($t=27.01$, $p=0.00$), suggesting that participants in the frequent earnings guidance condition expect a greater number of future earnings guidance than those in the infrequent earnings guidance condition, consistent with my manipulation intention.

Regarding the guidance goal treatment, participants are asked whether the company has a policy of issuing accurate earnings guidance that is used to establish a credible forecasting and transparent reporting reputation, or strategic earnings guidance that is used to “walk down” analyst earnings forecasts so that actual earnings can beat or meet market expectations. Seventy-seven participants (96.25%) correctly respond to this question. In addition, participants are asked to assume that the management’s genuine opinion of next quarter EPS is around \$0.40, and to indicate the EPS guidance number that top management expects them to issue to the stock market. The mean responses for participants in the accuracy goal and the beat/meet goal conditions are 0.40 and 0.33, respectively. The means are significantly different from each other ($t=6.59$, $p=0.01$), indicating that participants in the accuracy goal condition

provide genuine earnings forecasts while those in the beat/meet goal condition provide downwardly biased earnings forecasts, consistent with my manipulation intention.

Finally, I ask two questions to determine whether participants have fully understood the marketing strategy case. The first question asks participants which marketing strategy creates higher expected total earnings for the company, and the second question asks participants which marketing strategy results in higher quarterly earnings predictability for the company. Seventy-eight participants (97.5%) correctly respond to both questions. In sum, the above results show that my manipulations are successful. Moreover, the main results still hold if all the participants with incorrect manipulation check responses are excluded from analysis.

4.2 Hypotheses Testing

Participants rate their strength of preference for each marketing strategy on an 11-point response scale, with the two anchors being “-5” indicating “Definitely Prefer Strategy A”, and “5” indicating “Definitely Prefer Strategy B;” “0” indicates a “neutral” preference between the two alternative strategies. In Table 1, the coded response scale for participants’ strength of preference for each strategy is illustrated. In addition, Table 1 presents descriptive statistics by treatment condition (Panel A), shows the results of a two-way ANOVA analysis (Panel B), and offers the results for simple main effects tests (Panel C).

Graphical results for participants' strength of preference responses are shown in Figure 1. All three hypotheses are supported.

Hypothesis 1 predicts that frequent guiders are more likely to choose the high-predictability strategy than infrequent guiders. As shown in Table 1, Panel A, the main effect means for frequent guiders and that for infrequent guiders are -1.43 and 0.50, respectively. The means are significantly different from each other ($p=0.01$), as indicated in Panel B.¹⁶ Hence, H1 is supported. Hypothesis 2 predicts that guiders with accuracy goals are more likely to choose the high-predictability strategy than guiders with beat/meet goals, in the presence of a conflict between quarterly earnings predictability and total expected earnings. The main effect means for participants with accuracy goals (-1.35) are significantly different from those for participants with beat/meet goals (0.43), as indicated in Panel B ($p=0.01$), and thus H2 is supported.

Hypothesis 3 predicts that the difference in participants' strength of preference for each marketing strategy between the accuracy goal condition and the beat/meet goal condition is larger for infrequent guiders than frequent guiders. As shown in Table 1, Panel B, the interaction effect is marginally significant ($p=0.06$), and the pattern of results is shown in Figure 1. I further investigate H3 by conducting simple main effect tests. Panel C indicates that the mean difference between the accuracy goal condition (-1.65) and the beat/meet goal condition (-1.20) at the frequent guidance level is insignificant

¹⁶ All p-values in this study are two-tailed, unless specifically stated.

($p=0.65$), but the mean difference between the accuracy goal condition (-1.05) and the beat/meet goal condition (2.05) at the infrequent guidance level is significant ($p=0.00$), suggesting that the impact of guidance goal on participants' strength of preference for each marketing strategy is contingent on guidance frequency, which is consistent with my argument for H3.

As additional analysis, I find that the mean difference between the frequent and the infrequent guidance condition at the accuracy goal level is insignificant ($p=0.54$), but the mean difference between the frequent and the infrequent guidance condition at the beat/meet goal level is significant ($p=0.00$), suggesting that the effect of guidance frequency also depends on guidance goal. Specifically, an accuracy goal can result in participants' preference for the high-predictability strategy irrespective of the level of guidance frequency, illustrating the pervasive negative consequence of emphasizing on achieving high earnings forecast accuracy.

While participants' strength of preference for each marketing strategy reflects their preference judgments regarding the two alternatives, two additional questions are asked to examine participants' decision choices. The first question requires participants to select one marketing strategy from the two alternatives to implement. The descriptive statistics are shown in Table 2, Panel A. In all conditions other than the infrequent-and-beat/meet condition, participants are more likely to choose the high-predictability strategy (Strategy A). Specifically, Strategy A was chosen by 14 out of 20 participants (70%) in

the frequent-and-accuracy condition, 16 out of 20 participants (80%) in the frequent-and-beat/meet condition, and 13 out of 20 participants (65%) in the infrequent-and-accuracy condition. In contrast, only 3 out of 20 participants (15%) in the infrequent-and-beat/meet condition choose Strategy A. These results indicate that infrequent guiders with beat/meet goals are more likely to take a long-term perspective, and they are less likely to sacrifice economic value for short-term earnings predictability. Results of a logistic regression show that the main effect of guidance frequency is significant ($p=0.00$), the main effect of guidance goal is significant ($p=0.00$), and the interaction effect of guidance frequency and guidance goal is also significant ($p=0.01$).

As a robustness check, the second question requires participants to indicate the likelihood of choosing between the high-predictability strategy (Strategy A) and the low-predictability strategy (Strategy B). The results are summarized in Table 2. Panel A presents descriptive statistics by treatment condition, Panel B shows the results of a two-way ANOVA analysis, and Panel C offers the results for simple main effects tests. Graphical results for participants' likelihood of choosing Strategy A are shown in Figure 2. Hypothesis 1 predicts that frequent guiders are more likely to choose Strategy A than infrequent guiders. As shown in Table 2, Panel A, the mean likelihood of choosing Strategy A for frequent guiders is 65.05% and that for infrequent guiders is 47.37%. The means are significantly different from each other, as indicated by the significant main effect of guidance frequency ($p=0.00$). Hence, H1 is supported. Hypothesis 2 predicts that guiders with accuracy goals are

more likely to choose Strategy A than guiders with beat/meet goals, in the presence of a conflict between quarterly earnings predictability and total expected earnings. The mean likelihood of choosing Strategy A for participants with accuracy goals (62.50%) is significantly different from that for participants with beat/meet goals (49.93%), as indicated by the significant main effect of guidance goal ($p=0.03$). H2 is supported.

Hypothesis 3 predicts that the difference in participants' likelihood of choosing Strategy A between the accuracy goal condition and the beat/meet goal condition is larger for infrequent guiders than frequent guiders. As shown in Table 2, Panel B, the interaction effect is significant ($p=0.02$), supporting H3. I further investigate H3 by conducting simple main effect tests. Panel C demonstrates that the mean difference between the accuracy goal condition (64.25%) and the beat/meet goal condition (65.85%) at the frequent guidance level is insignificant ($p=0.85$), but the mean difference between the accuracy goal condition (60.75%) and the beat/meet goal condition (34%) at the infrequent guidance level is significant ($p=0.00$), suggesting that the impact of guidance goal on participants' likelihood of choosing Strategy A is contingent on guidance frequency, consistent with H3. Similarly, further analysis shows that the mean difference between the frequent and the infrequent guidance condition at the accuracy goal level is insignificant ($p=0.67$), but the mean difference between the frequent and the infrequent guidance condition at the beat/meet goal level is significant ($p=0.00$), suggesting that the effect of guidance frequency on participants' likelihood for choosing Strategy A also

depends on guidance goal. In summary, all three hypotheses are supported with all the dependent variables, indicating that participants' preference judgment and their choice making are consistent.¹⁷

4.3 Mediation Analysis

Psychology literature indicates that decision makers' trade-off between conflicting attributes depends on the perceived relative importance weight of each attribute (Fischer 1995, Goldstein 1990). As the marketing strategy choice requires participants to make a trade-off in preference between quarterly earnings predictability and total expected earnings, I further assess whether "the perceived relative importance weight of quarterly earnings predictability" mediates the impact of guidance frequency and guidance goal on participants' marketing strategy decisions. "The perceived relative importance weight of quarterly earnings predictability" (hereafter, relative importance weight) is measured by asking participants to allocate a total importance weight of 100% between quarterly earnings predictability and total expected earnings.¹⁸

The mediation analysis is conducted following the two-step procedure specified in Kenny et al. (1998, P260): (1) the independent variables are related to the mediator, and (2) the mediator is related to the dependent variable, while

¹⁷ I also conduct a contrast test as an additional test of the overall pattern of results, with the weights +3 in the "infrequent-and-beat/meet" condition, -1 in the "frequent-and-accuracy" condition, "frequent-and-beat/meet" condition, and "infrequent-and-accuracy" condition. The result is significant for both preference for each marketing strategy ($F=17.78$, $p=0.00$) and likelihood of choosing Strategy A ($F=19.75$, $p=0.00$), suggesting that the mean response in the "infrequent-and-beat/meet" condition is significantly different from other conditions.

¹⁸ I use this question to investigate how guidance frequency and guidance goal influence people's perceived relative importance of the conflicting attributes. This question is similar to the weighting questions that are asked in lens model studies. The weights reflect the importance of each attribute on participants' judgments.

controlling for the independent variables. I establish the first step by conducting ANOVA analysis with guidance frequency and guidance goal as independent variables and relative importance weight as dependent variable. Results show that the main effect of guidance frequency ($p < 0.01$), the main effect of guidance goal ($p = 0.04$), and the interaction effect ($p = 0.05$) are all significant. To establish step 2, I conduct separate ANCOVA analyses for participants' strength of preference for each marketing strategy (hereafter, preference) and participants' likelihood of choosing Strategy A (hereafter, choice), respectively, with guidance frequency and guidance goal as independent variables, and relative importance weight as a covariate. Table 3 provides summary results of the mediation analysis. I find that relative importance weight are related to both preference and choice ($p = 0.00$ for both dependent variables). Moreover, when controlling for relative importance weight, guidance frequency, guidance goal and the interaction are no longer significantly related to either preference or choice. Specifically, after controlling for relative importance weight, guidance frequency ($p = 0.83$), guidance goal ($p = 0.17$) and the interaction ($p = 0.72$) are no longer significantly related to participants' strength of preference for each marketing strategy. Similarly, after controlling for relative importance weight, guidance frequency ($p = 0.33$), guidance goal ($p = 0.32$) and the interaction ($p = 0.16$) are no longer significantly related to participants' likelihood of choosing Strategy A.

I also conduct the Sobel test to examine the indirect effect of the mediator. The Sobel test determines the significance of the indirect effect of the

mediator by testing the hypothesis of no difference between the total effect (the effects of independent variables on dependent variable without controlling for mediators) and the direct effect (the effects of independent variables on dependent variable while controlling for mediators). One can only conclude the mediation role exists when the indirect effect of the mediator is significant. With both preference and choice as dependent variables, my results show that relative importance weight plays a mediation role. Specifically, indirect effects of the mediator are significant when the independent variables are guidance frequency ($p=0.00$), guidance goal ($p=0.05$, one-tailed) and the interaction ($p=0.02$).

These results show that relative importance weight fully mediates the effects of guidance frequency and guidance goal on participants' marketing strategy decisions. That is, guidance frequency and guidance goal jointly influence participants' perceived relative importance weight of quarterly earnings predictability, which in turn influences their strength of preference for each marketing strategy and their likelihood of choosing Strategy A.

4.4 Post-Experiment Debriefing

I also collect data to test some key process variables underlying my hypotheses. Participants are asked to rate their concerns over different constructs when making the marketing strategy decision. An 11-point scale is employed to measure participants' concerns, with "0" indicating "not at all

concerned” and “10” indicating “extremely concerned.” The results are presented in Table 4.

An underlying premise in my first hypothesis is that frequent guiders suffer from myopic loss aversion. To examine whether this is true, I ask participants to indicate their perceived concerns over short-term negative consequences. With respect to participants’ concerns over the company’s forecasting credibility, their mean response in the frequent guidance condition (7.53) is significantly higher than their mean response in the infrequent guidance condition (6.55), $p=0.04$. With respect to participants’ concerns over their personal reputation loss, their mean response in the frequent guidance condition (7.10) is significantly higher than their mean response in infrequent guidance condition (5.98), $p=0.04$. Also, with respect to participants’ concerns over guidance goal achievement, their mean response in the frequent guidance condition (7.63) is significantly higher than their mean response in infrequent guidance condition (6.63), $p=0.03$. However, with respect to participants’ concerns over the decline of the company’s stock price, no significant difference exists between their mean response in the frequent guidance condition (7.18) and the infrequent guidance condition (6.59), $p=0.20$. It seems that companies’ forecasting credibility, managers’ personal reputation and motivations to achieve short-term guidance goal are the primary concerns that induce frequent guiders’ preference for high quarterly earnings predictability.

My second hypothesis suggests that participants with accuracy goals care more about short-term earnings predictability because they need it to minimize the magnitude of forecast errors. In contrast, participants with beat/meet goals are less concerned about the magnitude of forecast errors, as they only require realized earnings to be no lower than forecasted earnings. Participants are asked to indicate their concerns over the magnitude of forecast errors. Their mean response in the accuracy goal condition (6.85) is significantly higher than that in the beat/meet goal condition (5.98), $p=0.05$, supporting the argument that guiders with accuracy goals care more about the magnitude of earnings forecast errors than guiders with beat/meet goals.

My third hypothesis indicates that infrequent guiders with beat/meet goals have the least concern over the above mentioned factors among four manipulated conditions, which enables them to focus on long-term firm value creation. In order to validate this argument, I conduct contrast tests with the weights +3 in the “infrequent-and-beat/meet” condition, -1 in the “infrequent-and-accuracy” condition, the “frequent-and-beat/meet” condition and the “frequent-and-accuracy” condition. The results are shown in Table 4. All responses exhibit similar patterns consistent with my arguments. Specifically, the contrast effect is significant for participants’ concerns over the company’s forecasting credibility ($p=0.02$), personal reputation loss ($p=0.02$), earnings guidance goal achievement ($p=0.01$), and the magnitude of forecast errors ($p=0.00$). These results suggest that infrequent guiders with beat/meet goals are

likely to make value maximizing decisions because they are the least constrained by earnings guidance behavior.

Overall, I find that frequent earnings guidance causes participants to be concerned about company's forecasting credibility, personal reputation loss, and guidance goal achievement. Also, guiders with accuracy goals are more concerned about short-term earnings forecast accuracy than those with beat/meet goals. Moreover, infrequent guiders with beat/meet goals have the least concerns over short-term guidance outcomes, and thus they can focus on total expected earnings in making corporate decisions. These post-experiment debriefing analyses provide insight into the mechanisms underlying the impact of guidance frequency and guidance goal on participants' trade-off between quarterly earnings predictability and total expected earnings.

4.5 Alternative Explanations

4.5.1 Risk attitude

There is an alternative argument for the results based on participants' risk perceptions. Specifically, participants may believe that the high-predictability (low-predictability) strategy is associated with lower (higher) risk. Accordingly, the choice between the high-predictability strategy and the low-predictability strategy depends on participants' risk assessments of the two strategies. To address this concern, in my experimental design, I ensure that the two alternative marketing strategies have the same quarterly earnings volatility (i.e., standard deviation), so that the economic risks for both strategies are the

same. In addition, the case emphasizes that estimated annual earnings for both strategies will be realized at a 90% confidence level, despite the fact that quarterly earnings predictability differs between the two alternatives. Last, I further assess the role of participants' risk perceptions in forming their marketing strategy decisions with two debriefing questions.

First, participants are asked to indicate which marketing strategy has higher economic risk on an 11-point scale, with “-5” indicating “Strategy A has lower economic risk than Strategy B”, “5” indicating “Strategy A has higher economic risk than Strategy B”, and “0” indicating “Strategy A has the same economic risk as Strategy B.” This response measures participants' assessments of the relative economic risk for the two strategies (hereafter, economic risk). Then, a second question asks participants to indicate which marketing strategy has a higher likelihood of realizing estimated annual earnings on an 11-point scale, with “-5” indicating “Strategy A has a lower likelihood than Strategy B”, “5” indicating “Strategy A has a higher likelihood than Strategy B”, and “0” indicating “Strategy A has the same likelihood as Strategy B.” This response measures participants' assessments of the relative likelihood of realizing annual estimated earnings for the two strategies (hereafter, earnings realization risk).¹⁹

In order to examine whether participants' risk perceptions are the underlying reasons for my main results, I conduct separate mediation analyses

¹⁹ The overall mean for the economic risk is -0.87, which is insignificant from “0” ($p=0.13$), indicating that participants perceive the economic risk to be equal between Strategy A and Strategy B. In addition, the overall mean for the earnings realization risk is 1.01, which is also insignificant from “0” ($p=0.22$), indicating that participants perceive the earnings realization risk for Strategy A to be the same as that for Strategy B.

for economic risk and earnings realization risk, respectively. Table 5 provides summary results of the mediation analyses. I first run ANOVA analysis with guidance frequency and guidance goal as independent variables, and risk perception as dependent variable. With economic risk as the dependent variable, the main effect of guidance frequency ($p=0.76$), the main effect of guidance goal ($p=0.23$), and the interaction effect ($p=0.54$) are all insignificant. With earnings realization risk as the dependent variable, the main effect of guidance frequency is marginally significant ($p=0.09$), but both the main effect of guidance goal ($p=0.67$) and the interaction effect ($p=0.87$) are insignificant. The failure to establish the first step of mediation analysis indicates that participants' risk perceptions may not be the underlying mediators.

Further analysis of ANCOVA results show that after controlling for participants' risk perceptions, guidance frequency, guidance goal and the interaction are still significantly related to the dependent variable. Specifically, after controlling for economic risk, guidance frequency ($p=0.00$), guidance goal ($p=0.03$) and the interaction ($p=0.04$, one tailed) are all significantly associated with the strength of preference for each marketing strategy. Similarly, guidance frequency ($p=0.00$), guidance goal ($p=0.04$, one tailed) and the interaction ($p=0.02$) are all significantly associated with the likelihood of choosing Strategy A. In addition, after controlling for earnings realization risk, guidance frequency ($p=0.01$), guidance goal ($p=0.01$) and the interaction ($p=0.03$, one tailed) are all significantly associated with the strength of preference for each marketing strategy. Similarly, guidance frequency ($p=0.00$), guidance goal

($p=0.03$) and the interaction ($p=0.02$) are all significantly associated with the likelihood of choosing Strategy A. These results demonstrate that neither economic risk nor earnings realization risk mediate the relationship between the predicted variables and participants' preference and choice of marketing strategy. Hence, my main results cannot be explained by participants' risk perceptions.²⁰

4.5.2 Perceived prior forecasting reputation

Another alternative explanation is that my two manipulated variables may affect participants' perceived prior forecasting reputation, e.g., managers issuing frequent or/and accurate earnings forecasts may have established a high forecasting reputation in the past, which further affects participants' trade-off between total expected earnings and quarterly earnings predictability. To address this concern, I ask participants to rate on an 11-point scale whether they agree that Dan Technology has established a high forecasting reputation in the past, with "0" indicating "completely disagree" and "10" indicating "completely agree." This response measures participants' perceived prior reputation of the company, given its guidance policy.

I then conduct mediation analysis, and the results are shown in Table 6, Panel A and Panel B. Although both the main effect of guidance frequency ($p=0.00$) and the main effect of guidance goal ($p=0.00$) are significant on

²⁰ The risk perception variables in my study only capture risk induced by economic factors. It is possible that participants' risk aversion caused by psychological factors play a different role from the risk discussed here.

perceived prior reputation, there is no significant interaction effect of guidance frequency and guidance goal on this response ($p=0.13$). More importantly, participants' perceived prior reputation is not the underlying reason for my main results, as ANCOVA analysis shows that perceived prior reputation is neither related to participants' strength of preference for each marketing strategy ($p=0.42$), nor related to participants' likelihood of choosing Strategy A ($p=0.22$). In addition, after controlling for perceived prior reputation, the main effect of guidance frequency, the main effect of guidance goal, and the interaction effect all remain significant. Specifically, after controlling for perceived prior reputation, guidance frequency ($p=0.04$), guidance goal ($p=0.04$) and the interaction ($p=0.04$, one tailed) are all significantly associated with the strength of preference for each marketing strategy. Similarly, after controlling for perceived prior reputation, guidance frequency ($p=0.04$), guidance goal ($p=0.06$, one tailed) and the interaction ($p=0.03$) are all significantly associated with the likelihood of choosing Strategy A. These results demonstrate that participants' perceived prior reputation is not the underlying reason in my main result.

4.5.3 Earnings management opportunity

A third possibility is that participants vary in their perceptions of the likelihood that Dan Technology will engage in earnings management activity, which may further affect their preference for quarterly earnings predictability. I ask participants to rate on an 11-point scale whether they agree that Dan Technology will engage in earnings management to achieve its guidance goal,

with “0” indicating “completely disagree” and “10” indicating “completely agree.” This response measures participants’ perceived assessment that Dan Technology engages in earnings management activity (hereafter, earnings management propensity).

I also examine whether earnings management propensity is a potential mediator, and the results are shown in Table 6, Panel C and Panel D. The ANOVA results show that only guidance frequency significantly affects earnings management probability ($p=0.03$). Both the main effect of guidance goal ($p=0.44$) and the interaction effect ($p=0.51$) are insignificant. In addition, ANCOVA analysis shows that earnings management propensity is neither related to participants’ strength of preference for each marketing strategy ($p=0.55$), nor related to participants’ likelihood of choosing Strategy A ($p=0.31$). Moreover, after controlling for earnings management propensity, guidance frequency ($p=0.01$), guidance goal ($p=0.01$) and the interaction ($p=0.04$, one tailed) are all significantly associated with the strength of preference for each marketing strategy. Similarly, guidance frequency ($p=0.01$), guidance goal ($p=0.04$) and the interaction ($p=0.02$) are all significantly associated with the likelihood of choosing Strategy A.

These results suggest that earnings management propensity is not a mediator, based on the two-step procedure specified in Kenny et al. (1998), ruling out the possibility that earnings management propensity is the underlying reason for my main results.

4.6 Further Analysis of Guidance Frequency

4.6.1 Concerns over stock price declines

My previous analysis indicates that the main effect of guidance frequency on participants' preference for short-term earnings predictability is primarily due to reputation concerns rather than concerns over stock price declines. To further investigate whether concerns over stock price declines have an incremental effect on frequent guiders' preference for quarterly earnings predictability, I conduct a within-subjects analysis in which participants' reputation concerns are held constant across four manipulated conditions.²¹ Controlling for reputation concerns, if the main effect of guidance frequency is still significant, then I can conclude that concerns over stock price declines do contribute to frequent guiders' preference for short-term earnings predictability.

In a post-experiment questionnaire, I ask participants to complete a within-subjects test involving the following two scenarios: (a) suppose that Dan Technology has established a high forecasting reputation in the past; and (b) suppose that Dan Technology has established a low forecasting reputation in the past. The reputation concerns are controlled at two levels, because the effects of concerns over stock price declines may be more salient when reputation concerns are low than when they are high.²² For each scenario,

²¹ The four conditions are the frequent-and-accuracy condition, the frequent-and-beat/meet condition, the infrequent-and-accuracy condition, and the infrequent-and-beat/meet condition.

²² Though the combination of each scenario and the case company's guidance policy may not be realistic, e.g. it is almost impossible to have a high reputation if the company issues infrequent and beat/meet earnings guidance, or a low reputation if the company issues frequent and accurate earnings guidance, the within-subject test is still useful in identifying the role of

participants are then asked to indicate their preference for Strategy A versus Strategy B on an 11-point scale ranging from -5 (“Definitely Choose A”) to 5 (“Definitely Choose B”), given the company’s guidance policy.

The results for the within-subjects analysis are shown in Table 7. I find no significant simple main effect of guidance frequency in either the high forecasting reputation scenario ($p=0.79$) or the low forecasting reputation scenario ($p=0.20$), indicating that concerns over stock price declines do not have incremental effects on frequent guiders’ preference for short-term earnings predictability. Furthermore, I find a significant main effect of forecasting reputation scenario using the within-subjects response ($p=0.00$). Specifically, participants in the high forecasting reputation scenario (-1.08) are more likely to choose Strategy A than those in the low forecasting reputation scenario (1.08), consistent with the argument that high reputation concerns induce participants’ preference for quarterly earnings predictability. Overall, these results provide additional evidence that the main effect of guidance frequency is mainly due to participants’ reputation concerns rather than their concerns over stock price declines.

4.6.2 Earnings Guidance Form

I also assess whether guidance form affects participants’ preference for quarterly earnings predictability. I ask participants to complete a within-subjects test involving the following two scenarios: (a) suppose that Dan

concerns over stock price decline in forming frequent guiders’ preference for quarterly earnings predictability, because reputation concerns are held constant across conditions for each scenario.

Technology tends to issue earnings guidance in the form of a point earnings guidance (e.g., EPS is expected to be \$0.40); and (b) suppose that Dan Technology tends to issue earnings guidance in the form of a range earnings guidance (e.g., EPS is expected to range from \$0.30 to \$0.50). For each scenario, participants are then asked to indicate their preference for Strategy A versus Strategy B on an 11-point scale ranging from -5 (“Definitely Choose A”) to 5 (“Definitely Choose B”), given the company’s guidance policy.

I conduct a three-way ANOVA analysis with guidance frequency, guidance goal, and guidance form as independent variables and the within-subject responses as dependent variable. The results are shown in Table 8. I find that the main effect of guidance form is significant ($p=0.00$), indicating that participants issuing point guidance are more likely to sacrifice total expected earnings for quarterly earnings predictability than participants issuing range guidance. Moreover, the main effect of guidance frequency remains significant ($p=0.03$), suggesting that frequent guiders are more likely to sacrifice total expected earnings for quarterly earnings predictability than infrequent guiders, no matter the guidance is in a point form or a range form. Although the main effect of guidance goal ($p=0.39$) and the interaction effect of guidance frequency and guidance goal ($p=0.27$) are insignificant, contrast tests are significant for both point guidance ($p=0.05$, one-tailed) and range guidance ($p=0.04$), with the weight of -1/-1/-1/+3 for the “frequent-and-accuracy” / “frequent-and-beat/meet” / “infrequent-and-accuracy” / “infrequent-and-

beat/meet” condition, respectively. These results indicate that the interaction pattern exists for both point and range guidance.

4.7 Further Analysis of Guidance Goal

4.7.1 Truthful earnings guidance condition

In the manipulation of earnings guidance goal, two differences exist between the accuracy goal condition and the beat/meet goal condition. One difference is the goal for issuing earnings guidance. That is, guiders with accuracy goals aim to establish a credible forecasting and transparent reporting reputation, while guiders with beat/meet goals aim to manage analyst earnings forecasts so that actual earnings can beat or meet market expectations. The other difference is the type of earnings forecasts issued. Specifically, guiders with accuracy goals provide unbiased earnings forecasts, while guiders with beat/meet goals provide downwardly biased earnings forecasts. One may argue that it is the type of earnings forecasts issued rather than the earnings guidance goal that drives the effect of guidance goal. In order to address this issue, I further investigate an additional condition, the truthful goal condition, to explore the mechanism underlying the impact of guidance goal.

Truthful guiders issue earnings guidance to provide valuable information to market players so that the latter can form rational earnings expectations. If that is the goal to issue guidance, management will provide whatever information they have, even though uncertainty exists. This represents a “do-your-best” goal, and goal setting theory states that this type of goal has no

external referent and thus are defined idiosyncratically (Lock and Latham, 1990). In other words, there is no specific benchmark to evaluate managers' performance. Since this goal allows for a wide range of acceptable performance levels, truthful guiders (compared to those with an accuracy goal) will be less concerned about the eventual accuracy of their forecasts, and will more likely issue genuine earnings forecasts, which they believe will benefit investors at the point of guidance issuance.

It is meaningful to examine the truthful goal condition, because it provides a clean condition under which managers issue unbiased earnings forecasts (the same as accuracy goal condition), but are less concerned about earnings forecast accuracy (i.e., they are less likely to strategize the guidance they offer in order to minimize forecast errors at actual earnings announcements), compared with guiders with accuracy goals. Investigating the truthful goal condition is useful in identifying the mechanism underlying the effect of earnings guidance goal. Specifically, if the underlying mechanism for my main results is the type of earnings forecasts issued (unbiased versus downwardly biased forecasts), no difference between guiders with accuracy goals and guiders with truthful goals is expected, as both of them issue unbiased earnings forecasts. In contrast, if the underlying mechanism is the goal for issuing earnings guidance, I expect that guiders with accuracy goals are more likely to sacrifice total expected earnings for quarterly earnings predictability than guiders with truthful goals, as an accuracy goal is more

likely to cause managers to be concerned about short-term earnings forecasts accuracy.

Another 40 MBA students are assigned to the truthful goal condition, with 20 participants in the “frequent-and-truthful” condition and 20 participants in the “infrequent-and-truthful” condition.²³ To operationalize the truthful goal, participants are told that the company has a policy of issuing unbiased earnings guidance that reflects management’s genuine opinions of the company’s earnings potential. They are also told that truthful earnings forecasts are used to provide valuable information to market players so that they can form rational earnings expectations. The manipulation of guidance frequency, dependent variable measurements, and all the other information are the same as those used in the main experiment. Altogether, the additional analysis includes 120 participants in six conditions, which is a 3 (accuracy vs. beat/meet vs. truthful) $\times$ 2 (frequent vs. infrequent) between-subjects design.

The dependent variables are the same as that used in the main experiment. The two dependent variables show consistent results. The results for strength of preference for each marketing strategy are presented in Table 9, and the results for likelihood of choosing Strategy A are presented in Table 10. Regarding the strength of preference for each marketing strategy, the mean response in the accuracy goal condition (-1.35) is significantly lower than the mean response in the truthful goal condition (0.00), $p=0.05$, indicating that

²³ Participants in the truthful goal condition have similar backgrounds to those participating in the main experiment conditions.

guiders with accuracy goals have higher preference for quarterly earnings predictability than guiders with truthful goals. Regarding the likelihood of choosing Strategy A, the mean response in the accuracy goal condition (62.50%) is significantly higher than the mean response in the truthful goal condition (48.37%), $p < 0.01$, indicating that guiders with accuracy goals are more likely to choose Strategy A than guiders with truthful goals. Overall, the above results show that guiders with accuracy goals are more likely to sacrifice total expected earnings for quarterly earnings predictability than guiders with truthful goals, consistent with my argument that the underlying mechanism for my results is the goal for issuing earnings guidance (i.e., “walk down” market expectations vs. establish an accurate forecasting reputation) rather than the type of earnings forecasts issued (i.e., biased forecasts vs. unbiased forecasts).

In addition, I also conduct ANOVA analysis for the 3 (accuracy vs. beat/meet vs. truthful) $\times 2$ (frequent vs. infrequent) between-subjects design. Consistent with H1, frequent guiders are more likely to sacrifice total expected earnings for quarterly earnings predictability ($p = 0.00$, for both preference and choice). Consistent with H3, the difference in sacrificing total expected earnings for quarterly earnings predictability among guiders with various goals is greater when guidance is infrequent than when it is frequent ($p = 0.02$ for preference, and $p = 0.01$ for choice). Further analysis shows that there is no significant difference among frequent guiders with various goals ($p = 0.62$ for preference, and $p = 0.97$ for choice), but the difference is significant among infrequent guiders with various goals ($p = 0.00$, for both preference and choice).

Specifically for infrequent guiders, guiders with accuracy goals are more likely to sacrifice expected total earnings for quarterly earnings predictability than guiders with truthful goals ($p=0.00$, for both preference and choice), and there is no significant difference between guiders with beat/meet goals and truthful guiders ($p=0.96$ for preference, and $p=0.85$ for choice).²⁴ These results further suggest that guiders with truthful goals are different from guiders with accuracy goals, even though both issue unbiased earnings forecasts. Like guiders with beat/meet goals, truthful guiders are less likely to care about short-term earnings forecast accuracy, which enables them to focus on firms' long-term value creation.

4.7.2 Effect of varying guidance goal over time

In contrast to committing to a particular guidance goal, management can actually vary their guidance goals over time. Whether managers' preference for short-term earnings predictability still exists if they do not commit to a specific guidance goal is unknown. Thus, I further investigate the impact of a committed guidance goal (compared to a varying guidance goal) on managers' preference for predictability. In the post-experiment questionnaire, I ask participants to complete a test involving the following setting:

Suppose that Dan Technology sometimes issues accurate earnings guidance to establish a credible forecasting and transparent reporting reputation,

²⁴ See detailed results in Table 9, Panel C and Table 10, Panel C.

and other times it issues strategic earnings guidance to “walk down” analysts’ earnings forecasts to a beatable level.

Participants are then asked to indicate their preference for Strategy A versus Strategy B on an 11-point scale ranging from -5 (“Definitely Choose A”) to 5 (“Definitely Choose B”), given the above information and the fact that the company issues earnings guidance on a frequent basis (or an infrequent basis, depending on the manipulated condition). Participants’ responses to this question measure their preference for each marketing strategy when management can change guidance goal. Analysis of this response shows that frequent guiders (-0.35) have significantly greater preference for quarterly earnings predictability than infrequent guiders (0.95), $p=0.03$, even when participants know that the company varies its guidance goal over time.

To investigate the impact of having a committed versus a varying guidance goal, I compare participants’ responses when they are expected to comply with a specific guidance goal (in the main experiment) to those when they can change their guidance goal (in the post-experiment questionnaire). When guidance is frequent, I find that sticking to a specific goal (-1.43) is more likely to result in participants’ preference for the high-predictability strategy than sticking to a varying goal (-0.35), $p=0.04$. On the other hand, when guidance is infrequent, I find that either having a specific goal (0.50) or having a varying goal (0.95) is less likely to result in participants’ preference for short-term earnings predictability, and there is no significant difference between them,

$p=0.43$. These results suggest that having a varying guidance goal can mitigate frequent guiders' preference for the high-predictability strategy, but it does not matter when guidance is infrequent.²⁵

4.8 Summary

In summary, my results show a significant main effect of guidance frequency, a significant main effect of guidance goal and a significant interaction of guidance frequency and guidance goal, supporting the three hypotheses. Furthermore, the analysis of mediation and post-experiment debriefing responses provide evidence regarding the mechanisms by which earnings guidance attributes affect managers' real business decisions. Specifically, frequent earnings guidance causes managers to care about forecasting credibility and personal reputation, which in turn induce their preference for short-term earnings predictability. Accuracy goal causes managers to care about the magnitude of earnings forecast errors and thus earnings predictability. Consequently, infrequent guiders with beat/meet goals have the least preference for earnings predictability, because neither forecasting reputation nor forecast accuracy is their primary consideration. This emphasis on short-term earnings predictability heightens the importance of quarterly earnings predictability relative to total expected earnings, which in turn affects

²⁵ Managers may adopt a varying guidance goal in the real world. As shown in my result, this strategy might mitigate the problem of managers' emphasis on short-term earnings predictability resulting from frequent earnings guidance.

participants' choices between the high-predictability strategy and the low-predictability strategy.

Additional analyses first rule out alternative explanations, such as participants' risk attitudes, participants' perceived prior forecasting reputation of the company, and participants' perceived earnings management likelihood of the company. Further analysis suggests that the impact of guidance frequency is mainly due to participants' reputation concerns rather than their concerns over stock price declines. Also, frequent guiders are more likely to choose the high-predictability strategy, regardless of whether the guidance is in a point form or a range form. Finally, further analysis of the truthful goal condition demonstrates that the effect of guidance goal is due to the goal for issuing earnings guidance (i.e., manipulate market expectations vs. establish credibility and reputation) rather than the type of earnings forecasts issued (i.e., biased forecasts vs. unbiased forecasts). Moreover, comparing a committed guidance goal to a varying guidance goal, I find that having a varying guidance goal can mitigate frequent guiders' (but not infrequent guiders') preference for short-term earnings predictability.

5. CONCLUSION

In this study, I investigate how guidance frequency and guidance goal affect managers' trade-off between quarterly earnings predictability and total expected earnings in a marketing decision context. I manipulate guidance

frequency and guidance goal in an experiment, and ask MBA participants (assuming the role of general managers) to choose one marketing strategy from two alternatives that vary in their quarterly earnings predictability as well as total expected earnings. My results suggest that frequent guiders are more likely to seek high quarterly earnings predictability at the expense of total expected earnings than infrequent guiders. In addition, guiders with accuracy goals are more likely to sacrifice total expected earnings for quarterly earnings predictability than guiders with beat/meet goals. Moreover, the difference in guiders' preference for short-term earnings predictability between those with accuracy goals versus beat/meet goals is larger for infrequent guiders than that for frequent guiders. Overall, I conclude that frequent quarterly earnings guidance can cause managers to care about quarterly earnings predictability, and this emphasis on delivering predictable short-term earnings is detrimental to companies' long-term value creation. These results also highlight an unexpected negative consequence of the goal to achieve high earnings forecast accuracy, in that managers' emphasis on earnings forecast accuracy may adversely affect shareholders' welfare.

My study has implications for the recent debate regarding whether quarterly earnings guidance practice should be terminated (Chen et al. 2011; Houston et al. 2010; Miller 2009). I provide direct evidence on the deleterious effects of frequent management earnings guidance on firm value creation. Also, my results show that earnings guidance frequency and earnings guidance goal work interactively in inducing managers' preference for quarterly earnings

predictability. Specifically, while infrequent guiders' preference is affected by guidance goal, the difference in managers' preference for short-term earnings predictability among guiders with various goals is reduced by frequent guidance. This result suggests that the impact of guidance goal is contingent on guidance frequency, and that the negative consequence of issuing frequent earnings guidance is pervasive. These findings provide managers and regulators with more complete evidence to consider in deliberating on the costs and benefits of issuing frequent earnings guidance. Moreover, investors will be more likely to take a long-term perspective if they are aware of the costs of requiring frequent and accurate quarterly earnings forecasts. In addition, my findings also have implications for managerial decisions when managers or employees face other benchmark pressures. For example, managers may exhibit myopic behavior if they anticipate frequent internal performance evaluations, continuous monitoring by internal audit, or frequent internal control assessments.

My study also adds to a recent stream of accounting research examining the real effect of financial reporting decisions (Kanodia 2007). Prior studies have largely looked at the real effect of accounting disclosure in mandatory reporting settings, e.g. earnings reporting frequency in Bhojraj and Libby (2005), depreciation method in Jackson (2008), and R&D capitalization in Seybert (2010). My study extends prior literature by examining how management earnings guidance policy, a voluntary reporting behavior, induces suboptimal managerial decisions. Voluntary disclosure is believed to benefit

shareholders in terms of reducing information asymmetry and enhancing corporate governance (Healy and Palepu 2001; Shleifer and Vishny 1997). In contrast, the results of this study show that inappropriate voluntary reporting behavior can also hurt shareholders' interests because managers may sacrifice firm value for voluntary reporting purposes. Future studies can examine the impact of other financial reporting behavior on real business decisions.

My study is subject to several limitations. First, I use MBA students as proxies for real business managers. Although I find that MBA students generally understand earnings guidance behavior and its capital market impact, they may still lack some of the tacit knowledge that management learns through real-world earnings disclosure practice. While my results are not affected by participants' working experience and the number of courses they have taken, it still leaves open the possibility that business managers might respond differently. Second, I did not explicitly examine managers' incentive structures in this study, because prior studies have documented the impact of incentive structures on managerial myopia behavior (Bhojraj and Libby 2005; Hutton et al. 2008). Moreover, since both the effects of guidance frequency and guidance goal are due to psychological reasons (mostly unintended) rather than incentive reasons, I do not expect economic contracts that are purposely reduce "short-term" incentives can moderate my results. Nevertheless, it is interesting to investigate the impact of managers' incentive structures on managers' preference for short-term earnings predictability in future research. Finally, in order to examine how guidance frequency and guidance goal affect managers'

trade-off between total expected earnings and quarterly earnings predictability, I employ a “one strategy” context and assume the choice of that strategy determines the company’s overall earnings pattern. Although this design choice can clearly illustrate participants’ trade-off decisions, it may simplify the decision making process in the practice. Specifically, managers may have a portfolio of projects that might mitigate the impact of one single project on firm’s overall earnings. While the purpose of my study is to demonstrate that managers issuing frequent or/and accurate earnings guidance may have the incentives to sacrifice economic value for earnings predictability, future archival research is encouraged to investigate how this type of real earnings management practice operate in the real world.

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APPENDIX 1: INSTITUTIONAL KNOWLEDGE CHECK

The following questions are asked to investigate whether participants (120 MBA students) have sufficient institutional knowledge to complete the task required by this study. All mean responses are significantly higher than mid-point, indicating that participants in general understand the impact of earnings predictability and the capital market consequences associated with issuing management earnings guidance.

- 1.** In general, I believe that earnings predictability _____ management's ability to accurately forecast future quarterly earnings (0 = not at all affects, 10 = extremely affects). Mean Response = 7.18, significantly different from the mid-point of "5" (p=0.00).
- 2.** In general, I believe that earnings predictability _____ management's ability to beat/meet analyst consensus earnings forecast (0 = not at all affects, 10 = extremely affects). Mean Response = 6.79, significantly different from the mid-point of "5" (p=0.00).
- 3.** In general, I believe that management earnings guidance _____ analyst consensus earnings forecast (0 = not at all influences, 10 = extremely influences). Mean Response = 7.24, significantly different from the mid-point of "5" (p=0.00).
- 4.** In general, I believe that actual earnings which missed analyst consensus earnings forecasts will _____ the company's stock price (0 = not at all hurt, 10 = extremely hurt). Mean Response = 7.40, significantly different from the mid-point of "5" (p=0.00).
- 5.** In general, I believe that inaccurate management earnings guidance will the company's forecasting reputation (0 = not at all hurt, 10 = extremely hurt). Mean Response = 7.21, significantly different from the mid-point of "5" (p=0.00).

APPENDIX 2: MARKETING STRATEGY CASE

Panel A: Estimated Annual and Quarterly Earnings

Annual earnings are estimated according to historical annual earnings growth rate. Table 1 shows the estimated annual earnings for Dan Technology under Strategy A and Strategy B, respectively. **Strategy A is expected to generate lower total earnings in the coming three years than Strategy B.** The consultant believes that estimated annual earnings for both strategies will be realized at a 90% confidence level.

Table 1: Forecasted Annual Earnings Performance - Dan Technology					
Earnings Per Share	2009 (Actual)	2010 (Expected)	2011 (Expected)	2012 (Expected)	Total (Expected)
Strategy A	1.52	1.56	1.60	1.64	4.80
Strategy B	1.52	1.60	1.68	1.76	5.04

Quarterly earnings are estimated based on time-series forecasting models. Future quarterly earnings associated with Strategy A are highly predictable, as realized earnings fit well with the forecasting model. *Hence, managers are quite confident about future quarterly earnings predicted by the forecasting model.* In contrast, future quarterly earnings associated with Strategy B are highly unpredictable, as there is NO well-fitted model can be used to estimate future quarterly earnings. *Consequently, managers cannot provide accurate quarterly earnings forecasts in the future.* In sum, **management can provide quarterly earnings forecasts with confidence if Strategy A is chosen, but NOT if Strategy B is chosen.**

Panel B: Industry-Level Historical Data

In general, analysis of industry-level historical data shows that **Strategy B can generate higher annual earnings than Strategy A**, as shown in Table 2. However, the analysis also shows that **Strategy B has lower quarterly earnings predictability than Strategy A**, as shown in the figure below.

Table 2: Historical Earnings Performance - Industry Data			
Strategy A			
Earnings Per Share	2007	2008	2009
<i>Q1</i>	0.30	0.31	0.32
<i>Q2</i>	0.35	0.36	0.37
<i>Q3</i>	0.40	0.41	0.42
<i>Q4</i>	0.45	0.46	0.47
<i>Standard Deviation</i>	6.45%	6.45%	6.45%
<i>Annual EPS</i>	1.50	1.54	1.58
Strategy B			
Earnings Per Share	2007	2008	2009
<i>Q1</i>	0.36	0.38	0.40
<i>Q2</i>	0.31	0.43	0.35
<i>Q3</i>	0.46	0.33	0.45
<i>Q4</i>	0.41	0.48	0.50
<i>Standard Deviation</i>	6.45%	6.45%	6.45%
<i>Annual EPS</i>	1.54	1.62	1.70

Note: The lines present simulated (or predicted) quarterly earnings patterns by the forecasting model. The dots present realized quarterly earnings.

TABLE 1**Strength of Preference for Each Marketing Strategy**

A negative preference score indicates a preference for the high-predictability strategy (Strategy A), and a positive preference score indicates a preference for the low-predictability strategy (Strategy B). Zero indicates no preference between the alternatives. A higher absolute value indicates a stronger preference for the chosen strategy.

-5	-4	-3	-2	-1	0	1	2	3	4	5
Definitely					Neutral					Definitely
Choose A										Choose B

Panel A: Descriptive Statistics – Mean (Standard Deviation) [Sample Size]

Guidance Frequency	Guidance Goal								
	Accuracy			Beat/meet			Overall		
Frequent	-1.65	(3.33)	[20]	-1.20	(3.16)	[20]	-1.43	(3.21)	[40]
Infrequent	-1.05	(3.25)	[20]	2.05	(2.50)	[20]	0.50	(3.27)	[40]
Overall	-1.35	(3.26)	[40]	0.43	(3.26)	[40]	-0.46	(3.36)	[80]

Panel B: Two-Way ANOVA Tests of Between-Subjects Effects

Source	Sum of Square	df	Mean Square	F-statistic	p-value
Frequency	74.11	1	74.11	7.83	0.01
Goal	63.01	1	63.01	6.66	0.01
Frequency × Goal	35.11	1	35.11	3.71	0.06
Error	719.65	76	9.47		
Corrected Total	909.00	79			

Panel C: Simple Main Effects Tests

Simple Main Effects	df	F-statistic	p-value
Goal at Frequent	1	0.21	0.65
Goal at Infrequent	1	10.15	0.00
Frequency at Accuracy	1	0.38	0.54
Frequency at Beat/Meet	1	11.16	0.00

TABLE 2**Likelihood of Choosing the High-predictability Strategy (Strategy A)**

Participants are asked to indicate the likelihood of choosing strategy A, assuming total likelihood is 100%. A higher likelihood indicates participants are more likely to choose Strategy A.

Panel A: Descriptive Statistics

Mean (Standard Deviation) [# of Choosing Strategy A / Sample Size]

Guidance Frequency	Guidance Goal					
	Accuracy		Beat/meet		Overall	
Frequent	64.25%	(28.30%)	65.85%	(27.84%)	65.05%	(27.72%)
	[14 / 20]		[16 / 20]		[30 / 40]	
Infrequent	60.75%	(25.30%)	34%	(21.19%)	47.37%	(26.72%)
	[13 / 20]		[3 / 20]		[16 / 40]	
Overall	62.50%	(26.55%)	49.93%	(29.26%)	56.21%	(28.48%)
	[27 / 40]		[19 / 40]		[46 / 80]	

Panel B: Two-Way ANOVA Tests of Between-Subjects Effects

Source	Sum of Square	df	Mean Square	F-statistic	p-value
Frequency	0.63	1	0.63	9.38	0.00
Goal	0.32	1	0.32	4.75	0.03
Frequency $\times$ Goal	0.40	1	0.40	6.03	0.02
Error	5.06	76	0.07		
Corrected Total	31.69	79			

Panel C: Simple Main Effects Tests

Simple Main Effects	df	F-statistic	p-value
Goal at Frequent	1	0.04	0.85
Goal at Infrequent	1	10.74	0.00
Frequency at Accuracy	1	0.18	0.67
Frequency at Beat/Meet	1	15.23	0.00

TABLE 3
Mediation Analysis

Panel A:				
Dependent Variable = <i>Strength of preference for each marketing strategy;</i>				
Mediator = <i>Perceived relative importance weight of quarterly earning predictability</i>				
	Step 1:		Step 2:	
	ANOVA on Mediator		ANCOVA on DV	
	F-statistic	p-value	F-statistic	p-value
Guidance Frequency	11.87	0.00	0.05	0.83
Guidance Goal	4.57	0.04	1.95	0.17
Goal * Frequency	4.15	0.05	0.13	0.72
Mediator			193.32	0.00

Panel B:				
Dependent Variable = <i>Likelihood of choosing Strategy A;</i>				
Mediator = <i>Perceived relative importance weight of quarterly earnings predictability</i>				
	Step 1:		Step 2:	
	ANOVA on Mediator		ANCOVA on DV	
	F-statistic	p-value	F-statistic	p-value
Guidance Frequency	11.87	0.00	0.97	0.33
Guidance Goal	4.57	0.04	0.99	0.32
Goal × Frequency	4.15	0.05	2.06	0.16
Mediator			56.45	0.00

Participants are asked to allocate total importance weight of 100% between quarterly earnings predictability and total expected earnings. The allocated weight for quarterly earnings predictability is coded as the “perceived relative importance of quarterly earnings predictability.”

The mediation analysis shows that the mediator fully mediates the main effect of guidance frequency, the main effect of guidance goal and the interaction effect of guidance frequency and goal on participants’ preference judgment as well as their actual decision making.

TABLE 4**Post-Experiment Debriefing****Panel A: DV = Participants' concerns over the company's forecasting credibility**

Source	Sum of Square	df	Mean Square	F-statistic	p-value
Frequency	19.01	1	19.01	4.58	0.04
Goal	9.11	1	9.11	2.19	0.14
Frequency $\times$ Goal	1.01	1	1.01	0.24	0.62
Error	315.75	76	4.16		
Corrected Total	344.89	79			
H₀: $1/3 \times (\text{Frequent Accuracy} + \text{Frequent Beat/Meet} + \text{Infrequent Accuracy}) = \text{Infrequent Beat/Meet}$					
Source	df	F-statistic	p-value		
Contrast	1	5.64	0.02		

Panel B: DV = Participants' concerns over personal reputation loss

Source	Sum of Square	df	Mean Square	F-statistic	p-value
Frequency	25.31	1	25.31	4.56	0.04
Goal	5.51	1	5.51	0.99	0.32
Frequency $\times$ Goal	5.51	1	5.51	0.99	0.32
Error	421.55	76	5.55		
Corrected Total	457.89	79			
H₀: $1/3 \times (\text{Frequent Accuracy} + \text{Frequent Beat/Meet} + \text{Infrequent Accuracy}) = \text{Infrequent Beat/Meet}$					
Source	df	F-statistic	p-value		
Contrast	1	5.69	0.02		

Panel C: DV = Participants' concerns over guidance goal achievement

Source	Sum of Square	df	Mean Square	F-statistic	p-value
Frequency	20.00	1	20.00	4.66	0.03
Goal	9.80	1	9.80	2.28	0.14
Frequency $\times$ Goal	2.45	1	2.45	0.57	0.45
Error	326.50	76	4.30		
Corrected Total	358.75	79			
H₀: $1/3 \times (\text{Frequent Accuracy} + \text{Frequent Beat/Meet} + \text{Infrequent Accuracy}) = \text{Infrequent Beat/Meet}$					
Source	df	F-statistic	p-value		
Contrast	1	6.52	0.01		

TABLE 4 (Continued)
Post-Experiment Debriefing

Panel D: DV = Participants' concerns over short-term stock price drop

Source	Sum of Square	df	Mean Square	F-statistic	p-value
Frequency	9.11	1	9.11	1.71	0.20
Goal	6.61	1	6.61	1.24	0.27
Frequency $\times$ Goal	3.61	1	3.61	0.68	0.41
Error	405.55	76	5.34		
Corrected Total	424.89	79			

Ho: $1/3 \times (\text{Frequent Accuracy} + \text{Frequent Beat/Meet} + \text{Infrequent Accuracy}) = \text{Infrequent Beat/Meet}$

Source	df	F-statistic	p-value
Contrast	1	3.51	0.07

Panel E: DV = Participants' concerns over magnitude of forecast errors

Source	Sum of Square	df	Mean Square	F-statistic	p-value
Frequency	10.51	1	10.51	2.87	0.09
Goal	15.31	1	15.31	4.19	0.04
Frequency $\times$ Goal	13.61	1	13.61	3.72	0.06
Error	277.95	76	3.66		
Corrected Total	317.39	79			

Ho: $1/3 \times (\text{Frequent Accuracy} + \text{Frequent Beat/Meet} + \text{Infrequent Accuracy}) = \text{Infrequent Beat/Meet}$

Source	df	F-statistic	p-value
Contrast	1	10.72	0.00

TABLE 5				
Mediation Analysis of Risk Perceptions				
Panel A: Mediator = <i>Economic risk</i> ; DV= <i>Strength of preference for each strategy</i>				
	Step 1: ANOVA on Mediator		Step 2: ANCOVA on DV	
	F-statistic	p-value	F-statistic	p-value
Guidance				
Frequency	0.09	0.76	9.52	0.00
Guidance Goal	1.49	0.23	5.10	0.03
Goal × Frequency	0.37	0.54	3.28	0.04*
Mediator			10.75	0.00
Panel B: Mediator = <i>Economic risk</i> ; DV= <i>Likelihood of choosing Strategy A</i>				
	Step 1: ANOVA on Mediator		Step 2: ANCOVA on DV	
	F-statistic	p-value	F-statistic	p-value
Guidance				
Frequency	0.09	0.76	12.05	0.00
Guidance Goal	1.49	0.23	3.27	0.04*
Goal × Frequency	0.37	0.54	5.74	0.02
Mediator			15.19	0.00
Panel C: Mediator = <i>Earnings realization risk</i> ; DV= <i>Strength of preference</i>				
	Step 1: ANOVA on Mediator		Step 2: ANCOVA on DV	
	F-statistic	p-value	F-statistic	p-value
Guidance				
Frequency	2.92	0.09	7.87	0.01
Guidance Goal	0.18	0.67	6.66	0.01
Goal × Frequency	0.03	0.87	3.70	0.03*
Mediator			0.16	0.70
Panel D: Mediator = <i>Earnings realization risk</i> ; DV= <i>Likelihood of choosing Strategy A</i>				
	Step 1: ANOVA on Mediator		Step 2: ANCOVA on DV	
	F-statistic	p-value	F-statistic	p-value
Guidance				
Frequency	2.92	0.09	9.45	0.00
Guidance Goal	0.18	0.67	4.78	0.03
Goal × Frequency	0.03	0.87	6.01	0.02
Mediator			0.19	0.66

*Note: All p-values are two-tailed, unless marked with *.*

TABLE 6				
Analysis of Alternative Explanations				
Panel A: Mediation Analysis–Perceived Prior Forecasting Reputation DV=preference				
	Step 1:		Step 2:	
	ANOVA on Mediator		ANCOVA on DV	
	F-statistic	p-value	F-statistic	p-value
Guidance				
Frequency	20.54	0.00	4.41	0.04
Guidance Goal	12.51	0.00	4.32	0.04
Goal ×				
Frequency	2.38	0.13	3.06	0.04*
Mediator			0.66	0.42
Panel B: Mediation Analysis–Perceived Prior Forecasting Reputation DV=choice				
	Step 1:		Step 2:	
	ANOVA on Mediator		ANCOVA on DV	
	F-statistic	p-value	F-statistic	p-value
Guidance				
Frequency	20.54	0.00	4.63	0.04
Guidance Goal	12.51	0.00	2.43	0.06*
Goal ×				
Frequency	2.38	0.13	4.88	0.03
Mediator			1.55	0.22
Panel C: Mediation Analysis – Earnings Management Probability DV=preference				
	Step 1:		Step 2:	
	ANOVA on Mediator		ANCOVA on DV	
	F-statistic	p-value	F-statistic	p-value
Guidance				
Frequency	4.97	0.03	6.51	0.01
Guidance Goal	0.61	0.44	6.28	0.01
Goal ×				
Frequency	0.45	0.51	3.48	0.04*
Mediator			0.36	0.55
Panel D: Mediation Analysis – Earnings Management Probability DV=choice				
	Step 1:		Step 2:	
	ANOVA on Mediator		ANCOVA on DV	
	F-statistic	p-value	F-statistic	p-value
Guidance				
Frequency	4.97	0.03	7.37	0.01
Guidance Goal	0.61	0.44	4.32	0.04
Goal ×				
Frequency	0.45	0.51	5.62	0.02
Mediator			1.05	0.31

*Note: All p-values are two-tailed, unless marked with *.*

TABLE 7**Within-Subjects Test: Forecasting Reputation Scenario**

(DV = Strength of Preference for Each Marketing Strategy)

Panel A: Descriptive Statistics of Within-Subjects Test – Mean (Standard Deviation)

High Established Forecasting Reputation				Low Established Forecasting Reputation			
<i>Guidance</i>	<i>Guidance Goal</i>			<i>Guidance</i>	<i>Guidance Goal</i>		
<i>Frequency</i>	<i>Accuracy</i>	<i>Beat/meet</i>	<i>Overall</i>	<i>Frequency</i>	<i>Accuracy</i>	<i>Beat/meet</i>	<i>Overall</i>
Frequent	-1.50 (3.25)	-0.85 (3.54)	-1.18 (3.37)	Frequent	1.80 (2.55)	-0.55 (3.43)	0.63 (3.21)
Infrequent	-1.20 (3.59)	-0.75 (2.94)	-0.98 (3.25)	Infrequent	0.75 (3.43)	2.30 (2.85)	1.53 (3.21)
Overall	-1.35 (3.39)	-0.80 (3.21)	-1.08 (3.29)	Overall	1.28 (3.03)	0.88 (3.43)	1.08 (3.22)

Panel B: Two -Way ANOVA (High Forecasting Reputation Scenario)

Source	Sum of Square	df	Mean Square	F-statistic	p-value
Frequency	0.80	1	0.80	0.07	0.79
Goal	6.05	1	6.05	0.54	0.46
Frequency × Goal	0.20	1	0.20	0.02	0.89
Error	848.50	76	11.16		
Corrected Total	855.55	79			

Panel C: Two -Way ANOVA (Low Forecasting Reputation Scenario)

Source	Sum of Square	df	Mean Square	F-statistic	p-value
Frequency	16.20	1	16.20	1.70	0.20
Goal	3.20	1	3.20	0.34	0.57
Frequency × Goal	76.05	1	76.05	7.98	0.01
Error	724.10	76	9.53		
Corrected Total	819.55	79			

TABLE 8**Within-Subjects Test: Guidance Form**

(DV = Strength of Preference for Each Marketing Strategy)

Panel A: Descriptive Statistics of Within-Subjects Test – Mean (Standard Deviation)

<u>Point Form</u>				<u>Range Form</u>			
<i>Guidance</i>	<i>Guidance Goal</i>			<i>Guidance</i>	<i>Guidance Goal</i>		
<i>Frequency</i>	<i>Accuracy</i>	<i>Beat/meet</i>	<i>Overall</i>	<i>Frequency</i>	<i>Accuracy</i>	<i>Beat/meet</i>	<i>Overall</i>
	-1.35	-1.60	-1.48		1.05		1.07
Frequent	(2.91)	(2.68)	(2.76)	Frequent	(2.95)	1.10 (2.71)	(2.80)
	-1.00	-0.30	-0.65		1.70		2.23
Infrequent	(3.08)	(2.96)	(3.00)	Infrequent	(2.68)	2.75 (2.55)	(2.64)
	-1.18	-0.95	-1.06		1.38		1.65
Overall	(2.96)	(2.86)	(2.90)	Overall	(2.80)	1.93 (2.73)	(2.76)

Panel B: Three -Way ANOVA Tests

Source	SS.	df	MS.	F-statistics	p-value
Frequency	39.01	1	39.01	4.91	0.03
Goal	6.01	1	6.01	0.76	0.39
Forecasting Form	294.31	1	294.31	37.02	0.00
Frequency × Goal	9.51	1	9.51	1.20	0.28
Frequency × Form	1.06	1	1.06	0.13	0.72
Goal × Form	1.06	1	1.06	0.13	0.72
Frequency × Goal × Form	0.01	1	0.01	0.00	0.98
Error	1208.25	152	7.95		
Corrected Total	1559.19	159			

TABLE 9**Truthful Earnings Guidance Goal - Preference**

(DV = Strength of Preference for Each Marketing Strategy)

A negative preference score indicates a preference for the high-predictability strategy (Strategy A), and a positive preference score indicates a preference for the low-predictability strategy (Strategy B). Zero indicates no preference between the alternatives. A higher absolute value indicates a stronger preference for the chosen strategy.

-5	-4	-3	-2	-1	0	1	2	3	4	5
Definitely					Neutral					Definitely
Choose A										Choose B

Panel A: Descriptive Statistics – Mean (Standard Deviation) [Sample Size]

Guidance Frequency	Guidance Goal								
	Accuracy			Beat/meet			Truthful		
Frequent	-1.65	(3.33)	[20]	-1.20	(3.16)	[20]	-2.10	(2.61)	[20]
Infrequent	-1.05	(3.25)	[20]	2.05	(2.50)	[20]	2.10	(2.40)	[20]
Overall	-1.35	(3.26)	[40]	0.43	(3.26)	[40]	0.00	(3.27)	[40]

Panel B: Two-Way ANOVA Tests of Between-Subjects Effects

Source	Sum of Square	df	Mean Square	F-statistic	p-value
Frequency	216.01	1	216.01	25.67	0.00
Goal	68.72	2	34.36	4.08	0.02
Frequency × Goal	69.62	2	34.81	4.14	0.02
Error	959.25	114	8.41		
Corrected Total	1325.00	119			

Panel C: Contrast Testing

Frequency	Goal	Mean Difference	t-statistics	p-value
Frequent	Accuracy vs. Beat/meet	-0.45	-0.44	0.66
	Accuracy vs. Truthful	0.45	0.48	0.64
	Beat/meet vs. Truthful	0.90	0.98	0.33
Infrequent	Accuracy vs. Beat/meet	-3.10	-3.38	0.00
	Accuracy vs. Truthful	-3.15	-3.48	0.00
	Beat/meet vs. Truthful	-0.05	-0.06	0.95

TABLE 10**Truthful Earnings Guidance Goal - Choice**

(DV = Likelihood of Choosing the High-predictability Strategy - Strategy A)

Participants are asked to indicate the likelihood of choosing strategy A, assuming total likelihood is 100%. A higher likelihood indicates participants are more likely to choose Strategy A.

Panel A: Descriptive Statistics**Mean (Standard Deviation) [# of Choosing Strategy A / Sample Size]**

Guidance Frequency	Guidance Goal					
	Accuracy		Beat/meet		Truthful	
Frequent	64.25%	(28.30%)	65.85%	(27.84%)	64.25%	(20.41%)
	[14 / 20]		[16 / 20]		[16 / 20]	
Infrequent	60.75%	(25.30%)	34%	(21.19%)	32.50%	(20.36%)
	[13 / 20]		[3 / 20]		[4 / 20]	
Overall	62.50%	(26.55%)	49.93%	(29.26%)	48.37%	(25.76%)
	[27 / 40]		[19 / 40]		[20 / 40]	

Panel B: Two-Way ANOVA Tests of Between-Subjects Effects

Source	Sum of Square	df	Mean Square	F-statistic	p-value
Frequency	1.50	1	1.50	25.76	0.00
Goal	0.48	2	0.24	4.12	0.02
Frequency × Goal	0.53	2	0.27	4.58	0.01
Error	6.64	114	0.06		
Corrected Total	43.63	119			

Panel C: Contrast Testing

Frequency	Goal	Mean Difference	t-statistics	p-value
Frequent	Accuracy vs. Beat/meet	-0.02	-0.18	0.86
	Accuracy vs. Truthful	0.00	0.00	1.00
	Beat/meet vs. Truthful	0.02	0.21	0.84
Infrequent	Accuracy vs. Beat/meet	0.268	3.63	0.00
	Accuracy vs. Truthful	0.283	3.89	0.00
	Beat/meet vs. Truthful	0.015	0.23	0.852

EXPERIMENT INSTRUMENT

Consent Form

You are invited to participate in a research study conducted by Ms. Wang Ying from the Nanyang Business School, Nanyang Technological University.

In this exercise, we would like you to assume the role of a general manager for a listed company. You will be asked to make decisions based on the information in the enclosed materials. We have limited the amount of information presented to limit the time necessary to complete the study. In order to avoid having the name of company influence your decisions, we have changed the name and called it Dan Technology.

Please open the envelopes and answer the questions in the given sequence.

Please do not skip questions or move ahead to other pages before completing the earlier pages. Once you have answered a question, do not go back and change your responses to previous questions.

Your answers will be kept strictly confidential and anonymous, and will be analyzed after being aggregated with responses from other respondents. Under no circumstance will any firm or individual information be identified with the results.

Please provide us with your name below, so that we could contact you to seek any clarification on your responses if necessary.

Your full name:

Your email address:

Matriculation Number:

Signature:

Date:

Envelope 1

Background

Dan Technology, Inc. (hereafter, “the company”) manufactures and markets personal computers, peripheral devices, and personal communicating solutions. It sells products through its online stores, third-party wholesalers and its own retail stores. Dan Technology is faced with aggressive competition in its business. They are currently taking steps to respond to the competition.

2007-2009 Financial Performance Summary

The table below summarizes the company’s historical earnings performance.

Three Year Financial Summary			
(in million dollars, except per share amounts and financial ratios)			
Results of Operations	FY 2009	FY 2008	FY 2007
Net sales:	15,169	14,832	14, 628
Net income	1,521	1,490	1,460
Earnings per common share	1.52	1.49	1.46
	Dec 31,	Dec 31,	Dec 31,
Financial Position	2009	2008	2007
Total Assets	25,972	25,728	25,547
Liabilities	10,450	10,405	10,335
Shareholders' equity	15,522	15,323	15,212
Financial Ratios	FY 2009	FY 2008	FY 2007
Gross margin as a percentage of net sales	34.30%	34.19%	34.07%
Operating income as a percentage of net sales	19%	19%	19%
Return on net sales	10%	10%	10%

Management Earnings Guidance

Management has the option to provide earnings guidance (also known as earnings forecasts), which expresses their opinions about how company will perform in the coming quarters before actual earnings announcement is made. The forecasts for quarterly or annual earnings are provided by management to help investors evaluate the company's earnings potential.

Earnings Guidance Policy of Dan Technology

Dan Technology has a policy of issuing quarterly earnings forecasts on a frequent basis. During the past three years, they have provided 12 quarterly earnings forecasts, once every quarter. Moreover, Dan Technology has a policy of providing biased earnings guidance that may not reflect management's genuine opinion of the company's earnings potential. The strategic earnings forecasts are used to "walk down" analyst earnings forecasts so that actual earnings can beat or meet market expectations. Top management expects managers to abide by the company's policy of providing frequent and strategic earnings guidance.

Management Earnings Forecasts

Dan Technology is now determining its marketing strategy for the coming three years. Two strategies are proposed to strengthen marketing promotion activities. Based on the analysis of industry-level historical data, the consultant for Dan Technology is making annual and quarterly earnings forecasts for Strategy A and Strategy B.

Annual earnings are estimated according to historical annual earnings growth rate. Table 1 shows the estimated annual earnings for Dan Technology under Strategy A and Strategy B, respectively. Strategy A is expected to generate lower total earnings in the coming three years than Strategy B. The consultant believes that estimated annual earnings for both strategies will be realized at a 90% confidence level.

Table 1: Forecasted Annual Earnings Performance - Dan Technology					
Earnings Per Share	2009 (Actual)	2010 (Expected)	2011 (Expected)	2012 (Expected)	Total (Expected)
Strategy A	1.52	1.56	1.60	1.64	4.80
Strategy B	1.52	1.60	1.68	1.76	5.04

Quarterly earnings are estimated based on forecasting models incorporating historical earnings patterns and other information. Future quarterly earnings associated with Strategy A are highly predictable, as realized earnings fit well with the forecasting model. Hence, managers are quite confident about future quarterly earnings predicted by the forecasting model. In contrast, future quarterly earnings associated with Strategy B are highly unpredictable, as there is NO well-fitting model can be used to estimate future quarterly earnings. Consequently, managers cannot provide accurate quarterly earnings forecasts in the future. In sum, **management can provide quarterly earnings forecasts with confidence if Strategy A is chosen, but NOT if Strategy B is chosen.**

Industry – Level Historical Data

In general, analysis of industry-level historical data shows that **Strategy B can generate higher annual earnings than Strategy A**, as shown in Table 2. However, the analysis also shows that **Strategy B has lower quarterly earnings predictability than Strategy A**, as shown in the figure below.

Table 2: Historical Earnings Performance - Industry Data							
Strategy A				Strategy B			
Earnings Per Share	2007	2008	2009	Earnings Per Share	2007	2008	2009
Q1	0.30	0.31	0.32	Q1	0.36	0.38	0.40
Q2	0.35	0.36	0.37	Q2	0.31	0.43	0.35
Q3	0.40	0.41	0.42	Q3	0.46	0.33	0.45
Q4	0.45	0.46	0.47	Q4	0.41	0.48	0.50
Standard Deviation	6.45%	6.45%	6.45%	Standard Deviation	6.45%	6.45%	6.45%
Overall S.D. ¹		5.90%		Overall S.D. ¹		5.90%	
Annual EPS	1.50	1.54	1.58	Annual EPS	1.54	1.62	1.70

¹ An analysis of quarterly earnings data in past 20 years shows that quarterly earnings follow normal distribution for both Strategy A and Strategy B. In addition, the two strategies have the same quarterly earnings standard deviation.

Note: The lines present simulated quarterly earnings patterns by the model.

As the manager of Dan Technology, you need to decide which strategy should be adopted.

GIVEN INFORMATION ABOVE, PLEASE ANSWER THE FOLLOWING QUESTIONS. YOU MAY REFER TO THE ABOVE INFORMATION WHEN YOU ARE COMPLETING THIS SECTION.

Question 1

(1) As the manager of Dan Technology, please indicate the marketing strategy you would choose:

A. Strategy A; B. Strategy B *(please circle one strategy)*

(2) Please indicate the strength of preference for your above choice by circling **ONE** number:

-5	-4	-3	-2	-1	0	1	2	3	4	5
Definitely Prefer Strategy A				Neutral		Definitely Prefer Strategy B				

(3) Assuming total likelihood is 100%, please indicate the likelihood for you to choose each marketing strategy, respectively.

Likelihood of choosing Strategy A	
Likelihood of choosing Strategy B	
SUM	100%

(4) Please state the rational for your above responses:

You have completed this section. Please return this page to Envelope 1.

You can now open Envelope 2.

Envelope 2

PLEASE ANSWER FOLLOWING QUESTIONS BASED ON YOUR UNDERSTANDING OF DAN TECHNOLOGY. DO NOT REFER TO MATERIALS IN ENVELOPE 1.

Question 2

In your opinion, which strategy creates higher annual (total) earnings for the company?

A. Strategy A; B. Strategy B; (*please circle one*)

Question 3

In your opinion, which strategy results in higher quarterly earnings predictability for the company?

A. Strategy A; B. Strategy B; *(please circle one)*

Question 4

When choosing marketing strategy in *Question 1*, how do you make the trade-off between total annual earnings and quarterly earnings predictability for the coming three years?

Please allocate the relative weight to each item, assuming total weight is 100%:

Quarterly earnings predictability	
Total expected earnings	
SUM	100%

Question 5

I believe that economic risk (i.e., quarterly earnings volatility) of Strategy A is that of Strategy B. *(please circle one)*

-5	-4	-3	-2	-1	0	1	2	3	4	5
Lower Than					Equal To					Higher Than

Question 6

I believe that Strategy A has _____ likelihood of realizing estimated **annual** earnings compared with Strategy B. (*please circle one*)

Question 7

Question 8

Question 9

Question 10

You have completed this section. Please return this page to Envelope 2.

You can now open Envelope 3.

Envelope 3

PLEASE ANSWER FOLLOWING QUESTIONS. DO NOT REFER TO MATERIALS IN ENVELOPES 1&2.

- 1.** When making the marketing strategy decision, I am _____ about **the achievement of firm's earnings guidance motive.** *(Please circle one)*

0 1 2 3 4 5 6 7 8 9 10

Not at all
Concerned

Extremely
Concerned

- 2.** When making the marketing strategy decision, I am _____ about **the magnitude of forecast errors** (e.g., forecast accuracy= |actual earnings – forecasted earnings|). *(Please circle one)*

0 1 2 3 4 5 6 7 8 9 10

Not at all
Concerned

Extremely
Concerned

- 3.** When making the marketing strategy decision, I am _____ about **the sign of forecast errors** (e.g., whether actual earnings can beat or meet forecasted earnings). *(Please circle one)*

0 1 2 3 4 5 6 7 8 9 10

Not at all
Concerned

Extremely
Concerned

- 4.** When making the marketing strategy decision, I am _____ about **the precision of management earnings forecasts.** *(Please circle one)*

0	1	2	3	4	5	6	7	8	9	10
Not at all										Extremely
Concerned										Concerned

5. When making the marketing strategy decision, I am _____ about **preserving the company's forecasting credibility**. *(Please circle one)*

0	1	2	3	4	5	6	7	8	9	10
Not at all										Extremely
Concerned										Concerned

6. When making the marketing strategy decision, I am _____ about **suffering a personal reputation loss** (due to missed market expectations). *(Please circle one)*

0	1	2	3	4	5	6	7	8	9	10
Not at all										Extremely
Concerned										Concerned

7. When making the marketing strategy decision, I am _____ about **a drop in the stock price of Dan Technology** (due to missed earnings benchmark) in the future. *(Please circle one)*

0	1	2	3	4	5	6	7	8	9	10
Not at all										Extremely
Concerned										Concerned

8. When making the marketing strategy decision, I am _____ about **suffering a personal reputation loss** (due to inaccurate management earnings forecasts) in the future. *(Please circle one)*

0	1	2	3	4	5	6	7	8	9	10
Not at all										Extremely
Concerned										Concerned

9. In general, I believe that earnings predictability _____ management's ability to accurately forecast future quarterly earnings. *(Please circle one)*

0	1	2	3	4	5	6	7	8	9	10
Not at all										Extremely
Affects										Affects

10. In general, I believe that earnings predictability _____ management's ability to beat/meet analyst consensus earnings forecast. *(Please circle one)*

0	1	2	3	4	5	6	7	8	9	10
Not at all										Extremely
Affects										Affects

11. In general, I believe that management earnings guidance _____ analyst consensus earnings forecast. *(Please circle one)*

0	1	2	3	4	5	6	7	8	9	10
Not at all										Extremely
Influences										Influences

12. In general, I believe that actual earnings which missed analyst consensus earnings forecasts will _____ the company's stock price. *(Please circle one)*

0 1 2 3 4 5 6 7 8 9 10

Not at all Extremely
Hurt Hurt

13. In general, I believe that inaccurate management earnings guidance will
the company's forecasting reputation. *(Please circle one)*

0 1 2 3 4 5 6 7 8 9 10

Not at all Extremely
Hurt Hurt

14. To what extent, do you agree that Dan Technology has established a
high forecasting reputation in the past? *(Please circle one)*

0 1 2 3 4 5 6 7 8 9 10

Completely Completely
Disagree Agree

15. To what extent, do you agree that Dan Technology will engage in
earnings management to achieve its guidance motive? *(Please circle one)*

0 1 2 3 4 5 6 7 8 9 10

Completely Completely
Disagree Agree

16. In general, please rank the importance to you (e.g., as the manager of
Dan Technology) of meeting or beating the following earnings
benchmarks (please rank the most important one as "1"):

Beat last year earnings	
Beat consensus analyst forecast	
Beat management earnings guidance	

17. Recall that in Question 1, we asked you to choose between Strategy A and Strategy B.

(a) Suppose that Dan Technology tends to issue earnings guidance in the form of a point earnings guidance (e.g., EPS is expected to be \$0.40). Given this information and the company's guidance policy, on the scale below, please indicate your preference for Strategy A versus Strategy B.

-5	-4	-3	-2	-1	0	1	2	3	4	5
Definitely Choose A					Neutral					Definitely Choose B

(b) Suppose that Dan Technology tends to issue earnings guidance in the form of a range earnings guidance (e.g., EPS is expected to range from \$0.30 to \$0.50).

Given this information and the company's guidance policy, on the scale below, please indicate your preference for Strategy A versus Strategy B.

-5	-4	-3	-2	-1	0	1	2	3	4	5
Definitely Choose A					Neutral					Definitely Choose B

18. Recall that in Question 1, we asked you to choose between Strategy A and Strategy B.

(a) Suppose that Dan Technology has established a high forecasting reputation in the past.

Given this information and the company's guidance policy, on the scale below, please indicate your preference for Strategy A versus Strategy B.

-5	-4	-3	-2	-1	0	1	2	3	4	5
Definitely Choose A					Neutral					Definitely Choose B

- (b) Suppose that Dan Technology has established a low forecasting reputation in the past.

Given this information and the company's guidance policy, on the scale below, please indicate your preference for Strategy A versus Strategy B.

-5	-4	-3	-2	-1	0	1	2	3	4	5
Definitely					Neutral					Definitely
Choose A										Choose B

- 19.** Recall that in to the case that you just read concerning Dan Technology, you had to choose between Strategy A and Strategy B.

Suppose that Dan Technology sometimes issues accurate earnings guidance to establish accurate forecasting reputation and credible reporting reputation, and other times it issues strategic earnings guidance to walk down analysts' earnings forecasts to beatable level.

Given this information and the fact that the company issues earnings guidance on a frequent basis (or an infrequent basis depending on condition), on the scale below, please indicate your preference for Strategy A versus Strategy B.

-5	-4	-3	-2	-1	0	1	2	3	4	5
Definitely					Neutral					Definitely
Choose A										Choose B

PLEASE PROVIDE FOLLOWING INFORMATION

1. How many years of working experience (including part-time) do you have? () months
2. What is your highest position in your previous working company? _____.
3. Indicate the number of courses you have taken (including both undergraduate and graduate courses) in accounting (); finance (); strategy (); marketing ()

4. How frequently do you invest in the stock market?

0	1	2	3	4	5	6	7	8	9	10
Never					Moderately Frequent					Highly Frequent

5. Do you think companies should provide earnings guidance to investors?
If yes, how often should earnings guidance be provided?

You have completed this study. Please insert this page into Envelope 3.

Thank you for your participation!

Condition Manipulations

I. Main Experiment

Frequent and Strategic Reporting

Dan Technology has a policy of issuing quarterly earnings forecasts on a **frequent** basis. During the past three years, they have provided 12 quarterly earnings forecasts, once every quarter. Moreover, Dan Technology has a policy of providing **biased** earnings guidance that may not reflect management's genuine opinion of the company's earnings potential. The **strategic earnings forecasts** are used to "walk down" analyst earnings forecasts so that actual earnings can beat or meet market expectations. Top management expects managers to abide the company's policy of providing **frequent and strategic** earnings guidance.

Frequent and Accurate Reporting

Dan Technology has a policy of issuing quarterly earnings forecasts on a **frequent** basis. During the past three years, they have provided 12 quarterly earnings forecasts, once every quarter. Moreover, Dan Technology has a policy of providing **unbiased** earnings guidance that reflects management's genuine opinion of the company's earnings potential. The **accurate earnings forecasts** are used to establish a credible forecasting reputation and transparent reporting reputation. Top management expects managers to abide the company's policy of providing **frequent and accurate** earnings guidance.

Infrequent and Strategic Reporting

Dan Technology has a policy of issuing quarterly earnings forecasts on an **infrequent** basis. During the past three years (12 quarters), they have only provided one quarterly earnings forecast. Moreover, Dan Technology has a

policy of providing **biased** earnings guidance that may not reflect management's genuine opinion of the company's earnings potential. The **strategic earnings forecasts** are used to "walk down" analyst earnings forecasts so that actual earnings can beat or meet market expectations. Top management expects managers to abide the company's policy of providing **infrequent and strategic** earnings guidance.

Infrequent and Accurate Reporting

Dan Technology has a policy of issuing quarterly earnings forecasts on an **infrequent** basis. During the past three years (12 quarters), they have only provided **one** quarterly earnings forecast. Moreover, Dan Technology has a policy of providing **unbiased** earnings guidance that reflects management's genuine opinion of the company's earnings potential. The **accurate earnings forecasts** are used to establish a credible forecasting reputation and transparent reporting reputation. Top management expects managers to abide the company's policy of providing **infrequent and accurate** earnings guidance.

II. Additional Analysis

Frequent and Truthful Reporting

Dan Technology has a policy of issuing quarterly earnings forecasts on a **frequent** basis. During the past three years, they have provided **12** quarterly earnings forecasts, once every quarter. Moreover, Dan Technology has a policy of providing **unbiased** earnings guidance that reflects management's genuine opinion of the company's earnings potential. The **truthful earnings forecasts** are used to provide valuable information for market players so that they can form rational earnings expectations. Top management expects managers to abide the company's policy of providing **frequent and truthful** earnings guidance.

Infrequent and Truthful Reporting

Dan Technology has a policy of issuing quarterly earnings forecasts on an *infrequent* basis. During the past three years (12 quarters), they have only provided **one** quarterly earnings forecast. Moreover, Dan Technology has a policy of providing *unbiased* earnings guidance that reflects management's genuine opinion of the company's earnings potential. The *truthful earnings forecasts* are used to provide valuable information for market players so that they can form rational earnings expectations. Top management expects managers to abide the company's policy of providing *infrequent and truthful* earnings guidance.