

Investor Reactions to Management Earnings Guidance Attributions: The Effects of News
Valence, Attribution Locus, and Outcome Controllability

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Abstract

We conduct two experiments to investigate how investors react to attributions accompanying management guidance. In our first experiment, we investigate the joint effect of attribution locus (external versus internal attribution) and guidance-news valence (positive versus negative guidance news) on investors' earnings judgments. We find that investors provide lower earnings estimates when management attributes negative guidance news to external factors than internal factors. When the guidance news is positive, the locus (internal versus external) of the attributions has no effect on investors' earnings estimates. In our second experiment, we separate out the effect of the attribution's outcome controllability (controllable versus uncontrollable) from that of attribution locus in a negative guidance news setting. We find that investors provide higher earnings estimates for internal/outcome controllable attributions than for internal/outcome uncontrollable attributions. Outcome controllability does not matter when attributions are external. Our study extends prior research by showing how the valence of management guidance and the characteristics of guidance attributions jointly influence investors' earnings judgments.

Keywords: *management earnings guidance, attribution, attribution locus, outcome controllability*

Introduction

Management earnings guidance (hereafter, management guidance) is the voluntary disclosure of earnings forecasts provided by managers. Managers have discretion over whether to provide causal attributions to accompany their guidance (hereafter, guidance attributions). Such attributions are part of management's voluntary disclosures, and the usefulness and effects of voluntary disclosure in the communication with investors have been among the key concerns of practitioners (FASB, 2001). Prior studies suggest that guidance attributions are strategic in that attributions relating to factors external (internal) to the guidance-issuing firms are more likely to accompany negative (positive) guidance news (Baginski, Hassell, & Hillison, 2000; Baginski, Hassell, & Kimbrough, 2004). However, it remains unclear how investors' judgments are interactively influenced by these external/internal attributions when they accompany guidance that provides positive/negative news (i.e., guidance that is higher/lower than the most recent consensus analyst forecast). For instance, Baginski et al. (2004) document that external attributions increase market reactions to unexpected earnings but internal attributions do not; however, they do not investigate the effect of attribution locus (i.e., internal or external attributions; Bettman & Weitz, 1983; Staw, Mckechnie, & Puffer, 1983) within each type of guidance news (positive versus negative). Hence, it is unknown whether the effect documented by Baginski et al. (2004) applies equally to both positive and negative news settings, or only to either a positive or negative news setting. This situation is further complicated by the fact that external/internal attributions are more likely to accompany negative/positive news (Baginski et al., 2000; Bettman & Weitz, 1983).

Investigating whether investors' judgments are jointly influenced by attribution locus and news valence is important because managers' decisions on the nature of attributions to provide

(if any) are clearly strategic in that the characteristics of these attributions differ depending on whether the guidance news is positive or negative (Baginski et al., 2000). At the same time, the veracity of these attributions, generally classified as soft-talk disclosures, is difficult to verify for outsiders (Hutton, Miller, & Skinner, 2003).¹ Presumably, by providing external/internal attributions for negative/positive news guidance, managers aim to temper investors' negative reactions to bad news and strengthen investors' positive reactions to good news. Should this happen, there would be welfare implications for investors, particularly when the attributions are untruthful. On the other hand, psychology theory suggests that investors discount or even react negatively to attributions that are consistent with management incentives, which suggests that management's strategic intentions may not come to fruition (Carlston & Shovar, 1983; Forsyth, Berger, & Mitchell, 1981; Hirst, Koonce, & Simko, 1995; Hodge, Hopkins, & Pratt, 2006). Theory further suggests that the effect of attribution locus may be asymmetrical such that attribution locus may not matter for positive guidance as individuals' attributional search is generally truncated for positive news (Wong & Weiner, 1981). An investigation of whether attribution locus interacts with news valence in influencing investor judgment is therefore necessary. We also test the mechanism underlying this effect.

As a related issue, we examine how outcome controllability, defined as the extent to which managers are able to change or influence the outcome/consequence of their actions or events (Brickman, Rabinowitz, Karuza, Coates, Cohn, & Kidder, 1982; Karasawa, 1991; Schwarzer & Weiner, 1991; Tan & Lipe, 1997), moderates the effect of attribution locus on investors' judgments. Outcome controllability and its interaction with attribution locus are of interest

¹ Soft-talk disclosures are defined as costless, nonbinding and non-verifiable (Barton & Mercer, 2005; Farrell & Rabin, 1996; Hutton et al., 2003). Verifiability refers to whether the statement is specific enough to be compared with subsequent realizations (Hutton et al., 2003).

because attributions can contain, and vary in, both aspects. Information about the controllability of future events is useful to evaluate the performance of managers and improve the welfare of both the principal and the agent (Antle & Demski, 1988; Crant, 2000; Feltham & Xie, 1994; Holmstrom, 1979). Further, without additional information about outcome controllability, lay beliefs are that internal/external attributions are more/less controllable by managers (Bettman & Weitz, 1983), but conceptually, attribution locus and controllability are distinct constructs (Weiner, 1979, 1985). If investors believe that internal attributions are controllable and infer so when management merely discloses an internal attribution without any statement about its controllability, investors may be drawing inappropriate conclusions that could bias their subsequent judgments. In addition, if management discloses both locus and controllability of attributions, investors may choose to ignore one of the dimensions based on the belief that one dimension is redundant or irrelevant in the presence of the other. Previous accounting research on attribution focuses on one dimension of attribution in isolation, such as attribution locus (Baginski et al., 2000; Baginski et al., 2004; Elliott, Hodge, & Sedor, 2012) and controllability (Bol & Smith, 2011), and their joint effects remain unknown. Understanding the effects of these attribution dimensions in the management guidance setting is particularly important because managers have discretion in terms of how they frame an attribution.

We conduct two experiments to address our research questions. Our use of an experimental method allows us to hold constant the *quantitative* aspects of management's disclosure while varying only the *qualitative* disclosures, as well as to test the cognitive mechanism by which investors react to the attributions accompanying management guidance. It also enables an orthogonal partitioning of the attributions by attribution locus and outcome controllability, which would be more challenging to do using archival data. In particular, even though some

combinations (e.g., an external and outcome controllable attribution) may occur less frequently in practice, the use of an experimental methodology allows us to disentangle these variables and theoretically test the combinations of variables that are underrepresented in practice. In addition, we hold firm characteristics constant across conditions. This eliminates the self-selection issues that potentially arise from an archival investigation; for instance, Baginski et al. (2004) document that firm characteristics differ systematically between those with and without attributions and those providing external and internal attributions.

We use a 2×2+2 between-subjects design in Experiment One with 119 Master of Finance students as participants. We hold constant the background information and the magnitude of management guidance news across conditions, and vary attribution locus (internal versus external) and the news valence of the management guidance (positive versus negative). We also add two control conditions in which no attribution is provided with the positive (negative) news guidance. Our results indicate that when management guidance news is negative, investors make lower earnings estimates when external attributions are provided than when internal attributions are provided. When management guidance news is positive, the locus of the attributions has no significant effect on investors' judgments. We posit that managers making self-serving attributions (e.g., external attributions for negative news) are deemed less credible, and we find support for this premise in that perceived management credibility mediates the above effect for negative guidance news. In contrast, we find no support for Baginski et al.'s (2004) argument that disclosure verifiability is responsible for the effects of attribution locus. We also find that investors perceive internal attributions to be more controllable by management than external attributions.

We conduct a 2×2 between-subjects Experiment Two with Amazon Mechanical Turk (MTurk) participants to separate out the effects of attribution locus and outcome controllability. We manipulate attribution locus (internal versus external) and outcome controllability (controllable versus uncontrollable outcomes) when guidance news is negative. Results from Experiment Two show that, investors' earnings estimates are higher when an attribution is internal and outcome controllable than when it is internal and outcome uncontrollable. There is no effect of outcome controllability when the attribution is external. We also show that when an internal attribution is provided, outcome controllability enhances perceived management credibility and improves the perceived future prospects of the company, which in turn influence investors' earnings judgments. The findings of Experiment Two suggest that the two dimensions of attributions, locus and outcome controllability, interact in influencing investors' earnings judgments such that internal attributions accompanying the negative guidance have a positive effect on investors' estimates only when they are viewed as outcome controllable.

Our paper contributes to the literature on soft-talk disclosures in the following respects. First, our Experiment One contributes to this literature by testing the joint effect of guidance news valence and attribution locus. Prior literature has considered the two variables separately. For example, Hutton et al. (2003) investigate investors' reactions to soft-talk disclosures accompanying management guidance. They document that soft-talk disclosures do not enhance the credibility of either positive or negative guidance. They do not examine whether this effect varies with internal/external attributions. Baginski et al. (2004) classify attributions into internal and external ones and examine the stock price reactions to them. They find that investors' reactions to management guidance are magnified with external attributions, but not with internal attributions. These authors argue that this finding may be explained by the greater verifiability

associated with external attributions. Baginski et al. (2004) do not investigate the interaction between attribution locus and guidance news valence. By jointly considering the two factors, our results reveal a more complete picture of how investors react to attribution locus (internal versus external) contained in management guidance that varies by news valence (positive versus negative guidance). Our results are partially consistent with those of Hutton et al. (2003) in the sense that attributions have no effect for positive earnings guidance. However, we additionally show that providing external attributions leads to more negative investors' reactions than providing internal attributions for negative guidance. Our results identify an important boundary condition to the results in Baginski et al. (2004): the effect of attribution locus is more likely to occur for negative guidance than for positive guidance. Furthermore, we identify perceived management credibility as the mechanism through which attribution locus has an effect on investors' judgments, and we find little support for the verifiability explanation.

Second, we contribute to the attribution literature, both in accounting and psychology, by showing that different dimensions of attributions interact in shaping investor judgments. We offer the first piece of evidence on the joint effect of these distinct attribution dimensions (here, attribution locus and outcome controllability) on investors' judgments. Our results imply that investors do not react only to the attribution locus, but that for the same internal attribution, their reactions differ depending on whether the attribution is controllable by management. Further, while prior studies show that outcome controllability can influence decision makers' evaluations (Bol & Smith, 2011; Tan & Lipe, 1997), we contribute to this literature by showing that the effect of outcome controllability is conditional on attribution locus. These findings are informative to managers who wish to understand the potential effects of their disclosure choices.

In the next section, we develop our first set of hypotheses and describe the design and results of Experiment One. We then develop our second set of hypotheses and describe the design and results of Experiment Two. We conclude the paper in the final section.

Experiment one: Joint effect of attribution locus and guidance news valence

Literature review and hypothesis development

Management voluntarily discloses certain information, such as revenue and cash flow guidance and explanations, along with its earnings guidance. Such additional disclosures have incremental effects on investors' reactions to management guidance (Baginski et al., 2000; Baginski et al., 2004; Cao, Wasley, & Wu, 2007; Han & Wild, 1991; Hirst, Koonce, & Venkataraman, 2007; Hutton et al., 2003). Attributions accompanying management guidance are classified as soft-talk (or cheap-talk) disclosures in the sense that those explanatory discussions are difficult to verify both *ex ante* and *ex post* (Hutton et al., 2003).

Some studies examine investors' (or market) reactions to the supplementary disclosures accompanying management guidance. Hutton et al. (2003) find that negative guidance is credible with or without soft-talk disclosures, while positive guidance is credible only when accompanied by verifiable forward-looking statements. Thus, their results suggest that soft-talk disclosures that are hard to verify do not enhance credibility for either positive or negative guidance. Qualitative attributions constitute one kind of soft-talk disclosures in their study. Baginski et al. (2004) classify the accompanying attributions with management guidance into external and internal attributions and find that the stock market reacts more strongly to the unexpected earnings in guidance, especially when an external attribution is provided with management guidance. They argue that this effect occurs because external attributions are more verifiable than internal attributions, which increases the precision and credibility of the unexpected earnings

signal. Baginski et al. (2004) include ranked unexpected earnings as a control variable in their regression models, and report that attributions magnify market reactions to both positive and negative news. They do not investigate the effect of attribution locus within each type of guidance news (positive versus negative). Thus, prior literature documents the main effect of either news valence (positive/negative; Hutton et al., 2003) or attribution locus (internal/external; Baginski et al., 2004) separately, but not the possible interaction effect between the two factors.

Some studies separately examine the effect of attribution locus on investors' reactions to *past* performance of the company, especially when the performance is poor. Elliott et al. (2012) find that when an earnings restatement (i.e., negative news) is announced using an online video (versus via text), investors' negative/positive reactions to the CEO's denial/acceptance of responsibility by making an external/internal attribution for restatements are magnified. Interestingly, contrary to findings in psychology (Carlston & Shovar, 1983; Forsyth et al., 1981) and organizational behavior (Lee, Peterson, & Tiedens, 2004; Lee & Tiedens, 2001), their findings indicate that the effect of attribution locus is insignificant in a text mode ($p = 0.56$ and 0.65 for the trust factor and investment recommendations, see Tables 2 and 3, Elliott et al., 2012), perhaps because the severity of an earnings restatement overwhelms any effect of attribution locus. Like Baginski et al. (2004), Elliott et al. (2012) do not examine whether the effect of attribution locus is contingent on news valence. Barton and Mercer (2005) focus on the plausibility of explanations for poor company performance, and find that compared with the no-attribution control group, a plausible/improbable external attribution for poor performance reported in the annual report leads to lower/higher analysts' perceived persistence of poor performance and higher/lower earnings forecasts. Barton and Mercer (2005) examine a main effect of attribution plausibility in a setting of external attributions provided with negative

earnings performance. However, they do not compare internal versus external attributions in either a negative or a positive earnings news setting.

In this paper, we examine whether the effect of internal/external attributions on investors' judgments varies between positive and negative news in a management guidance context. In this setting, both guidance and its accompanying attributions are management' voluntary disclosures. Investors are likely to cast doubt on the credibility of the disclosure since managers have discretion over the provision and the type of guidance and attributions. Further, guided earnings are not realized yet and there is a greater degree of outcome uncertainty in the guidance setting (than the actual earnings announcement setting or the earnings restatement setting). Hence, attributions accompanying management guidance are particularly important because they directly inform investors on the likelihood that the guidance on future earnings can be met (Koonce, Seybert, & Smith, 2011).²

Baginski et al. (2000) find that managers have a proclivity to issue self-serving attributions in that external/internal attributions tend to accompany negative/positive news relating to management guidance. Psychology research suggests that managers do so to protect their self-esteem or manage investors' impressions (Bradley, 1978; Zuckerman, 1979). Presumably, such attribution patterns can reduce/magnify investors' negative/positive reactions to the negative/positive guidance. However, there is no empirical evidence on whether investors' reactions are indeed differentially impacted by the various types of attributions accompanying negative/positive guidance.

Consider a case where managers provide external (as opposed to internal) attributions with negative guidance. From the managers' perspective, their presumed intention is to mitigate

² In contrast, the attributions accompanying actual earnings announcement inform investors about causes for past performance but not necessarily that of future performance.

investors' adverse reaction to the negative guidance by shifting the responsibility to an external factor. However, this assumes that investors accept their attributions at face value. Several factors suggest otherwise, and that a reaction counter to managers' presumed intended reaction likely occurs. Prior psychology studies find that people make inferences about the self-serving nature in others' behavior, and evaluate others who make self-serving attributions less favorably in terms of their credibility than those who make non-self-serving attributions (Carlston & Shovar, 1983; Forsyth et al., 1981; Pronin, Gilovich, & Ross, 2004). Given the presence of an attribution accompanying guidance, investors' reactions to the attribution accompanying negative guidance are conditional on their prior expectations about management's attributing patterns (i.e., managers' choice of the type of attributions provided) (Clor-Proell, 2009; Hirst et al., 1995; Hodge et al., 2006). Prior accounting research indicates that investors are aware of the self-serving incentives of managers' disclosures (Lang & Lundholm, 2000; Skinner, 1994; Williams, 1996) and accounting choices (Clor-Proell, 2009; Hodge et al., 2006), as well as those of investment banking analysts (Hirst et al., 1995). Hence, to the extent that investors are cognizant of managers' incentives to blame external factors for negative guidance, they likely perceive managers to be less credible when managers provide external attributions than internal attributions for negative guidance.

Overall, we expect that when external (as opposed to internal) attributions are provided with negative management guidance, managers will be viewed as less credible, which in turn induces investors to believe that these managers are more likely to intentionally misguide the market. This leads investors to react negatively to the attributions, and to perceive that the associated future earnings are worse than disclosed since management has acted strategically in attributing the causes. The opposite is predicted when an internal attribution accompanies negative guidance:

managers are viewed as more credible, the perceived likelihood that managers are intentionally misguiding the market is lower, and earnings are less likely to be worse than disclosed. This suggests that investors' earnings estimates will be lower in response to external attributions than internal attributions accompanying negative guidance.

H1a. For negative management guidance, investors' earnings estimates are lower when an external attribution is provided than when an internal attribution is provided.

The effect of attribution locus in the positive guidance context is less clear. On the one hand, following the arguments above, for positive guidance, investors may perceive managers to be less credible and earnings to be worse than expected when they provide an internal attribution (because it is self-serving and consistent with managers' incentives); in contrast, they may perceive managers to be more credible and earnings to be better than expected when an external attribution is provided.

On the other hand, attributions may not matter for positive management guidance. Accounting studies document that positive management guidance is discounted because investors understand management's incentives to issue positive earnings news to enhance stock prices (Lang & Lundholm, 2000; Skinner, 1994; Williams, 1996).³ In terms of attributions, psychology research finds that a good and expected outcome is less likely to instigate attributional search than a bad and unexpected outcome (Wong & Weiner, 1981). If positive guidance is discounted to begin with and attributional search is less likely to be made in such instances, the accompanying attributions are less likely to matter, whether they are internal or external.⁴

³ Investors react to positive management guidance only when there is some assurance of its credibility (Hutton et al., 2003) or when they are motivated to do so (Han & Tan, 2010).

⁴ Hutton et al. (2003) propose that investors tend to search for more verifiable information when management guidance is less credible. However, attributions are "soft-talk" disclosures that are not easily verifiable, and therefore investors may not attend to them even for less-credible positive guidance.

Overall, this discussion suggests that unlike a negative guidance context, the effects of attributions in a positive guidance context may be weak. We formally state our hypothesis as below.

H1b. The effect of attribution locus on investors' earnings estimates will be weaker for positive guidance than for negative guidance.

Panel A of Figure 1 depicts the predicted pattern of Hypothesis 1.

Insert Figure 1 here

Design

Experiment One has a 2×2+2 between-subjects design, with the two independent variables being attribution locus (internal versus external) and guidance news valence (positive versus negative). We also include two control conditions, in which no attribution is provided with the (positive or negative) guidance. We hold constant the background information about the company and the magnitude of guidance news across conditions. One feature of the experimental design is that we tell participants the earnings guidance is caused by both the company's marketing strategy (an internal factor) and the company's main competitor's marketing strategy (an external factor), and vary the extent to which the guidance news is attributable to the internal or external factor. By using such a duopoly scenario, we ensure that participants in the internal and external attribution conditions receive the same amount of information (i.e., both the company's and the competitor's marketing strategy) and the only difference is the locus of the attribution.⁵ Our main dependent variables are investors' quarterly and annual earnings estimates,

⁵ This design choice may bias against any findings for the attribution effect since the presence of both the company's and the competitor's marketing strategy in an attribution may reduce the salience of each individual factor. An alternative design would have been to provide a single attribution to participants, for example, foreign exchange fluctuation (cost cuttings) for the external (internal) conditions, such that participants view a different factor in the

which reflect investors' forecasts of earnings for relatively shorter and longer horizons, respectively.

Participants

We recruited 119 Master of Finance students in a major Hong Kong university as proxies for non-professional investors (Elliott, Hodge, Kennedy, & Pronk, 2007; Han & Tan, 2010). Their mean work experience was 5.60 years, and 91.34 percent had invested in the stock market. On average, they had taken 2.06 (5.60) accounting (finance) courses.

Procedure

Participants first read the background and financial information about a company called Theta Inc. (Theta) in the semiconductor industry. The information contained the description of the company's business and a five-year financial summary and quarterly financial data up to the second quarter of the current year. Moreover, participants received analysts' consensus forecast for the company's earnings per share, which were \$0.20 for the third quarter and \$0.80 for the full year.

After reviewing the background information, participants then proceeded to open Envelope A. Envelope A contained a management guidance press release issued by Theta. We held constant the magnitude of the management guidance news as 3 cents higher or lower than the analysts' consensus forecast. In the "Positive/Negative News" condition, participants read a disclosure stating that the company expects earnings per share for the third quarter to be approximately \$0.23/\$0.17. In both the "Internal Attribution" and the "External Attribution" conditions, the explanation given made reference to both the company's and the main competitor's marketing strategies. In the "Internal Attribution" and "Positive/Negative News"

external versus internal condition. In that case, it would be difficult to conclude whether the results are caused by the persistence, globality, or any inherent differences in the two factors.

conditions, the company stated that “(t)his is largely attributable to our new marketing strategy, although a poorly/well-received marketing drive of our main competitor played a minor role.” In contrast, in the “External Attribution” and “Positive/Negative News” conditions, the company stated that “(t)his is largely attributable to a poorly/well-received marketing drive of our main competitor, although our new marketing strategy played a minor role.” For the no attribution conditions, no explanation was provided with the management guidance, and these conditions served as control groups.

After reading the management guidance, participants were asked to provide their earnings and investment-related judgments. In addition, they also provided assessments about their willingness to rely on future earnings guidance provided by Theta, management competence, and management trustworthiness on 11-point scales (with 0 indicating extremely low and 10 indicating extremely high), as well as the likelihood that the manager was intentionally misguiding the market on an 11-point scale (with -5 indicating extremely unlikely and 5 indicating extremely likely). After that, participants were asked to answer some demographic questions. Participants then proceeded to open Envelope B, which included manipulation check questions and a within-subjects test.

Manipulation checks

As a check on news valence manipulation, we asked the participants whether Theta’s management guidance was below, equal to, or above the analysts’ consensus forecasts. In the negative (positive) guidance condition, 66.7 (79.0) percent of participants correctly indicate that Theta’s management guidance was below (above) the analysts’ consensus forecasts. A chi-square test of independence confirms that manipulation check failures are not associated with the

guidance news manipulation (Pearson $\chi^2 = 2.31$, $df = 1$, $p = 0.13$).⁶ To check our manipulation of attribution locus, we asked the participants to assess whether the explanation provided by management is caused by conditions internal or external to the company (on an 11-point scale with -5 indicating internal factor; 0 indicating neutral; and 5 indicating external factor). The results suggest that our internal attributions are indeed perceived as more internal (mean = -1.08) than our external attributions (mean = 2.78; $F = 60.61$, one-tailed $p < 0.01$). Ratings do not vary by news valence or the interaction term ($F = 0.11$ and 1.09 ; $p = 0.75$ and 0.30 ; respectively). Results are unaffected by including or excluding those participants who failed the manipulation test for guidance news. Therefore, in the following sessions, we report the results based on all participants.

Results

Tests of hypotheses

Hypotheses 1a and 1b predict that investors' earnings estimates are lower for the external attribution condition than for the internal attribution condition when guidance news is negative, and that the effect of attributions locus is weaker when guidance news is positive. H1a and H1b jointly suggest a significant interaction effect between news valence and attribution locus.

ANOVA results for third-quarter earnings estimates shown in Panel B, Table 1 indicate a significant main effect of news valence ($F = 81.58$, $p < 0.01$), an insignificant main effect of attribution ($F = 2.04$, $p = 0.16$), and a significant two-way interaction effect ($F = 7.40$, one-tailed equivalent $p = 0.01$).⁷ Additional tests indicate that for negative guidance, consistent with H1a,

⁶ All reported p-values are two-tailed unless otherwise stated.

⁷ We also conduct planned contrast tests to test H1a and H1b. The assigned contrast coefficients are -1 (for negative news and internal attribution condition), -3 (for negative news and external attribution condition), 2 (for positive news and internal attribution condition) and 2 (for positive news and external attribution condition). These contrast weights include a main effect of guidance news valence and also a specific interaction pattern of attribution locus and news valence as predicted in H1a and H1b. Results are significant for investors' Q3 earnings estimates ($F =$

the mean estimates for the external attribution condition (0.172) are lower than those for the internal attribution condition (0.189) ($F = 8.39$, one-tailed $p = 0.01$; Table 1, Panel C). In addition, consistent with H1b, the simple main effect of attribution is insignificant for positive guidance ($F = 0.86$, $p = 0.36$; Table 1, Panel C).⁸ Results are similar when we use the full-year earnings estimates as the dependent variable (see Panels D and E, Table 1).⁹

In addition, when guidance is negative, the mean earnings estimates for the external attribution condition are marginally lower than those for the no attribution condition (mean = 0.181, one-tailed $p = 0.07$). The mean estimates for the internal attribution condition are marginally higher than those for the no attribution condition (one-tailed $p = 0.09$). In contrast, when the guidance is positive, the mean earnings estimates in the no attribution control condition (mean = 0.212) are not significantly different from those in the internal attribution condition ($p = 0.20$) or those in the external attribution condition ($p = 0.74$).^{10,11}

88.83, $p < 0.01$) and for full-year earnings estimates ($F = 7.92$, $p < 0.01$). We test the alternative weights (1/-3/1/1) and the contrast is also significant ($F = 55.99/5.52$, $p < 0.01$ for Q3/full-year earnings estimates).

⁸ Investors' third-quarter earnings estimates are positively associated with investors' stock price appreciation evaluations (one-tailed $p < 0.01$). However, we find no such association with P/E ratio evaluations (smallest $p = 0.17$), consistent with findings in prior studies (e.g., Han & Tan, 2010). One reason is that the association between earnings estimates and P/E ratio is ambiguous, in that a high P/E ratio can be associated with either positive or negative firm performance.

⁹ Four participants provided estimates that are literally identical for the third-quarter and full-year estimates (\$0.20 for both estimates in the case of one participant, and \$0.23/\$0.20, \$0.19/\$0.25, and \$0.18/\$0.30 for third-quarter/full-year estimates in the other three cases). We surmise that they likely misinterpreted the full-year earnings question (since the first-quarter and second-quarter earnings were \$0.21 and \$0.18, and the lowest prior full-year earnings were \$0.52) and dropped these four observations from our analysis of full-year earnings estimates.

¹⁰ We also conduct a within-subjects test in which we presented participants with three scenarios where management provides either no, internal, or external attributions. The within-subjects results replicate our main results for negative guidance in that providing internal attributions leads to more positive reactions than providing external attributions. Interestingly, we find similar results for positive guidance in the within-subjects test, even though our between-subjects results indicate no effect of attribution locus. The discrepancy between the within-subject test and between-subjects test findings may be due to participants' conscious awareness of different attribution locus in a within-subjects setting but not so in a between-subjects setting (e.g., Libby, Bloomfield, & Nelson, 2002).

¹¹ At the end of Experiment One, the participants were asked to indicate, for the positive (negative) news release, the number of companies, in general, out of 100 listed companies, whose management would take credit (take responsibility) for the news. Results indicate that investors believe that 76.48% (23.52%) of managers will (will not) take credit for positive guidance ($t = 14.66$, one-tailed $p < 0.01$), while they believe that 33.29% (66.71%) of

Insert Table 1 here

Test of mechanisms

We conduct additional analysis to test the underlying mechanism that news valence and attribution locus affect investors' judgments. As we explained in our hypothesis development, we expect that the effect of news valence and attribution locus is through the impact on management credibility, which is measured by participants' assessments of management trustworthiness.¹² Consistent with our argument in developing the hypotheses, for negative guidance, managers providing internal attributions are perceived to be more credible (mean = 5.40) than those providing external attributions (mean = 4.47; $t = 1.90$, one-tailed $p = 0.03$). In contrast, for positive guidance, there is no significant effect of attribution locus on management credibility (mean = 5.19/5.60 for external/internal attribution, $t = 0.86$, $p = 0.39$).

We use structural equations modeling to test the overall model. The conventional χ^2 test ($\chi^2 = 20.78$, $df = 15$, $p = 0.14$) and a root mean square error of approximation (RMSEA) of 0.07 (MacCallum, Browne, & Sugawara, 1996) confirm the model's goodness of fit. As shown in Figure 2, for negative guidance, an internal attribution has a significantly positive impact on perceived management credibility (coefficient = 0.46, one-tailed $p = 0.03$). For positive guidance, the effect of locus on management credibility is insignificant (coefficient = 0.21, $p = 0.38$). Perceived management credibility is positively associated with a reverse-coded measure of perceived misguiding of the guidance (coefficient = 0.86, one-tailed $p < 0.01$), which in turn has a positive effect on investors' full-year earnings estimates (coefficient = 0.01, one-tailed $p =$

managers will (will not) take responsibility for negative guidance ($t = -7.98$, one-tailed $p < 0.01$). These results suggest that investors take into account managers' self-serving tendency to some extent.

¹² The joint effect of attribution locus and news valence on management competence is less clear. Consistent with prior research (e.g., Carlston & Shovar, 1983), we find that perceived management competence is affected by news valence ($p = 0.01$) but not attribution locus (main and interaction effects are insignificant; $p = 0.15$ and 0.89 respectively).

0.01).¹³ Management credibility is also positively associated with participants' willingness to rely on future guidance provided by the management (coefficient = 0.22, one-tailed $p = 0.03$).

Insert Figure 2 here

Additional analyses

In the post-experimental questionnaire of Experiment One, in addition to the question about perceived attribution locus, participants were asked to rate management's attributions on other dimensions; including whether they are: 1) caused by conditions under the control of the management; 2) verifiable; 3) stable over time; and 4) applied to every company in the industry. Participants' perceived attribution locus is significantly positively correlated with perceived controllability (Pearson correlation coefficient = 0.32, $p < 0.01$) but not correlated with perceived verifiability ($p = 0.89$), stability ($p = 0.31$), or globality ($p = 0.10$). None of these ratings varies among conditions (smallest $p = 0.20$), with the exception that internal attributions are viewed as more controllable (mean = 0.49) than external attributions (mean = -1.43; $F = 11.31$, $p < 0.01$).¹⁴

Baginski et al. (2004) posit that because external attributions are more verifiable than internal attributions, only external attributions are informative to the market. However, verifiability cannot explain our findings. First, perceived verifiability is not influenced by the manipulation or the perception of attribution locus. When we add perceived verifiability as a covariate to our main analysis, it is insignificant ($F = 0.78$, $p = 0.38$). Second, if the verifiability mechanism had worked, in the positive news condition, investors should have provided higher earnings estimates in the external condition than in the internal attribution conditions since the

¹³ When we replace full-year earnings estimates with quarterly earnings estimates, the coefficient is 0.001 and marginally significant (one-tailed $p = 0.08$).

¹⁴ The main effect of news valence and interaction effect are all insignificant for perceived controllability ($p = 0.38$ and 0.36 respectively).

former is more verifiable. In other words, we would not find an interaction effect of guidance news and locus of attribution.

In the absence of additional information about other attribution dimensions, we find that internal attributions are viewed as more controllable than external attributions. We perform analyses to rule out controllability as a confounding effect. We conduct ANCOVA for quarterly earnings estimates with attribution locus and guidance news as independent variables and perceived controllability as a covariate. We find that the relationship between perceived controllability and earnings estimates is insignificant ($p = 0.81$), while the locus and guidance news interaction remains significant ($p = 0.02$) as in our main analysis. In addition, we median-split perceived controllability into two groups and use this dummy variable to replace attribution locus as an independent variable in a two-way ANOVA to test its impact on earnings estimates. We find that the main effect of news valence is significant ($F = 80.96, p < 0.01$), while neither the main effect of controllability nor the two-way interaction effect is insignificant ($F = 0.00$ and $2.33, p = 0.98$ and 0.13 , respectively). When guidance news is positive, the effect of controllability is insignificant ($F = 1.17, p = 0.29$). When guidance is negative, the effect of controllability is also insignificant ($F = 1.16, p = 0.29$). This provides some assurance that perceived controllability cannot fully explain our results in Experiment One.

Experiment two: Joint effect of attribution locus and outcome controllability

In Experiment One, we focused on a single dimension of attribution (i.e., attribution locus), and examined the interaction effect of attribution locus and the valence of guidance news. However, psychology research indicates that attributions have multi-dimensional

characteristics,¹⁵ of which outcome controllability is one important dimension (Antle & Demski, 1988; Crant, 2000; Feltham & Xie, 1994; Holmstrom, 1979). Further, as our additional analysis in Experiment One shows, participants perceive that management has greater controllability for an internal attribution. This is consistent with research in psychology which documents that without additional information about controllability, decision makers make inferences about other dimensions based on a single dimension of attribution (Bettman & Weitz, 1983). As we discuss below, outcome controllability and locus are conceptually different constructs and have different effects on investors' judgments. From a practical perspective, it is also important to distinguish the two constructs. For instance, if management discloses only the locus dimension in their attributions, participants may make inferences about the controllability aspect as well, and these inferences may not be consistent with what managers intend to communicate. In fact, as we discuss below, investors' judgments in response to attribution locus differ depending on the absence or presence of outcome controllability. We examine this issue in Experiment Two, where we manipulate locus and outcome controllability of attributions to examine how these two different dimensions of attributions interact to influence investors' judgments.

Our focus in Experiment Two is on the controllability dimension, or more specifically, *outcome controllability*. Outcome controllability refers to the degree to which the person or the organization has control over the outcome of particular actions or events (Tan & Lipe, 1997). The cause of an expected earnings change can be internal or external to the company, but its outcome may be controllable or uncontrollable. As an example, if the cause for an anticipated

¹⁵ For instance, Weiner (1979, 1985) classifies attribution along three dimensions: *attribution locus*, *stability* and *controllability*. Stability of an attribution relates to whether the cause persists over time. Controllability refers to the extent that the individual or organization holds the power to change or influence the outcome. Another dimension of attribution identified in the other studies is *globality*, which refers to whether the attribution itself is limited to particular situations or pervasive to many (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982).

earnings boost is the intended acquisition of a target company (classified as an internal attribution in Baginski et al., 2004), whether the acquisition is successful and provides synergies to the acquiring company depends to a certain extent on *uncontrollable* factors such as the target's reactions and regulators' approval. Similarly, a cause can be external to the company but its outcome is controllable if managers are able to identify and adapt to changes in the external cause. For example, a projected earnings drop can be due to an anticipated rising trend in interest rates, an external factor. However, management may be able to control the effect of such an external shock by engaging in interest rate swaps or by borrowing at fixed rates. Another example is an unfavorable change in market trends for a company's product, which is an external cause. Managers may be able to counteract this threat and control its effect by tailoring the existing product to new trends, adjusting production mix, or shifting to a new target market.¹⁶

Prior studies show that with respect to a *past* outcome, evaluators are more lenient in their evaluations of managers with regard to unfavorable outcomes when there is evidence that uncontrollable factors are at play (Tan & Lipe, 1997). Our focus here is on a future event where the outcome is yet to be finalized and managers can exert some influence. Of relevance are psychology studies that document a positive effect of outcome controllability on the perceived favorability of future prospects: when a target person has greater control over the solution of the problem and actively copes with the problem, people assign less blame, offer more help and

¹⁶ Anecdotal evidence suggests that firms provide discussions about outcome controllability together with their internal or external attributions. For example, Performance Food Group reiterated its negative earnings guidance for the third and fourth quarters of 2004 and attributed it to higher self-insurance costs (i.e., an external cause according to the classification scheme used in Baginski et al., 2004) but highlights that "(t)he higher insurance costs, we're working diligently in our claims area. We've gotten a new actuary to look at our costs and what's been in this self-insurance program, what we've got accrued to it, ... So, we do think we've got that under control, although it has impacted us this year, and increasing insurance costs continue to impact us. We will do everything we can to get that under control" (i.e., outcome controllable). As another example, Hertz Global Holdings Inc. attributes its lower guided earnings for 2016 in part to the absence of any price increase (i.e., an internal cause) and comments "... I think our view is we can't control pricing per se" (i.e., outcome uncontrollable).

support, and attribute a higher chance of improvement because they expect the target person to act to change the current negative consequence (Karasawa, 1991; Schwarzer & Weiner, 1991). This suggests that for negative guidance (that relates to a future event), investors likely believe that higher/lower outcome controllability implies a higher/lower likelihood of success of management in mitigating the negative factor, and therefore more/less favorable future earnings prospects.

Outcome controllability is also expected to influence management credibility. Managers may provide outcome controllable attributions to boost their credibility by signaling their ability to mitigate the negative earnings outcome. Alternatively, they may provide an outcome uncontrollable attribution to distance themselves from the negative earnings outcome, although this action can actually lower their credibility. Prior psychology studies suggest that people with high-status roles (such as managers) are expected by others to wield power and exercise control over critical resources (Lee et al., 2004; Lee & Robinson, 2000; Lee & Tiedens, 2001; Singh, 1994). Therefore, providing a controllable attribution is in line with outsiders' expectations and will be perceived as more credible. In contrast, when managers assert that they have lower controllability over earnings outcomes, investors will perceive them to be less credible since it violates their expectations. In sum, we expect that outcome controllable attributions will lead to higher earnings estimates by investors than outcome uncontrollable attributions because they are associated with favorable future earnings prospects and perceived to be more credible.

We predict that this effect of outcome controllability is contingent on whether the attribution is internal or external. We focus on negative guidance because, as explained in the previous section, the effect of attribution locus is likely more obvious for negative guidance than for positive guidance. As we posited earlier, for negative guidance, internal attributions are more

credible because it is not self-serving and counter to management's incentives to do so. To the extent that investors find the internal attribution for negative guidance credible, they will then assess whether managers can take control of the situation and take actions to mitigate the factor causing the negative earnings guidance. Hence, we predict that investors will forecast higher earnings when the attribution is internal and outcome controllable than when the attribution is internal and outcome uncontrollable. In contrast, investors likely associate an external attribution with less credibility because it is self-serving and in line with management's incentives. Accordingly, investors will more likely discount and react negatively to the external attribution, along with the accompanying disclosure about management's controllability with respect to the external attribution. Thus, outcome controllability is less likely to matter for an external attribution with negative guidance. In summary, we expect an ordinal interaction of outcome controllability and attribution locus such that outcome controllability has a positive effect on investors' earnings estimates, and this effect is stronger/weaker for internal/external attributions (see Panel A, Figure 3). We state our hypotheses as follows:

H2a. Given negative management guidance, investors' earnings estimates are higher when management discloses that the outcome of an internal attribution is controllable as opposed to uncontrollable.

H2b. Given negative management guidance, the positive effect of outcome controllability on investors' earnings estimates is likely to be weaker when the attribution is external than when it is internal.

Insert Figure 3 here

Design for experiment two

Experiment Two employs a 2×2 between-subjects design, with two independent variables being attribution locus (internal versus external) and attribution outcome controllability (outcome

controllable versus outcome uncontrollable). The management guidance news was negative in all conditions.

Participants for experiment two

In Experiment Two, we recruited 202 participants from Amazon's Mechanical Turk. This participant pool has been documented to be a suitable proxy for a non-professional investor pool (Farrell, Grenier, & Leiby, 2016; Koonce, Miller, & Winchel, 2015; Rennekamp, 2012; Rennekamp, Rugar, & Seybert, 2015). The use of these participants also allows us to generalize from Asian Masters students to a more general American pool. We required participants to be native English speakers who have an average approval rate of at least 95%. Each participant was paid US\$1 for his/her time and effort. On average, participants took 6.11 minutes to complete the task, implying an effective hourly wage of \$9.82 per hour. About 66.8% of participants were male and 59.9% of participants were between 18 and 30 years. Participants had an average of 11.25 years of working experience and had taken an average of 1.15/1.08 accounting/finance courses. Overall, 46% of the participants indicated that they have some investment experience.

Procedure for experiment two

The materials (including brief background information, earnings history, an earnings announcement for the company's first two quarters in the fiscal year, and consensus analyst forecasts) of Experiment Two were largely similar to those for Experiment One except for minor changes made in order to shorten the case.¹⁷ We use a negative management guidance news context in all conditions (i.e., as in Experiment One, guided earnings are \$0.17, which is 3 cents lower than the analysts' consensus EPS forecast of \$0.20). All participants first read that the company's earnings per share were estimated to be "below market expectations" for the coming

¹⁷ In Experiment Two, we made some revisions to the questions following the results in Experiment One. For example, we replaced the stock appreciation question with one on valuation, and used scales for earnings estimates.

quarter. Participants were randomly assigned to one of the four conditions. For the internal and outcome controllable/uncontrollable condition, the participants read the following statements: “(t)his is largely attributable to our new marketing strategy, although a well-received marketing drive by our main competitor played a minor role. Whether our marketing drive will succeed in the future is under/beyond our influence.” In contrast, in the external and outcome controllable/uncontrollable condition, the participants read the following statements: “(t)his is largely attributable to a well-received marketing drive by our main competitor, although our new marketing strategy played a minor role. Whether the future marketing drive by our competitor will succeed in the future is under/beyond our influence.”

Following the management’s statements, participants were asked to provide their perceived common stock valuation of the company using a 101-point scale with 0 indicating low and 100 indicating high (Koonce & Lipe, 2010; Rennekamp, 2012), along with their third-quarter and full year earnings estimates.¹⁸ We also asked participants to indicate their confidence in their earnings estimates, willingness to rely on the management’s future disclosure, the persistence of negative earnings, the extent that managers can take pro-active steps to improve future earnings, the competence and trustworthiness of Theta’s management in their financial disclosures, the likelihood that managers are intentionally misguiding the market, and the extent to which the management is optimistic or pessimistic about future earnings. Participants responded on 11-point scales with 0 indicating extremely low and 10 indicating extremely high. On the next page, participants were asked to answer some demographic questions. The last section of the

¹⁸ For the third-quarter earnings per share, the management guidance is \$0.17 and the consensus analyst forecast is \$0.20. The ending points for the third-quarter earnings estimates question we provide to participants are \$0.07 (10 cents lower than \$0.17) and \$0.30 (10 cents higher than \$0.20). For the full-year earnings per share, the consensus analyst forecast is \$0.80, and the ending points for the full-year earnings estimates question we provide to participants are \$0.40 (40 cents lower than \$0.80) and \$1.20 (40 cents higher than \$0.80). We also confirm that quarterly (annual) earnings in prior years fall within this range.

experiment contained manipulation check questions, which asked the participants to indicate the perceived locus, outcome controllability, plausibility, believability, and verifiability of the attribution provided in the management's disclosure, all using 11-point scales with -5 indicating totally internal/outcome uncontrollable/implausible/unbelievable/unverifiable and +5 indicating totally external/outcome controllable/plausible/believable/verifiable.

Manipulation checks for experiment two

Participants' ratings on the internal/external nature of the attribution are more internal in the internal attribution condition (mean = 0.66) than in the external attribution (mean = 2.07; $F = 15.31$, one-tailed $p < 0.01$). Participants in the outcome controllability condition perceive the outcome controllability to be higher (mean = 1.17) than those in the outcome uncontrollable condition (mean = -0.96; $F = 35.44$, one-tailed $p < 0.01$). In addition, we find that outcome controllability has no significant main effect on perceived attribution locus ($p = 0.65$) and its interaction effect with attribution locus is also insignificant ($p=0.28$). Similarly, attribution locus has no significant main effect on perceived outcome controllability of attributions ($p = 0.25$) and its interaction effect with outcome controllability is also insignificant ($p=0.28$). These results imply that participants perceive attribution locus and outcome controllability as distinct and independent constructs. Therefore, our manipulations of attribution locus and outcome controllability are successful.¹⁹

Results of experiment two

¹⁹ Barton and Mercer (2005) document a positive main effect of plausibility of explanations. Hence, one concern for our Experiment Two is that "internal and outcome controllable"/ "external and outcome uncontrollable" attribution may be perceived to be more plausible than "internal and outcome uncontrollable"/ "external and outcome controllable" attribution. To test this possibility, we asked participants to indicate the perceived plausibility of management's explanation. The alternative explanation above suggests an interaction effect between locus and controllability on perceived plausibility, which we fail to find ($p = 0.62$). We do find a significant main effect of controllability ($p < 0.01$), which is consistent with our argument that investors expect that managers do have control over the earnings outcome. The main effect of attribution locus is insignificant ($p = 0.20$). When we add perceived plausibility as a covariate to the contrast test, the coefficient for the covariate is insignificant ($p = 0.56$).

Tests of hypotheses

H2a states that with negative guidance, investors' earnings estimates are higher when management discloses that an internal attribution is outcome controllable as opposed to uncontrollable; H2b predicts that the effect of outcome controllability is weaker for external attributions. H2a and H2b jointly indicate an interaction and we conduct a contrast test with the weights +3 for the "internal and outcome controllable" condition," -1 for the "internal and outcome uncontrollable," "external and outcome controllable," and "external and outcome uncontrollable" conditions (Buckless & Ravenscroft, 1990). The observed effect of outcome controllability and locus on investors' third-quarter and full-year earnings estimates is consistent with our predictions (see Panels B and C, Figure 2). The descriptive statistics, ANOVA and contrast tests results for the third-quarter and full-year earnings estimates are presented in Table 2. For the third-quarter earnings estimates, although the pattern is consistent with our hypotheses, the results fail to reach a statistical significance at conventional levels under either ANOVAs or contrast tests (as shown in Panels B and C, Table 2).²⁰ For the full-year earnings estimates, the two-way interaction is not significant ($p = 0.30$) under ANOVA; however, the planned contrast is significant, which is consistent with our prediction (one-tailed $p = 0.03$, Panel E, Table 2). Consistent with H2a, attribution outcome controllability matters for an internal attribution. For an internal attribution, investors' full-year earnings estimates are higher for the outcome controllable attribution (mean = 0.780) than for the outcome uncontrollable attribution (mean = 0.739; $F = 3.48$, one-tailed $p = 0.03$). Consistent with H2b, the effect of outcome controllability is insignificant for an external attribution (mean = 0.754/0.745 for outcome

²⁰ When we exclude those participants whose highest degree is no higher than high school (usable $n = 137$, 68% of the full sample), results from the contrast tests are significant for third-quarter earnings estimates ($F = 2.66$, one-tailed $p = 0.05$) and full-year earnings estimates ($F = 7.81$, one-tailed $p < 0.01$). This suggests that more sophisticated investors are more sensitive to the effect of locus and outcome controllability on short-term earnings judgments than their less sophisticated peers.

controllable/uncontrollable conditions respectively; $F = 0.16, p = 0.69$).²¹ Additional simple effect tests show that the mean full-year earnings estimates in the internal and outcome uncontrollable condition (mean = 0.739) are not significantly different from those in the external and outcome controllable condition (mean = 0.754, $F = 0.50, p = 0.48$) or those in the external and outcome uncontrollable condition (mean = 0.745, $F = 0.09, p = 0.77$). In sum, our results suggest that a statement about an outcome being "beyond our influence" effectively unwinds any positive effect of including an internal attribution in a negative-news forward-looking disclosure.

Insert Table 2 here

Test of mechanisms

As we discussed in hypothesis development, we expect that the joint effect of locus and outcome controllability on earnings estimates operates via their impacts on perceived management credibility and the perceived favorability of future earnings prospects. We measure management credibility by taking the average of perceived management competence and trustworthiness (Cronbach's Alpha = 0.84).²² We measure the favorability of future earnings prospects by asking the participants to indicate the extent to which the management is optimistic or pessimistic about future earnings prospects. All these questions are measured on 11-point scales, with 0 indicating not at all incompetent/not at all trustworthy/extremely pessimistic and

²¹ We ask participants to indicate the likelihood that the managers can take pro-active steps to improve the firm's future earnings. We find that outcome controllability leads to higher likelihoods of pro-active behavior by the managers (one-tailed $p = 0.05$) and the main effect of locus and the interaction effect are all insignificant ($p = 0.35$ and 0.17 , respectively).

²² We include both management competence and trustworthiness as proxies for management credibility. When guidance is negative, higher/lower outcome controllability implies higher/lower managerial ability to change the current negative consequences (Karasawa, 1991), which can affect perceptions of management competence. In addition, a controllable attribution is in line with outsiders' expectations and will be perceived as more trustworthy (Lee & Tiedens, 2001).

11 indicating extremely competent/trustworthy/optimistic. Untabulated results suggest that there are marginally significant interaction effects of locus and outcome controllability on management credibility (one-tailed equivalent $p = 0.10$) and the favorability of future earnings prospects (one-tailed equivalent $p = 0.07$). We conduct contrast tests using the same weights as the main analysis (+3/-1/-1/-1 in the “internal and controllable”/ “internal and uncontrollable”/ “external and controllable”/ “external and uncontrollable” conditions), and the contrasts are significant for management credibility ($F = 3.69$, one-tailed $p = 0.03$) and for the favorability of earnings prospects ($F = 10.39$, one-tailed $p < 0.01$).

As shown in Figure 4, we rely on structural equation modelling to verify the mechanism through which attribution locus and outcome controllability jointly work on investors’ judgments and decisions. We expect that attribution locus and outcome controllability jointly influence perceived management credibility and favorability of earnings prospects, which in turn affect investors’ full-year earnings estimates and their common stock valuation judgments. The model’s goodness of fit is confirmed with a conventional χ^2 test ($\chi^2 = 28.16$, $df = 22$, $p = 0.17$) and RMSEA (=0.04). As indicated in links 1 and 2 of the model, when an attribution is internal, outcome controllability has a significantly positive effect on management credibility and favorability of future earnings prospects ($t = 3.51/3.34$, both $p < 0.01$). In contrast, when the attribution is external, the effect of outcome controllability is not significant ($t = 1.50/1.30$, $p = 0.13/0.20$). Both management credibility and favorability of future earnings prospects are positively associated with participants’ earnings estimates (link 3/4, $t = 2.22/3.22$, $p = 0.03/0.01$), which in turn positively affects their common stock valuation judgments (link 5: $t = 3.84$, $p <$

0.01). In addition, management credibility is also positively associated with participants' willingness to rely on future guidance (link 6: $t=10.35$, $p<0.01$).²³

Insert Figure 4 here

Conclusion

Attributions accompanying management guidance are important because they offer reasons as to why forecasted future performance can improve or deteriorate, and influence how investors assess the possibility of guided earnings realizations. In our first experiment, we examine the joint effects of attribution locus and guidance news valence on investors' earnings judgments. We find that for negative guidance, an external attribution leads to lower earnings estimates by investors compared to an internal attribution. We find no effect of attribution locus for positive guidance. Experiment One provides the first systematic demonstration of how the effect of attribution locus is conditional on the valence of guidance news. In Experiment Two, we extend the literature by separating out the effects of attribution outcome controllability from attribution locus, and show that the effect of outcome controllability is conditional on attribution locus. We show that for internal attributions, investors provide higher earnings estimates when it is outcome controllable than when it is outcome uncontrollable. The effect of outcome controllability is not evident when an external attribution is provided.

Our study provides useful information to managers about associated costs and benefits when they make disclosure choices. Attributing negative guidance to external factors ('self-serving'

²³ We do not include the likelihood that managers are intentionally misguiding the market in the model since, in Experiment Two, we held negative news constant so we do not expect intention to misguide to be a strong factor. As a robustness test, we calculate a reverse-coded measure of misguidance, which loads onto the same factor as perceived competence and trustworthiness (Cronbach's Alpha = 0.74). When we use the average of the three variables as a composite credibility measure, SEM results are similar.

attribution) may be counter-productive if management's intention when issuing external attributions is to pass the buck. Our results in Experiment One indicate that investors are actually more pessimistic about future earnings when an external rather than an internal attribution accompanies negative guidance. Our results in Experiment Two suggest that there are benefits to firms in terms of a positive impact on investors' earnings-related judgments when the firms provide information about outcome controllability, and this positive impact is stronger for an internal attribution. One implication of our experiments is that investors benefit from greater management transparency in terms of their explanations that accompany earnings guidance. As we show in Experiment Two, investors respond differently to the same internal attribution, conditional on whether the outcome is controllable. Thus, information on outcome controllability does help investors to differentially interpret the internal attribution. However, management likely has incentives not to do so. In Experiment One, we find that investors make inferences about outcome controllability when given only information about locus—specifically, they assume that internal locus is associated with greater outcome controllability. This is likely an inference that management wants investors to make—as we demonstrate in Experiment Two, an internal locus/outcome controllable condition leads to the highest investor earnings judgments. This also suggests that management may not disclose outcome controllability information particularly when it pertains to internal attribution settings and the outcome is uncontrollable—management likely prefers to merely disclose the attribution locus and leave out the details of the outcome uncontrollability aspect.

Our study provides the first demonstration that dimensions of attributions interact to produce effects different from consideration of each dimension alone. One limitation is that we do not examine how the dimensions we examine interact with other attribution dimensions such as

globality (i.e., whether the attribution affects other companies or the guiding company alone) and stability (the extent the attribution is stable across time). The attributions we provide are also less verifiable, and we do not vary the verifiability of these attributions. These are fruitful areas for future research. In addition, we choose one specific setting (i.e., management guidance) where attribution outcome controllability likely matters. Future research may investigate whether our conclusions generalize to other settings such as actual earnings announcements (Barton & Mercer, 2005; Tan & Lipe, 1997).

References

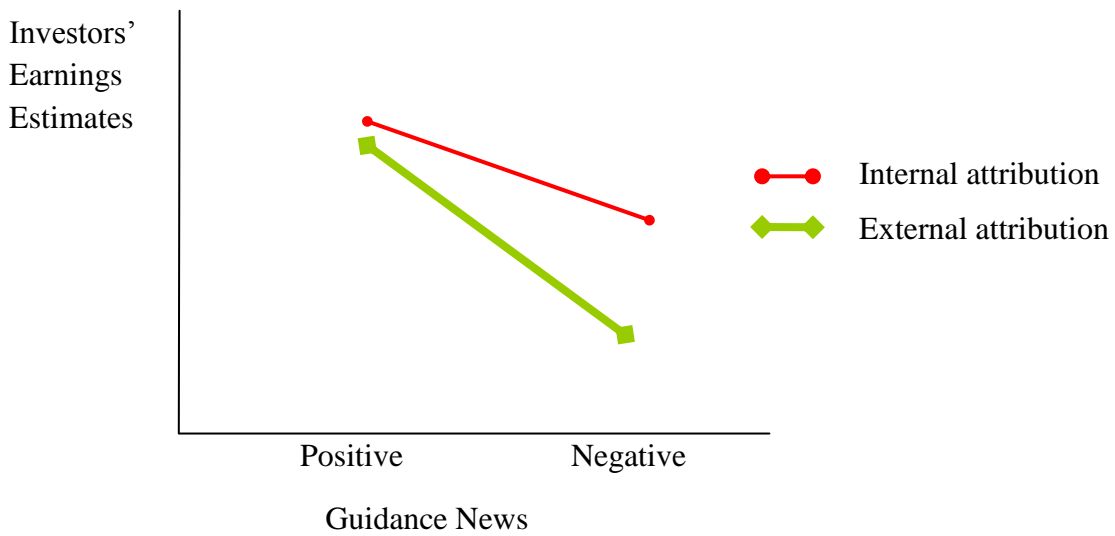
- Antle, R., & Demski, J. S. (1988). The controllability principle in responsibility accounting. *The Accounting Review*, 63(4), 700-718.
- Baginski, S. P., Hassell, J. M., & Hillison, W. A. (2000). Voluntary causal disclosures: Tendencies and capital market reaction. *Review of Quantitative Finance and Accounting*, 15, 371-389.
- Baginski, S. P., Hassell, J. M., & Kimbrough, M. D. (2004). Why do managers explain their earnings forecasts? *Journal of Accounting Research*, 42(1), 1-29.
- Barton, J., & Mercer, M. (2005). To blame or not to blame: Analysts' reactions to external explanations for poor financial performance. *Journal of Accounting and Economics*, 39, 509-533.
- Bettman, J. R., & Weitz, B. A. (1983). Attributions in the board room: causal reasoning in corporate annual reports. *Administrative Science Quarterly*, 28(2), 165-183.
- Bol, J., & Smith, S. (2011). Spillover effects in subjective performance evaluation: Bias and the asymmetric influence of controllability. *The Accounting Review*, 86(4), 1213-1230.
- Bradley, G. W. (1978). Self-serving biases in the attribution process: A reexamination of the fact or fiction questions. *Journal of Personality and Social Psychology*, 36(1), 56-71.
- Brickman, P., Rabinowitz, V. C., Karuza, J. Jr., Coates, D., Cohn, E., & Kidder, L. (1982). Models of helping and coping. *American Psychologist*, 37(4), 368-384.
- Buckless, F. A., & Ravenscroft, S. P. (1990). Contrast coding: A refinement of ANOVA in behavioral analysis. *The Accounting Review*, 65(4), 933-945.
- Cao, Y., Wasley, C. E., & Wu, J. S. (2007). Soft-talk management cash flow forecasts: Verifiability, credibility and stock price effects. *Working Paper*. University of Rochester.
- Carlston, D. E., & Shovar, N. (1983). Effects of performance attributions on others' perceptions of the attributor. *Journal of Personality and Social Psychology*, 44(3), 515-525.
- Clor-Proell, S. M. (2009). The effects of expected and actual accounting choices on judgments and decisions. *The Accounting Review*, 84(5), 1465-1493.
- Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management*, 26 (3), 435-462.

- Elliott, W. B., Hodge, F. D., & Sedor, L. M. (2012). Using online video to announce a restatement: Influences on investment decisions and the mediating role of trust. *The Accounting Review*, 87(2), 513-535.
- Elliott, B., Hodge, F., Kennedy, J., & Pronk, M. (2007). Are M.B.A. students a good proxy for non-professional investors? *The Accounting Review*, 82(1), 139–168.
- Farrell, J. & Rabin, M. (1996) Cheap talk. *Journal of Economic Perspectives*, 10(3), 103-118.
- Farrell, A. M., Grenier, J. H., & Leiby, J. (2016). Scoundrels or stars? Theory and evidence on the quality of workers in online labor markets. *The Accounting Review*, forthcoming.
- Feltham, G. A., & Xie, J. (1994). Performance measure congruity and diversity in multi-task principle/agent relations. *The Accounting Review*, 69(3), 429-453.
- Financial Accounting Standards Board (FASB). (2001). *Improving Business Reporting: Insights into Enhancing Voluntary Disclosure Steering Committee Report*. Business Reporting Research Project.
- Forsyth, D. R., Berger, R. E., & Mitchell, T. (1981). The effects of self-serving vs. other-serving claims of responsibility on attraction and attribution in groups. *Social Psychology Quarterly*, 44(1), 59-64.
- Han, J. C. Y., & Wild, J. J. (1991). Stock price behavior associated with managers' earnings and revenue forecasts. *Journal of Accounting Research*, 29(1), 79-95.
- Han, J., & Tan, H. T. (2010). Investors' reactions to management earnings guidance: The joint effect of investment position, news valence, and guidance form. *Journal of Accounting Research*, 48(1), 81-104.
- Hirst, D. E., Koonce, L., & Simko, P. J. (1995). Investor reactions to financial analysts' research reports. *Journal of Accounting Research*, 33(2), 335-351.
- Hirst, D. E., Koonce, L., & Venkataraman, S. (2007). How disaggregation enhances the credibility of management earnings forecasts. *Journal of Accounting Research*, 45(4), 811-837.
- Hodge, F., Hopkins, P. E., & Pratt, J. (2006). Management reporting incentives and classification credibility: The effects of reporting discretion and reputation. *Accounting, Organizations and Society*, 31, 623-634.
- Holmstrom, B. (1979). Moral hazard and observability. *The Bell Journal of Economics*, 10 (1), 74-91.

- Hutton, A. P., Miller, G. S., & Skinner, D. J. (2003). The role of supplementary statements with management earnings forecasts. *Journal of Accounting Research*, *41*(5), 867-890.
- Karasawa, K. (1991). The effects of onset and outcome controllability on affects and helping judgments. *Journal of Applied Social Psychology*, *21*(6), 482-499.
- Koonce, L., & Lipe, M. (2010). Earnings trend and performance relative to benchmarks: how consistency influences their joint use. *Journal of Accounting Research*, *48*(4), 859-884.
- Koonce, L., Miller, J., & Winchel, J. (2015). The effect of norms on investor reactions to derivative use. *Contemporary Accounting Research*, *32* (4), 1529-1554.
- Koonce, L., Seybert, N., & Smith, J. (2011). Causal reasoning in financial reporting and voluntary disclosure. *Accounting, Organizations and Society*, *36*(4-5), 209-225.
- Lang, M. H., & Lundholm, R. J. (2000). Voluntary disclosure and equity offerings: Reducing information asymmetry or hyping the stock? *Contemporary Accounting Research*, *17*, 623-662.
- Lee, F., Peterson, C., & Tiedens, L. Z. (2004). Mea culpa: Predicting stock prices from organizational attributions. *Personality and Social Psychology Bulletin*, *30*(12), 1636-1649.
- Lee, F., & Robinson, R. (2000). An attributional analysis of social accounts: Implications of playing the blame game. *Journal of Applied Social Psychology*, *30*(9), 1853-1879.
- Lee, F., & Tiedens, L. Z. (2001). Who's being served? Self-serving attributions and their implications for power. *Organizational Behavior and Human Decision Processes*, *84*(2), 254-287.
- Libby, R., Bloomfield, R., & Nelson, M. (2002). Experimental research in financial accounting. *Accounting, Organizations and Society*, *27*, 775-812.
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Method*, *1*, 130-149.
- Peterson, C., Semmel, A., von Baeyer, C., Abramson, L. Y., Metalsky, G. I., & Seligman, M. E. P. (1982). The attributional style questionnaire. *Cognitive Therapy and Research*, *6*(3), 287-299.
- Pronin, E., Gilovich, T., & Ross, L. (2004). Objectivity in the eye of the beholder: Divergent perceptions of bias in self versus others. *Psychological Review*, *111* (3), 781-799.
- Rennekamp, K. (2012). Processing fluency and investors' reactions to disclosure readability. *Journal of Accounting Research*, *50*(5), 1319-1354.

- Rennekamp, K., Rugar, K., & Seybert, N. (2015). Impaired judgment: The effects of asset impairment reversibility and cognitive dissonance on future investment. *The Accounting Review*, 90(2), 739-759.
- Schwarzer, R., & Weiner, B. (1991). Stigma controllability and coping as predictors of emotions and social support. *Journal of Social and Personal Relationships*, 8, 133-140.
- Singh, P. (1994). Perceptions and reactions to inequality as a function of social comparison referents and hierarchical levels. *Journal of Applied Social Psychology*, 24, 557-65.
- Skinner, D. J. (1994). Why firms voluntarily disclose bad news. *Journal of Accounting Research*, 32(1), 38-60.
- Staw, B. M., Mckechnie, P. I., & Puffer, S. M. (1983). The justification of organizational performance. *Administrative Science Quarterly*, 28, 582-600.
- Tan, H. T., & Lipe, M. G. (1997). Outcome effects: The impact of decision process and outcome controllability. *Journal of Behavioral Decision Making*, 10, 315-325.
- Weiner, B. (1979). A theory of motivation for some classroom experiences. *Journal of Educational Psychology*, 71(1), 3-25.
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review*, 92(4), 548-573.
- Williams, P. A. (1996). The relation between a prior earnings forecast by management and analyst response to a current management forecast. *The Accounting Review*, 71(1), 103-115.
- Wong, P. T. P., & Weiner, B. (1981). When people ask "why" questions, and the heuristics of attributional search. *Journal of Personality and Social Psychology*, 40 (4), 650-663.
- Zuckerman, M. (1979). Attribution of success and failure revisited, or: The motivational bias is alive and well in attribution theory. *Journal of Personality and Social Psychology*, 47(2), 245-287.

Panel A: Predicted effects (H1)



Panel B: Observed effects on third-quarter and full-year earnings estimates

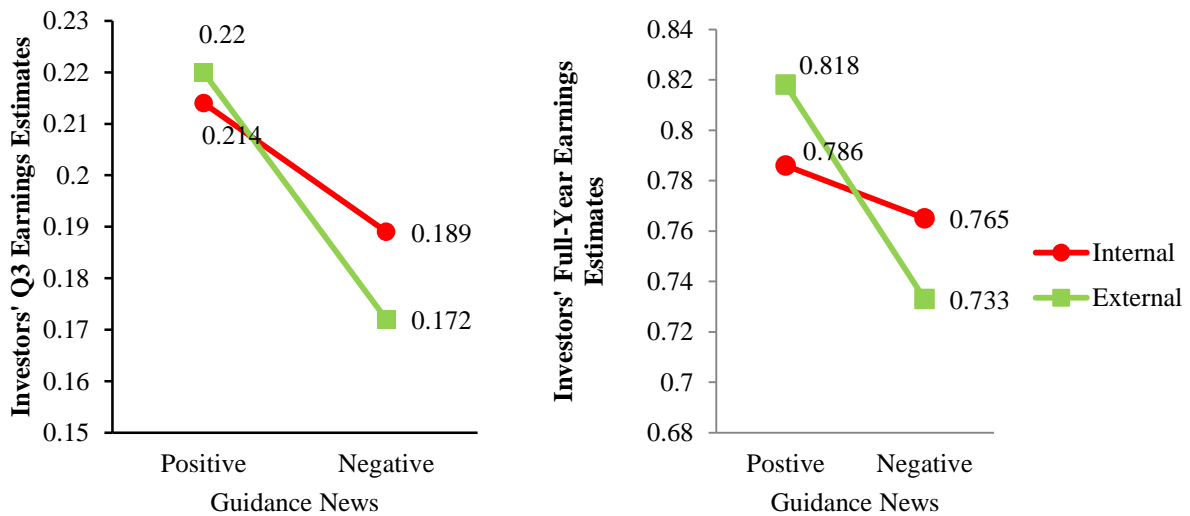


Fig.1. The joint effect of guidance news and attribution locus on investors' earnings estimates. *Notes:* Panel A depicts the predicted pattern of the interaction of guidance news and attribution locus on investors' earnings estimates. Panel B depicts the observed pattern for participants' third-quarter and full-year earnings estimates.

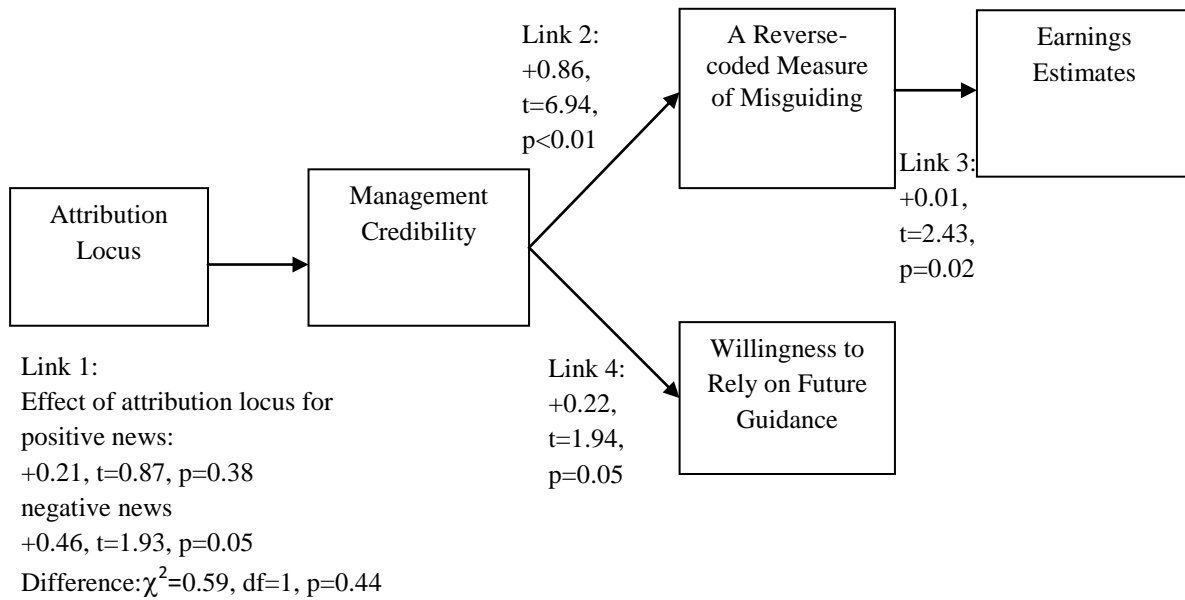
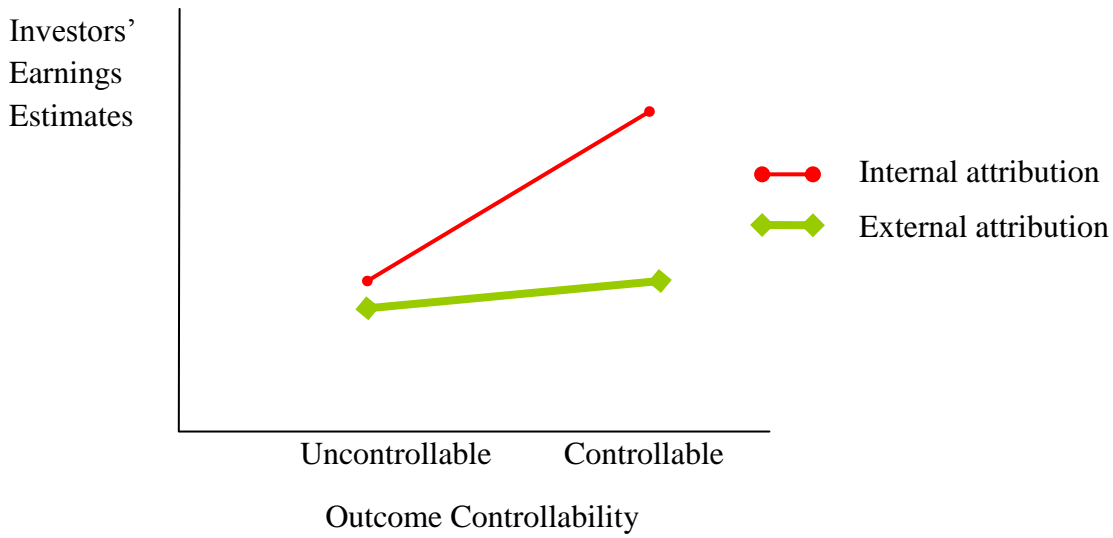


Fig.2. Structural equation modelling for Experiment One. *Notes:* The model shows that attribution locus interacts with guidance news in influencing management credibility, which influences their assessments of guidance (measured by a reverse-coded measure of perceived likelihood of misguiding). A reversed-coded measure of perceived likelihood of misguiding in turn influences investors' earnings estimates. The Chi-square value is 20.78 (df = 15, p = 0.14) and RMSEA value is 0.07 (below the cutoff of 0.08), which confirm the model's goodness of fit.

Panel A: Predicted effects (H2)



Panel B: Observed effects on third-quarter and full-year earnings estimates

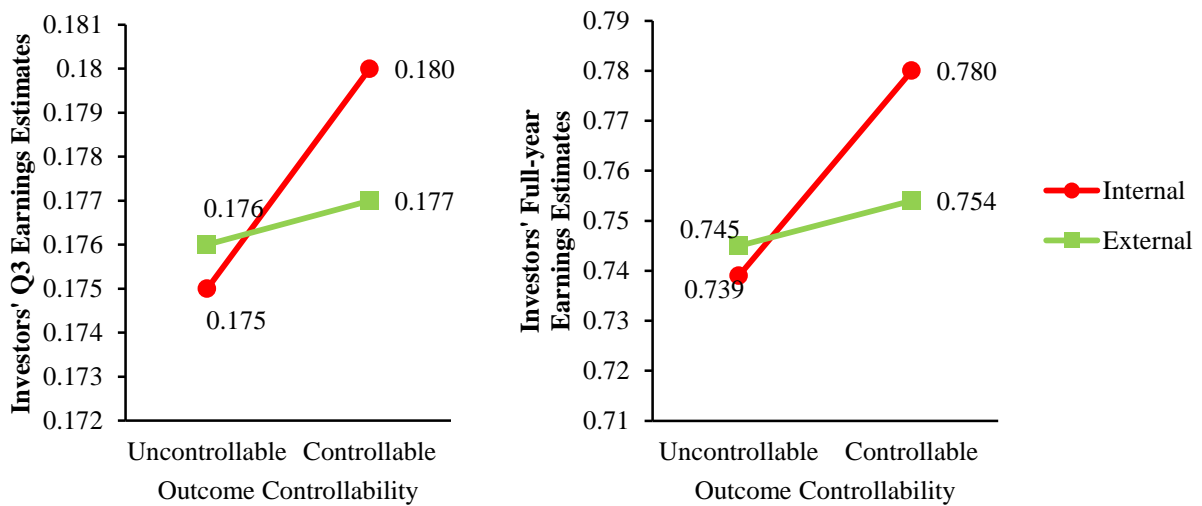


Fig.3. The joint effect of locus and outcome controllability on investors' earnings estimates. *Notes:* Panel A depicts the predicted pattern of the interaction of locus and outcome controllability on investors' earnings estimates. Panel B depicts the observed pattern for participants' third-quarter and full-year earnings estimates. We use the contrast weights +3 in the internal and outcome controllable condition, and -1 in internal and outcome uncontrollable, external and outcome controllable, and external and outcome uncontrollable conditions to test Hypothesis 2 (see Table 2).

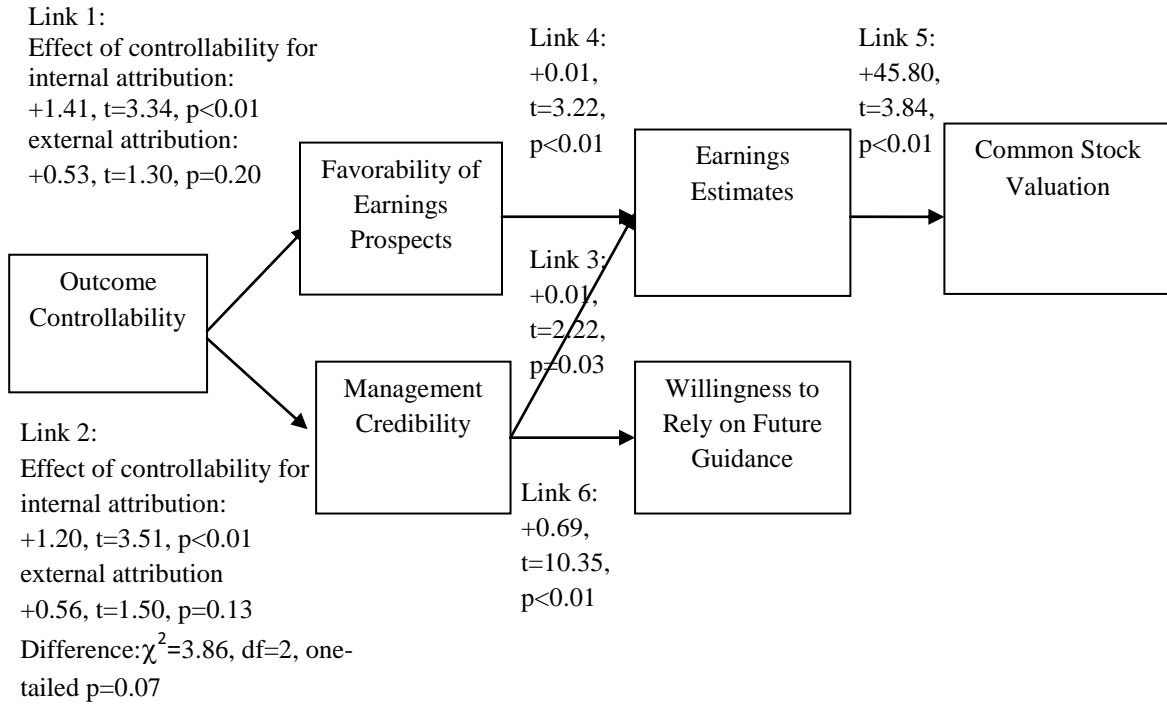


Fig. 4. Structural equation modelling for Experiment Two. *Notes:* The model shows that both management credibility and favorability of earnings prospects explain the earnings results. The Chi-square value is 28.16 (df = 22, p = 0.17) and RMSEA value is 0.04 (below the cutoff of 0.08), which confirm the model's goodness of fit.

Table 1

Experiment one: Joint effects of news valence and attribution locus on investors' earnings estimates.

Panel A: Mean earnings estimates (standard deviation) ^a				
News Valence		Attribution Locus		
		Internal	External	Control (No)
Positive (Guidance=\$0.23)	Q3eps	0.214 (0.019)	0.220 (0.017)	0.212 (0.017)
	FYeps	0.786 (0.109) N=20	0.818 (0.092) N=21	0.804 (0.021) N=21
Negative (Guidance=\$0.17)	Q3eps	0.189 (0.023)	0.172 (0.012)	0.181 (0.017)
	FYeps	0.765 (0.078) N=20	0.733 (0.062) N=19	0.743 (0.079) N=18

Panel B: Third-quarter earnings estimates: ANOVA results ^b				
Source	Mean Square	df	F	Sig.
News Valence	0.03	1	81.58	<0.01
Attribution Locus	0.00	1	2.04	0.16
News Valence × Attribution Locus	0.00	1	7.40	0.01 ^c
Error	0.00	76		

Panel C: Third-quarter earnings estimates: Contrasts				
Source	Mean Square	df	F	Sig.
Contrast: Effect of locus for <i>negative</i> guidance	0.00	1	8.39	0.01 ^c
Contrast: Effect of locus for <i>positive</i> guidance	0.00	1	0.86	0.36

Panel D: Full-year earnings estimates: ANOVA results				
Source	Mean Square	df	F	Sig.
News Valence	0.05	1	7.04	0.01
Attribution Locus	0.00	1	0.00	0.99
News Valence × Attribution Locus	0.02	1	2.47	0.06 ^c
Error	0.01	72		

Panel E: Full-year earnings estimates: Contrasts				
Source	Mean Square	df	F	Sig.
Contrast: Effect of locus for <i>negative</i> guidance	0.01	1	1.80	0.09 ^c
Contrast: Effect of locus for <i>positive</i> guidance	0.01	1	0.97	0.33

^a Experiment One examines the joint effects of attribution locus and guidance news valence on investors' reactions to the management guidance. We conduct a 2×2+2 between-subjects experiment. The first manipulated factor is the news valence of the management guidance, whether it is \$0.23 for the positive condition or \$0.17 for the negative condition (the consensus analysts' forecast is held constant as \$0.20 in both conditions). The second manipulated factor is the attribution locus, whether it is internal or external attribution accompanying the management guidance.

^b The ANOVA results reported do not include the two control conditions where no attribution is provided. We re-perform the ANOVA by including the two control conditions in the independent variable (i.e., a 3×2 design), and the results are qualitatively the same.

^c indicates that the p-value is one-tailed.

Table 2

Experiment two: Joint effects of attribution locus and outcome controllability on investors' earnings estimates.

Panel A: Mean earnings estimates (standard deviation) ^a					
Attribution Locus		Attribution Outcome Controllability			
			Controllable	Uncontrollable	
Internal	Q3eps		0.180 (0.027)	0.175 (0.029)	
	FYeps		0.780 (0.111)	0.739 (0.118)	
			N=47	N=61	
	Q3eps		0.177 (0.026)	0.176 (0.035)	
External	FYeps		0.754 (0.110)	0.745 (0.106)	
			N=49	N=45	
	Q3eps		0.177 (0.026)	0.176 (0.035)	
	FYeps		0.754 (0.110)	0.745 (0.106)	
Panel B: Third-quarter earnings estimates: ANOVA results					
Source		Mean Square	df	F	Sig.
Attribution Locus		0.00	1	0.05	0.83
Outcome Controllability		0.00	1	0.55	0.46
Locus × Outcome Controllability		0.00	1	0.32	0.57
Error		0.00	198		
Panel C: Third-quarter earnings estimates: Contrasts					
Source		Mean Square	df	F	Sig.
Contrast [Hypothesis 2]		0.00	1	0.75	0.39
Residual		0.00	2	0.09	0.92
Error		0.00	198		
Contrast: Effect of controllability for <i>internal</i> attribution		0.00	1	1.00	0.32
Contrast: Effect of controllability for <i>external</i> attribution		0.00	1	0.01	0.91
Panel D: Full-year earnings estimates: ANOVA results					
Source		Mean Square	df	F	Sig.
Attribution Locus		0.01	1	0.38	0.54
Outcome Controllability		0.03	1	2.55	0.11
Locus × Outcome Controllability		0.01	1	1.07	0.30
Error		0.01	198		
Panel E: Full-year earnings estimates: Contrasts					
Source		Mean Square	df	F	Sig.
Contrast [Hypothesis 2]		0.04	1	3.38	0.03 ^b
Residual		0.00	2	0.31	0.73
Error		0.01	198		
Contrast: Effect of controllability for <i>internal</i> attribution		0.05	1	3.48	0.03 ^b
Contrast: Effect of controllability for <i>external</i> attribution		0.00	1	0.16	0.69

^a Experiment Two examines the interaction effect of attribution locus and outcome controllability on investors' reactions to negative management guidance. We conduct a 2×2 between-subjects experiment. We hold constant the guidance news (\$0.17) as negative, compared with the analysts' consensus forecast (\$0.20). The first manipulated variable is the attribution locus, whether it is internal or external to the company. The second manipulated factor is the outcome controllability of attribution, whether the predicted earnings outcome is controllable or uncontrollable by the management.

^b indicates that the p-value is one-tailed.