



Does a Disaggregated Earnings Forecast Enable Detection of Management's Manipulation of Real Activities?

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ABSTRACT:

This study proposes that disaggregated earnings forecasts would potentially help investors to detect managers' manipulation of real activities. A disaggregated forecast allows an item-by-item comparison of actual earnings against the forecasted numbers. It thus enables investors to identify changes in individual cost items that have contributed to the discrepancy between the forecasted and reported earnings. This study posits that the changes in cost items that are perceived to be controllable by management would lead investors to make inferences about management's dispositions. Conversely, the changes that are perceived to be uncontrollable by management would unlikely be attributed to management. Based on attribution theory, the study hypothesizes that when a disaggregated earnings forecast is available, investors' reactions to a reported earnings surprise would be a joint function of the earnings surprise and investors' perception of management's discretion over the cost item responsible for the earnings surprise. In specific, when firms beat the forecasted earnings, investors are expected to react less positively if the performance is accompanied by a reduction in discretionary expenses than if it is accompanied by a reduction in nondiscretionary expenses. In contrast, when firms miss forecasted earnings, investors are predicted to react less negatively if the performance is accompanied by an increase in discretionary expenses than if it is accompanied by an increase in nondiscretionary expenses. This study further proposes an experimental design to test this hypothesis. This study contributes the current literature by setting the stage for future studies to test disaggregated forecasts as a mechanism to detect management's manipulation of real activities.

Keywords: investor reaction; forecast disaggregation; earnings surprise; profit manipulation; earnings management

1. Introduction

Management earnings forecasts are important for firms to provide management's ex ante knowledge of the company's expected financial performance for the period (King, Pownall, & Waymire, 1990; Baginski, Conrad, & Hassell, 1993; Skinner, 1994; Kasznik & Lev, 1995; Baginski, Hassell, & Kimbrough, 2004). Hirst et al. (2008) call upon investigation on forecast characteristics as it constitutes the least understood component of earnings forecasts. This study focuses on disaggregated earnings forecasts, a characteristic of forecasts that has received limited attention in the accounting literature (Hirst, Koonce, & Venkataraman, 2007; Elliott, Hobson, & Jackson, 2011; Clor-Proell, Hirst, Koonce, & Seybert, 2019; Dong, Lui, & Wong-On-Wing, 2017).

A disaggregated forecast includes a forecast for every line item on the income statement, including sales, cost of sales (COS), research and development (R&D) expenses, and selling, general, and administrative expenses (SG&A), in contrast to an aggregated forecast that only includes the bottom-line net income figure. As such, a disaggregated forecast allows an item-by-item comparison of the actual results against the forecasted numbers. This can significantly improve investors'

ability to interpret different economic and behavioral implications of changes in line items of earnings. Sun (2021) suggests that R&D and SG&A play distinct roles in earnings management and stock price manipulation, consistent with investors viewing R&D as more discretionary. Consequently, for any income statement line item that deviates from management's disaggregated forecast, investors can assess management's level of control or discretion over that change. For example, investors are likely to perceive that the differences between the actual and the forecasted R&D expenses are more controllable by management than the differences between the actual and the forecasted COS.

In addition, this study focuses on the role of disaggregated earnings forecasts in detection of real earnings management. There is evidence that management's manipulation of real operation activities to meet or exceed earnings targets has increased in practice, with serious consequences and has surpassed accrual manipulation in use and has become increasingly prevalent (e.g. Roychowdhury, 2006; Seybert, 2010). Graham et al. (2005) provides via interviews that managers prefer real earnings management activities compared to accrual-based earnings management. Although real earnings

management represents a complex phenomenon (McVay, 2006), prior research (e.g. Roychowdhury 2006; Gunny 2005) has primarily focused on the existence, extent, and consequences of this undesirable institutional phenomenon. The current literature has not yet documented a possible mechanism to help investors detect management's manipulation of real activities and possibly deter this undesirable practice. Importantly, compared to other tactics of earnings management, manipulations of real business decisions are more difficult for the market to discover and are less likely to be deferred or corrected (Libby and Seybert 2009). Future studies should investigate whether a

disaggregated earnings prediction might improve investors' capacity to identify genuine activities management through its manipulation of R&D expenditure in order to close this gap.

Based on attribution theory (Jones & Davis, 1965; Kelley, 1973; Koonce, Seybert, & Smith, 2011), this study theorizes and predicts that when a disaggregated forecast is available, earnings surprise valence and line items that deviate from management's disaggregated forecast will jointly affect investors' inferences about management's disposition, which will, in turn, affect investment judgments (see Figure 1).

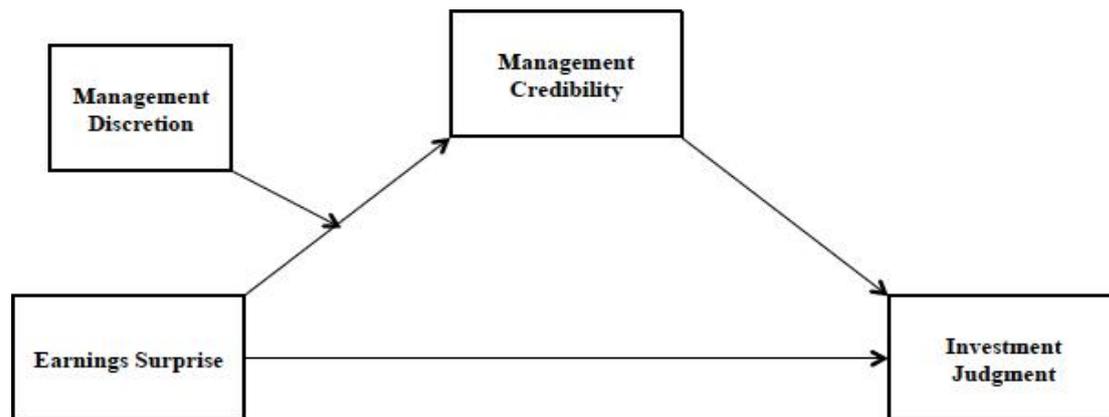


Figure 1: Theoretical Model (Model 2 of Preacher et al. 2007)

To the extent that investors' ability to learn management's role in announcement earnings is enhanced, this study could shed light on two important issues. First, this study suggests that investors can identify companies with a short-run (myopic) orientation by using a disaggregated profits prediction. Examples of such companies include those that manipulate discretionary expenses to meet or exceed earnings projections. In a setting under which reported income exceeds the earnings forecast, this study hypothesizes that investors who observe a reduction in a more discretionary expense (e.g., R&D expense) will react less positively than those who observe the identical reduction in a less discretionary expense item (e.g., COS). Under such a condition, management would presumably be perceived as manipulating real activities (i.e., reducing R&D) to achieve a higher earnings number (Dechow & Sloan, 1991; Baber Fairfield, & Haggard, 1991).

Ample accounting research has examined earnings management or profit manipulation (Healy, 1985; Jones, 1991; McNichols & Wilson, 1988; Dechow & Dichev, 2002; Macintosh, 1995; Burgstahler & Dichev, 1997; Lambert & Sponem, 2005; McVay, 2006; Gunny, 2010; Puyou, 2014). Compared with other tactics that managers employ to influence earnings, real earnings management activities appear to take advantage of the discretionary nature of certain line items on the income statement (Roychowdhury, 2006; Seybert, 2010; Cohen & Zarowin, 2010). Indeed, there is evidence that management's manipulation of real operation activities

to meet or exceed an earnings target has surpassed accrual manipulation in use and has become increasingly prevalent. Prior research has primarily focused on the existence, extent, and consequences of this undesirable institutional phenomenon. Importantly, compared to other methods of earnings management, manipulations of real business decisions are more difficult for the market to discover and are less likely to be detected or corrected (Libby & Seybert, 2009). To my knowledge, research has not yet explored a possible mechanism to help investors detect management's manipulation of real activities and to possibly deter this undesirable practice. This study allows for an investigation of whether and how a disaggregated earnings forecast can enhance the ability of less sophisticated investors to detect companies' real activities management.

Second, this study further proposes that disaggregated earnings forecasts can also help investors identify firms that operate with long-term orientation, such as those which increase investment in discretionary expenses (e.g., R&D) even at the cost of missing the forecasted bottom be a solution rather than a problem. With a transparent display of management's estimates of line items at the beginning of the period, disaggregated earnings forecasts can enhance the understandability and usefulness of the earnings components in subsequently announced income statements and reduce earnings fixation.

This study adds to the body of existing material in a number of ways. First, this analysis contributes to the

small number of studies that examine disaggregated earnings forecasts in the present literature. Although in recent years, the number of disaggregated earnings forecasts provided by management has increased (Lansford, Lev, & Tucker, 2010; Chen, Doogar, Li, & Sougiannis, 2008), our understanding about the associated benefits and costs is still limited due to the dearth of studies on this topic (Hirst et al., 2007; Elliott et al., 2011; Dong et al., 2017). Elliott et al. (2011) document that disaggregated management forecasts provide a mechanism to reduce investors' susceptibility to earnings fixation by directing investors' attention to the favorability of the line items. This study is not aware of any published research that has addressed whether and how disaggregated earnings forecast could potentially facilitate investors' attention to the level of management discretion associated with line items of announced earnings. This study argues that a disaggregated earnings forecast can help less sophisticated investors discern between the different levels of discretion associated with cost items and further improve their ability to understand management's operational behaviors. As a result, their investment decisions could reflect a joint function of the level of discretion that management has over the items and the realized income.

Second, this study extends the existing literature on voluntary disclosure transparency. Prior research has primarily explored levels of transparency in mandatory reporting formats (Hopkins, 1996; Hirst & Hopkins, 1998; Maines & McDaniel, 2000). This study provides a way to provide evidence of the potential benefits associated with the transparency of management's voluntary disaggregation of its earnings forecast. This study suggests that nonprofessional investors may not merely react to reported income. With the aid of a disaggregated earnings forecast, they might be capable of detecting operation by management.

Third, this study adds to the ongoing discussion on real earnings management activities. Although earnings management through manipulation of real activities is undesirable and is associated with earnings decline in subsequent periods (Cohen & Zarowin, 2010), prior empirical research has primarily examined the existence, extent, and consequences of this dysfunctional institutional phenomenon (e.g. Roychowdhury, 2006; Gunny, 2010). This research proposes a mechanism through which investors can possibly uncover such undesirable and hard-to-detect activities.

2. Background And Hypothesis Development

2.1 Disaggregated earnings guidance

Earnings guidance has become one of the key communication channels between managers and investors, with thousands of management earnings forecasts released every year (Anilowski, Feng, & Skinner, 2007). In the accounting literature, numerous studies have focused on earnings forecasts (e.g., King, Pownall, & Waymire, 1990; Baginski, Conrad, &

Hassell, 1993; Skinner, 1994; Kasznik & Lev, 1995; Baginski, Hassell, & Kimbrough, 2004). Among this large body of literature, forecast characteristics have drawn significant attention from researchers. However, the disaggregated nature of earnings forecast has not been examined as closely even though in recent years, more than half of all management forecasts are disaggregated (Chen et al., 2008).

In one of the few studies that examine the effect of forecast disaggregation on investor judgments, Hirst et al. (2007) experimentally test whether and how a disaggregated earnings forecast can affect the credibility, or believability of management earnings forecasts that, in turn, influences investors' judgments on PE multiple. Their study is one of the first to highlight the relevance and potential significant impact that a disaggregated earnings forecast can have on investors' judgments and decision making. Hirst et al. (2007) call for more studies in accounting to investigate the effect of disaggregated earnings forecasts.

Equally relevant to the current study, Elliott et al. (2011) find that participants who initially observe a disaggregated forecast provide investment judgments that are more (less) favorable when the net income components are more (less) favorable. On the other hand, investors who initially see an aggregated prediction but receive the same amount of information are insensitive to the favorable income components disclosed in the declared income statement. Their research indicates that investors' interpretation of the summary net income figure as one of multiple similarly relevant evaluation inputs rather than a significantly more important input is linked to the decrease in profits fixation in the disaggregated scenario. The current study similarly posits that disaggregating earnings guidance can potentially make salient the discretionary nature of cost items that differ between forecast and actual earnings. This can significantly improve investors' ability to interpret different economic implications of changes in line items of earnings among firms with an identical bottom-line income figure.

Unlike earlier research (Hirst & Hopkins, 1998; Maines & McDaniel, 2000) on the transparency of mandatory financial disclosures, the above two studies (Hirst et al., 2007; Elliott et al., 2011) indicate that a disaggregated forecast can increase transparency of non-mandatory disclosures. Recent work further demonstrates that economically meaningful disaggregation and segment granularity increase disclosure usefulness (Brüggen, Grabner, & Sedatole, 2021; Song, 2021). By examining how a disaggregated earnings projection can help investors find variance items between the forecast and the actual outcome and further infer management's influence in earnings outcomes, this study adds to this body of literature.

2.2 Disaggregation and cost controllability

This study relies on attribution theory (Jones & Davis, 1965; Kelley, 1973) to develop predictions about how investors will react to earnings surprises in situations where disaggregated forecasts are available. In general,

attribution theory posits that an observer (e.g., investor) can infer dispositions (e.g., credibility) of an actor (e.g., management of a company) based on the behavior of the latter. The inferred disposition of the actor will then influence the observer's subsequent judgments (e.g., investment).

According to attribution theory, a critical determinant of the inference made about an actor's disposition is the degree of choice that the actor is perceived to have in engaging in the observed behavior. If the actor is perceived to have no choice in the observed behavior, the observer is unlikely to attribute it to a disposition of the actor. Conversely, if the actor is perceived to have discretion over the behavior, the observer is more likely to attribute it to a disposition of the actor.

In the current context, a disaggregated forecast allows an item-by-item comparison of actual results against the forecasted numbers. Thus, for any income statement line item that deviates from management's disaggregated forecast, investors can assess management's level of control or discretion over that change. For example, as noted earlier, investors are likely to perceive that differences between actual and forecasted R&D expenses are more controllable by management than differences between actual and forecasted COS.

Based on the foregoing, this study first proposes that a disaggregated forecast will enable investors to assess the degree of discretion that management has over the change in expense items that seemingly caused any earnings surprise. Consistent with attribution theory, it is posited that when management is perceived to have more control over the change in expense items, investors will be more likely to attribute the change to management's dispositions than when management is perceived to have less control. Moreover, this study further posits that when management is perceived to have more control, the inferred disposition will depend on the direction of both the change in expenses and the earnings surprise. Therefore, the impact of perceived management discretion over the expense items on investors' responses to both positive and negative earnings surprises is examined separately in this study.

2.3 Positive Earnings Surprise

According to this study, investors who see a drop in non-discretionary costs like COS are more likely to credit the favorable outcomes to management's trustworthiness than those who see a decline in discretionary costs like R&D in the event of a positive earnings surprise. This is consistent with the discounting principle (Kelley 1973), which states that when making attributions about an individual, the role of a given cause in producing a given effect is "discounted" if other plausible reasons or causes are also present. In the present context, because management has clear incentives to report a positive earnings surprise, this study proposes that the perceived role of management credibility in achieving the positive surprise will be diminished when it is accompanied by a decrease in discretionary expenses relative to when

the surprise is associated with a reduction in non-discretionary expenses. Therefore, when reported income exceeds management forecast, investors' decisions will be less positive when the earnings surprise is associated with a decrease in discretionary expenses than when it is accompanied by a decrease in non-discretionary expense items. Accordingly, the first hypothesis is stated as follows:

H1: When reported income exceeds management forecast, investors will react less positively to companies that also report a reduction in discretionary expenses than to companies that also report a reduction in nondiscretionary expenses.

2.4 Negative Earnings Surprise

In a similar vein, this study suggests that in the event of a negative earnings surprise, investors who see a spike in non-discretionary expenses like COS are less likely to attribute the results to management's credibility than those who see an increase in discretionary expenses like R&D. This is consistent with the augmentation principle (Kelley 1973), which states that when making attributions about an individual, people will "augment" the role of a dispositional factor if the individual performs an action when there are obvious reasons not to perform it. In the present context, this study proposes that investors are more likely to infer higher management credibility when they observe a negative surprise accompanied by an increase in discretionary expenses than when the surprise is associated with an increase in non-discretionary expenses. Chu, He, Hui, & Lehavy (2024) find that when managers voluntarily disclose innovation-related information (e.g., in product announcements), investors react more positively and future performance improves. Therefore, when the reported income misses management's forecast, investors' decisions will be less negative when the earnings surprise is associated with an increase in discretionary expenses than when it is accompanied by an increase in non-discretionary expense items. Accordingly, the second hypothesis is stated as follows:

H2: When reported income falls short of management forecast, investors will react less negatively to companies that also report an increase in discretionary expenses than to companies that also report an increase in nondiscretionary expenses.

2.5 Moderated Mediation

The aforementioned theories are predicated on the idea that investors' opinion of management credibility serves as the fundamental mechanism for their response to unexpected earnings reports. Prior accounting research shows that management reputation/credibility is consequential and associated with investors' equity judgments (Mercer, 2005; Cianci & Kaplan, 2010). This study examines whether investors' perceptions of management credibility mediate the combined impact of profits performance and discretion over the cost item

on investors' decisions in order to give evidence to support the validity of the premise.

Consistent with attribution theory, this study posits that investors are more likely to make judgments about management credibility when management is perceived to have control over the expense item (e.g., R&D) that contributed to the reported performance. Conversely, inferences about management credibility would be unclear and less likely if management is not believed to have discretion over the expense item (e.g., COS). In this latter case, management credibility would be less likely to play a mediating role. Thus, this study predicts a mediation effect of management credibility, which is moderated by perceived management discretion over the change in expenses as explained below.

According to Preacher, Rucker and Hayes (2007, 193), "moderated mediation occurs when the strength of an indirect effect depends on the level of some variable, or in other words, when mediation relations are contingent on the level of a moderator." This study predicts that the degree of management discretion over the change in expense item between forecast and actual (the moderator) will moderate the indirect effect of earnings surprise (the independent variable) on investor reaction (the dependent variable) through perceived management credibility (a mediator).

The predicted moderated mediation model is shown in Figure 1. It is expected that when management is perceived to have discretion over the expense items, investors will make inferences about management credibility and those inferences will influence investors' reactions to the earnings surprise. In such a case, the mediating effect of management credibility is expected. In contrast, when management is perceived to have little or no discretion over the expense items, investors are less likely to make inferences about management credibility. In this case, no significant mediating effect of management credibility is expected. Thus, the third hypothesis is stated as follows:

H3: Management credibility will mediate the effect of earnings surprises on investor reactions when management is perceived to have control over the expense items, but not when management has no discretion over the expense items.

3. PROPOSED RESEARCH METHOD

This study suggests a 2 (earnings surprise) × 2 (management discretion) between-subjects design to test the hypotheses. Participants are instructed to pretend to be investors assessing a company's common stock. They are given information about a fictitious company and its industry in the first section of the content. The information also included key annual financial statistics and ratios of the company for the past three years. Then, participants read its historical income statements for the past three years. The financial statements can be partially adapted from Elliott et al. (2011). Participants examine the company's earnings forecast for the upcoming fiscal

period after going over the background data. The earnings forecast is provided in a disaggregated form including each line-item component in income statement as well as the bottom-line figure, net income. Participants are asked to submit their preliminary assessments based on the background data, previous financial statements, and the profits projection in the second section after reading the management forecast. Their preliminary assessments of investment interest and the company's appeal as a possible investment comprise the initial evaluations. Differences in the experimental circumstances were not anticipated because the pre-assessments are based on the same data. Before the experiment begins, participants are requested to submit demographic data after completing the initial assessments. In line with earlier research (e.g. Mercer, 2005, Elliott et al., 2011), this is meant to replicate the natural temporal lag between earnings estimates and the ultimate release of profits.

In the final section, participants observe an earnings announcement in the form of a full income statement. Participants should be randomly assigned to receive an income statement reflecting one of the four combinations of the two manipulated variables. Lastly, participants once more express their interest in investing in the company after reviewing its earnings statement. Additionally, participants respond to several other questions related to mediating factors, and variable manipulations.

4. DISCUSSION

The current study examines potential benefits of the increased transparency afforded by disaggregated earnings forecasts. According to this study, investors may pay attention to the degree of discretion management has over any items that appear to have contributed to the earnings surprise. In particular, investors would react to earnings surprises differently depending on the level of discretion that management is perceived to have over the expense item responsible for the variance between the announced earnings and the forecast. In particular, investors may perceive a good profits surprise combined with a decrease in discretionary costs like R&D as earnings management. This is inferred if investors discount management credibility in achieving the positive result when the decrease is attributable to discretionary expenses compared to nondiscretionary expenses. To put it another way, a positive earnings surprise that seems to be the consequence of a reduction in discretionary spending might not be seen as positively as one that is linked to a reduction in nondiscretionary expenses.

Conversely, when companies miss their earnings forecast, investors may view them less unfavorably when the negative surprise appears to be the result of an increase in discretionary expenses than nondiscretionary expenses. This is inferred by investors augmenting of the role of management credibility despite the negative result when the increase is attributable to discretionary expenses compared to nondiscretionary expenses. Thus, a negative earnings

surprise that appears to be the result of an increase in discretionary expenses may not be viewed as unfavorably as a negative surprise that is associated with an increase in nondiscretionary expenses.

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