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Are all management earnings forecasts created equal? Expectations management versus communication

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Abstract

Recent studies associate management earnings forecasts (MEFs) with expectations management. These studies, however, neither provide evidence on the extent and scope of expectations management through MEFs nor consider alternative incentives for issuing MEFs. Consequently, existing evidence does not help regulators assess whether MEFs effectively facilitate communication with investors. We investigate to what extent managers exploit their earnings forecasts as a tool of expectations management or as a communication device. By examining relations among MEFs, analysts' forecasts, and actual earnings, we classify MEFs into three incentive categories: (1) expectations management, (2) communication, and (3) other incentives. We find that a significant proportion (approximately 45 percent) of MEFs is issued to convey accurate earnings information to the market (that is, communication incentive). We also find that the fraction of MEFs for the expectations-management incentive increases post-Regulation Fair Disclosure. The evidence from examination of the various managerial motives for each incentive category supports our classification. Additional analysis using alternative classifications based on bad/good news and pessimistic/optimistic forecasts reveals that our proposed classification of MEFs works better in defining expectations management than these other classifications. This implies that more caution is warranted in defining expectations management when investigating the association between managerial motives and incentives for issuing MEFs.

Keywords Management earnings forecast · Expectations management · Communication · Voluntary disclosure

JEL Classifications G17 · G30 · M41

1 Introduction

It is often alleged that firms and analysts are involved in an earnings-guidance game. As key providers of information to financial analysts, managers who voluntarily disseminate information regarding earnings expectations often deliberately attempt to affect analysts' earnings projections. Prior studies (Bartov et al. 2002; Matsumoto 2002; Richardson et al. 2004) document expectations management to meet or beat analysts' earnings targets. More recent studies (Cotter et al. 2006; Baik and Jiang 2006) suggest that management earnings forecasts (MEFs), an explicit form of management guidance, are used for expectations management. Not all MEFs, however, are likely to be motivated by expectations management.

MEFs are a valuable tool for a firm to communicate its earnings projections to market participants. Prior empirical studies (for example, Pownall and Waymire 1989; King et al. 1990; Skinner 1994, 1997; Frankel et al. 1995; Coller and Yohn 1997; Noe 1999) employ MEFs as a proxy for voluntary disclosure, assuming that managers communicate private information with investors through MEFs and that managers have an incentive to disclose truthful information. Prior literature suggests that firms communicate with investors to address problems arising from stock-price volatility and mispricing resulting from disagreement among investors (Diether et al. 2002; Chen et al. 2002; Rogers et al. 2009; Chen et al. 2011). Given that both expectations management and communication can be achieved through MEFs, it is an interesting research question to investigate how predominantly MEFs are issued for expectations management and for communication, respectively. Therefore, our primary objective in this study is to examine the extent to which MEFs are employed as a vehicle of expectations management and as a communication device.

By examining MEF forecast error, news conveyed by MEFs, and analyst forecast error prior to MEFs, we classify MEFs based on three possible incentives for issuing them: (1)

expectations management to meet or beat market expectations at the time of the actual earnings announcement, (2) communication to convey credible earnings information to analysts and investors, and (3) other incentives (hereafter, *Other*).

We find that, although the proportion of MEFs issued for expectations-management incentives is slightly greater than that for communication incentives, a significant proportion (about 45 percent) of MEFs is issued to convey accurate earnings information to the market (that is, communication incentive). Our results show that the fraction of MEFs for an expectations-management incentive increases following the passage of Regulation Fair Disclosure (FD). It might be the case that, in the post-Regulation FD era, incentives to use MEFs for expectations management become stronger partially because the regulation restricts implicit guidance.

We further examine characteristics of MEFs with three different incentives. We find that the likelihood of beating or meeting the final consensus analysts' forecasts is significantly higher for the expectations-management incentive category compared with the other incentive groups. This evidence supports the validity of our classification. The results show that an MEF based on the expectations-management incentive is not necessarily less accurate while it may achieve its goal of dampening analysts' forecasts. We also present evidence that MEFs motivated by the communication incentive improve the accuracy of analysts' forecasts more significantly than MEFs with other incentives. We find that improvement in the accuracy of analysts' forecasts is less pronounced following the passage of Regulation FD.

We also examine the relations between three different incentives for issuing MEFs and managerial motive, such as equity offerings and insider selling. Using logistic regression analyses, we find evidence that insider selling shortly after an earnings announcement is significantly positively associated with expectations management, lending further support to our classification. This positive association between managerial motive and expectations

management is consistent with prior literature (Matsumoto 2002; Richardson et al. 2004) that defines expectations management based on analysts' forecasts. We also find that analysts' forecast dispersion and stock-price volatility are positively associated with communication MEFs, a finding consistent with prior literature on voluntary disclosures. Additional analysis using alternative classifications based on bad/good news and pessimistic/optimistic forecasts suggests that our proposed classification of MEFs based on three incentives produces results that are more consistent with motivations for expectations management than a classification based simply on either bad/good news or pessimistic/optimistic forecasts. This implies that we need to be more cautious in defining expectations management when investigating the association between managerial motives and incentives for issuing MEFs.

This study contributes to and complements existing research in several ways. First, our study provides evidence on how frequently MEFs are issued for expectations-management incentives. Although a number of recent studies associate MEFs with expectations management, little research directly presents the extent to which MEFs are issued to manage earnings expectations or to communicate accurate earnings information to investors. Second, by proposing different potential incentives for MEFs, our study has implications for policy setting. Prior studies do not directly address how prevalently MEFs are used for expectations management or as a communication incentive. Hence, existing evidence is not enough to help regulators assess whether MEFs are effective in facilitating communication with investors. If MEFs are frequently employed as a form of expectations management and this practice is widespread, then tougher regulations on MEFs would be warranted.[1] If MEFs are used primarily to communicate managers' private information about upcoming earnings releases to the market, however, then policies that encourage more MEFs (and other forward-looking information

[1] Baik and Jiang (2006) suggest that the Safe Harbor Act should be revised.

releases) would be more appropriate. Finally, our study adds value to the voluntary-disclosure literature. Prior research uses MEFs as a proxy for voluntary disclosure based on the assumption that managers have an incentive to convey credible information. If MEFs are used primarily for expectations management and are not credible, then it might be inappropriate to use them as a voluntary disclosure proxy. We also need to be more careful about incentives related to expectations management when we use MEFs as a proxy for voluntary disclosure.

The remainder of the paper is organized as follows. We discuss the research issues in Section 2 and the data and sample selection in Section 3. We present our empirical analyses in Section 4. Section 5 presents the summary and conclusions.

2 Research issues

Managers are likely to attempt to avoid negative earnings surprises, because such surprises generally lead to negative price revisions. Skinner and Sloan (2002) document that the absolute magnitude of the price response to negative surprises significantly exceeds the price response to positive surprises. Thus, managers have a strong incentive to avoid negative surprises by either managing earnings upward or guiding earnings expectations downward (Matsumoto 2002; Brown and Caylor 2005).

Prior studies suggest that managers manipulate earnings to meet or beat market expectations (Degeorge et al. 1999; Burgstahler and Eames 2006; Roychowdhury 2006). Another way to meet or beat analysts' expectations is to guide those expectations downward to a level that the firm can meet or beat. Ajinkya and Gift (1984) claim that MEFs are issued primarily to adjust prevailing market expectations toward management's beliefs about future earnings.[2] Recent studies

[2] Based on a survey by the Conference Board, Ajinkya and Gift (1984) provide the following reasons for a direct management forecast: (1) to minimize problems related to allowing analysts' unrealistic forecasts to prevail in the market, (2) to reduce the unequal access to private information enjoyed by a subset of shareholders and analysts, (3) to maintain good relationships with analysts, and (4) to enhance the firm's ability to raise new capital.

(Bartov et al. 2002; Matsumoto 2002; Richardson et al. 2004) provide evidence that managers guide analysts' earnings expectations downward to avoid negative earnings surprises at the actual earnings announcements.[3] Matsumoto (2002) investigates the characteristics of firms exhibiting evidence of strategic guidance. Her findings indicate that firms with higher growth prospects, higher institutional ownership, and greater litigation risks are more likely to guide analysts' forecasts to be at or below the level that managers expect to achieve. Richardson et al. (2004) find that analysts first issue optimistic earnings forecasts and then "walk down" their estimates to a level that firms can subsequently beat at the official earnings announcements. They also find that the walk-down to beatable targets is more pronounced when firms or insiders are net sellers of stock after an earnings announcement.

More recent research associates expectations management with the most explicit form of management guidance, MEFs. Cotter et al. (2006) and Baik and Jiang (2006) suggest that managers use MEFs opportunistically for expectations management. McKay (2007), however, casts some doubts on expectations management through MEFs. McKay reports that companies stand about the same chance of beating market expectations of earnings regardless of whether their executives issue guidance.[4]

When the market expects a firm to perform better than its actual earnings represent, the firm can choose one of at least three options: (1) engage in earnings management to meet or beat the earnings target, (2) offer implicit guidance to lower expectations, or (3) provide explicit guidance to manage the market's expectations downward. While MEFs are an explicit form of guidance, managers also can guide analysts implicitly by tipping analysts (at least prior to the

[3] Bartov et al. (2002) suggest that firms that meet or beat analysts' earnings expectations enjoy a higher return than firms that fail to do so, even in cases where meeting or beating expectations is likely to have been achieved through expectations management.

[4] Specifically, based on Thomson Financial's study, McKay (2007) reports that, between 2001 and 2006, Standard & Poor's 500 firms that issued guidance beat analysts' expectations 65 percent of the time, while firms that did not issue guidance beat them 63 percent of the time.

Regulation FD), or they can discuss future projects, product developments, and other information to communicate optimism or pessimism without issuing MEFs. Among the three options, MEFs are likely to be used as a last resort, because they bring the burden of meeting or beating the firm's own forecasts, as well as increasing possible legal liability. In addition, the accuracy of management forecasts can be easily assessed afterwards by investors through actual reported earnings (Healy and Palepu 2001). Moreover, bad-news MEFs trigger negative market reactions at the time of announcements, and it is unclear whether this is more beneficial to a firm than a negative market reaction at the time of the actual earnings announcement.

MEFs have long been used as a proxy for voluntary disclosure in the literature. In particular, Pownall and Waymire (1989) argue that voluntary management forecasts are a timely mechanism for managers to convey relevant and credible information to the market. King et al. (1990) also contend that managers will credibly convey the precision of their forecasts to maintain a reputation for high-quality disclosure.[5] Prior literature suggests several motivations for managers to communicate with investors. Chen et al. (2011) show an increase in analysts' forecast dispersion following firms' decision to stop guiding. To the extent that dispersion in analysts' earnings forecasts leads to mispricing of shares (for example, Diether et al. 2002), managers have an incentive to issue MEFs to reduce forecast dispersion, thereby mitigating the mispricing.[6] Rogers et al. (2009) find that MEFs are associated with stock-price volatility, as they change investors' views about the nature of the underlying firm, its management, or both. Voluntary disclosures such as MEFs are more useful when firm performance is variable and harder to predict. Prior studies present evidence that when stock returns are more volatile, analyst ratings of firms' disclosures are higher (Lang and Lundholm 1993) and firms are more likely to include balance-sheet data in their press releases (Chen et al. 2002).

[5] Other prior studies provide evidence that investors view voluntary management forecasts as credible information (for example, Hassell and Jennings 1986; McNichols 1989; Baginski and Hassell 1990; Hirst et al. 2007).

[6] We gratefully acknowledge this insight from an anonymous reviewer.

Prior literature also suggests that firms can lower their cost of capital by increasing disclosure of credible information (Verrecchia 1983; Diamond 1985; Diamond and Verrecchia 1991). Botosan (1997), among others, presents empirical evidence that, for firms with low analyst following, there is a negative relation between the level of disclosure and their cost of capital. While prior literature focuses on a firm's motivation to consistently maintain a higher level of voluntary disclosure to reduce cost of capital, MEFs can be issued rather sporadically. We note, however, that MEFs in recent periods become more regular.[7] We observe that, although the number of firms issuing MEFs decreases in recent years, those that issue MEFs do so more consistently.

Taking together recent studies on expectations management and earlier empirical studies on voluntary disclosure to convey credible information (that is, in the context of communication mechanism), it is an interesting research question to examine to what extent MEFs are issued as a tool of expectations management or as a communication device. Meanwhile, Regulation FD changes the way publicly listed firms release information to market participants. Specifically, this regulation reduces the amount of information disclosed selectively to analysts, yet increases the amount of information disclosed publicly. Although under previous rules, managers could disclose their assessments and forecasts of future results to only selected groups of analysts, under the new rules, all material information must be disclosed to the public simultaneously. Thus, Regulation FD is likely to have a significant impact on the disclosure environment, such as the frequency, accuracy, and role of MEFs, because it reduces managers' implicit guidance to analysts, even

[7] Following Rogers et al. (2009), we define a forecast as a regular (or consistent) forecast if, prior to the calendar quarter of the current forecast, the firm issued forecasts in at least three of the four preceding calendar quarters. Forecasts not meeting this criterion are defined as sporadic forecasts. We observe that, in our sample, about 42 percent of forecasts over the 1995-2005 period are regular forecasts and that the proportion of regular forecasts increases in recent periods. Specifically, about 55 percent of forecasts for the 2001-2005 period are regular forecasts.

though it may not completely eliminate the practice.[8] Therefore, it is an empirical question whether MEFs following the passage of Regulation FD are more opportunistic or credible.

3 Data and sample selection

The sample of MEFs is obtained from the Company Issued Guidelines (CIG) of Thomson Financial's First Call Historical Database (FCHD). The CIG contains both quantitative and qualitative management forecasts. We collect all management forecasts of quarterly earnings per share (EPS) reported in the CIG from 1995 to 2005. Financial analyst forecast data are obtained from the First Call database, and stock prices and returns data are obtained from the Center for Research in Security Prices (CRSP) database. We collect insider transaction data from Thomson Financial's insider trading database and equity offering data from the Securities Data Corporation (SDC) New Issue database.

We retain only one-quarter-ahead forecasts. We eliminate forecasts if actual earnings or a stock price for the day prior to the MEF are not available. The final sample includes 25,705 (23,347 quantitative) forecasts of quarterly earnings. Table 1 presents the frequencies of MEFs over time. Panel A reports the frequency of all MEFs issued by firms, and Panel B shows the number of firms issuing MEFs over time. Both the frequency of MEFs and the number of firms that issue MEFs significantly increase until 2001 (especially reaching a peak in 2001), and they decrease or remain stable beginning in 2002. This is consistent with recent practice in the forecasting environment, in which many firms no longer issue MEFs since the adoption of Regulation FD. The number of forecasts per firm, however, increases until 2004 and slightly decreases in 2005, indicating that remaining firms issue MEFs more frequently. It is noticeable

[8] In the post-Regulation FD period, managers may issue more public guidance than private guidance (Cotter et al. 2006). Chen and Matsumoto (2006) argue that, while Regulation FD reduces manager's ability to privately communicate with analysts (for example, selectively providing or withholding information to different analyst groups), it does not reduce analysts' incentive to generate private information.

that the percentage of qualitative forecasts steadily increases until 1998 and decreases after that year. In most recent years, especially in 2004 and 2005, MEFs reported in First Call's CIG database are predominantly quantitative.

[Insert Table 1 here.]

Houston et al. (2010) argue that issuing quarterly earnings guidance caters to the whims of short-term investors, driving managers to accommodate these investors by engaging in myopic behavior that sacrifices the firm's long-term performance. Some firms abandon quarterly earnings guidance in favor of annual earnings guidance or none at all and thus are changing how they communicate with investors.[9] These changes in guidance practices coincide with calls from the investment community and academics (Fuller and Jensen 2002; Jensen et al. 2004; Krehmeyer and Orsagh 2006) to encourage managers to give up quarterly earnings guidance and hence avoid myopic managerial behavior caused by attempts to meet guided earnings numbers. However, prior literature presents evidence that giving up earnings guidance may harm both firms and the investment community. Chen et al. (2011) find that firms that stop issuing MEFs have poor trailing stock-return performance and lower institutional ownership. They also find that analysts' forecast dispersion increases and forecast accuracy decreases following firms' decision to stop guiding, despite increased disclosures made in earnings press releases. Recently, Houston et al. (2010) document that earnings-guidance stoppers are primarily troubled firms and that stopping guidance benefits neither the stoppers nor their investors.[10]

[9] In December 2002, the Coca-Cola Company announced that it would stop providing quarterly and annual EPS guidance to stock analysts, stating that the company hoped the move would focus investor attention on long-run performance. Shortly afterwards, several other firms, such as AT&T and McDonalds, made similar announcements and stopped issuing MEFs, especially for quarterly earnings.

[10] Houston et al. (2010) examine the causes of such guidance cessation and find that poor operating performance, such as decreased earnings and missing analyst forecasts, is the major reason firms stop quarterly guidance.

Table 2 reports the forecast errors of MEFs and consensus analysts' forecasts prior to MEFs over time. Panel A presents the forecast errors of MEFs. We retain only quantitative forecasts and truncate the sample at the 1% and 99% of MEF errors to avoid the influence of outliers and data coding errors.[11] MEF errors are measured as (Actual EPS – MEF)/P, where MEF is the management forecast of EPS, and P is the stock price at the end of the day prior to MEF. The point estimate of earnings is used for MEF when management issues a point forecast. For range forecasts, we use the midpoint of the range. For minimum- and maximum-type forecasts, we use the disclosed lower or upper bound. Mean forecast errors are negative over the 1995-2000 period. They are positive since 2001, however, indicating that managers tend to issue pessimistic forecasts after 2001. This trend of pessimistic MEFs may signal more expectations management in recent years.

[Insert Table 2 here.]

Panel B reports errors of consensus analysts' forecasts prior to MEFs, measured as (Actual EPS – the last consensus analysts' forecasts)/P, over time.[12] As shown, mean analysts' forecast errors prior to MEFs are relatively large until 2000 but become much smaller after 2000. This suggests that optimism in consensus analysts' forecasts remains relatively stable until 2000 and dramatically decreases from 2002 onward.

Table 3 shows descriptive statistics of selected variables for the full sample and the subsamples based on different classifications. Panel A presents descriptive statistics of selected variables for the full sample of management earnings forecasts. MEFE is management earnings forecast error, measured as (Actual EPS – MEF)/P. The positive (negative) value of MEFE means pessimistic (optimistic) MEF. ABSMEFE is the absolute value of MEFE. NEWS is MEF

[11] From 23,347 quantitative forecasts, we lose 466 observations by truncating the sample at 1% and 99% of MEF errors.
[12] We lose an additional 96 observations because consensus forecasts prior to MEFs are unavailable.

news calculated as (MEF – Consensus Forecasts)/P, where Consensus Forecasts is the last consensus analysts' forecasts of EPS prior to MEF, and P is the stock price at the end of the day prior to MEF. Consensus analysts' forecasts are measured as median analysts' forecasts. Positive (negative) value of NEWS indicates good (bad) news. B_AFE (A_AFE) is the forecast error of the last (first) consensus analysts' forecasts before (after) MEF, measured as (Actual EPS – Consensus Forecasts)/P, where Consensus Forecasts is the last (first) consensus analysts' forecasts of EPS before (after) MEF, and P is the stock price at the end of the day prior to MEF. A positive (negative) value of B_AFE or A_AFE indicates pessimistic (optimistic) analysts' forecasts. CHG_AFE is the change in analysts' forecast errors before and after MEF, measured as A_AFE minus B_AFE. A positive (negative) value of CHG_AFE indicates lower (higher) analysts' forecasts after MEF. ABSCHG_AFE is the change in the absolute value of analysts' forecast errors before and after MEF, measured as the absolute value of A_AFE minus the absolute value of B_AFE. A positive (negative) value of ABSCHG_AFE indicates less (more) accurate analysts' forecasts after MEF.[13]

[Insert Table 3 here.]

The median value of MEFE is 0.0004, indicating that, in our sample, pessimistic forecasts are more frequent. Mean forecast news is negative (-0.0036). This result is consistent with prior literature (Skinner 1994; Kasznik and Lev 1995), indicating that, on average, management forecasts are more pessimistic than consensus analysts' forecasts, thereby delivering bad news to the market. This might be driven by the incentive for expectations management. Consistent with analysts following management forecasts, mean A_AFE is less negative than B_AFE, indicating that analysts become less optimistic following MEFs. The negative mean value of ABSCHG_AFE (-0.0032) indicates that the magnitude of the forecast

[13] The number of observations for each variable varies, depending on the availability of data required to calculate it.

error of consensus analysts' forecasts decreases following MEFs, which is consistent with a communication through MEFs.

Panel B of Table 3 reports descriptive statistics for three subsamples, which are classified based on actual earnings meeting/beating versus missing final consensus analysts' expectations before the earnings announcement. Mean and median values of MEFE are most positive for the beating subsample, slightly negative for the meeting subsample, and most negative for the missing subsample. This suggests that managers of beating-or-meeting-expectation firms tend to issue more pessimistic earnings forecasts than those of missing-expectation firms. The difference in MEFE is statistically significant between the beating (or meeting) and missing subsamples at the 1 percent level. The results show that missing-expectation firms issue worse forecast news than do beating-or-meeting-expectation firms. While mean values of NEWS for beating and meeting expectations are -0.0024 and -0.0034, respectively, the mean value of NEWS for the missing expectation subsample is -0.0081. These seemingly puzzling results may stem from the fact that consensus analysts' forecasts prior to MEF, B_AFE are most optimistic for the subsample of firms missing expectations (mean B_AFE is -0.0120 for the missing-expectation subsample, -0.0008 for the beating-expectation subsample, and -0.0038 for the meeting-expectation subsample, respectively). The change in the absolute value of analysts' forecast errors, ABSCHG_AFE, is negative in all three subsamples, indicating that MEFs help improve the accuracy of analysts' forecasts in general.

Panel C of Table 3 provides descriptive statistics on selected variables by initial analysts' forecast optimism versus pessimism. The initial consensus analysts' forecast is defined as optimistic if the first consensus forecast reported in the First Call database after the previous period earnings announcement is greater than actual EPS and pessimistic if it is less than actual EPS. As shown, mean MEFE is negative (positive) for the case of optimistic (pessimistic) initial

consensus forecasts. This evidence suggests that, when forming their expectations for a firm's earnings, managers and analysts move together in the same direction. We observe that mean NEWS is negative (positive) for initial analyst forecast optimism (pessimism), meaning that MEFs are often issued to avoid overly optimistic or pessimistic analyst expectations. Meanwhile, the mean value of ABSCHG_AFE is negative across subsamples, indicating that analysts' forecasts after MEFs are more accurate than those before MEFs in all cases. Improvement in analysts' forecasts, however, is more pronounced in the case of initial analyst optimism (mean ABSCHG_AFE = -0.0011 for pessimistic subsample and -0.0056 for optimistic subsample). The mean and median differences in all variables are statistically significant at the 1 percent level.

Panel D of Table 3 presents descriptive statistics on selected variables by the pre- versus post-Regulation FD periods. While the mean value of MEFE is negative in the pre-Regulation FD era (-0.0018), it is positive in the post-Regulation FD period (0.0006), indicating that MEFs become pessimistic in the post-FD period. During the same period, however, MEFs deliver relatively less bad news and analyst forecast errors are smaller. These seemingly conflicting results stem from the fact that analysts' forecasts prior to MEFs are much more optimistic in the pre-FD period than in the post-FD period. The mean and median differences in all variables between pre- and post-Regulation FD periods are statistically significant at the 1 percent level. In sum, results in Panel D suggest that by restricting managers' ability to selectively provide information to analysts or withhold it from them, Regulation FD significantly affects the forecasting environment, thus enhancing the accuracy of both management's and analysts' forecasts. It is uncertain, however, whether this translates into more or less expectations management (or communication) in the post-FD period.

4 Empirical analysis

4.1 Classification of MEFs into three possible incentive categories

In this study, we propose three possible incentives for firms to issue MEFs: (1) expectations management, (2) communication to deliver credible earnings information to the market, and (3) other incentives (that is, *Other*), such as inducing higher market expectations prior to earnings announcements.

We first classify MEFs that guide down consensus analysts' forecasts and that are lower than actual earnings as expectations management. Second, if a MEF is more accurate than the existing consensus analysts' forecasts while not being used for expectations management, it is classified into the communication incentive group. Third, if a MEF is higher than or equal to the consensus analysts' forecasts and is also higher than actual earnings, we put it in the third incentive group, *Other*, as long as MEF is less accurate than the existing consensus analysts' forecasts. This third group's incentive is exactly the opposite of the expectations management incentive. That is, managers of firms may issue earnings guidance to induce higher market expectation prior to earnings announcements. This incentive group may include the cases in which firms' equity offerings are scheduled before earnings announcements or managers intend to trade their shares following MEFs but prior to actual earnings announcements. In such cases, it would be in the managers' best interest to encourage, not dampen, positive market expectations prior to actual earnings announcements. We formally state the conditions for the above three incentives as follows:

1) ***Expectations management***
if MEF ≤ AF & MEF ≤ Actual but not MEF = AF = Actual

2) ***Communication***
if (ABSMEFE < ABSAFE but not Expectations management) or (MEF = AF = Actual)

3) ***Other***
if MEF ≥ AF & MEF > Actual, but not ABSMEFE < ABSAFE

where MEF is management earnings forecast; AF is the last consensus analysts' forecasts; Actual is actual earnings at the earnings announcement; ABSMEFE is the absolute value of management earnings forecast error; and ABSAFE is the absolute value of the last consensus analyst forecast error.

By examining news conveyed by MEFs, MEFs' forecast error, analyst forecast error, and the relative accuracy of MEFs and analyst forecasts, we classify all MEFs further into 17 distinct cases. In Appendix A, we discuss details about the classification scheme and relate 17 cases to the three incentives.

Table 4 reports the frequencies of MEFs by the three possible incentives.[14] The second and third columns provide frequencies by each incentive category in our full sample. Our results reveal that the proportion of expectations management is only slightly greater than that of communication in the full sample period. Specifically, 10,905 (10,225) of 22,785 quarterly forecasts or 48 percent (45 percent) belong to the *Expectations management* (*Communication*) category in our sample. MEFs issued for *Other* incentives, such as to generate higher market expectations, are about 7 percent of the full sample MEFs. In sum, it appears that, although almost half of MEFs are used to adjust analysts' forecasts downward (that is, expectation management), a significant portion of MEFs is issued to convey accurate earnings information to the market (that is, communication).

[Insert Table 4 here.]

The fourth through seventh columns of Table 4 present the frequencies of MEFs across the three possible incentives during the pre- and post-Regulation FD periods. As shown, the fraction of *Expectations management* increases during the post-Regulation FD period (from

[14] See Table A-1 in Appendix A for detailed frequencies of MEFs by 17 cases.

45.73 percent to 48.72 percent). In contrast, the proportion of MEFs in the *Communication* category decreases during the same period (from 45.63 percent to 44.35 percent). This suggests that, though Regulation FD limits implicit guidance to analysts by blocking selective disclosure, managers use MEFs for expectations management more frequently to compensate for the loss of other ways to dampen analysts' expectation (for example, through implicit guidance).

The last four columns of Table 4 provide the frequencies of MEFs across the three possible incentives for the first versus final management forecasts. Sometimes a firm issues multiple MEFs for the same fiscal period. For the sample of firms issuing multiple MEFs, earlier studies use either the first (Rogers and Stocken 2005) or last MEF (Baik and Jiang 2006) for their analyses. Although the choice of the first or the last MEF depends on the research question in each study, if the first and last MEFs show different characteristics, we need to be careful in selecting the sample forecasts. We expect that as the earnings-announcement date approaches, the incentive for expectations management is greater. Consistent with our prediction, we find that the fraction of expectation management is greater in the final forecast (that is, 47.94 percent in first forecasts and 50.46 percent in final forecasts). In contrast, the proportion of communication incentive shrinks as earnings announcement gets closer (that is, 44.78 percent in first forecasts and 43.56 percent in final forecasts). Overall, results in the last four columns of Table 4 suggest that managers are more likely to engage in expectations management to drive down the market's earnings projections as the earnings announcement draws near.

To examine this phenomenon more closely, we plot the relative frequency of MEFs by the three incentive categories over the forecast horizon. Figure 1 illustrates the percentage of MEF incentives. There are at least two alternative ways to categorize a set of MEFs as being issued as a tool of expectations management to meet or beat expectations. Baik and Jiang (2006) suggest that firms with incentives to meet or beat expectations tend to issue pessimistic MEFs

(that is, those that are lower than actual earnings). Pessimistic MEFs, however, might actually be higher than the existing consensus analysts' forecasts that are already pessimistic. Alternatively, we may also define any MEF that is lower than the existing consensus analysts' forecasts and therefore delivers bad news as those with expectations-management incentives to meet or beat expectations. However, if a bad-news MEF is still above actual earnings, it is difficult to argue that the MEF is motivated by the expectations-management incentive. We compare our classification of MEFs with the above-mentioned two alternative classifications, thereby providing the plots of the proportion of MEFs with expectation-management incentives based on the three different classification schemes.[15]

Panel A of Figure 1 shows the plots of the relative proportion of MEFs classified as expectation management defined by bad-news MEF (that is, MEF is lower than the existing consensus analysts' forecasts). Panel B illustrates the plots of expectations management defined by pessimistic forecasts (that is, positive MEF errors). Panel C presents the patterns of the three incentive groups based on our proposed classification scheme.

[Insert Figure 1 here.]

In Panel A, the patterns in expectation management defined by bad-news forecasts tend to fluctuate between approximately 55 and 70 percent of MEFs over time. The proportion of expectations management tends to increase up to four weeks before the earnings announcement and decrease after the second week prior to the announcement. In Panel B, the percentage of expectations management defined by pessimistic forecasts (that is, positive forecast error) decreases as the earnings announcement date draws near. The results in Panel B, however, cast doubt about classifying expectations management by pessimistic forecasts. We would expect an

[15] Figure A-3 in Appendix A compares the classification of MEFs by the three incentives with other classifications based on bad/good-news and pessimistic/optimistic forecasts.

increase, not a decrease, in the propensity of expectations management toward the earnings announcement, as the incentive for expectations management becomes stronger.

Panel C of Figure 1 illustrates the relative proportion of MEF incentives based on our classification scheme. As seen, the proportion of MEFs with expectations management defined by our proposed classification scheme increases from eight weeks to two weeks prior to the earnings announcement, although it decreases during the last two weeks before the earnings announcement. As one would expect, the proportion of the *Other* incentive decreases as the earnings announcement date gets closer, so that the window for any benefit from high-market expectations prior to the earnings announcement narrows.

4.2 Meet/beat ratio, initial analyst optimism, forecast error, and changes in analyst forecast error across three incentives

To examine the characteristics of MEFs in different categories, we present statistics of selected variables by three different incentives for issuing MEFs in Table 5. We show statistics for the full sample in Panel A, as well as for the pre and post-Regulation FD periods in Panel B. METBEAT is an indicator variable that takes the value of 1 if the actual EPS is greater than or equal to the last consensus analysts' forecast prior to the earnings announcement and 0 otherwise, where consensus analysts' forecast is defined as the median of analysts' forecasts. The mean value of METBEAT for each incentive group therefore indicates the percentage of firms in each group that meets or beats the market expectation. I_AF_OP is an indicator variable that takes the value of 1 if the initial consensus analysts' forecast (that is, the first consensus forecast after the prior period earnings announcement) is optimistic (that is, greater than actual EPS) and 0 otherwise, where the consensus forecast is defined as the median of analysts' forecasts. The mean value of I_AF_OP for each incentive group indicates the percentage of optimistic initial consensus analysts' forecasts. All other variables are defined earlier.

[Insert Table 5 here.]

As shown in Panel A, the mean meet/beat ratio for *Expectations management* is 95 percent and significantly higher than those for either the *Communication* or the *Other* incentive categories. These statistics support our classification of expectations-management incentive. Note that for the incentive classification, we use analyst' forecast error prior to MEF and forecast error of MEF but not the forecast error of the final consensus forecast. Evidence on meet/beat ratios suggests that firms achieve their intended objectives (that is, meet or beat their earnings targets) when they issue MEFs for expectations management.

Initial consensus analysts' forecasts, in general, appear to be more optimistic in the case of the *Other* incentive group compared with *Expectations management* and *Communication* groups. The results also show that MEFs are pessimistic in the *Expectations management* category and optimistic in the *Other* incentive group. Specifically, the mean and median values of MEFE for the expectations-management group are 0.0019 and 0.0009, respectively, indicating pessimistic forecasts. The mean and median of MEFE for *Other* incentive category are negative, however, which represent optimistic forecasts. While the mean value of MEFE is negative, the median is zero for the *Communication* incentive category. We note that MEFs with *Expectations management* incentives are not necessarily less accurate. If managers do indeed manage earnings expectations to meet or beat the market expectation, they are likely to do so just across actual earnings. This, in turn, may result in a smaller forecast error. Consistent with this discussion, we find evidence that MEFs with expectations management are the most accurate, with the smallest absolute value of MEF error (mean ABSMEFE is 0.0019 for *Expectations management*, 0.0028 for *Communication*, and 0.0060 for *Other* incentive).

It is also noted that, for all incentive groups, the magnitude of analysts' forecast error significantly decreases after management earnings forecasts are released, as evidenced by the

negative mean for ABSCHG_AFE in all incentive categories. This suggests that analysts quickly revise their earnings forecasts in response to earnings guidance, thereby reducing their forecast errors (Waymire 1986).[16] As expected, an improvement in the accuracy of analysts' forecasts around an MEF is most evident in the *Communication* group, for which both mean and median values of ABSCHG_AFE are negative (mean = -0.0040 and median = -0.0012).

Panel B of Table 5 shows statistics of the same variables for the pre- and post-Regulation FD periods. The mean meet/beat ratio significantly increases after the adoption of Regulation FD for both *Expectations management* and *Communication* categories (from 92 to 96 percent for *Expectations management* and from 61 percent to 81 percent for the *Communication* group). Both optimism in initial consensus analysts' forecasts, I_AF_OP, and errors in consensus analysts' forecasts, B_AFE and A_AFE, significantly decrease in the post-Regulation FD period. During the same period, the degree of optimism in MEFs tends to attenuate in the *Communication* and *Other* incentive categories (for example, in the *Communication* category, mean MEFE = -0.0034 in the pre-Regulation FD period and -0.0001 in the post-Regulation FD period). The degree of pessimism in MEF for the *Expectations management*, however, increases following the passage of Regulation FD. The results also show that improvement in the accuracy of analysts' forecasts around MEFs is far less pronounced in the post-Regulation FD period. For instance, the mean value of ABSCHG_AFE for the *Communication* group is -0.0074 in the pre-Regulation FD and -0.0030 in the post-Regulation FD period.

In sum, although we find differences between pre- and post-Regulation FD periods as discussed above, the differences across incentive groups (for example, higher meet/beat ratio, more pessimistic MEF, and more accurate MEF in the *Expectations management* category;

[16] Waymire (1986) finds that posterior analyst forecasts become more accurate after voluntary management earnings forecasts.

biggest improvement in analysts' forecast accuracy in the *Communication* incentive category) are generally consistent across pre- and post-Regulation FD era.

4.3 Equity offerings, insider trading, and three incentives for MEFs

To discern whether managerial motives are associated with the three different MEF incentives, we examine incidences of equity offerings and insider-selling activities of forecasting firms. Table 6 presents descriptive statistics for equity offerings and insider selling by the three different incentive categories for issuing MEFs. Panel A of Table 6 presents statistics for the full sample, and Panel B reports them by the pre and post-Regulation FD periods. We measure incidences of equity offerings and insider net-selling in 30-day and 1-year periods after earnings announcements. EO_AF_30 is an indicator variable that takes the value of 1 if the firm has common or preferred equity offerings between the earnings announcement date and 30 days after the earnings announcement and 0 otherwise. EO_AF_1YR is an indicator variable that takes the value of 1 if the firm has common or preferred equity offerings between the earnings announcement date and 1 year after the earnings announcement and 0 otherwise. SELL_AF_30 is an indicator variable that takes the value of 1 if directors and officers are net sellers between the earnings announcement date and 30 days after the earnings announcement and 0 otherwise. SELL_AF_1YR is an indicator variable that takes the value of 1 if directors and officers are net sellers between the earnings announcement date and 1 year after the earnings announcement and 0 otherwise.[17]

[Insert Table 6 here.]

[17] Following Richardson et al. (2004), insiders include the CEO, chair, vice presidents, officers, and directors. We use the following relationship codes from the Thomson Financial database: "CB," "D," "DO," "H," "OD," "VC," "AV," "CEO," "CI," "CO," "CT," "EVP," "O," "OB," "OP," "OS," "OT," "OX," "P," "S," "SVP," and "VP."

As shown in Panel A of Table 6, incidences of equity issues are the greatest in the case of the *Communication* group, followed by the *Expectations management* group. Although the difference between these two incentive categories is statistically insignificant, incidences of equity issues in both incentive categories are significantly greater than those in the *Other* incentive category. We also find no significant difference in incidences of insider net-selling between the *Expectations management* and *Communication* categories.

As shown in Panel B of Table 6, the results by the pre- and post-Regulation FD periods are qualitatively similar to the full sample results discussed above. Equity offerings 30 days after the earnings announcement are the greatest for *Communication* group. The difference between the *Communication* group and the *Expectations management* group, however, is statistically insignificant in both pre- and post-Regulation FD periods. In the next sub-section, we examine managerial motives for issuing MEFs in more detail, based on the multivariate analysis.

4.4 Determinants of MEFs for three incentives

To further investigate which factors motivate managers to issue their forecasts as a tool of expectations management or as a communication device, we estimate the following cross-sectional logistic regression model:

$$\begin{aligned}\Pr(\text{MEF\_INCENTIVE}=1) = {} & \alpha_0 + \alpha_1 \text{SELL\_AF\_30} + \alpha_2 \text{EO\_AF\_30} + \alpha_3 \text{EO\_BF} \\ & + \alpha_4 \text{MB} + \alpha_5 \text{MV} + \alpha_6 \text{PROFIT} + \alpha_7 \text{YEAR} + \alpha_8 \text{R\&D} + \alpha_9 \text{LITG} \\ & + \alpha_{10} \text{IMPLIT} + \alpha_{11} \text{CHEARN} + \alpha_{12} \text{LABINT} + \alpha_{13} \text{LT\_CHEARN} \\ & + \alpha_{14} \text{AFSTD} + \alpha_{15} \text{ARSTD} + \varepsilon \end{aligned} \quad (1)$$

where MEF_INCENTIVE = an indicator variable for the following three incentives for issuing MEFs:
EX_MGT = expectations management for meeting/beating earnings expectations,
COMM = communication, and
OTHER = incentives other than expectations management or communication;
SELL_AF_30 = an indicator variable equal to 1 if directors and officers are net sellers between the earnings announcement date and 30 days after the earnings announcement and 0 otherwise;

EO_AF_30 = an indicator variable that takes a value of 1 if the firm has common or preferred equity offerings between the earnings announcement date and 30 days after the earnings announcement and 0 otherwise;
EO_BF= an indicator variable that takes a value of 1 if the firm has common or preferred equity offerings between the MEF date and the day before the earnings announcement and 0 otherwise;
MB= market-to-book equity at the end of the quarter prior to MEF;
MV= logarithm of market value of equity at the end of the quarter prior to MEF;
PROFIT = an indicator variable equal to 1 if actual EPS is positive and 0 otherwise;
YEAR = time trend variable, defined as (MEF year-1995);
R&D = R&D expense scaled by average total assets;
LITG = industry dummy with high litigation risk based on 4-digit SIC industry code, such as 2833, 2836, 3570, 3577, 3600-3674, 5200-5961, 7370-7374;
IMPLIT = industry dummy with high implicit claims based on 4-digit SIC industry code, such as 1500-1799, 2450-2459,2500-2599, 2830-2839, 3010-3019, 3240-3999;
CHEARN = an indicator variable that takes a value of 1 if the change in earnings from the same quarter in the previous year is positive and 0 otherwise;
LABINT= labor intensity, measured as [1-(PPE/Gross Assets)] where PPE is gross property, plant, and equipment, and Gross Assets is (total assets + accumulated depreciation and amortization);
LT_CHEARN = long-term change in earnings from 4 quarters prior to the forecast quarter to 4 quarters after the forecast quarter scaled by the market value of equity at 4 quarters prior to the forecast quarter;
AFSTD = standard deviation of analyst forecasts included in the last consensus forecast prior to MEF; and
ARSTD = standard deviation of abnormal stock returns prior to MEF, measured over trading days (-27 to -2) around MEF.

Richardson et al. (2004) find that the walk-down to beatable targets is most pronounced when the firms or insiders are net sellers of stock after earnings are released. Thus, to see whether incentives for issuing MEFs are driven by managerial motives to sell stock around an earnings announcement, we include two variables, SELL_AF_30 and EO_AF_30, as determinants of incentives for MEFs. Following Richardson et al., we also include equity offerings prior to the earnings announcement, EO_BF.

In addition, Richardson et al. (2004) describe the switch from initial analysts' forecast optimism to final pessimism as a function of book-to-market ratio, market value of equity, profit, year, R&D expense, litigation risk, high implicit-claim industry, earnings change, labor intensity,

and long-term changes in earnings. To control for confounding effects, we include these variables in the logistic regression model.

To examine incentives to issue MEFs for communication purpose, we include AFSTD and ARSTD in the model. The prior literature implies that managers have an incentive to issue MEFs to reduce forecast dispersion, thereby mitigating mispricing (Chen et al. 2011; Diether et al. 2002). Prior studies also suggest that firms are more likely to provide high quality voluntary disclosures when stock returns are more volatile (Lang and Lundholm 1993; Chen et al. 2002).

Table 7 presents the results using three incentives for issuing MEFs. In the second and third columns displaying the results using EX_MGT as a dependent variable, the coefficient on SELL_AF_30 is positive and significant at the 1 percent level, indicating that the likelihood of issuing MEFs for meeting/beating earnings targets is high when insider trading is intended shortly after earnings announcements. This is consistent with Richardson et al. (2004) and Matsumoto (2002). We find little evidence, however, that equity offerings motivate managers to issue their forecasts to walk-down market expectations. Turning to control variables, we find that some variables, such as PROFIT, YEAR, R&D, LITG, and LABINT, are positively and significantly associated with the likelihood of issuing MEFs for the purpose of expectations management. These results are consistent with those of Masumoto (2002) and Richardson et al. (2004), who define expectations management based on analysts' forecasts, not management earnings guidance. We also observe that the coefficients on AFSTD and ARSTD are negatively associated with EX_MGT, indicating that managers are less likely to issue guidance for expectations management when analysts' forecast dispersion and stock-return volatility prior to MEFs are high.

[Insert Table 7 here.]

The fourth and fifth columns report the results using COMM as a dependent variable. We find that the coefficients on SELL_AF_30, EO_AF_30, and EO_BF are all insignificant after

controlling for other incentives and firm characteristics. Consistent with our prediction, the results show that the coefficients on AFSTD and ARSTD are significantly and positively associated with COMM, indicating that managers are more likely to communicate through MEFs when analysts' forecast dispersion and stock-return volatility are high prior to MEFs.[18]

In the last two columns presenting the result using OTHER as a dependent variable, the coefficient on SELL_AF_30 is negative and significant at the 1 percent level. This suggests that MEFs for *Other* incentives are less likely to be issued when the insider selling is scheduled shortly after earnings management. This is consistent with managers issuing their forecasts for alternative incentives, such as achieving higher market expectations prior to the earnings announcement.

4.5 Managerial motives and alternative approaches to classify MEFs

To test the validity of our classification of MEFs for the three incentive categories and to compare the implications of using different strategies to classify MEFs associated with expectations management, we run logistic regression (equation (1)) with alternative definitions of MEF for expectations management. First, by comparing MEF with the last consensus analysts' forecasts prior to MEF, we partition our MEFs into two categories, bad- and good-news forecasts, with bad-news forecasts representing expectations management.

Panel A of Table 8 reports results from the logistic regression when expectations management is defined by bad-news MEFs. If bad-news forecasts represent expectations management, we expect that the likelihood of bad-news forecasts is positively associated with

[18] To gain further insights into the communication motive, we conduct a separate analysis on the short-term impact of MEFs on analysts' forecast dispersion and stock-return volatility. Untabulated results show that stock-return volatility decreases after MEFs for the communication purpose, but this is not the case for the expectations-management motive. Although statistically insignificant, analysts' forecast dispersion also decreases after communicating MEFs. In contrast, forecast dispersion increases after MEFs for the expectations-management incentive.

incidences of insider-selling and equity offerings after the earnings announcement. As shown, both SELL_AF_30 and EO_AF_30 are negatively associated with the likelihood of bad-news forecasts, which contradicts results in the prior literature (Masumoto 2002; Richardson et al. 2004). They are also inconsistent with those reported in Table 7. This suggests that our classification of MEFs based on three incentives works better than the classification simply based on bad/good news forecasts in defining expectations management. This result also implies that we need to be more cautious in defining MEFs when we investigate the association between managerial motives and incentives for issuing MEFs.

[Insert Table 8 here.]

Baik and Jiang (2006) classify MEFs based on MEF error. They classify pessimistic MEFs (that is, those with positive forecast error) as being more likely to be issued for an expectations-management purpose. We run a logistic regression when expectations management is defined by pessimistic MEFs and report the results in Panel B of Table 8. If pessimistic MEFs represent expectations management, we should observe a positive association between pessimism in MEFs and incidences of insider selling and the incidence of equity offerings shortly after the earnings announcement. Results in Panel B of Table 8 suggest that incidences of insider selling and equity offerings are positively associated with the probability of issuing pessimistic forecasts.

Although this result lends some support to MEFs for the expectation-management purpose defined by pessimistic forecasts, the coefficients on other variables are inconsistent with this interpretation. Matsumoto (2002) argues that firms with higher ex ante litigation risk are more likely to take engage in expectations management. She finds the results consistent with this prediction. While the coefficient on LITG in Table 7 is positive and significant, that in Panel B

of Table 8 is negative and thus inconsistent with Matsumoto (2002). The positive coefficient on EO_BF is also questionable. If firms issue MEFs for the expectations management, this will dampen the current market expectation. This is detrimental for firms that plan to tap the capital markets before the earnings announcement, because these firms cannot reap the benefit of meeting/beating earnings targets and only bear the costs of lower market expectation prior to earnings announcements. Together with the downward trend of the proportion of pessimistic MEFs over the quarter in Panel B of Figure 1, these results cast doubt on the validity of classifying MEFs for expectations management simply based on pessimism/optimism in MEFs.[19]

5 Summary and conclusion

In this paper, by classifying management earnings forecasts (MEFs) into three incentive categories, we show the extent to which MEFs are motivated by expectations management and communication incentives. Our classification is based on examinations of forecast errors of both MEFs and consensus analysts' forecasts prior to MEFs, news conveyed through MEFs, and the relative accuracy of MEFs and analysts' forecasts. Specifically, we consider the following three incentives for issuing MEF: (1) expectations management to meet or beat market expectations at the time of the actual earnings announcement, (2) communication to convey managers' private information about upcoming earnings releases to analysts and investors, and (3) incentives other than expectations management or communication (that is, *Other*).

[19] It appears that the high correlation between changes in earnings (CHEARN) and forecast pessimism, rather than the expectations-management incentive, drives the results in Panel B of Table 8. If managers are overly influenced by unfavorable earnings from previous periods when they forecast current-period earnings, performance improvement in the current period may not be properly reflected in MEFs, leading to pessimistic MEFs, on average. When firms have better current financial performance (for example, positive CHEARN) and a profitable quarter (for example, positive PROFIT), they will have an incentive to issue equity to take advantage of the favorable timing. If managers act in their self-interest, they may also want to recoup capital gains by selling shares. In contrast, the opposite might be true for bad-news forecasts in Panel A of Table 7. Firms with deteriorating performance (for example, negative CHEARN) and a less profitable quarter will defer equity offerings and insider selling. Under this circumstance, managers are more likely to issue bad-news forecasts, much of which might be a genuine communication with investors about this unfavorable performance, rather than expectations management.

We present evidence that the proportion of MEFs issued for expectations management is comparable to that for communication incentives. We find that the fraction of MEFs for expectations management increases in the post-Regulation FD period. Our results also show that, contrary to common belief, expectations management through MEFs often occurs even when existing consensus forecasts are pessimistic (that is, when consensus analysts' forecasts are already lower than actual earnings).

We show that the likelihood of beating or meeting the final consensus analysts' forecasts is disproportionately high for MEFs motivated by expectations management. For example, the mean value of the meet/beat ratio of MEFs associated with *Expectations management* for meeting/beating earnings targets is 95 percent, while the ratio of MEFs in the *Communication* category is 77 percent, and only 63 percent for *Other* incentives. We also find that improvement in the accuracy of analysts' forecasts around MEFs is less pronounced in the post-Regulation FD period. Our empirical results show that incidence of insider net-selling shortly after the earnings announcement is positively associated with expectations-management incentives, while analysts' forecast dispersion and stock-return volatility prior to MEFs are positively associated with communication incentives. The association between managerial motives and incentives for issuing MEFs are less clear, however, when expectations management is defined based on other classification schemes, such as bad-news forecasts or pessimistic forecasts, lending support for the validity of our classification method.

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Appendix A
Classifying management earnings forecasts into 17 cases

By examining the optimism/pessimism of analysts' forecasts prior to MEFs, news conveyed by MEFs, MEFs' forecast error, analyst forecast error, and the relative accuracy of MEFs and analysts' forecasts, we classify all MEFs into 17 distinct cases. We then categorize these 17 cases into three incentive categories. We assume that managers consider the existing consensus analysts' forecasts before making a decision on MEF. We further assume that, after observing the current consensus analysts' forecasts, managers decide the following:

1) whether to issue good- or bad-news forecasts,

2) whether to issue optimistic or pessimistic management forecasts, and

3) whether to issue more or less accurate forecasts compared with the existing consensus analysts' forecasts

For the classification, we construct a decision-tree template and then use it to classify MEFs. The decision-tree approach enables us to present our classification scheme in an intuitive manner. The steps involved in the construction of the classification scheme are as follows. First, MEFs are classified into three groups by optimism/pessimism in the consensus analysts' forecast: (1) MEFs in which the consensus analysts' forecast is optimistic, (2) MEFs in which the consensus analysts' forecast is accurate (that is, zero forecast error), and (3) MEFs in which the consensus analysts' forecast is pessimistic. MEFs are then partitioned based on forecast news, optimism/pessimism in management forecasts, and MEF error within the three groups above.

Using the forecast error of the last consensus analysts' forecasts before the MEF, B_AFE, we determine optimism/pessimism in consensus analysts' forecasts. The positive (negative) value of B_AFE indicates pessimistic (optimistic) analysts' forecasts. We identify the type of

MEF news based on NEWS, which is measured as the difference between MEFs and consensus analysts' forecasts prior to MEFs. The positive (negative) value of NEWS indicates good (bad) news. Optimism/pessimism in MEFs is defined by management earnings forecast error, MEFE, where MEFE is measured as the actual EPS minus the management-earnings forecast. A positive (negative) value of MEFE means pessimistic (optimistic) MEFs. By comparing the absolute magnitude of MEFE and the absolute value of B_AFE, we determine ABSFEDIFF, which is the relative accuracy of the MEF.

Figure A-1 shows the classification of management-earnings forecasts in a decision tree. In Figure A-1, decision nodes in bold characters represent the point where subsequent nodes are automatically determined (for example, when the consensus analysts' forecasts are optimistic, a good-news MEF also means an optimistic and less accurate MEF (case 1)).

These 17 cases are associated with three incentives discussed in the text as follows:

1) ***Expectations management***
if MEF ≤ AF & MEF ≤ Actual but not MEF = AF = Actual: **Cases 4, 5, 6, 7, 10, 16, 17**

2) ***Communication***
if (ABSMEFE < ABSAFE but not Expectations management) or (MEF = AF = Actual): **Cases 3, 9, 13, 14, 15**

3) ***Other***
if MEF ≥ AF & MEF > Actual, but not ABSMEFE < ABSAFE: **Cases 1, 2, 8, 11, 12**

Figure A-2 summarizes our classification scheme of MEFs and shows the directions of four variables used to classify MEFs into the 17 cases and three incentive categories. Figure A-3 shows an example for each case when actual earnings is $10 per share. Table A-1 shows frequencies of MEFs by 17 cases and three incentive categories.

Figure A-3 also reveals the difference between our classification and the classification based on either bad/good news or pessimistic/optimistic MEFs. Based on bad/good news forecasts, cases 3, 4, 5, 6, 7, 10, and 17 are classified as expectations management. Case 3 belongs to an

expectations-management category based on bad/good news but to a communication category in our classification scheme. In contrast, case 16 is classified as an expectations management group in our classification but excluded from the expectations-management category when it is classified by bad/good news forecasts. These are not trivial cases. Table A-1 shows that about 20 percent of MEFs belong to case 3 and about 6 percent of MEFs belong to case 16. In case 3, managements issue a MEF that is lower than the existing consensus forecast (that is, bad news) but higher than actual earnings. If a manager has an incentive for meeting or beating market expectation at the earnings announcement, she or he will issue forecasts lower than actual earnings to guide analyst forecasts down below actual earnings. Thus it would be inappropriate to classify case 3 as expectations management.[20]

Based on pessimistic/optimistic forecasts, cases 5, 6, 7, 10, 15, 16, and 17 are classified as expectations management. Case 15 is classified as expectations management based on pessimistic/optimistic forecasts but partitioned as a communication category in our classification. In contrast, case 4 is classified as expectations management in our classification but excluded from the expectations-management category when it is partitioned by pessimistic/optimistic forecasts. Table A-1 shows that about 20 percent of MEFs belongs to case 15 and about 7 percent of MEFs belongs to case 4. To the extent that expectations managements are defined as managerial intention to *meet* or beat the market expectation at the time of earnings announcement, it is more appropriate to classify MEFs that guide down overly optimistic analyst forecasts and lead to actual earnings meeting the guided earnings numbers, as expectations management rather than communication.[21] In case 15, management issues MEFs that are lower

[20] Both good-news (cases 13, 14, 15) and bad-news (case 3) forecasts are classified as communication. While Lev and Penman (1990) argue that only managers with the information that implies firm values greater than the average valuation assumed by the market will disclose credibly, Skinner (1994, 1997) contends that managers have incentives to issue bad-news forecasts to prevent lawsuits.

[21] Consistent with prior literature (Bartov et al. 2002; Matsumoto 2002; Richardson et al. 2004) that defines expectations managements as managerial intention to *meet* or beat the market expectation at the time of an earnings

than actual earnings but higher than the existing consensus forecasts. If a manager has an incentive for meeting or beating market expectations at the earnings announcement, leaving the current low market expectation unchanged could be a choice to help achieve the goal. Under such an incentive, managers are less likely to guide analysts' forecasts upward. Rather, case 15 is consistent with managers providing earnings guidance to convey more accurate information about true earnings. Therefore, it would be more appropriate to classify case 15 as communication rather than expectations management.

To the extent that an MEF that is lower than the consensus analysts' forecast might be an unbiased belief, honestly held, expectations management based on our classification could represent the upper bound of the extent of expectations management. If an MEF that is lower than the existing consensus analysts' forecast represents an unbiased belief of the manager at the time of guidance and therefore communication, managers with communication concerns are likely to revise MEFs upward when their previous beliefs turn out to be overly pessimistic. Untabulated results, however, show that upward revisions of MEFs before earnings announcements are quite rare. Specifically, we observe that less than 5 percent of MEFs are revised upward in the same quarter. Moreover, the percentage of MEFs that are followed by upward revisions is not significantly different across different incentive categories. We find that only 4.5 (5.5) percent of MEFs in the communication (expectations management) category are revised upward prior earnings announcements. Although we cannot rule out the possibility of some communicating MEFs being incorrectly classified as expectations management, it appears that the proportion of such misclassification is not significantly large.

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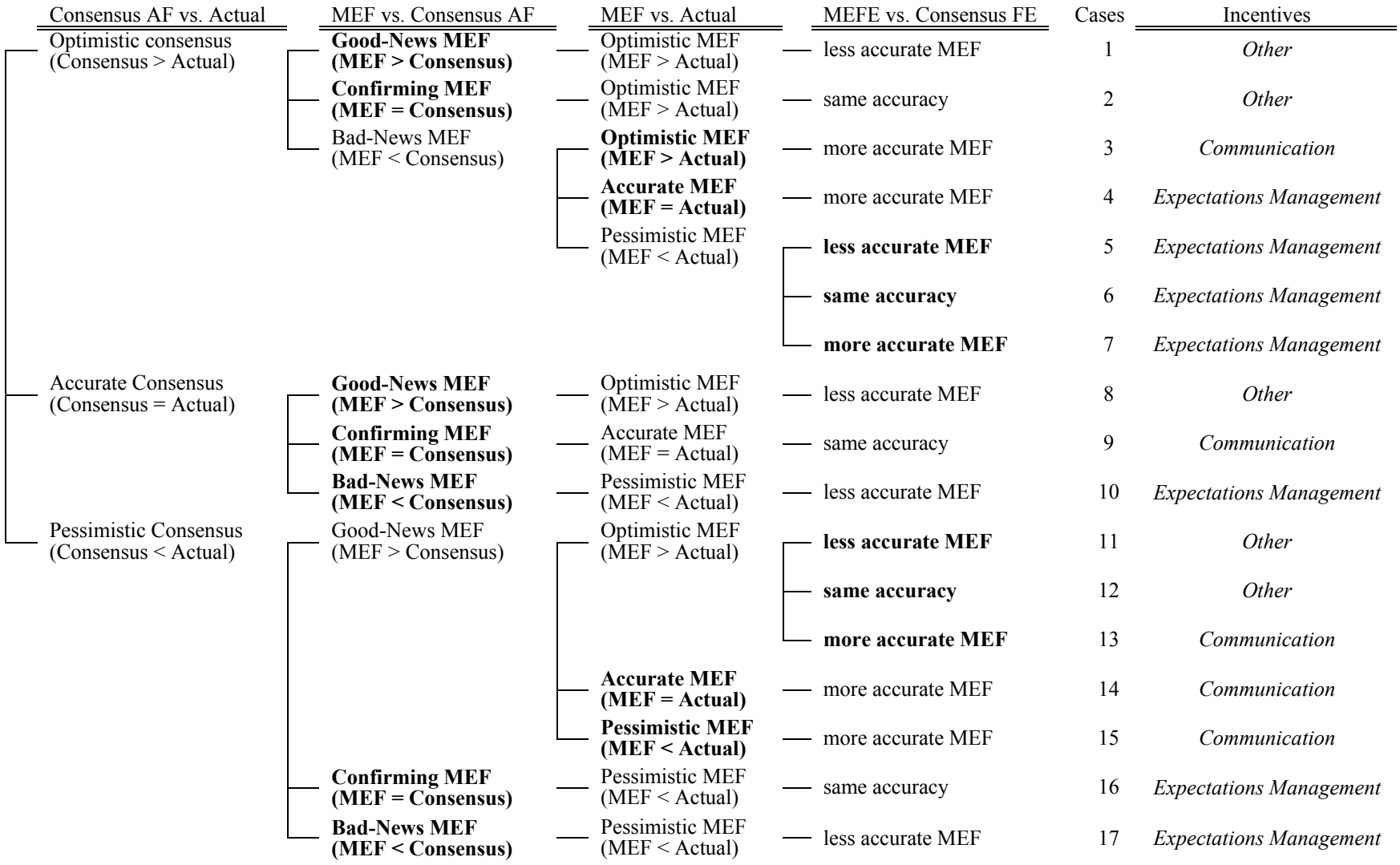
announcement, we classify case 4 as expectations management. We replicate our analysis in Table 7 after classifying case 4 as communication instead of expectations management. The untabulated results are largely similar to those in Table 7, except that the coefficient on SELL_AF_30 becomes significant at the 5 percent level, and the coefficient on AFSTD is statistically insignificant when COMM is a dependent variable.

Figure A-1 Classification of management earnings forecasts – decision tree



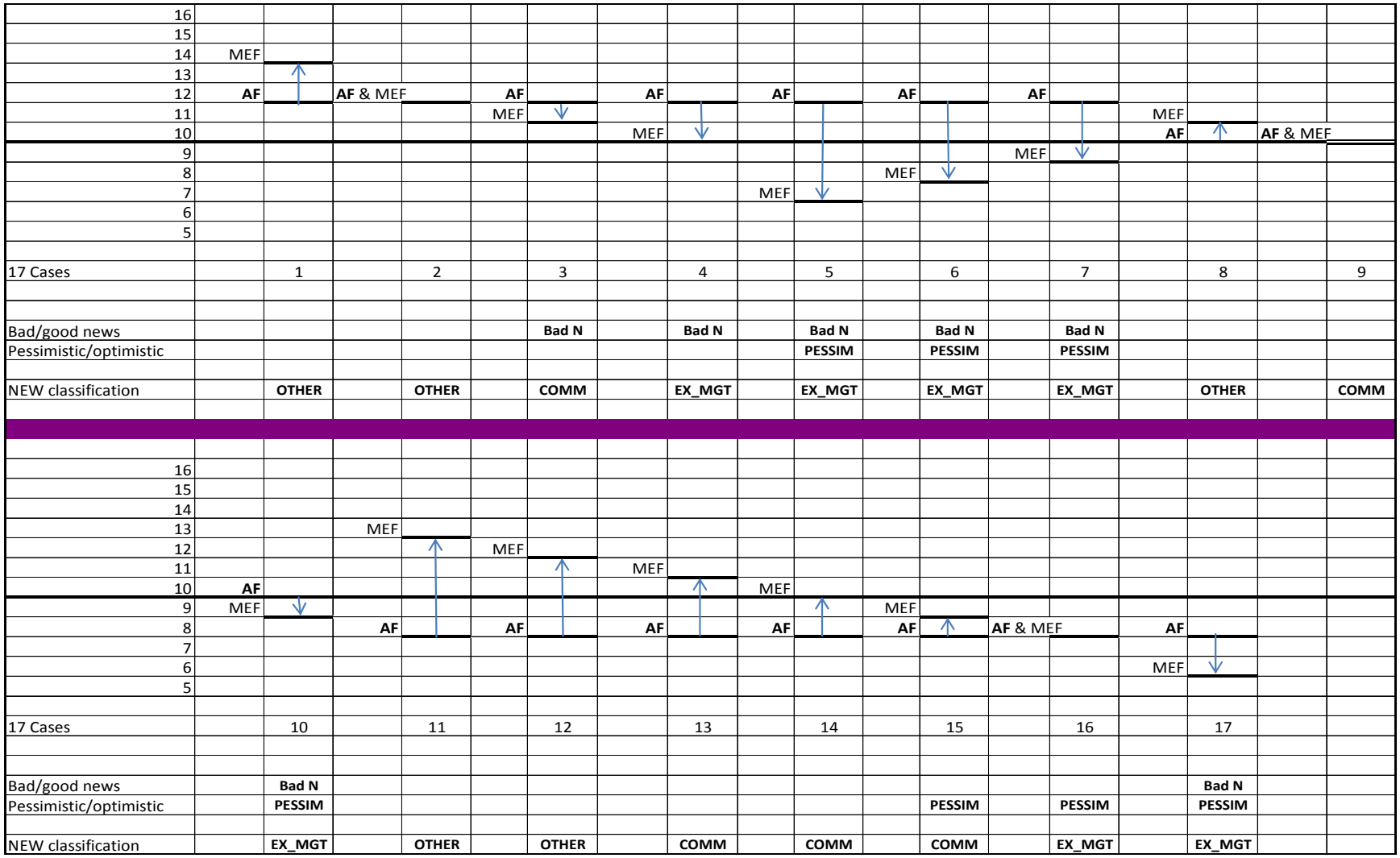
A condition is in bold characters where it automatically determines the subsequent nodes.

Figure A-2 Analysts' forecast error, forecast news, management forecast error, and classification of management earnings forecasts

Case #	Possible Incentives		AF - Actual		MEF - AF		Actual - MEF		MEFE - AFE
1	***Other***		>		>0		<0		>0
2	***Other***		>		=0		<0		=0
3	***Communication***		>		<0		<0		<0
4	***Expectations management***		>		<0		=0		<0
5	***Expectations management***		>		<0		>0		>0
6	***Expectations management***		>		<0		>0		=0
7	***Expectations management***		>		<0		>0		<0
8	***Other***		=		>0		<0		>0
9	***Communication***		=		=0		=0		=0
10	***Expectations management***		=		<0		>0		>0
11	***Other***		<		>0		<0		>0
12	***Other***		<		>0		<0		=0
13	***Communication***		<		>0		<0		<0
14	***Communication***		<		>0		=0		<0
15	***Communication***		<		>0		>0		<0
16	***Expectations management***		<		=0		>0		=0
17	***Expectations management***		<		<0		>0		>0

AF = the last consensus analysts' forecasts before MEF; MEF = the management forecast of earnings per share; Actual = actual earnings per share for the quarter or the fiscal year end; Good (Bad) news MEF = the difference between MEF and AF is positive (negative), measured as MEF- consensus analysts' forecasts before MEF; MEFE = management earnings forecasts error, measured as (Actual EPS – MEF)/P, where P is the stock price at the end of the day prior to MEF; AFE = forecast error of the last consensus analysts' forecasts prior to MEF, measured as (Actual EPS – Consensus Forecasts)/P, where Consensus Forecasts is the last consensus analysts' forecasts of EPS before MEF, and P is the stock price at the end of the day prior to MEF.
The point estimate of earnings is used to proxy for MEF when management issues a point forecast. For range forecasts, we use the midpoint of the range. For minimum- and maximum-type forecasts, we use the disclosed lower or upper bound.

Figure A-3 Example of 17 cases and alternative classifications of management earnings forecasts



Bad N: bad-news forecasts, PESSIM: pessimistic forecast, OTHER: *Other* incentives, COMM: *Communication* incentive, EX_MGT: *Expectations management* incentive

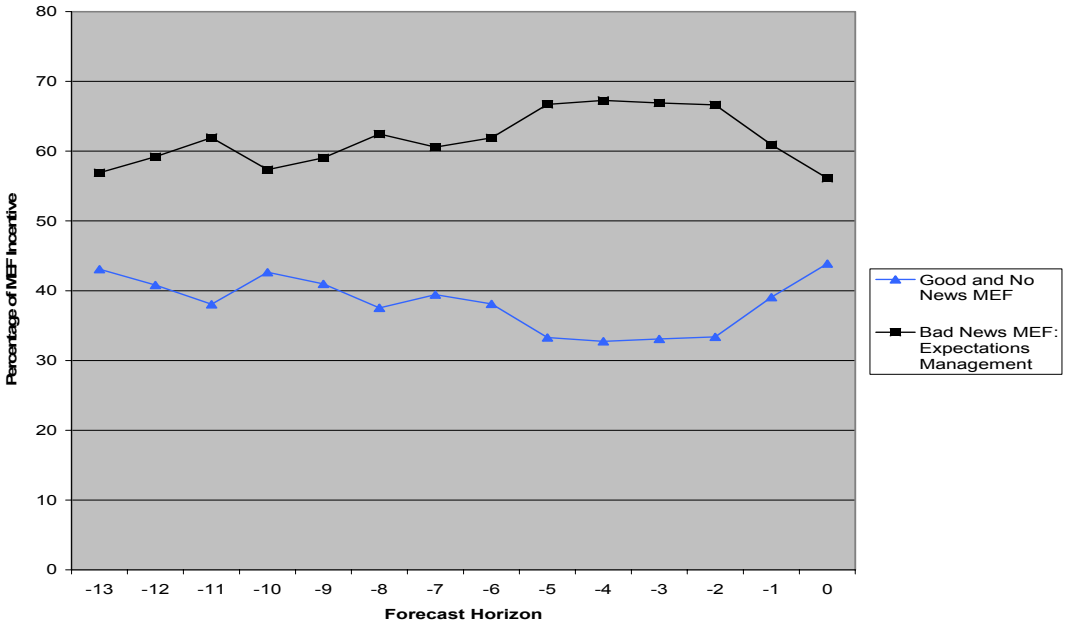
Table A-1 Frequencies of management earnings forecasts by 17 cases and three possible incentives

Incentives:	Case	# of forecasts	Percent	Pre-Reg FD Period # of forecasts	Pre-Reg FD Period Percent	Post-Reg FD Period # of forecasts	Post-Reg FD Period Percent	First forecast # of forecasts	First forecast Percent	Final forecast # of forecasts	Final forecast Percent
Expectations management											
	No. 4	1,634	7.17%	465	11.31%	997	5.85%	1,363	7.22%	1,555	8.21%
	5	666	2.92%	69	1.68%	571	3.35%	594	3.15%	589	3.11%
	6	110	0.48%	12	0.29%	91	0.53%	93	0.49%	99	0.52%
	7	3,410	14.97%	801	19.48%	2,316	13.59%	2,880	15.25%	3,204	16.91%
	10	1,200	5.27%	153	3.72%	998	5.86%	991	5.25%	1,040	5.49%
	16	1,392	6.11%	189	4.60%	1,109	6.51%	1,073	5.68%	1,131	5.97%
	17	2,493	10.94%	191	4.65%	2,220	13.03%	2,059	10.90%	1,941	10.25%
	Total	10,905	47.86%	1,880	45.73%	8,302	48.72%	9,053	47.94%	9,559	50.46%
Communication											
	No. 3	4,453	19.54%	1,227	29.85%	2,799	16.43%	3,967	21.01%	3,386	17.87%
	9	581	2.55%	106	2.58%	423	2.48%	440	2.33%	518	2.73%
	13	242	1.06%	32	0.78%	194	1.14%	195	1.03%	209	1.10%
	14	470	2.06%	70	1.70%	367	2.15%	356	1.89%	438	2.31%
	15	4,479	19.66%	441	10.73%	3,774	22.15%	3,499	18.53%	3,700	19.53%
	Total	10,225	44.88%	1,876	45.63%	7,557	44.35%	8,457	44.78%	8,251	43.56%
Other											
	No. 1	682	2.99%	141	3.43%	491	2.88%	580	3.07%	434	2.29%
	2	470	2.06%	138	3.36%	291	1.71%	404	2.14%	297	1.57%
	8	348	1.53%	55	1.34%	275	1.61%	269	1.42%	286	1.51%
	11	138	0.61%	19	0.46%	110	0.65%	107	0.57%	102	0.54%
	12	17	0.07%	2	0.05%	14	0.08%	15	0.08%	14	0.07%
	Total	1,655	7.26%	355	8.64%	1,181	6.93%	1,375	7.28%	1,133	5.98%
Total observations		22,785	100.00%	4,111	100.00%	17,040	100.00%	18,885	100.00%	18,943	100.00%

The number of observations is restricted by availability of data on various variables because we need to know management earnings forecast error, news (good vs. bad news), and forecast error of consensus analysts' forecasts prior to MEF in order to define three incentives. We divide our sample between the Pre- and Post-Regulation FD periods, based on whether the MEF is released before or after year 2000. We exclude year 2000 from both the pre- and post-Regulation FD periods because year 2000 is the transition period.

Figure 1 Percentage of MEF Incentives

Panel A: Percentage of expectations management defined by bad-news MEF



Panel B: Percentage of expectations management defined by MEF error

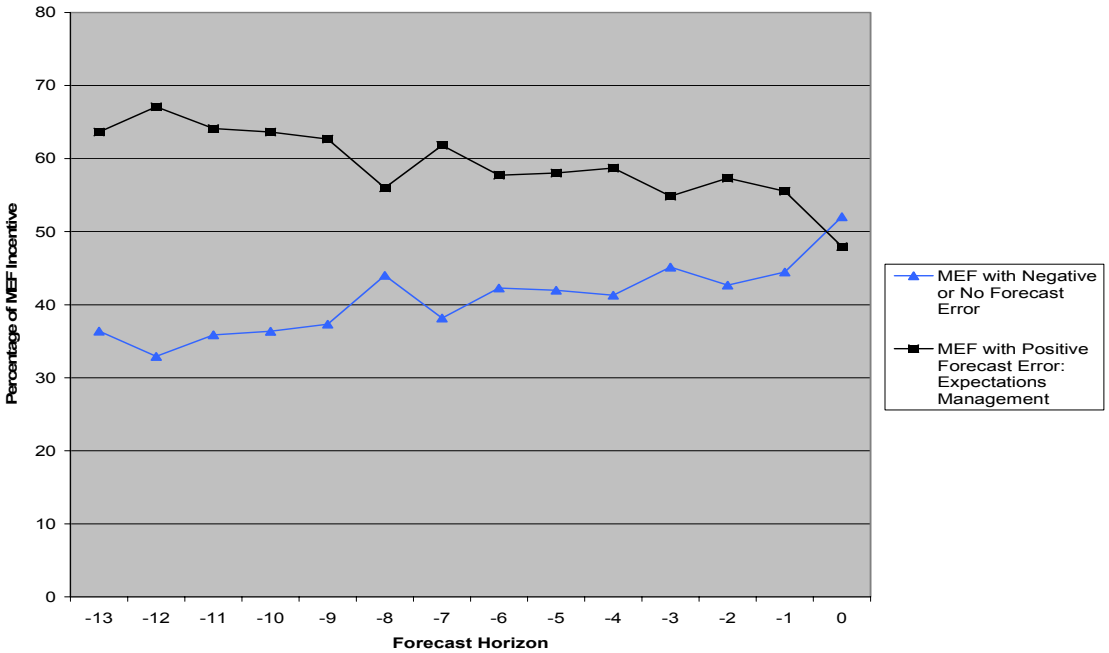
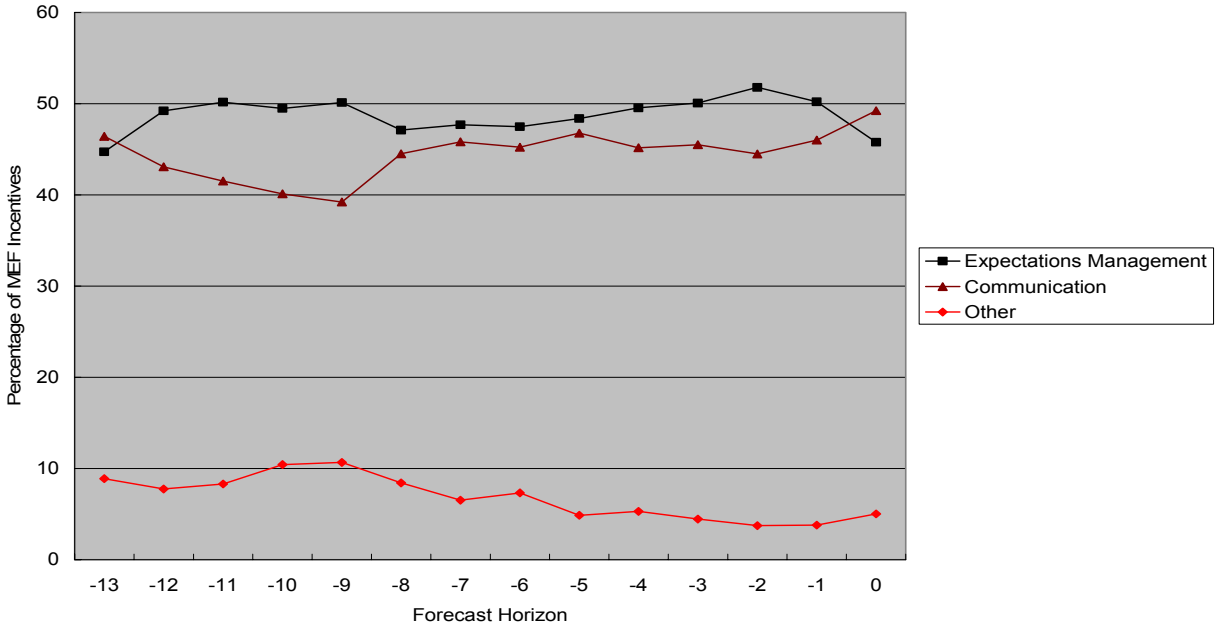


Figure 1 continued

Panel C: Percentage of MEF incentives after partitioning by new scheme



In Panel A, good (bad) news is defined based on the difference between MEF and AF. If (MEF – consensus analysts' forecasts before MEF) is positive then it is defined as good news, and if the measure is negative or equal to zero, then it is defined as bad news.

In Panel B, positive (negative) MEF error indicates MEF is smaller (greater) than actual EPS. If (Actual EPS – MEF)/P, where P is the stock price at the end of the day prior to MEF, is positive, then it is defined as positive MEF error, and if the measure is negative or zero, then it is defined as negative news.

In Panel C, MEFs are classified into three incentive categories based on forecast news, optimism/pessimism in management forecast, and MEF error.

Forecast horizon is the number of weeks prior to earnings announcement.

Table 1 Frequencies of management earnings forecasts

Panel A: Frequencies of management earnings forecasts by year

Year	Quantitative	Percentage	Qualitative	Percentage	Total
1995	323	96.71%	11	3.29%	334
1996	564	91.11%	55	8.89%	619
1997	760	88.06%	103	11.94%	863
1998	1,304	76.80%	394	23.20%	1,698
1999	1,255	71.55%	499	28.45%	1,754
2000	1,682	80.90%	397	19.10%	2,079
2001	3,684	89.61%	427	10.39%	4,111
2002	3,545	93.88%	231	6.12%	3,776
2003	3,405	95.67%	154	4.33%	3,559
2004	3,680	98.16%	69	1.84%	3,749
2005	3,145	99.43%	18	0.57%	3,163
	23,347		2,358		25,705

Panel B: Number of firms issuing management earnings forecasts

Year	Number of firms	Number of forecasts	# of forecasts per firm
1995	328	334	1.02
1996	598	619	1.04
1997	811	863	1.06
1998	1,572	1,698	1.08
1999	1,615	1,754	1.09
2000	1,890	2,079	1.10
2001	3,349	4,111	1.23
2002	3,002	3,776	1.26
2003	2,815	3,559	1.26
2004	2,940	3,749	1.28
2005	2,553	3,163	1.24
	21,473	25,705	1.20

Table 2 Forecast errors of management earnings forecasts and analysts' forecasts by year

Panel A: Management earnings forecast errors

Year	N	Mean	Median	Std. dev.	Min	Max
1995	317	-0.0004	0.0001	0.0058	-0.0391	0.0185
1996	540	-0.0022	0.0000	0.0073	-0.0418	0.0182
1997	734	-0.0017	0.0000	0.0068	-0.0424	0.0182
1998	1,280	-0.0013	0.0000	0.0065	-0.0424	0.0212
1999	1,216	-0.0004	0.0001	0.0051	-0.0400	0.0202
2000	1,625	-0.0005	0.0000	0.0062	-0.0436	0.0213
2001	3,581	0.0000	0.0002	0.0057	-0.0433	0.0206
2002	3,464	0.0005	0.0005	0.0048	-0.0436	0.0211
2003	3,365	0.0005	0.0006	0.0049	-0.0431	0.0213
2004	3,652	0.0007	0.0006	0.0042	-0.0436	0.0210
2005	3,107	0.0007	0.0006	0.0041	-0.0385	0.0205
Total	22,881					

Panel B: Forecast errors of consensus analysts' forecasts issued prior to management earnings forecasts

Year	N	Mean	Median	Std. dev.	Min	Max
1995	316	-0.0059	-0.0021	0.0155	-0.1644	0.0621
1996	540	-0.0092	-0.0037	0.0258	-0.3255	0.1297
1997	733	-0.0082	-0.0037	0.0200	-0.4133	0.0200
1998	1,279	-0.0082	-0.0036	0.0196	-0.3600	0.1120
1999	1,207	-0.0087	-0.0030	0.0258	-0.4776	0.0424
2000	1,615	-0.0082	-0.0022	0.0298	-0.9219	0.0760
2001	3,561	-0.0051	-0.0013	0.0201	-0.5224	0.1411
2002	3,443	-0.0016	0.0000	0.0112	-0.1659	0.0741
2003	3,350	-0.0015	0.0000	0.0097	-0.1487	0.0784
2004	3,642	-0.0006	0.0003	0.0071	-0.0785	0.0355
2005	3,099	-0.0006	0.0000	0.0076	-0.0775	0.1985
Total	22,785					

The sample was truncated at the 1% and 99% of MEF errors and includes only quantitative MEFs.
In Panel A, management earnings forecast errors are measured as (Actual EPS – MEF)/P, where MEF is the management forecast of earnings per share and P is the stock price at the end of the day prior to MEF. The point estimate of earnings is used for MEF when management issues a point forecast. For range forecasts, we use the midpoint of the range. For minimum- and maximum-type forecasts, we use the disclosed lower or upper bound. Positive (negative) value of MEFE means pessimistic (optimistic) MEF. In Panel B, forecast errors of consensus analysts' forecasts are measured as (Actual EPS – Consensus Forecasts)/P, where Consensus Forecasts is the last consensus analysts' forecasts of EPS before MEF, and P is the stock price at the end of the day prior to MEF. A positive (negative) value indicates pessimistic (optimistic) analysts' forecasts.

Table 3 Descriptive statistics of selected variables

Panel A: Full sample

Variable	N	Mean	Median	Std dev.	25th	75th	t-value	Pr > |t|	Pr > S
MEFE	22881	0.0001	0.0004	0.0052	-0.0002	0.0015	3.38	0.0007	<.0001
ABSMEFE	22881	0.0026	0.0010	0.0045	0.0003	0.0028	87.01	<.0001	<.0001
NEWS	22785	-0.0036	-0.0006	0.0155	-0.0038	0.0002	-35.24	<.0001	<.0001
B_AFE	22785	-0.0035	-0.0002	0.0165	-0.0045	0.0013	-31.99	<.0001	<.0001
A_AFE	22688	-0.0004	0.0002	0.0140	-0.0004	0.0014	-3.91	<.0001	<.0001
CHG_AFE	22593	0.0029	0.0002	0.0117	0.0000	0.0030	37.35	<.0001	<.0001
ABSCHG_AFE	22593	-0.0032	-0.0006	0.0109	-0.0030	0.0000	-43.56	<.0001	<.0001

Panel B: Meeting/beating versus missing analysts expectations

										Beating vs. Missing		Meeting vs. Missing	
	Beating expectation			Meeting expectation			Missing expectation			t-test:	Wilcoxon test	t-test:	Wilcoxon test
Variable	N	Mean	Median	N	Mean	Median	N	Mean	Median	Pr > |t|	Pr > |Z|	Pr > |t|	Pr > |Z|
MEFE	11,687	0.0016	0.0011	5,687	-0.0004	0.0000	3,084	-0.0040	-0.0013	<.0001	<.0001	<.0001	<.0001
ABSMEFE	11,687	0.0026	0.0013	5,687	0.0012	0.0003	3,084	0.0045	0.0016	<.0001	<.0001	<.0001	<.0001
NEWS	11,633	-0.0024	-0.0002	5,681	-0.0034	-0.0007	3,069	-0.0081	-0.0025	<.0001	<.0001	<.0001	<.0001
B_AFE	11,633	-0.0008	0.0006	5,681	-0.0038	-0.0008	3,069	-0.0120	-0.0056	<.0001	<.0001	<.0001	<.0001
A_AFE	11,683	0.0014	0.0010	5,683	-0.0009	0.0000	3,082	-0.0065	-0.0021	<.0001	<.0001	<.0001	<.0001
CHG_AFE	11,629	0.0022	0.0000	5,677	0.0029	0.0004	3,067	0.0057	0.0016	<.0001	<.0001	<.0001	<.0001
ABSCHG_AFE	11,629	-0.0023	-0.0003	5,677	-0.0035	-0.0009	3,067	-0.0060	-0.0018	<.0001	<.0001	<.0001	<.0001

Table 3 continued

Panel C: Initial analysts' forecast optimism versus pessimism

	Initial consensus forecasts									Pessimistic vs. Optimistic	
	Pessimistic			Accurate			Optimistic			t-test:	Wilcoxon test
Variable	N	Mean	Median	N	Mean	Median	N	Mean	Median	Pr > |t|	Pr > |Z|
MEFE	8,745	0.0022	0.0013	2,201	0.0003	0.0001	9,695	-0.0017	0.0000	<.0001	<.0001
ABSMEFE	8,745	0.0025	0.0013	2,201	0.0009	0.0003	9,695	0.0030	0.0009	<.0001	<.0001
NEWS	8,697	0.0006	0.0001	2,191	-0.0012	-0.0002	9,673	-0.0081	-0.0032	<.0001	<.0001
B_AFE	8,697	0.0028	0.0016	2,191	-0.0009	0.0000	9,673	-0.0098	-0.0044	<.0001	<.0001
A_AFE	8,720	0.0025	0.0013	2,197	0.0002	0.0000	9,617	-0.0033	-0.0005	<.0001	<.0001
CHG_AFE	8,672	-0.0003	0.0000	2,187	0.0011	0.0000	9,596	0.0063	0.0025	<.0001	<.0001
ABSCHG_AFE	8,672	-0.0011	0.0000	2,187	-0.0011	0.0000	9,596	-0.0056	-0.0020	<.0001	<.0001

Panel D: Pre- versus post-regulation FD period

							Pre- vs. Post-Reg FD Period	
	Pre-Reg FD Period			Post-Reg FD Period			t-test:	Wilcoxon test
Variable	N	Mean	Median	N	Mean	Median	Pr > |t|	Pr > |Z|
MEFE	4,122	-0.0018	0.0000	17,111	0.0006	0.0005	<.0001	<.0001
ABSMEFE	4,122	0.0036	0.0009	17,111	0.0024	0.0010	<.0001	<.0001
NEWS	4,111	-0.0071	-0.0024	17,040	-0.0024	-0.0004	<.0001	<.0001
B_AFE	4,111	-0.0089	-0.0035	17,040	-0.0018	0.0000	<.0001	<.0001
A_AFE	4,077	-0.0029	0.0000	17,013	0.0004	0.0004	<.0001	<.0001
CHG_AFE	4,066	0.0060	0.0017	16,943	0.0020	0.0000	<.0001	<.0001
ABSCHG_AFE	4,066	-0.0060	-0.0018	16,943	-0.0023	-0.0004	<.0001	<.0001

Table 3 continued

The sample is truncated at the 1% and 99% of MEF errors and includes only quantitative MEFs.

MEFE = MEF error, measured as (Actual EPS – MEF)/P, where MEF is the management forecast of earnings per share, and P is the stock price at the end of the day prior to MEF. The point estimate of earnings is used for MEF when management issues a point forecast. For range forecasts, we use the midpoint of the range. For minimum- and maximum-type forecasts, we use the disclosed lower or upper bound. Positive (negative) value of MEFE means pessimistic (optimistic) MEF.

ABSMEFE = the absolute value of MEFE.

NEWS = MEF news calculated as (MEF – Consensus Forecasts)/P, where Consensus Forecasts is the last consensus analysts' forecasts of EPS prior to MEF, and P is the stock price at the end of the day prior to MEF. Consensus analysts' forecast is measured as median analysts' forecasts. Positive (negative) value of NEWS indicates good (bad) news.

B_AFE (A_AFE) = forecast error of the last (first) consensus analysts' forecasts before (after) MEF, measured as (Actual EPS – Consensus Forecasts)/P, where Consensus Forecasts is the last (first) consensus analysts' forecasts of EPS before (after) MEF, and P is the stock price at the end of the day prior to MEF. A positive (negative) value of B_AFE or A_AFE indicates pessimistic (optimistic) analysts' forecasts.

CHG_AFE = change in analysts' forecast errors before and after MEF, measured as A_AFE minus B_AFE. Positive (negative) value of CHG_AFE indicates lower (higher) analysts' forecasts after MEF.

ABSCHG_AFE = change in the absolute value of analyst forecast errors before and after MEF, measured as the absolute value of A_AFE minus the absolute value of B_AFE. Positive (negative) value of ABSCHG_AFE indicates less (more) accurate analysts' forecasts after MEFs.

The number of observations in Panel A is different from the sum of the number of observations in other Panels because we cannot determine meeting/beating or analyst forecast optimism due to missing variables for several observations. For example, in Panel B, we cannot determine whether actual earnings meet or beat expectations because the last consensus forecasts prior to actual earnings announcement are missing for several observations.

In Panel B, significance levels are for two-tailed t-tests (Wilcoxon rank sum tests) for differences in means (medians) between meeting/beating expectation sample and missing expectation sample. In Panel C, significance levels are for two-tailed t-tests (Wilcoxon rank sum tests) for differences in means (medians) between pessimism and optimism in initial analysts' forecasts. In Panel D, we divide our sample between the Pre- and Post-Regulation FD periods, based on whether the MEF is released before or after year 2000. We exclude year 2000 from both pre- and post-Regulation FD periods because year 2000 is the transition period. Significance levels are for two-tailed t-tests (Wilcoxon rank sum tests) for differences in means (medians) between pre- and post-Regulation FD periods.

Table 4 Frequencies of management earnings forecasts by three possible incentives

Incentives:	# of forecasts	Percent	Pre-Reg FD Period # of forecasts	Pre-Reg FD Period Percent	Post-Reg FD Period # of forecasts	Post-Reg FD Period Percent	First forecast # of forecasts	First forecast Percent	Final forecast # of forecasts	Final forecast Percent
Expectations management	10,905	47.86%	1,880	45.73%	8,302	48.72%	9,053	47.94%	9,559	50.46%
Communication	10,225	44.88%	1,876	45.63%	7,557	44.35%	8,457	44.78%	8,251	43.56%
Other	1,655	7.26%	355	8.64%	1,181	6.93%	1,375	7.28%	1,133	5.98%
Total observations	22,785	100.00%	4,111	100.00%	17,040	100.00%	18,885	100.00%	18,943	100.00%

Based on AF, MEF, and actual earnings, the sample MEFs are grouped into the following three possible incentives: (1) *Expectations management*, (2) *Communication*, and (3) *Other*.

The number of observations is restricted by availability of data on various variables because we need to know management earnings forecast error, news (good vs. bad news), and forecast error of consensus analysts' forecasts prior to MEF in order to define three incentives. We divide our sample between the Pre- and Post-Regulation FD periods, based on whether the MEF is released before or after year 2000. We exclude year 2000 from both the pre- and post-Regulation FD periods because year 2000 is the transition period.

Table 5 Descriptive statistics by three possible incentives for issuing management earnings forecasts

Panel A: Full sample

Variable	Incentive	N	Mean	Median	Std. dev.	t-value	Pr > |t|
METBEAT							
	1	9,785	0.9537	1.0000	0.2101	448.95	<.0001
	2	9,172	0.7727	1.0000	0.4191	176.56	<.0001
	3	1,426	0.6276	1.0000	0.4836	49.01	<.0001
I_AF_OP							
	1	9,867	0.4627	0.0000	0.4986	92.17	<.0001
	2	9,259	0.4393	0.0000	0.4963	85.16	<.0001
	3	1,435	0.7254	1.0000	0.4465	61.55	<.0001
MEFE							
	1	10,905	0.0019	0.0009	0.0029	67.64	<.0001
	2	10,225	-0.0008	0.0000	0.0055	-14.01	<.0001
	3	1,655	-0.0060	-0.0028	0.0081	-30.13	<.0001
ABSMEFE							
	1	10,905	0.0019	0.0009	0.0029	67.64	<.0001
	2	10,225	0.0028	0.0011	0.0048	59.07	<.0001
	3	1,655	0.0060	0.0028	0.0081	30.13	<.0001
B_AFE							
	1	10,819	-0.0036	-0.0004	0.0151	-26.25	<.0001
	2	10,126	-0.0030	0.0003	0.0189	-16.80	<.0001
	3	1,648	-0.0038	-0.0011	0.0068	-22.79	<.0001
A_AFE							
	1	10,819	0.0004	0.0005	0.0082	5.01	<.0001
	2	10,126	-0.0009	0.0000	0.0084	-11.01	<.0001
	3	1,648	-0.0029	-0.0008	0.0068	-17.47	<.0001
CHG_AFE							
	1	10,819	0.0040	0.0009	0.0121	34.60	<.0001
	2	10,126	0.0021	0.0000	0.0120	17.30	<.0001
	3	1,648	0.0009	0.0000	0.0048	7.24	<.0001
ABSCHG_AFE							
	1	10,819	-0.0027	0.0000	0.0112	-25.39	<.0001
	2	10,126	-0.0040	-0.0012	0.0113	-36.19	<.0001
	3	1,648	-0.0006	0.0000	0.0045	-5.22	<.0001

Table 5 continued

Panel B: Pre- versus post-regulation FD period

		Pre-Reg FD Period			Post-Reg FD Period			t-test:	Wilcoxon test:
Variable	Incentive	N	Mean	Median	N	Mean	Median	Pr > |t|	Pr > |Z|
METBEAT	1	1,689	0.9153	1.0000	7,469	0.9606	1.0000	<.0001	<.0001
	2	1,671	0.6092	1.0000	6,798	0.8138	1.0000	<.0001	<.0001
	3	314	0.6338	1.0000	1,007	0.6256	1.0000	0.5811	0.5810
I_AF_OP									
	1	1,704	0.6796	1.0000	7,507	0.3960	0.0000	<.0001	<.0001
	2	1,687	0.6562	1.0000	6,846	0.3732	0.0000	<.0001	<.0001
	3	315	0.7873	1.0000	1,013	0.7068	1.0000	0.0162	0.0163
MEFE									
	1	1,880	0.0015	0.0006	8,302	0.0020	0.0009	<.0001	<.0001
	2	1,876	-0.0034	-0.0006	7,557	-0.0001	0.0000	<.0001	<.0001
	3	355	-0.0110	-0.0057	1,181	-0.0044	-0.0023	<.0001	<.0001
ABSMEFE									
	1	1,880	0.0015	0.0006	8,302	0.0020	0.0009	<.0001	<.0001
	2	1,876	0.0042	0.0012	7,557	0.0024	0.0011	<.0001	0.0023
	3	355	0.0110	0.0057	1,181	0.0044	0.0023	<.0001	<.0001
B_AFE									
	1	1,866	-0.0079	-0.0030	8,258	-0.0024	0.0000	<.0001	<.0001
	2	1,848	-0.0102	-0.0042	7,506	-0.0009	0.0008	<.0001	<.0001
	3	352	-0.0075	-0.0031	1,179	-0.0026	-0.0008	<.0001	<.0001
A_AFE									
	1	1,866	-0.0016	0.0000	8,258	0.0009	0.0006	<.0001	<.0001
	2	1,848	-0.0041	-0.0003	7,506	-0.0001	0.0003	<.0001	<.0001
	3	352	-0.0038	-0.0007	1,179	-0.0025	-0.0008	0.7436	0.3870
CHG_AFE									
	1	1,866	0.0063	0.0022	8,258	0.0033	0.0007	<.0001	<.0001
	2	1,848	0.0061	0.0015	7,506	0.0008	0.0000	<.0001	<.0001
	3	352	0.0037	0.0006	1,179	0.0001	0.0000	<.0001	<.0001
ABSCHG_AFE									
	1	1,866	-0.0053	-0.0015	8,258	-0.0019	0.0000	<.0001	<.0001
	2	1,848	-0.0074	-0.0025	7,506	-0.0030	-0.0010	<.0001	<.0001
	3	352	-0.0025	-0.0004	1,179	-0.0001	0.0000	<.0001	<.0001

Table 5 continued

Three possible incentives for issuing MEFs are

1 = *Expectations management*
2 = *Communication*
3 = *Other*

METBEAT = an indicator variable that takes the value of 1 if actual EPS is greater than or equal to the last consensus analysts' forecasts prior to earnings announcement and 0 otherwise, where consensus analysts' forecasts is defined as the median of analysts' forecasts;

I_AF_OP = an indicator variable that takes the value of 1 if the initial consensus analysts' forecasts is optimistic (greater than actual EPS) and 0 otherwise, where the consensus forecasts is defined as the median of analysts' forecasts;

MEFE = MEF error measured as (Actual EPS – MEF)/P, where MEF is the management forecast of earnings per share, and P is the stock price at the end of the day prior to MEF. The point estimate of earnings is used for MEF when management issues a point forecast. For range forecasts, we use the midpoint of the range. For minimum- and maximum-type forecasts, we use the disclosed lower or upper bound. Positive (negative) value of MEFE means pessimistic (optimistic) MEF;

ABSMEFE = the absolute value of MEFE;

B_AFE (A_AFE) = forecast error of the last (first) consensus analysts' forecasts before (after) MEF, measured as (Actual EPS – Consensus Forecasts)/P, where Consensus Forecasts is the last (first) consensus analysts' forecasts of EPS before (after) MEF, and P is the stock price at the end of the day prior to MEF. A positive (negative) value of B_AFE or A_AFE indicates pessimistic (optimistic) analysts' forecasts;

CHG_AFE = change in analysts' forecast errors before and after MEF, measured as A_AFE minus B_AFE. Positive (negative) value of CHG_AFE indicates lower (higher) analysts' forecasts after MEF; and

ABSCHG_AFE = change in the absolute value of analyst forecast errors before and after MEF, measured as the absolute value of A_AFE minus the absolute value of B_AFE. Positive (negative) value of ABSCHG_AFE indicates less (more) accurate analysts' forecasts after MEFs.

In Panel B, we divide our sample between the Pre- and Post-Regulation FD periods, based on whether the MEF is released before or after year 2000. We exclude year 2000 from both the pre- and post-Regulation FD periods because year 2000 is the transition period.

Table 6 Descriptive statistics for equity offerings and insider trading - by three possible incentives for issuing MEFs

Panel A: Full sample

Variable	Incentive	N	Mean	Median	Std. dev.	t-value	Pr > |t|
EO_AF_30							
	1	10,905	0.0078	0.0000	0.0879	9.26	0.0000
	2	10,225	0.0088	0.0000	0.0934	9.53	0.0000
	3	1,655	0.0036	0.0000	0.0601	2.45	0.0143
EO_AF_1YR							
	1	10,905	0.0499	0.0000	0.2177	23.93	<.0001
	2	10,225	0.0536	0.0000	0.2252	24.06	<.0001
	3	1,655	0.0381	0.0000	0.1914	8.09	<.0001
SELL_AF_30							
	1	10,905	0.2642	0.0000	0.4409	62.57	<.0001
	2	10,225	0.2660	0.0000	0.4419	60.87	<.0001
	3	1,655	0.2006	0.0000	0.4006	20.37	<.0001
SELL_AF_1YR							
	1	10,905	0.5629	1.0000	0.4961	118.49	<.0001
	2	10,225	0.5638	1.0000	0.4959	114.96	<.0001
	3	1,655	0.5094	1.0000	0.5001	41.44	<.0001

Panel B: Pre- versus post-regulation FD period

		Pre-Reg FD Period			Post-Reg FD Period			Difference Tests: t-test	Difference Tests: Wilcox-on test
Variables	Incentives	N	Mean	Median	N	Mean	Median	Pr > |t|	Pr > |Z|
EO_AF_30									
	1	1,880	0.0053	0.0000	8,302	0.0087	0.0000	0.1384	0.1384
	2	1,876	0.0059	0.0000	7,557	0.0094	0.0000	0.2374	0.2374
	3	355	0.0028	0.0000	1,181	0.0042	0.0000	0.7666	0.7670
EO_AF_1YR									
	1	1,880	0.0367	0.0000	8,302	0.0540	0.0000	0.0020	0.0020
	2	1,876	0.0373	0.0000	7,557	0.0580	0.0000	0.0012	0.0012
	3	355	0.0113	0.0000	1,181	0.0457	0.0000	0.0054	0.0054
SELL_AF_30									
	1	1,880	0.1202	0.0000	8,302	0.3033	0.0000	<.0001	<.0001
	2	1,876	0.1493	0.0000	7,557	0.3026	0.0000	<.0001	<.0001
	3	355	0.0986	0.0000	1,181	0.2303	0.0000	<.0001	<.0001
SELL_AF_1YR									
	1	1,880	0.4043	0.0000	8,302	0.6052	1.0000	<.0001	<.0001
	2	1,876	0.4179	0.0000	7,557	0.5997	1.0000	<.0001	<.0001
	3	355	0.3859	0.0000	1,181	0.5470	1.0000	<.0001	<.0001

Table 6 continued

Three possible incentives for issuing MEFs are
1 = *Expectations management*
2 = *Communication*
3 = *Other*

EO_AF_30 = an indicator variable that takes a value of 1 if the firm has common or preferred equity offerings between the earnings announcement date and 30 days after the earnings announcement and 0 otherwise.
EO_AF_1YR = an indicator variable equal to 1 if the firm has common or preferred equity offerings between the earnings announcement date and 1 year after the earnings announcement and 0 otherwise.
SELL_AF_30 = an indicator variable that takes a value of 1 if directors and officers are net sellers between the earnings announcement date and 30 days after the earnings announcement and 0 otherwise.
SELL_AF_1YR = an indicator variable that takes a value of 1 if directors and officers are net sellers between the earnings announcement date and 1 year after the earnings announcement and 0 otherwise.

In Panel B, we divide our sample between the Pre- and Post-Regulation FD periods, based on whether the MEF is released before or after year 2000. We exclude year 2000 from both the pre- and post- Regulation FD periods because year 2000 is the transition period. Significance levels are for two-tailed t-tests (Wilcoxon rank sum tests) for differences in means (medians) between the pre- and post-Regulation FD periods.

Table 7 Logistic regression analyses — three incentives for issuing management earnings forecasts

$$\Pr(\text{MEF\_INCENTIVE}=1) = \alpha_0 + \alpha_1\text{SELL\_AF\_30} + \alpha_2\text{EO\_AF\_30} + \alpha_3\,\text{EO\_BF} + \alpha_4\,\text{MB} + \alpha_5\text{MV} + \alpha_6\text{PROFIT} + \alpha_7\text{YEAR} + \alpha_8\text{R\&D} + \alpha_9\text{LITG} + \alpha_{10}\text{IMPLIT} + \alpha_{11}\text{CHEARN} + \alpha_{12}\text{LABINT} + \alpha_{13}\text{LT\_CHEARN} + \alpha_{14}\text{AFSTD} + \alpha_{15}\text{ARSTD} + \varepsilon$$

Dep. Variable	EX_MGT			COMM			OTHER		
	Coeff. Est.	Chi-sq		Coeff. Est.	Chi-sq		Coeff. Est.	Chi-sq	
Intercept	-0.4515	16.62	***	0.0491	0.19		-2.1679	115.76	***
SELL_AF_30	0.0923	7.14	***	-0.0068	0.04		-0.3153	21.18	***
EO_AF_30	-0.0548	0.11		0.1888	1.34		-0.6586	2.45	
EO_BF	0.0979	0.51		-0.1824	1.68		0.2597	1.20	
MB	0.0001	0.02		0.0000	0.11		-0.0004	0.30	
MV	0.0012	0.01		0.0001	0.00		-0.0027	0.02	
PROFIT	0.1752	13.14	***	-0.2070	17.94	***	0.0816	0.86	
YEAR	0.0387	34.34	***	-0.0396	34.96	***	-0.0017	0.02	
R&D	3.4314	12.26	***	-3.1375	9.61	***	-1.4509	0.66	
LITG	0.2775	66.85	***	-0.3987	130.00	***	0.3415	31.47	***
IMPLIT	-0.0448	1.81		0.0677	4.00	**	-0.0731	1.37	
CHEARN	0.0177	0.31		0.0466	2.10		-0.2097	13.11	***
LABINT	0.1282	4.55	**	-0.0461	0.57		-0.2848	6.76	***
LT_CHEARN	-0.0720	0.34		-0.0094	0.01		0.2002	1.70	
AFSTD	-1.7305	11.10	***	1.7064	10.84	***	0.1530	0.03	
ARSTD	-4.1145	13.95	***	4.7626	18.33	***	-1.4530	0.51	
Likelihood Ratio	238.39			293.68			88.94		

Table 7 continued

MEF_INCENTIVE is an indicator variable representing three incentives for issuing MEFs as follows:
EX_MGT takes a value of 1 if MEF belongs to the category representing the *Expectations-management* incentive and 0 otherwise;
COMM takes a value of 1 if MEF belongs to the category representing the *Communication* incentive and 0 otherwise; and
OTHER takes a value of 1 if MEF belongs to the category representing the *Other* incentive and 0 otherwise.

SELL_AF_30 = an indicator variable that takes a value of 1 if directors and officers are net sellers between the earnings announcement date and 30 days after the earnings announcement and 0 otherwise;
EO_AF_30 = an indicator variable equal to 1 if the firm has common or preferred equity offerings between the earnings announcement date and 30 days after the earnings announcement and 0 otherwise;
EO_BF= an indicator variable equal to 1 if the firm has common or preferred equity offerings between the MEF date and the day before the earnings announcement and 0 otherwise;
MB= market-to-book equity at the end of the quarter prior to MEF;
MV= logarithm of market value of equity at the end of the quarter prior to MEF;
PROFIT = an indicator variable that takes a value of 1 if actual EPS is positive and 0 otherwise;
YEAR = time trend variable, defined as (MEF year-1995);
R&D = R&D expense scaled by average total assets;
LITG = industry dummy with high litigation risk based on 4-digit SIC industry code, such as 2833, 2836, 3570, 3577, 3600-3674, 5200-5961, 7370-7374;
IMPLIT = industry dummy with high implicit claims based on 4-digit SIC industry code, such as 1500-1799, 2450-2459,2500-2599, 2830-2839, 3010-3019, 3240-3999;
CHEARN = an indicator variable that takes a value of 1 if the change in earnings from the same quarter in the previous year is positive and 0 otherwise;
LABINT= labor intensity, measured as [1-(PPE/Gross Assets)] where PPE is gross property plant, and equipment and Gross Assets is (total assets+accumulated depreciation and amortization);
LT_CHEARN = long-term change in earnings from 4 quarters prior to the forecast quarter to 4 quarters after the forecast quarter scaled by the market value of equity at 4 quarters prior to the forecast quarter;
AFSTD = standard deviation of analyst forecasts included in the last consensus forecast prior to MEF; and
ARSTD = standard deviation of abnormal stock returns prior to MEF, measured over trading days (-27 to -2) around MEF.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 8 Logistic regression analyses – using alternative classification of management earnings forecasts

Panel A: Classification based on bad/good news forecasts

$$\Pr(\text{Bad-News Forecast} = 1) = \alpha_0 + \alpha_1 \text{SELL\_AF\_30} + \alpha_2 \text{EO\_AF\_30} + \alpha_3 \text{EO\_BF} + \alpha_4 \text{MB} + \alpha_5 \text{MV} + \alpha_6 \text{PROFIT} + \alpha_7 \text{YEAR} + \alpha_8 \text{R\&D} + \alpha_9 \text{LITG} + \alpha_{10} \text{IMPLIT} + \alpha_{11} \text{CHEARN} + \alpha_{12} \text{LABINT} + \alpha_{13} \text{LT\_CHEARN} + \alpha_{14} \text{AFSTD} + \alpha_{15} \text{ARSTD} + \varepsilon$$

	Coeff. Est.	Chi-sq	
Intercept	2.4790	390.30	***
SELL_AF_30	-0.2283	39.51	***
EO_AF_30	-0.6203	13.19	***
EO_BF	-0.4609	10.73	***
MB	0.0001	0.01	
MV	-0.0600	31.04	***
PROFIT	-0.7248	140.66	***
YEAR	-0.0183	6.35	**
R&D	0.3603	0.11	
LITG	0.2636	50.90	***
IMPLIT	0.0707	3.77	*
CHEARN	-1.0064	838.74	***
LABINT	0.1129	3.04	*
LT_CHEARN	-0.2167	2.00	
AFSTD	0.3253	0.76	
ARSTD	-8.3366	53.85	***
Likelihood Ratio	1,673.58		

Table 8 continued

Panel B: Classification based on pessimistic/optimistic forecasts

$$\Pr(\text{Pessimistic Forecast}=1) = \alpha_0 + \alpha_1 \text{SELL\_AF\_30} + \alpha_2 \text{EO\_AF\_30} + \alpha_3 \text{EO\_BF} + \alpha_4 \text{MB} + \alpha_5 \text{MV} + \alpha_6 \text{PROFIT} + \alpha_7 \text{YEAR} + \alpha_8 \text{R\&D} + \alpha_9 \text{LITG} + \alpha_{10} \text{IMPLIT} + \alpha_{11} \text{CHEARN} + \alpha_{12} \text{LABINT} + \alpha_{13} \text{LT\_CHEARN} + \alpha_{14} \text{AFSTD} + \alpha_{15} \text{ARSTD} + \varepsilon$$

	Coeff. Est.	Chi-sq	
Intercept	-1.1014	94.19	***
SELL_AF_30	0.4328	133.85	***
EO_AF_30	1.0862	23.82	***
EO_BF	0.5140	10.15	***
MB	0.0001	0.26	
MV	-0.0071	0.46	
PROFIT	0.4776	91.66	***
YEAR	0.0813	139.71	***
R&D	4.3037	17.81	***
LITG	-0.3417	93.72	***
IMPLIT	-0.0521	2.19	
CHEARN	0.8432	660.20	***
LABINT	0.0824	1.70	
LT_CHEARN	0.1755	1.02	
AFSTD	0.9068	7.90	***
ARSTD	-0.1124	0.01	
Likelihood Ratio	1,722.50		

Table 8 continued

In panel A, Bad-News Forecast takes a value of 1 if MEF < AF and 0 otherwise.
In Panel B, Pessimistic Forecast takes a value of 1 if MEF < Actual and 0 otherwise.

SELL_AF_30 = an indicator variable that takes a value of 1 if directors and officers are net sellers between the earnings announcement date and 30 days after the earnings announcement and 0 otherwise;
EO_AF_30 = an indicator variable equal to 1 if the firm has common or preferred equity offerings between the earnings announcement date and 30 days after the earnings announcement and 0 otherwise;
EO_BF= an indicator variable equal to 1 if the firm has common or preferred equity offerings between MEF date and the day before earnings announcement and 0 otherwise;
MB= market-to-book equity at the end of the quarter prior to MEF;
MV= logarithm of market value of equity at the end of the quarter prior to MEF;
PROFIT = an indicator variable that takes a value of 1 if actual EPS is positive and 0 otherwise;
YEAR = time trend variable, defined as (MEF year-1995);
R&D = R & D expense scaled by average total assets;
LITG = industry dummy with high litigation risk based on 4-digit SIC industry code, such as 2833, 2836, 3570, 3577, 3600-3674, 5200-5961, 7370-7374;
IMPLIT = industry dummy with high implicit claims based on 4-digit SIC industry code, such as 1500-1799, 2450-2459,2500-2599, 2830-2839, 3010-3019, 3240-3999;
CHEARN = an indicator variable that takes a value of 1 if the change in earnings from the same quarter in the previous year is positive and 0 otherwise;
LABINT= labor intensity, measured as [1-(PPE/Gross Assets)] where PPE is gross property, plant, and equipment and Gross Assets is (total assets + accumulated depreciation and amortization);
LT_CHEARN = long-term change in earnings from 4 quarters prior to the forecast quarter to 4 quarters after the forecast quarter scaled by the market value of equity at 4 quarters prior to the forecast quarter;
AFSTD = standard deviation of analyst forecasts included in the last consensus forecast prior to MEF; and
ARSTD = standard deviation of abnormal stock returns prior to MEF, measured over trading days (-27 to -2) around MEF.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.