# A Temporal Analysis of Expectation Management: Evidence from Public Management Earnings Forecasts

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*We investigate the time trend of expectation management through management earnings forecasts to avoid negative earnings surprise. We find that the percentage of firms missing analyst earnings target before downward management guidance but meeting revised analyst earnings target have more than tripled from 5.5% in 1995 to 20.0% in 2014. We also show increase of both the magnitude of pessimistic management forecast bias and analysts' tendency to converge to management guidance, two potential explanations for increasing expectation management. Additional analysis indicates that the increase in analyst convergence is more prominent for firms with larger downward bias in previous management forecasts.*

*Keywords: Expectation Management, Management Earnings Forecast, Analyst Earnings Forecast*

## INTRODUCTION

Negative earnings surprise could have detrimental implications for corporate managers (Brown and Higgins, 2001; Skinner and Sloan, 2002; Brown and Caylor, 2005). Extant studies have documented that managers try to meet or beat analysts' earnings expectations by either managing earnings upward or guiding expectations downward (Matsumoto, 2002; Burgstahler and Eames, 2006). Tighter financial reporting and investor protection regulations over the past two decades have made it increasingly difficult and costly for managers to meet or beat analysts' earnings expectations through earnings management. At the same time, managers are facing stronger incentives to achieve positive earnings surprise due to the greater weight of stock-based compensation in their pay packages and the growth of momentum investors who sell stocks of companies that fail to pass analysts' earnings threshold (Brown, 2001; Skinner and Sloan, 2002; Richardson, Teoh, and Wysocki, 2004). Therefore, managers might be increasingly impelled to avoid negative earnings surprise through expectation management. However, both academia and business press have brought expectation management to public attention (Vickers, 1999), and the increased public scrutiny could deter the usage of expectation management.

On the other side of the earnings surprise game, analyst incentives to curry favor with managers and follow managers' lead on earnings forecast may be changing. Policy makers have been trying to reduce the conflict of interests analysts face through a series of regulatory actions such as blocking the ties of analyst compensation to investment banking deals, increasing disclosures about the conflict of interests,

and physical separation and restricted communication between research and investment banking personnel (Section 501 of the Sarbanes-Oxley Act of 2002; Regulation Analyst Certification of 2003; Global Research Analyst Settlement of 2003). All those regulatory changes might affect analysts' reaction to managers' intent to guide down earnings expectations and the ensuing expectation management.

Both prior literature and anecdotal evidence reveal that managers use their earnings guidance to affect analysts' earnings forecast (Baik and Jiang, 2006; Cotter, Tuna, and Wysocki, 2006; Gryta, Ng, and Francis, 2016). Disclosure regulation, such as Regulation Fair Disclosure (Reg FD), could also increase analysts' reliance on public management forecasts by restricting private communication channels between managers and analysts (Cotter, et al., 2006; Kross and Suk, 2012). Therefore, in this study, we examine the frequency of successful expectation management through public management earnings forecasts. Specifically, we conduct *temporal* analyses of 1) expectation management to avoid negative earnings surprises through management earnings forecasts, 2) the bias of public management earnings forecasts, and 3) individual analysts' responses to management earnings forecasts.

Our analyses are based on quarterly management forecasts from IBES Guidance and individual analyst forecasts from IBES Detail History over the 20-year period from 1995 to 2014. We define management guidance as successful expectation management if actual earnings miss analysts' initial consensus forecast before the last management forecast for the quarter but meet or beat analysts' revised consensus forecast. We find that the percentage of successful expectation management more than triples from 5.5% in 1995 to 20.0% in 2014. The documented time trend is also robust to the positive effects of Sarbanes-Oxley Act (SOX) and Reg FD on expectation management, indicating the temporal increase of expectation management is not solely driven by those two regulations.

To further study the causes for increased expectation management, we examine the temporal changes in the management forecast bias and individual analysts' responses to management forecast. With respect to management forecasting behaviors, our results reveal increasing pessimistic bias of management guidance. With respect to analyst responses to management forecasts, we find that the percentage of analysts who converge to management guidance more than double over the sample period from 28% in 1995 to 64% in 2014. Our evidence also shows analysts' greater tendency to converge over time is more prominent for firms with larger pessimistic bias in their previously issued management forecasts, suggesting that analysts either fail to adjust their responses based on previous track record of management forecasts or knowingly converge to downwardly biased management forecasts to help managers meet analyst expectations. Given prior studies find that analysts are able to discern the quality of management forecasts and adjust their responses to management forecasts based on previous track record (Williams, 1996; Yang, 2012), our evidence is more consistent with some analysts knowingly cooperating with the managers in the earnings surprise game.

We also find that more analysts sacrifice their forecast accuracy by converging to management guidance, and this phenomenon is especially pronounced for downward guidance. We show that downward guidance becomes less informative over time relative to individual analysts' initial forecasts. Specifically, the percentage of management forecasts that are more accurate than analysts' initial forecasts decreases from 72% in 1995 to 51% in 2014. In contrast, the accuracy of upward guidance relative to analyst forecasts has increased over time. Given the importance of forecast accuracy to analysts' career (Brown, Call, Clement, and Sharp, 2015), analysts bear significant costs by converging to downward guidance. Prior experimental studies show that maintaining good relationships with the management is the primary reason that analysts choose not to adjust for downward bias in management guidance (Libby, Hunton, Tan, and Seybert, 2008; Tan, Libby, and Hunton, 2010). Using archival approach, Feng and McVay (2010) show that analysts have the incentives to curry favor with management and obtain underwriting business by overweighting management guidance. Given the increase in the size of underwriting syndicate, the increased number of analysts who are willing to converge to management forecasts at the expense of their own forecast accuracy may be due to the increased number of affiliated analysts with stronger incentives to please the management (Jo, Kim, and Shin, 2012; Corwin and Schutlz, 2005).

Our study contributes to the expectation management literature. While prior studies examine expectation management across countries or over an older period of time (Brown and Higgins, 2005; Koh, Matsumoto, and Rajgopal, 2008), our study is the first one, to our best knowledge, that sheds light on the increasingly prominent role of expectation management in the U.S. through public management earnings forecast over the most recent 20-year period. More importantly, prior studies about the temporal change in expectation management use the path of analyst forecasts as an indirect proxy for expectation management without examining the interaction between managers and analysts in expectation management. By directly examining actual management guidance and individual analysts' responses to the guidance, our study strengthens the understanding of temporal change in expectation management by investigating the changes of forecasting behaviors of both managers and analysts. While Baik and Jiang (2006) and Cotter et al. (2006) examine the characteristics of management earnings guidance and the ensuing analysts' *consensus* to investigate whether managers use their earnings forecasts to guide down analysts' consensus, our study focuses on the time trend of management forecasts behaviors, *individual* analysts' responses, and the resulting accuracy change of analyst forecasts, thus providing deeper and more disaggregated insights into expectation management.

Our study also has public policy implications. While the goals of major security regulations in the past two decades were to curb earnings management and improve the information environment faced by investors, our study demonstrates an unintended consequence of increased expectation management through publicly announced management earnings forecast. However, this form of detrimental maneuver has not received enough attention from policy makers (Baik and Jiang, 2006). In addition, our evidence shows analysts' greater tendency to converge to management guidance in an era of increasing size of underwriter syndicate. While the SEC and major stock exchanges have enacted rules to curb analysts' conflict of interest, our evidence suggests that the conflict of interest analysts face between providing accurate earnings forecasts and generating investment banking businesses remain a persistent concern. [1]

The rest of the paper is organized as follows. Section 2 reviews the institutional background and the literature of expectation management to form our predictions. Section 3 describes the sample selection and data. Section 4 presents our empirical results. Section 5 concludes.

## LITERATURE REVIEW, INSTITUTIONAL BACKGROUND, AND RESEARCH QUESTIONS

Prospect theory (Kahneman and Tversky, 1979) predicts that reference points play a crucial role in decision making. Degeorge, Patel, and Zeckhauser (1999) apply the theory in the context of investors' investment decision and argue that analysts' earnings expectation is one of the three psychological benchmarks investors use for assessing firms' performance and, as a result, managers would try to avoid negative earnings surprise by meeting or beating analysts' earnings expectations. Prior studies document evidence supporting the importance of avoiding negative earnings surprise. For example, Skinner and Sloan (2002) document that the market punishes missing a forecast benchmark more than it rewards meeting a consensus forecast, and Bartov, Givoly, and Hayn (2002) document that firms meeting or beating analysts' earnings expectations enjoy a return premium. Brown and Caylor (2005) further document that meeting or beating analyst earnings thresholds is becoming the most important objective for corporate managers due to investors paying increased attention to analyst earnings forecasts. Consistently, Brown (2001) and Matsumoto (2002) document an overall increase of small positive earnings surprises over time.

Early studies also document that both earnings management and expectation management play a role in meeting analysts' earnings benchmarks (Matsumoto, 2002; Burgstahler and Eames, 2006). Prior studies have conducted cross-country analyses of the practice of managing earnings surprises and the mix of the two mechanisms to achieve positive earnings surprises. For example, Brown and Higgins (2001) find that US managers are more (less) likely to report earnings with small positive (negative) earnings surprise compared with their counterparts in 12 other countries due to greater emphasis on short-term stock price and litigation concerns in the US. Further, Leuz, Nanda, and Wysocki (2003) find that earnings management decreases with the level of investor protection in a country, and Brown and Higgins

(2005) document that countries with stronger investor protection are more prone to use expectation management to avoid negative earnings surprises than to use earnings management.

Even in the US, which is considered to have strong investor protection, the reliance on the two mechanisms to beat analysts' earnings target could be changing over time. The level of investors' protection increased following the passage of SOX in 2002, triggered by several corporate and accounting scandals in the early 2000s. Major U.S. stock exchanges also mandated, around the same time, a number of new listing requirements to enhance listing companies' corporate governance standards, including mandatory internal audit function and several independent directors' requirements. Those regulatory changes made it increasingly difficult and costly for managers to meet or beat analysts' earnings expectations through earnings management. Consistently, prior studies document that earnings management declined after SOX (Cohen, Dey, and Lys, 2008; Koh, et al., 2008). As a result, expectation management might become more appealing and thus increase over time in the earnings surprise game. However, both academia and business press have brought expectation management to public attention (Vickers, 1999), and the increased public scrutiny could deter the usage of expectation management.

Indeed, while Koh et al. (2008) find increased usage of expectation management in the post-SOX period compared with in the pre-SOX period, Bartov and Cohen (2009) document the opposite trend. The two studies use different measures for expectation management. Koh et al. (2008) follow Matsumoto (2002)'s expected forecast model based on the time-series behaviors of past quarterly earnings, and Bartov and Cohen (2009) capture expectation management through analysts' forecast revisions. Both studies indirectly measure management intention to walk down analyst forecasts and do not examine the interaction between managers and analysts in expectation management. Anecdotal evidence reveals that managers increasingly use their earnings guidance to affect analysts' earnings forecast (Gryta, et al., 2016). The news article mentions that although companies are prohibited from selective disclosure, the rule does not prohibit private conversations that does not communicate material nonpublic information. Analysts interviewed by the authors reveal that "companies have called to ask if I was aware of their guidance and incorporated it into my models". Therefore, in order to more directly capture the temporal changes of expectation management as a result of managers' intervention, in our study, we examine the frequency of successful expectation management through management earnings forecasts. Therefore, our first research question is as follows:

***RQ1:*** *How does the frequency of successful expectation management through management earnings forecasts change over time?*

Temporal shift in the frequency of successful expectation management may be driven by changes in management behaviors and/or analyst behaviors. In order to disentangle the effects, we separately examine temporal changes of management forecasting behaviors and analysts' responses to management forecasts. On one side, managers may face greater incentives to achieve positive earnings surprise. Stock-based compensation has gained weight in managers' pay packages, increasing managers' motivations to avoid negative earnings surprise that could hurt their companies' stock prices (Richardson, et al., 2004; Brown and Higgins, 2005). In addition, the growth of momentum investors who sell stocks of companies that fail to pass analysts' earnings threshold also push managers to avoid negative earnings surprise (Brown, 2001; Sloan and Skinner, 2002). Prior studies document that managers issue pessimistic earnings forecasts to lower analysts' earnings expectations to avoid negative earnings surprises (Baik and Jiang, 2006; Cotter, et al., 2006). Therefore, to better capture the variation of manager's incentives to avoid negative earnings surprise, we examine whether management forecast bias has changed over time. Our second research question is as follows:

***RQ2:*** *How does management forecast bias change over time?*

Analysts' responses to public management forecasts might also change as a result of various regulations passed in the last two decades. For example, the passage of Regulation Fair Disclosure (Reg

FD) could increase analysts' reliance on public management forecasts by restricting private communication channels between managers and analysts (Kross and Suk, 2012; Cotter, et al., 2006). However, Brown et al. (2015) report that while Reg FD significantly altered the communication channels between the management and analysts, the communication between the two parties almost reverted back to the level in the pre-Reg FD period if not more, which might reduce analysts' reliance on public management forecasts over time.

In addition, analyst incentives to curry favor with the managers and converge to management guidance might not stay the same. Prior literature has shown that analysts issue biased forecasts to win underwriting business (Lin and McNichols, 1998; Feng and McVay, 2010). Policy makers have been trying to reduce the conflict of interest analysts face through a series of regulatory actions. For example, Title 5 of SOX requires disclosure of analysts' conflict of interest induced by external financing and investment banking services. On Feb 6, 2003, the SEC also issued new Regulation Analyst Certification (Regulation AC) requiring analysts to certify the truthfulness of their views in research reports and disclose whether and how their compensation was related to their recommendation in the report. In addition, on April 28, 2003, the Global Research Analyst Settlement was issued that requires investment banks to physically separate and restrict the communication between the research and investment department of the 10 major brokerage firms. However, Brown et al. (2015) find that those regulatory changes might not be producing the anticipated effects of curbing analysts' conflict of interest in that many analysts still believe generating underwriting business is an important compensation source for research analysts. That is, analysts might still face incentives to cooperate with the management in expectation management by converging to downwardly biased management forecasts. All in all, it is not clear how analysts' response to management earnings forecast change over time. Therefore, our third research question is as follows:

***RQ3:*** *How do individual analysts' responses to management forecasts change over time?*

## RESEARCH DESIGN

### Sample Selection

We obtain management quarterly earnings forecasts issued from 1995 to 2014 from IBES Guidance. We include only point or range earnings per share (EPS) forecasts issued by the management. We use the last management forecast for each quarter if there are multiple management forecasts for a quarter. The value of the management forecast is set to equal the point forecast or the mean of the upper and lower bound of a range forecast. We obtain individual analyst forecasts from IBES detail file. Company's financial information and stock price information is obtained from Compustat and CRSP respectively. In order to observe how individual analysts respond to management forecasts, we match each management forecast with each individual analyst's last earnings forecast issued within one year of the management forecast date (-365, -1) and the same analyst's first forecast revision issued within one month after the management forecast date (+1, +30). [2] We require at least three individual analyst forecasts for each management forecast in order to form a reasonable consensus. The sample used in the main analysis includes 440,282 individual analyst forecasts and 38,744 quarterly management forecasts for 3,677 unique firms from 1995 to 2014. Requiring the existence of firm characteristics in Compustat results in the drop of 367 firm-quarter observations, so the multivariate regression includes 38,377 firm-quarter observations. All continuous variables are winsorized at the 1$^{st}$ and 99$^{th}$ percentile. Table 1 reports the sample selection process.

**TABLE 1**
**SAMPLE SELECTION**

| | |
|---|---|
| Number of point or range quarterly management earnings forecasts for the period from 1995 to 2014 from IBES Guidance Database | 57,955 |
| Drop observations with no actual EPS data in IBES Detail Actual File | (1,058) |
| Keep management forecasts issued within one year of the forecast period end date | (622) |
| Keep only the last forecasts before the quarterly earnings announcement | (11,683) |
| Drop observations with less than 3 analyst initial forecasts issued within one year of the management forecast date | (5,848) |
| Total quarterly management forecasts included in the sample | 38,744 |
| Number of firms included in the sample | 3,677 |
| Total analyst initial forecasts included in the sample | 440,282 |
| Total analyst revised forecasts issued within 30 days of the management forecasts | 272,550 |

**Variable Definitions**

We measure successful expectation management by examining whether actual earnings meet the initial analyst consensus and the revised analyst consensus. The dummy variable, *Meet_Initial_Consensus*, equals 1 if the actual EPS is higher than or equal to the mean of individual analysts' last forecasts issued before the management guidance, and 0 otherwise. We create another dummy variable, *Meet_Revised_Consensus*, which equals 1 if the actual EPS is higher than or equal to the mean of individual analysts' first revised forecasts issued within 30 days of the management guidance, and 0 otherwise. We use the dummy variable, *Success_Guide*, to indicate successful expectation management cases. *Success_Guide* equals 1 if the management issues a downward guidance and the actual earnings miss the initial analyst consensus but meet or beat the revised analyst consensus, and 0 otherwise.

To examine the temporal changes in managers' forecasting behaviors, we focus on the magnitude of management forecast bias. We calculate management forecast bias (*MF_Bias*) using the difference between management forecast and actual EPS. Positive (negative) values indicate upwardly (downwardly) biased management forecasts. We also compute the scaled management forecast bias (*MF_Bias_Scaled*) using management forecast bias divided by the beginning-of-quarter stock price.

To study individual analysts' responses to management guidance, we code analyst responses as *No_Revision*, *Converge*, or *Deviate*. *No_Revision* is equal to 1 if the analyst does not announce any forecast revision within 30 days of the management forecast, and 0 otherwise. *Converge* is equal to 1 if the analyst revises his forecast in the same direction as the one suggested by the management forecast, and 0 otherwise. *Deviate* is equal to 1 if the analyst revises his forecast in the direction opposite to the one suggested by the management forecast, and 0 otherwise. For example, if the management forecast is less than an individual analyst's forecast, the suggested revision is downward. In this case, *Converge* is equal to 1 if the revised analyst forecast is lower than the initial analyst forecast, and *Deviate* is equal to 1 if the revised analyst forecast is higher than the initial analyst forecast. On the other hand, if the management forecast is higher than an individual analyst's forecast, the suggested revision is upward. In this case, *Converge* is equal to 1 if the revised analyst forecast is higher than the initial analyst forecast, and *Deviate* is equal to 1 if the revised analyst forecast is lower than initial analyst forecast.

Finally, we examine the impact of management forecast on analyst forecast accuracy. We first compare the forecast accuracy of management forecast with individual analysts' initial forecast. *MF_Better* is a dummy variable, which equals 1 if the absolute value of management forecast error is less than the absolute value of analyst initial forecast error, and 0 otherwise. We also measure the magnitude of the difference in forecast errors using *Relative_Err*, which is the difference between the absolute value of management forecast error and the absolute value of analyst initial forecast error. We also compute the scaled difference in forecast error (*Relative_Err_Scaled*) using *Relative_Err* divided by the beginning-of-

quarter stock price. In order to examine whether individual analysts sacrifice their forecast accuracy by converging to management guidance, we construct a dummy variable, *Worse*, which equals 1 if an analyst converges to the management guidance but the revised forecast is less accurate than the initial forecast, and 0 otherwise. Please see Appendix for the variable definitions.

## MAIN RESULTS

### Temporal Changes in Successful Expectation Management

Table 2 shows the temporal changes in successful expectation management from 1995 to 2014 through public management earnings forecasts. *Year* represents the calendar year of the period end date of the quarter for which the management forecasts earnings. Figure 1 presents the trend in graphical form. We document a significant change in the percentage of successful expectation management over the last 20 years. The percentage of firms missing initial analyst earning target but meeting revised analyst earnings target after downward management guidance have more than tripled from 5.5% in 1995 to 20.0% in 2014. Regressing the percentage of *Success_Guide* on *Year* shows that the percentage of successful expectation management has increased significantly over time (adjusted R-square =88%), with an average increase of 0.68% per year (significant at less than 1% level) as indicated by the slope coefficient.

**FIGURE 1**
**TEMPORAL PATTERNS OF EXPECTATION MANAGEMENT**

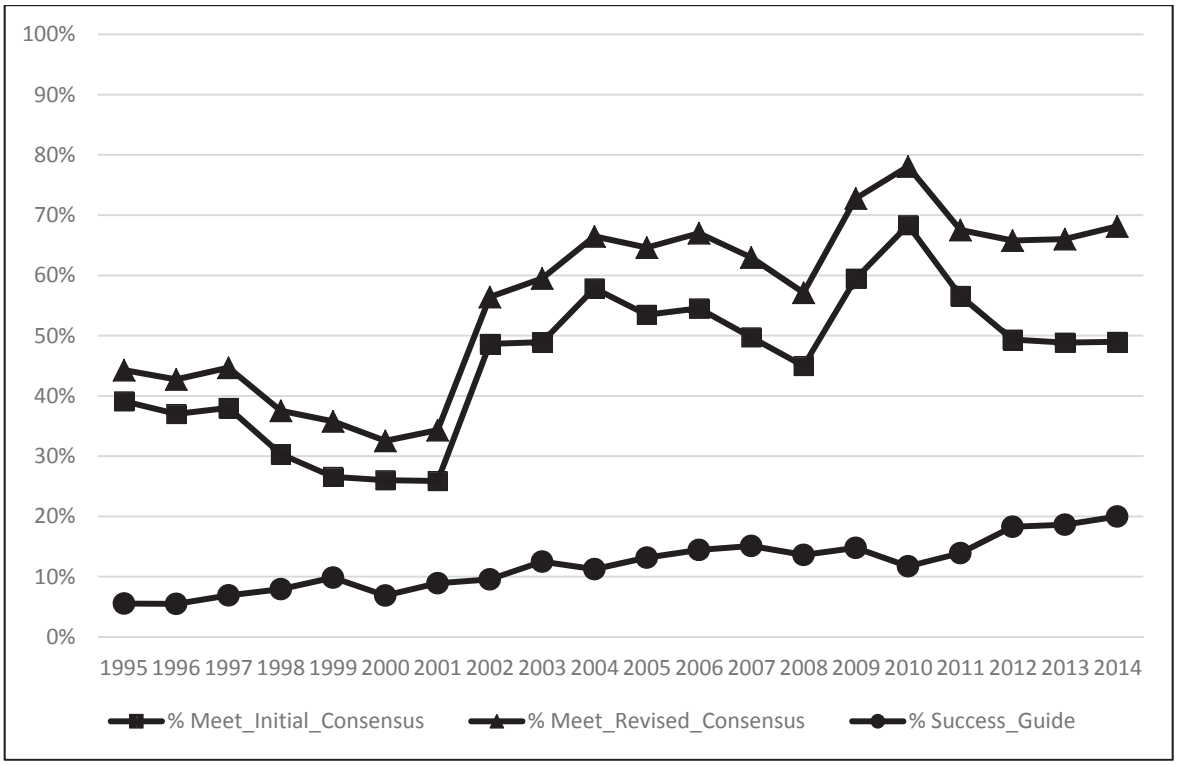


**TABLE 2**
**EXPECTATION MANAGEMENT**

| *Year* | N | *% Meet_Initial _Consensus* | *% Meet_Revised _Consensus* | *% Success_Guide* |
|---|---|---|---|---|
| 1995 | 271 | 39.11% | 44.28% | 5.54% |
| 1996 | 365 | 36.99% | 42.74% | 5.48% |
| 1997 | 479 | 38.00% | 44.68% | 6.89% |
| 1998 | 847 | 30.34% | 37.54% | 7.91% |
| 1999 | 813 | 26.57% | 35.79% | 9.84% |
| 2000 | 1,196 | 26.00% | 32.53% | 6.86% |
| 2001 | 2,670 | 25.88% | 34.31% | 8.91% |
| 2002 | 2,813 | 48.63% | 56.42% | 9.53% |
| 2003 | 2,763 | 48.93% | 59.50% | 12.49% |
| 2004 | 3,174 | 57.84% | 66.48% | 11.25% |
| 2005 | 2,983 | 53.47% | 64.63% | 13.14% |
| 2006 | 2,971 | 54.53% | 67.01% | 14.44% |
| 2007 | 2,649 | 49.72% | 62.97% | 15.10% |
| 2008 | 2,461 | 44.98% | 57.13% | 13.61% |
| 2009 | 2,006 | 59.47% | 72.78% | 14.76% |
| 2010 | 2,031 | 68.34% | 78.09% | 11.72% |
| 2011 | 2,030 | 56.60% | 67.54% | 13.89% |
| 2012 | 2,041 | 49.34% | 65.80% | 18.28% |
| 2013 | 2,078 | 48.85% | 66.03% | 18.62% |
| 2014 | 2,103 | 48.98% | 68.14% | 19.97% |
| All years | 38,744 | 48.72% | 60.15% | 13.05% |
| Slope | | 0.0136 | 0.0195 | 0.0068 |
| t-stat | | 3.86 | 5.96 | 12.08 |
| Adj. R-Square | | 0.4221 | 0.6453 | 0.8841 |

Table 2 shows the temporal patterns of expectation management for the period from 1995 to 2014. We obtain the last management forecast for each quarter from IBES Guidance. We then obtain the last analyst forecast before the management forecast date and the first analyst revision after the management forecast date. Analyst consensus is computed before and after the management forecast date using the mean of all individual analysts' forecasts. %*Meet_Initial_Consensus* is the frequency of quarterly profits that meet or beat the analyst consensus forecast before the management forecast date. %*Meet_Revised_Consensus* is the frequency of quarterly profits that meet or beat the analyst consensus forecast after the management forecast date. %*Success_Guide* is the frequency of quarterly profits that miss the initial analyst consensus but meet or beat the revised analyst consensus and for which the management forecast is a downward guidance (i.e., successful expectation management using downward guidance). The slope and t-stat pertain to the slope coefficient of the univariate regression of the column variable on *Year*. The adjusted R-square pertains to this univariate regression.

Since the firm composition in our sample is changing over time, the increase in the percentage of successful expectation management may be a manifestation of changes in the characteristics of the underlying firms, management forecasts, or analyst forecasts, instead of the change of the intent behind

management and analyst forecasting behaviors. To address this concern, we run the following logistic regression in equation (1):

$$Success\_Guide = a + b_1*Year + b_2*Reg\_FD + b_3*SOX + b_4*Size + b_5*BTM + b_6*Lev + b_7*ROA + b_8*Loss + b_9*Analyst\_Following + b_{10}*AF\_Dispersion + b_{11}*AF\_Optimism + b_{12}*Bundled\_MF + b_{13}*MF\_Time + Industry\ Dummies + e \quad (1)$$

The coefficient of interest is $b_1$. A positive coefficient indicates that the likelihood of successful expectation management through public management earnings forecasts increases over time after controlling for the various characteristics of the underlying firms, management forecasts, and analyst forecasts. In addition, we also include two dummy variables to capture the effects of Reg FD and SOX on expectation management. *Reg_FD* (*SOX*) equals 1 for management guidance issued after 2000 (2002) and 0 otherwise. A positive b2 (b3) is consistent with Reg FD (SOX) amplifying expectation management through management forecast.

Other control variables are as follows. *Size* is the natural log of the market value of the firm at the beginning of the quarter. *BTM* is the book value of equity divided by the market value of equity at the beginning of the quarter. *Lev* is total liabilities divided by total assets at the beginning of the quarter. *ROA* is income before extraordinary items divided by total assets at the beginning of the quarter. *Loss* is an indicator variable which equals 1 if the firm reports negative income before extraordinary items for the quarter and 0 otherwise. *Analyst_Following* is the number of analyst forecasts included in the calculation of analyst consensus before the management forecast. *AF_Dispersion* is the decile ranking of the standard deviation of analyst forecasts issued before the management forecast scaled by stock price at the beginning of the quarter. *AF_Optimism* is the decile ranking of the difference between analyst consensus before the issuance of the management forecast and actual earnings per share scaled by stock price at the beginning of the quarter. *Bundled_MF* is an indicator variable which equals 1 if the management forecast is issued on the same day of an earnings announcement and 0 otherwise. *MF_Time* is the difference between actual earnings announcement date and management forecast date. Industry dummies for each 2-digit SIC code are included to control for any time invariant effect of industries. Standard errors are clustered by industry.

Table 3 shows the results for the logistic regression. Column (1) reports the results without including the dummy variables for Reg FD and SOX. The coefficient on *Year* is positive and significant at less than 1% level (two-sided), indicating that the likelihood of successful expectation management using public management earnings forecasts increases over time. The magnitude of the increase, as suggested by the marginal effect, is about 0.76% each year. Column (2) reports the results including the dummy variables for Reg FD and SOX. We find a positive effect of SOX on expectation management, suggesting that expectation management is becoming increasingly popular in the era of tighter financial reporting regulations that restrict earnings management. We also find positive and statistically significant coefficient for Reg FD, consistent with the notion that Reg FD intensified expectation management through public management guidance by restricting private communication channels between managers and analysts. The coefficient on *Year* remains positive and statistically significant, indicating that the temporal increase of expectation management through management forecast is not fully driven by Reg FD and SOX.

The coefficients on the control variables indicate that larger and growth firms are more likely to engage in expectation management. Firms reporting a loss in the quarter are less likely to use public management guidance to meet analyst expectations. It is more difficult for firms with more analyst followings and more disperse initial analyst forecasts to successfully management expectations. In addition, managements are more likely to use management forecasts to guide down analyst expectations when initial analyst forecasts are more optimistic. Bundled forecasts are more likely to result in successful expectation management possibly due to the increased attention received by these forecasts when issued together with earnings announcements. In an untabulated test, we include the interaction term of *Bundled_MF* and *Year* in the regression. The coefficient on the interaction term is negative and

significant at less than 5% level (two-sided), indicating that successful expectation management through unbundled management forecast is showing a larger increase over time compared with bundled management forecast.

**TABLE 3**
**LOGISTIC REGRESSION OF EXPECTATION MANAGEMENT**

| | (1)<br>*Success_Guide* | (2)<br>*Success_Guide* |
|---|---|---|
| *Year* | 0.0739*** | 0.0476*** |
| | (11.92) | (6.48) |
| | [0.0076] | [0.0049] |
| *Reg_FD* | | 0.1983* |
| | | (1.94) |
| | | [0.0203] |
| *SOX* | | 0.3986*** |
| | | (6.38) |
| | | [0.0408] |
| *Size* | 0.0741*** | 0.0772*** |
| | (4.04) | (3.90) |
| | [0.0076] | [0.0079] |
| *BTM* | -0.2657*** | -0.2757*** |
| | (-3.61) | (-3.74) |
| | [-0.0273] | [-0.0282] |
| *Lev* | 0.1335 | 0.1460 |
| | (1.36) | (1.50) |
| | [0.0137] | [0.0150] |
| *ROA* | 1.2871 | 1.1321 |
| | (1.57) | (1.47) |
| | [0.1320] | [0.1159] |
| *LOSS* | -0.3058*** | -0.3041*** |
| | (-3.69) | (-3.60) |
| | [-0.0314] | [-0.0311] |
| *Analyst_Following* | -0.0200*** | -0.0198*** |
| | (-5.83) | (-6.24) |
| | [-0.0021] | [-0.0020] |
| *AF_Dispersion* | -0.0687*** | -0.0675*** |
| | (-8.12) | (-8.15) |
| | [-0.0070] | [-0.0069] |
| *AF_Optimism* | 0.3902*** | 0.3950*** |
| | (43.14) | (43.63) |
| | [0.0400] | [0.0404] |
| *Bundled_MF* | 0.4991*** | 0.4452*** |
| | (6.81) | (6.32) |
| | [0.0512] | [0.0456] |
| *MF_Time* | -0.0000 | -0.0001 |
| | (-0.04) | (-0.17) |
| | [-0.0000] | [-0.0000] |
| Observations | 38,377 | 38,377 |
| Pseudo R-squared | 0.123 | 0.126 |

Table 3 presents estimation results for the logistic regression of *Success_Guide* on *Year*. *Success_Guide* is an indicator variable which equals 1 if the management issues a downward guidance and the actual earnings miss the initial analyst consensus but meet or beat the revised analyst consensus, and 0 otherwise. *Year* is the calendar year for the period end date of the quarter for which managers forecast earnings. Please see the Appendix for the definitions of variables. Industry dummies for each 2-digit SIC code is included. The numbers in parentheses represent z-statistics calculated using standard errors clustered by industry. The numbers in brackets represent marginal effects. ***, **, and * denote significance (two-tailed) at the 0.01, 0.05, and 0.10 levels, respectively.

**Temporal Changes in Management Forecast Bias**

Table 4 reports the temporal changes in management forecast bias. We find that management forecast becomes more pessimistically biased over time. While the mean (median) management forecast bias is -0.18 (-0.11) cent in 1995, it becomes -3.5 (-2.00) cents in 2014. The management forecast bias scaled by beginning-of-quarter stock price shows a similar trend. Regressing the mean and median management forecast bias on *Year* shows that the increasing trend of pessimistic bias in management guidance is statistically significant at less than 1% level. [3]

**TABLE 4**
**MANAGEMENT FORECAST BIAS**

| ***Year*** | **N** | ***MF_Bias*** **Mean** | ***MF_Bias*** **Median** | ***MF_Bias_Scaled*** **Mean** | ***MF_Bias_Scaled*** **Median** |
|---|---|---|---|---|---|
| 1995 | 271 | -0.0018 | -0.0011 | -0.0001 | -0.0002 |
| 1996 | 365 | -0.0093 | -0.0001 | -0.0013 | 0.0000 |
| 1997 | 479 | 0.0049 | 0.0000 | 0.0004 | 0.0000 |
| 1998 | 847 | -0.0027 | 0.0000 | -0.0005 | 0.0000 |
| 1999 | 813 | 0.0080 | 0.0000 | 0.0022 | 0.0000 |
| 2000 | 1,196 | 0.0097 | 0.0000 | 0.0013 | 0.0000 |
| 2001 | 2,670 | -0.0015 | -0.0013 | -0.0004 | -0.0001 |
| 2002 | 2,813 | -0.0113 | -0.0100 | -0.0005 | -0.0005 |
| 2003 | 2,763 | -0.0137 | -0.0100 | -0.0007 | -0.0006 |
| 2004 | 3,174 | -0.0171 | -0.0100 | -0.0008 | -0.0007 |
| 2005 | 2,983 | -0.0202 | -0.0133 | -0.0012 | -0.0007 |
| 2006 | 2,971 | -0.0206 | -0.0150 | -0.0015 | -0.0007 |
| 2007 | 2,649 | -0.0179 | -0.0150 | -0.0012 | -0.0006 |
| 2008 | 2,461 | -0.0114 | -0.0100 | 0.0001 | -0.0006 |
| 2009 | 2,006 | -0.0387 | -0.0250 | -0.0039 | -0.0019 |
| 2010 | 2,031 | -0.0425 | -0.0300 | -0.0026 | -0.0014 |
| 2011 | 2,030 | -0.0335 | -0.0200 | -0.0016 | -0.0008 |
| 2012 | 2,041 | -0.0315 | -0.0200 | -0.0013 | -0.0008 |
| 2013 | 2,078 | -0.0324 | -0.0200 | -0.0015 | -0.0007 |
| 2014 | 2,103 | -0.0350 | -0.0200 | -0.0013 | -0.0007 |
| All years | 38,744 | -0.0193 | -0.0100 | -0.0010 | -0.0006 |
| Slope | | -0.0023 | -0.0014 | -0.0001 | -0.0001 |
| t-stat | | -7.30 | -8.60 | -3.00 | -4.48 |
| Adj. R-Square | | 0.7335 | 0.7933 | 0.2958 | 0.5012 |

Table 4 shows the temporal patterns of management forecast bias from 1995 to 2014. *MF_Bias* equals to the management forecast minus the actual earnings per share. *MF_Bias_Scaled* is *MF_Bias* divided by the stock price at the beginning of the quarter. The slope and t-stat pertain to the slope coefficient of the univariate regression of the column variable on *Year*. The adjusted R-square pertains to this univariate regression.

**Temporal Changes in Analyst Responses to Management Forecasts**

Even if managers issue downwardly biased forecasts, they may not necessarily drive down analyst expectations if analysts refuse to converge to the management forecasts. Therefore, we need to examine individual analysts' response to management guidance in order to show a more complete picture of expectation management. Table 5 presents the temporal changes in analyst responses to management forecasts. We observe a prominent increase from 28% in 1995 to 64% in 2014 in the percentage of analysts who choose to converge to management forecasts.

**TABLE 5**
**ANALYST REACTION TO MANAGEMENT FORECAST**

| *Year* | N | *% Converge* | *% Deviate* | *% No_Revision* |
|---|---|---|---|---|
| 1995 | 2,448 | 28.15% | 1.23% | 70.63% |
| 1996 | 2,953 | 32.85% | 1.22% | 65.93% |
| 1997 | 4,071 | 34.71% | 1.42% | 63.87% |
| 1998 | 6,965 | 44.97% | 1.23% | 53.80% |
| 1999 | 7,447 | 50.81% | 1.67% | 47.52% |
| 2000 | 11,807 | 44.51% | 1.55% | 53.94% |
| 2001 | 27,248 | 52.18% | 1.86% | 45.95% |
| 2002 | 30,011 | 50.14% | 2.52% | 47.34% |
| 2003 | 29,646 | 53.48% | 2.73% | 43.79% |
| 2004 | 34,193 | 56.96% | 3.92% | 39.12% |
| 2005 | 32,525 | 57.68% | 4.00% | 38.32% |
| 2006 | 33,553 | 58.21% | 4.93% | 36.86% |
| 2007 | 30,191 | 59.66% | 5.49% | 34.84% |
| 2008 | 27,822 | 59.12% | 4.76% | 36.12% |
| 2009 | 22,538 | 64.19% | 5.14% | 30.66% |
| 2010 | 25,685 | 64.19% | 5.76% | 30.05% |
| 2011 | 26,800 | 63.72% | 6.12% | 30.15% |
| 2012 | 27,738 | 63.76% | 4.81% | 31.43% |
| 2013 | 28,080 | 63.43% | 4.80% | 31.76% |
| 2014 | 28,561 | 64.06% | 4.54% | 31.40% |
| | | | | |
| All years | 440,282 | 57.79% | 4.12% | 38.10% |
| Slope | | 0.0173 | 0.0028 | -0.0203 |
| t-stat | | 10.18 | 11.31 | -11.36 |
| Adj. R-Square | | 0.8437 | 0.8698 | 0.8709 |

Table 5 shows the temporal patterns of analyst reactions to management forecasts from 1995 to 2014. Each individual analyst's response is coded as *Converge, Deviate, or No_Revision*. If the analyst does not announce any forecast revision within 30 days of the management forecast, the response is coded as *No_Revision*. If the analyst revises his forecast in the same direction as the one suggested in the management forecast, the response is coded as *Converge*. If the analyst revises his forecast in the direction opposite to the one suggested in the management forecast, the response is coded as *Deviate*. The slope and t-stat pertain to the slope coefficient of the univariate regression of the column variable on *Year*. The adjusted R-square pertains to this univariate regression.

It is unclear whether analysts knowingly converge to biased management forecasts to make it easier for the managers to meet expectations or unintentionally rely more on management forecasts that become increasingly biased over time. Theoretically, analysts should be able to judge the quality of management forecasts from past track record. Prior studies find that managers establish a reputation from their prior earnings forecasts and that both investors and analysts adjust their responses to management forecasts

based on previous track record (Williams 1996; Yang 2012). Thus, if analysts are not intentionally cooperating with managers, we should not observe greater increases in analyst convergence for firms with poor historical track record. We calculate the average forecast bias (*MF_Bias*) for the last management forecast issued for each quarter during the last three years. We then sort the sample based on the decile rank of the average management forecast bias. We compare the temporal changes of analysts' convergence to management forecasts across the ten groups. This temporal analysis covers the period from 1998 to 2014. The first three years of observations (1995-1997) in our sample are dropped because we need to use management forecasts in the last three years to establish the prior track record.

Panel A of Table 6 provides the range of average management forecast bias for the ten groups. More than 80% of firms have an average downward bias for forecasts made within the last three years. Panel B of Table 6 shows the temporal change of the percentage of analysts who converge to management forecasts for the ten groups. The slope coefficient, t-statistics, and adjusted R-square for the regression of analyst convergence percentage on *Year* is provided at the bottom of the table. We also test the difference between the slope coefficient of the lowest decile (largest downward bias) and other decile groups. The evidence reveals a greater increase in analyst convergence for firms with a record of larger downward bias in their prior management forecasts. For example, while percentage of analyst convergence for the most pessimistically biased management guidance increases by 31% from 1998 to 2014, it only increases by 3% for the management forecast with the least downward bias. The above analyses indicate that part of the temporal shift in successful expectation management is due to the increasing number of analysts that choose to converge to more downwardly biased management forecast. The evidence also suggests that analysts seem to cooperate with managers in expectation management.

**TABALE 6**
**PAST MANAGEMENT FORECAST BIAS AND ANALYST CONVERGENCE**

| **Panel A: Range of Average Management Forecast Bias** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Decile Ranking | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Minimum | -0.140 | -0.060 | -0.040 | -0.029 | -0.021 | -0.015 | -0.010 | -0.006 | -0.002 | 0.004 |
| Maximum | -0.060 | -0.040 | -0.029 | -0.021 | -0.015 | -0.010 | -0.006 | -0.002 | 0.004 | 0.065 |
| **Panel B: Percentage of Analyst Convergence** | | | | | | | | | | |
| | Decile Ranking of Average Management Forecast Bias | | | | | | | | | |
| *Year* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1998 | 37% | 38% | 40% | 41% | 53% | 49% | 48% | 43% | 45% | 59% |
| 1999 | 43% | 58% | 62% | 53% | 43% | 64% | 59% | 49% | 51% | 48% |
| 2000 | 57% | 49% | 52% | 41% | 50% | 47% | 46% | 43% | 40% | 44% |
| 2001 | 52% | 47% | 52% | 53% | 55% | 54% | 53% | 57% | 51% | 51% |
| 2002 | 48% | 52% | 47% | 50% | 54% | 49% | 51% | 48% | 51% | 51% |
| 2003 | 51% | 54% | 58% | 52% | 57% | 55% | 55% | 51% | 52% | 53% |
| 2004 | 54% | 59% | 58% | 60% | 59% | 57% | 57% | 59% | 54% | 55% |
| 2005 | 63% | 63% | 59% | 61% | 55% | 56% | 55% | 59% | 55% | 57% |
| 2006 | 65% | 64% | 61% | 59% | 58% | 58% | 57% | 55% | 56% | 54% |
| 2007 | 65% | 62% | 60% | 58% | 60% | 58% | 58% | 57% | 56% | 59% |
| 2008 | 65% | 61% | 60% | 61% | 59% | 58% | 59% | 57% | 56% | 54% |
| 2009 | 68% | 66% | 68% | 65% | 64% | 66% | 60% | 65% | 57% | 60% |
| 2010 | 66% | 64% | 69% | 63% | 60% | 64% | 62% | 62% | 68% | 65% |
| 2011 | 63% | 66% | 64% | 66% | 63% | 63% | 60% | 60% | 62% | 62% |
| 2012 | 67% | 64% | 63% | 65% | 64% | 64% | 63% | 62% | 62% | 61% |
| 2013 | 66% | 66% | 64% | 64% | 65% | 61% | 61% | 58% | 56% | 61% |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 68% | 65% | 68% | 63% | 66% | 60% | 64% | 59% | 60% | 62% |
| Average | 63% | 63% | 62% | 61% | 60% | 58% | 57% | 56% | 53% | 55% |
| Slope | 0.0163 | 0.0135 | 0.0118 | 0.0136 | 0.0105 | 0.0076 | 0.0084 | 0.0101 | 0.0106 | 0.0084 |
| t-stat | 6.71 | 5.78 | 4.87 | 6.81 | 7.74 | 3.48 | 5.72 | 5.02 | 5.66 | 4.54 |
| Adj. Rsq | 0.7333 | 0.6696 | 0.5866 | 0.7392 | 0.7863 | 0.4092 | 0.6650 | 0.6018 | 0.6600 | 0.5502 |
| P-value (compared with the 1st decile ) | | 0.3586 | 0.2011 | 0.3618 | 0.0439 | 0.0109 | 0.0081 | 0.0557 | 0.0670 | 0.0153 |

Table 6 shows how prior management forecast bias affects analyst responses from 1998 to 2014. We calculate the average management forecast bias using the last management forecast issued for each quarter during the last three years. We divide the sample into ten groups based on decile rank of the average management forecast bias. Panel A reports the range of average management forecast bias for the ten groups. Panel B shows the temporal change in the percentage of analysts that converge to management forecasts according to the decile rank of prior management forecast bias. The slope and t-stat pertain to the slope coefficient of the univariate regression of percentage of *Converge* in a column on *Year*. The adjusted R-square pertains to this univariate regression. The p-value pertains to the test for the difference between the slope coefficient in a given column and the slope coefficient for the first decile.

**The Impact of Management Forecast on Analyst Forecast Accuracy**

If more and more analysts converge to downwardly biased management forecasts, it raises concerns about the impact of these management forecast on analyst forecast accuracy. If the management forecast is still more accurate than analyst forecast despite of the downward bias, analyst won't sacrifice their accuracy by converging to the downwardly biased management forecast. Table 7 reports the relative accuracy of management forecast compared with individual analysts' forecast before the issuance of management forecast. Panel A of Table 7 reports the relative accuracy for downward guidance. The percentage of management forecasts that are more accurate than the individual analysts' forecasts decreases from 72% in 1995 to 51% in 2014. We also compare the magnitude of relative accuracy of management forecast and individual analyst' forecasts, measured as the difference between the absolute value of management forecast error and analyst forecast error. The mean (median) difference in forecast errors is -6.73 (-1.50) cents in 1995 but declines to -3.16 (0.00) cents in 2014. The evidence suggests that for downward guidance, the management forecast is becoming less informative and has almost no advantage over individual analysts' forecasts in terms of forecast accuracy in 2014. Panel B of Table 7 reports the relative accuracy for upward guidance. The percentage of management forecasts that are more accurate than the individual analysts' forecasts increases from 78% in 1995 to 89% in 2014. The mean (median) difference in forecast errors is -1.40 (-0.50) cents in 1998, and it increases to -4.17 (-2.00) cents in 2014. The evidence suggests that for upward guidance, the management forecast is becoming more informative and has larger advantage over individual analyst forecast in forecast accuracy.

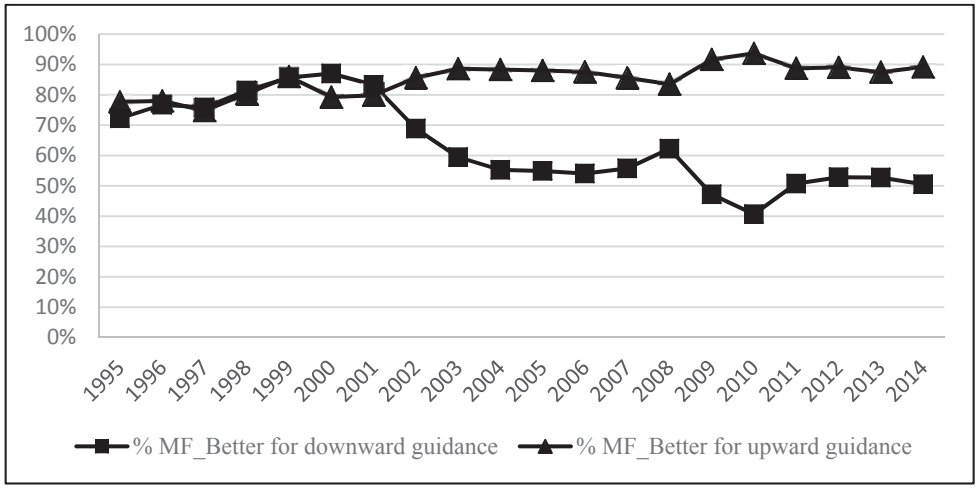
**TABLE 7**
**RELATIVE ACCURACY OF MANAGEMENT FORECAST AND ANALYST FORECAST**

| **Panel A: Downward Guidance** | | | | | | |
|---|---|---|---|---|---|---|
| *Year* | N | *MF_better* | *Relative_Err* Mean | *Relative_Err* Median | *Relative_Err_Scaled* Mean | *Relative_Err_Scaled* Median |
| 1995 | 1,641 | 72.27% | -0.0673 | -0.0150 | -0.0070 | -0.0029 |
| 1996 | 2,012 | 76.74% | -0.0702 | -0.0250 | -0.0069 | -0.0024 |
| 1997 | 2,678 | 75.84% | -0.1137 | -0.0355 | -0.0082 | -0.0032 |
| 1998 | 5,004 | 81.41% | -0.1166 | -0.0500 | -0.0075 | -0.0032 |
| 1999 | 5,357 | 85.72% | -0.1343 | -0.0750 | -0.0086 | -0.0038 |
| 2000 | 8,317 | 87.00% | -0.1480 | -0.0750 | -0.0085 | -0.0040 |
| 2001 | 20,305 | 83.28% | -0.1439 | -0.0600 | -0.0068 | -0.0025 |
| 2002 | 18,187 | 68.87% | -0.0643 | -0.0200 | -0.0046 | -0.0013 |
| 2003 | 18,296 | 59.47% | -0.0478 | -0.0100 | -0.0035 | -0.0006 |
| 2004 | 18,926 | 55.26% | -0.0429 | -0.0050 | -0.0024 | -0.0003 |
| 2005 | 19,737 | 54.87% | -0.0399 | -0.0050 | -0.0016 | -0.0002 |
| 2006 | 20,685 | 54.03% | -0.0421 | -0.0050 | -0.0015 | -0.0002 |
| 2007 | 19,218 | 55.73% | -0.0488 | -0.0075 | -0.0017 | -0.0003 |
| 2008 | 18,312 | 62.21% | -0.0694 | -0.0150 | -0.0035 | -0.0007 |
| 2009 | 12,879 | 47.17% | -0.0393 | 0.0000 | -0.0032 | 0.0000 |
| 2010 | 12,996 | 40.66% | -0.0178 | 0.0050 | -0.0008 | 0.0002 |
| 2011 | 16,602 | 50.71% | -0.0458 | 0.0000 | -0.0021 | 0.0000 |
| 2012 | 18,822 | 52.82% | -0.0368 | -0.0050 | -0.0018 | -0.0001 |
| 2013 | 19,630 | 52.74% | -0.0327 | -0.0050 | -0.0016 | -0.0001 |
| 2014 | 19,771 | 50.51% | -0.0316 | 0.0000 | -0.0012 | 0.0000 |
| Average | 279,375 | 59.28% | -0.0580 | -0.0100 | -0.0031 | -0.0005 |
| Slope | | -0.0199 | 0.0047 | 0.0028 | 0.0004 | 0.0002 |
| t-stat | | -6.26 | 4.01 | 3.62 | 7.23 | 6.76 |
| Adj. Rsq | | 0.6679 | 0.4431 | 0.3897 | 0.7298 | 0.7018 |
| **Panel B: Upward Guidance** | | | | | | |
| *Year* | N | *MF_better* | *Relative_Err* Mean | *Relative_Err* Median | *Relative_Err_Scaled* Mean | *Relative_Err_Scaled* Median |
| 1995 | 807 | 77.70% | -0.0140 | -0.0050 | -0.0023 | -0.0011 |
| 1996 | 941 | 78.00% | -0.0283 | -0.0050 | -0.0028 | -0.0008 |
| 1997 | 1,393 | 74.80% | -0.0120 | -0.0050 | -0.0018 | -0.0007 |
| 1998 | 1,961 | 80.37% | -0.0216 | -0.0075 | -0.0033 | -0.0008 |
| 1999 | 2,090 | 86.03% | -0.0276 | -0.0168 | -0.0038 | -0.0015 |
| 2000 | 3,490 | 79.28% | -0.0453 | -0.0200 | -0.0035 | -0.0010 |
| 2001 | 6,943 | 79.86% | -0.0600 | -0.0150 | -0.0033 | -0.0009 |
| 2002 | 11,824 | 85.67% | -0.0372 | -0.0150 | -0.0028 | -0.0010 |
| 2003 | 11,350 | 88.60% | -0.0284 | -0.0150 | -0.0027 | -0.0009 |
| 2004 | 15,267 | 88.36% | -0.0367 | -0.0150 | -0.0023 | -0.0009 |
| 2005 | 12,788 | 88.04% | -0.0357 | -0.0150 | -0.0019 | -0.0007 |
| 2006 | 12,868 | 87.57% | -0.0393 | -0.0200 | -0.0020 | -0.0008 |
| 2007 | 10,973 | 85.61% | -0.0322 | -0.0150 | -0.0017 | -0.0007 |
| 2008 | 9,510 | 83.51% | -0.0409 | -0.0200 | -0.0020 | -0.0008 |
| 2009 | 9,659 | 91.65% | -0.0548 | -0.0300 | -0.0041 | -0.0018 |
| 2010 | 12,689 | 93.65% | -0.0600 | -0.0300 | -0.0029 | -0.0013 |
| 2011 | 10,198 | 88.78% | -0.0478 | -0.0200 | -0.0020 | -0.0008 |
| 2012 | 8,916 | 89.04% | -0.0462 | -0.0200 | -0.0021 | -0.0007 |
| 2013 | 8,450 | 87.50% | -0.0447 | -0.0200 | -0.0019 | -0.0006 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2014 | 8,790 | 89.16% | -0.0417 | -0.0200 | -0.0015 | -0.0005 |
| Average | 160,907 | 87.37% | 0.0416 | -0.02 | -0.0024 | -0.0009 |
| Slope | | 0.0069 | -0.0015 | -0.0009 | 0.0000 | 0.0000 |
| t-stat | | 5.54 | -3.70 | -5.06 | 1.75 | 0.77 |
| Adj. Rsq | | 0.6099 | 0.4003 | 0.5643 | 0.0984 | 0.0318 |

Table 7 shows the temporal patterns of the relative accuracy of management forecasts and individual analyst forecasts from 1995 to 2014. *MF_Better* equals 1 if the absolute value of the management forecast error is less than the absolute value of forecast error of individual analyst's last forecast issued before the management forecast, and 0 otherwise. *Relative_Err* equals the difference between the absolute value of management forecast error and analyst forecast error. *Relative_Err_Scaled* equals *Relative_Err* scaled by beginning-of-quarter stock price. Panel A and Panel B report the results for downward and upward management guidance, respectively. The slope and t-stat pertain to the slope coefficient of the univariate regression of the column variable on *Year*. The adjusted R-square pertains to this univariate regression.

**FIGURE 2**
**RELATIVE ACCURACY OF MANAGEMENT FORECAST AND ANALYST FORECAST**




The results in Table 7 show that there is decreasing informativeness of downward management guidance relative to individual analysts' forecasts, which casts doubt on the accuracy of analyst forecast revisions. Therefore, we examine the consequence of analyst convergence to management guidance in terms of forecast accuracy. Table 8 reports the percentage of analysts who converge to management forecasts at the expense of their forecast accuracy. *Worse* is an indicator variable which equals 1 if an individual analyst converges to management forecast but the revised forecast is less accurate than the initial forecast, and 0 otherwise. About 5% of analysts issue a revised forecast that is less accurate than their initial forecast by converging to the management forecasts in 1995. The frequency increases to 29% in 2014. If we look at upward and downward guidance separately, the percentage of analysts who sacrifice forecast accuracy increases by 32% from 6% in 1995 to 38% in 2014 by converging to downward guidance. On the other hand, the 7% increase of less accurate revised forecast due to convergence to upward guidance is much smaller, consistent with the findings in Table 7 that upward guidance is generally more informative than downward guidance. When viewed as a whole, the results suggest that an increasing number of analysts are converging to downwardly biased management guidance which are less accurate than their own initial forecasts. This results in more successful expectation management through public management forecasts at the cost of compromised analyst forecast accuracy.

**TABLE 8**
**ANALYST CONVERGENCE AND WORSE REVISED FORECASTS**

| *Year* | N | % *Worse* | % *Worse* for Downward Guidance | % *Worse* for Upward Guidance |
|---|---|---|---|---|
| 1995 | 689 | 5.37% | 6.00% | 1.12% |
| 1996 | 970 | 5.15% | 5.84% | 1.82% |
| 1997 | 1,413 | 4.53% | 4.58% | 4.27% |
| 1998 | 3,132 | 5.68% | 5.92% | 4.52% |
| 1999 | 3,784 | 5.44% | 5.95% | 3.67% |
| 2000 | 5,255 | 7.27% | 7.98% | 4.75% |
| 2001 | 14,219 | 9.78% | 10.41% | 7.11% |
| 2002 | 15,048 | 13.77% | 19.23% | 4.77% |
| 2003 | 15,856 | 17.64% | 25.69% | 4.33% |
| 2004 | 19,478 | 16.96% | 27.71% | 4.97% |
| 2005 | 18,760 | 20.91% | 30.60% | 6.15% |
| 2006 | 19,531 | 23.40% | 34.11% | 6.17% |
| 2007 | 18,013 | 23.01% | 31.48% | 7.80% |
| 2008 | 16,447 | 22.67% | 29.39% | 8.10% |
| 2009 | 14,468 | 25.26% | 42.85% | 4.29% |
| 2010 | 16,488 | 22.05% | 44.39% | 3.48% |
| 2011 | 17,078 | 24.75% | 36.51% | 6.92% |
| 2012 | 17,687 | 26.64% | 36.26% | 6.11% |
| 2013 | 17,812 | 27.57% | 35.73% | 7.29% |
| 2014 | 18,297 | 28.78% | 37.86% | 7.17% |
| Average | 254,425 | 20.93% | 29.46% | 5.80% |
| Slope | | 0.0143 | 0.0221 | 0.0022 |
| t-stat | | 15.43 | 10.41 | 3.86 |
| Adj. Rsq | | 0.9258 | 0.8497 | 0.4231 |

Table 8 shows the temporal patterns of the consequence of converging to management forecasts from 1995 to 2014. % *Worse* is the frequency of converging analyst forecast revisions that are less accurate compared with the initial analyst forecasts. % *Worse* Downward Guidance (Upward Guidance) is the frequency of analyst forecast revisions converging to downward (upward) management guidance that result in less accurate analyst forecasts compared with the analysts' initial forecasts. The slope and t-stat pertain to the slope coefficient of the univariate regression of the column variable on *Year*. The adjusted R-square pertains to this univariate regression.

Given the importance of forecast accuracy to analysts' career (Brown, Call, Clement, and Sharp, 2015), analysts bear significant costs by converging to downward guidance and cooperating with the management in expectation management. Prior literature has shown that analysts issue biased forecasts to win underwriting business (Lin and McNichols, 1998; Feng and McVay, 2010). Even though regulators have been trying to reduce the conflict of interest faced by analysts during the last 20 years, Brown et al. (2015) find, based on their survey data, that analysts still view generating underwriting business as an important compensation source. Therefore, the increasing number of analysts that cooperate with managers in expectation management might be due to more analysts having incentives to generate underwriting business.

Underwriting syndicate has become larger and larger over time. Creating more analyst coverage is one of the primary reasons for using more co-underwriters for equity offerings (Jo, et al., 2012; Corwin and Shultz, 2005). Figure 3 shows the temporal changes in the average number of underwriters in IPOs and SEOs for our sample firms. We obtain underwriter information for IPOs and SEOs from SDC

Database. The results reveal that the average number of co-underwriters in an IPO or SEO triples from 1995 to 2014. While IPOs (SEOs) on average have 2.31 (1.67) co-underwriters in 1995, the average number of co-underwriters increases to 7.86 (4.80) in 2014. As a result, there is more research coverage in recent years from affiliated analysts, who may have higher incentives to please managers in return for good relationships, leading to more analysts converging to management forecasts (Feng and McVay, 2010).We are unable to perform direct tests to compare analyst response to management forecast for affiliated and unaffiliated analysts because IBES no longer provides the data file to translate the broker masked ID into broker name. Nevertheless, the increased analyst coverage from affiliated analysts due to the increase in the size of underwriting syndicate could be one of the explanations for the documented change in analyst behavior.

**FIGURE 3**
**TEMPORAL CHANGES IN THE NUMBER OF CO-UNDERWRITERS**

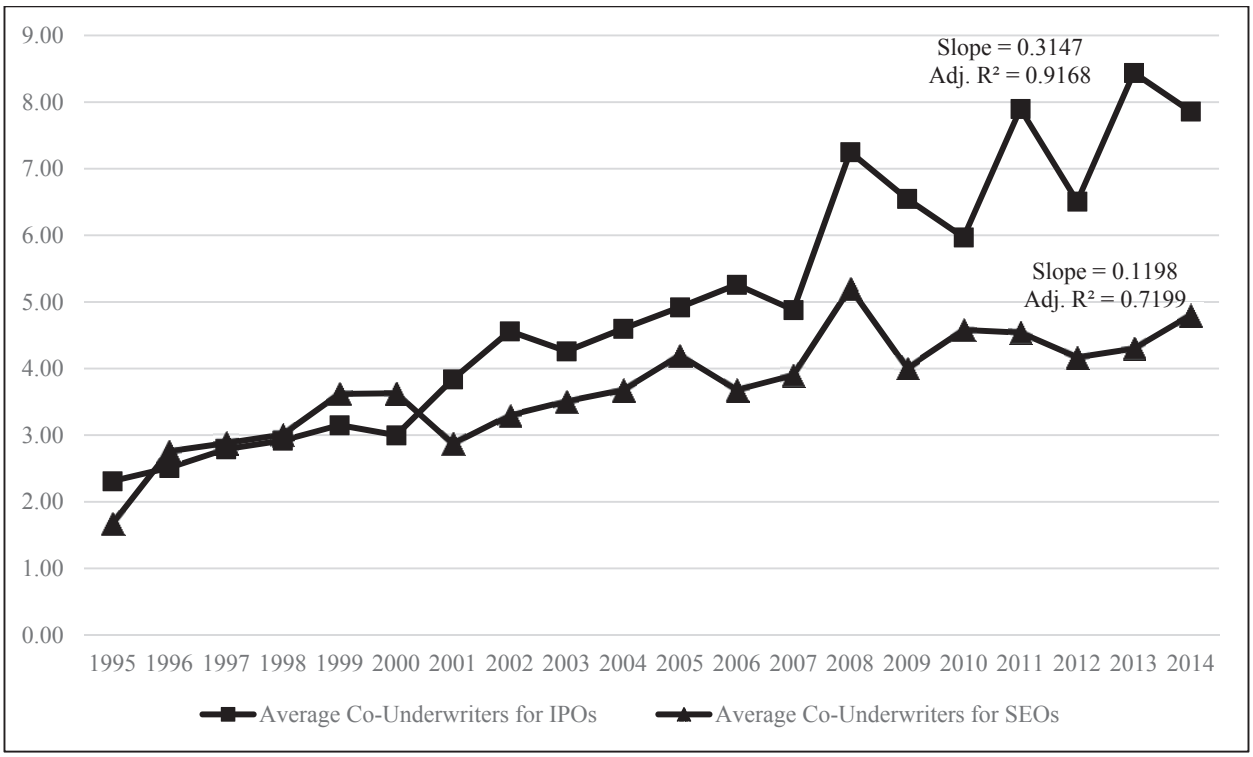



Figure 3 shows the temporal changes of the average number of co-underwriters in security issuance from 1995 to 2014. Average co-underwriters for IPOs relate the mean number of co-underwriters for initial public offerings to the year of the offerings. Average co-underwriters for SEOs relate the mean number of co-underwriters for seasoned equity offerings to the year of the offerings. Each line contains the slope coefficient and the adjusted R-square of the regression of the average co-underwriters in a given year on *Year*.

## CONCLUSIONS

Using a sample of 38,744 quarterly management forecasts from 1995 and 2014, we document a large increase in successful expectation management through public management forecasts. While only 5.5% of quarterly management forecasts turn a missing analyst forecast quarter into a meeting analyst forecast quarter in 1995, the frequency increases to 20% in 2014. Further analyses reveal that this temporal pattern is due to both increasing downward bias in management forecasts and greater analyst convergence to management forecasts. Our evidence also suggests that more analysts converge to downwardly biased management forecasts and sacrifice their forecast accuracy, possibly due to the fact that more affiliated analysts trying to curry favor with management to win underwriting business.

The results indicate that although increasing regulation of financial reporting and corporate governance may alleviate earnings management (Cohen et al. 2008; Koh et al. 2008), an increasing number of managers may resort to expectation management in order to meet earnings expectations. In addition, our evidence also suggests that the series of regulation passed in the early 2000s, such as Section 501 of the Sarbanes-Oxley Act of 2002, Regulation Analyst Certification of 2003, and Global Research Analyst Settlement of 2003, might not be producing the anticipated effects of curbing the conflict of interest analysts face between providing accurate earnings forecasts and generating investment banking businesses. Nevertheless, we want to point out that this study only examines expectation management through publicly announced management earnings forecasts. There can be private communications or public communications other than management earnings forecasts that firms can use to manage market expectations.

## ENDNOTES

1. Based on their survey evidence, Brown et al (2015) also reveal that this conflict of interest is a persistent concern. Our study provides supportive empirical evidence.
2. We also examine alternative time windows including (-90, +30) and (-30, +10), and the results remain qualitatively similar.
3. In Table 4, we observe a prominent spike in downward management forecast bias in 2009 and 2010. The sudden increase in management forecast pessimism may result from more conservative projections after the financial crisis of 2007-2008.

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## APPENDIX

## VARIABLE DEFINITIONS

| | |
|---|---|
| *Meet_Initial_Consensus* | An indicator variable which equals 1 if the actual earnings meet or beat the analyst initial consensus before the management forecast date, and 0 otherwise. |
| *Meet_Revised_Consensus* | An indicator variable which equals 1 if the actual earnings meet or beat the revised analyst consensus after the management forecast date, and 0 otherwise. |
| *Success_Guide* | An indicator variable which equals 1 if the management issues a downward guidance, and the actual earnings miss the initial analyst consensus but meet or beat the revised analyst consensus after the guidance, and 0 otherwise. |
| *Year* | The calendar year of the period end date for which management forecasts earnings. |
| *Reg_FD* | Equals 1 if the management forecast date is after October 23, 2000 and 0 otherwise. |
| *SOX* | Equals 1 if the management forecast is issued after 2002 and 0 otherwise. |
| *Size* | The natural log of the market value of the firm at the beginning of the quarter. |
| *BTM* | The book value of equity divided by the market value of equity at the beginning of the quarter. |
| *Lev* | Total liabilities divided by total assets at the beginning of the quarter. |
| *ROA* | Income before extraordinary items divided by total assets at the beginning of the quarter. |
| *Loss* | Equals 1 if the firm reports negative income before extraordinary items for the quarter and 0 otherwise. |
| *Analyst_Following* | The number of analyst forecasts included in the calculation of initial analyst consensus for the quarter. |
| *AF_Dispersion* | The decile ranking of the standard deviation of analyst forecasts issued before the management forecast scaled by stock price at the beginning of the quarter. |
| *AF_Optimism* | The decile ranking of the difference between initial analyst consensus and actual earnings per share scaled by stock price at the beginning of the quarter. |
| *Bundled_MF* | Equals 1 if the management forecast is issued on the same day of an earnings announcement and 0 otherwise. |
| *MF_Time* | The difference between actual earnings announcement date and management forecast date. |
| *MF_Bias* | Management forecast - Actual EPS |
| *MF_Bias_Scaled* | (Management forecast - Actual EPS)/ Beginning-of-quarter stock price |
| *Downward_Guidance* | An indicator variable which equals 1 if the management forecast is less than the individual analyst's forecast before the management forecast, and 0 otherwise. |
| *Converge* | An indicator variable which equals 1 if the analyst revises his forecast in the same direction as the one suggested by management forecast, and 0 otherwise. |

| | |
|---|---|
| *Deviate* | An indicator variable which equals 1 if the analyst revises his forecast in the direction opposite to that suggested by management forecast, and 0 otherwise. |
| *No_Revision* | An indicator variable which equals 1 if the analyst does not announce any forecast revision within 30 days of the management forecast, and 0 otherwise. |
| *MF_Better* | Equals 1 if the absolute value of the management forecast error is less than the absolute value of forecast error of individual analyst's last forecast issued before the management forecast, and 0 otherwise. |
| *Relative_Err* | The difference between the absolute value of management forecast error and analyst forecast error. |
| *Relative_Err_Scaled* | *Relative_Err* scaled by beginning-of-quarter stock price. |
| *Worse* | An indicator variable which equals 1 if an analyst converges to the management guidance but the revised forecast is less accurate than the initial forecast, and 0 otherwise. |