Executive Compensation and Analyst Guidance: The Link between CEO Compensation and Expectations Management

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Abstract

During the last decade, a surprisingly high percentage of U.S. companies has fulfilled or beaten analysts’ earnings per share forecasts. One of the most frequently cited reasons for this growing tendency is a change in the nature of U.S. executive compensation structure. As stock options have become an increasingly important part of executive compensation, the preservation or enhancement of short term stock value around the earnings announcement has become a priority for managers. Besides earnings management, a widespread way to meet analyst expectations is to inject pessimism into their forecasts by providing analysts with negative clues, or so-called downward guidance. This paper is the first to investigate the relationship between the practice of analyst guidance and executive compensation packages. We document a strong link between expectations management and the relevant options component of CEO compensation, bonus plans, and the percentage of the company’s shares owned by the CEO who manages it. In a second set of tests, we show that firms which meet or beat analyst forecasts at the earnings announcement generate abnormal returns, which are significantly lower for firms suspected of managing expectations.

JEL classification: G14 ; G24 ; M52

Keywords: Analyst guidance, Earnings surprise, Executive compensation, Stock options
1 Introduction

Over the last decade, companies have tried particularly hard to meet analyst expectations. There has been a strong decrease in the tendency of managers to report earnings falling short of analyst estimates (Brown 2001a, Burgstahler and Eames 2001). Reporting earnings that do not fall short of analyst expectations can be achieved by two principal mechanisms. First, through the manipulation of discretionary accruals, executives are able to manage earnings in order to meet or beat analyst expectations. The second method is the induction of pessimism in analyst forecasts by providing analysts with negative clues leading to downward revisions in the consensus estimates. As a result, firms can more easily meet or beat analyst expectations. The business press is replete with articles referring to this latest practice. In a December 1998 Fortune Magazine article entitled “The Guidance Game”, E. Schonfeld writes:

“… a company is allowed to provide the analysts with clues, or so-called guidance, about what it thinks earnings will be. The guidance number usually shows up as the consensus estimate among analysts. If the company meets or just beats the consensus, both that company and the analyst win: The stock goes up and everyone looks smart.”

Fuller and Jensen (2002) attribute the increasing tendency of managers engaging in analyst manipulation strategies to a shift in the nature of executive compensation structure. As stock options have become an increasingly important component of executive compensation, the preservation or enhancement of short term stock value around the earnings announcement has become a priority for managers. In the Business Week edition of May 24, 1998, M. Vickers corroborates this explanation:

“Companies need to generate positive surprises to keep not only stockholders but also stock-option holders happy – and that group is growing…”

In this paper, we investigate whether the tendency of executives to manage analyst forecasts downward is related to the incentives provided by their compensation packages. Although past research and financial media have claimed that executives’ expectations management practices are due to the increasing dependence of their compensation on the
evolution of short term stock prices, to date no direct empirical tests of this relationship have been performed, taking explicitly into account the degree and nature of management’s compensation and ownership exposure to their firm’s stock performance.

We conduct two distinct sets of investigations. First, we analyze those components of CEO compensation contracts together with stock and option ownership, that most influence the extent of analyst guidance, taking into account other firm-specific factors. We tackle this problem by considering the characteristic components of the CEO compensation package due to their differing risk and incentive profiles. We find that CEO compensation components strongly influence the propensity of managers to engage in expectations management strategies. Consistent with common wisdom, we report a strong positive relationship between the practice of analyst guidance and the value of the CEO’s in-the-money exercisable options as well as one between the sensitivity of the option portfolios to stock price movements and analyst guidance. Moreover, we document a positive relationship between the percentage of shares held by CEOs and analyst guidance. Furthermore, there is a strong positive relationship between analyst guidance and the bonuses paid annually to CEOs suggesting that meeting or beating analyst expectations constitutes an important determinant of CEO performance assessment. Finally, we document a negative link between CEO base salary and analyst guidance.

Second, we examine the extent to which the stock market is able to discern any pessimistic bias in analyst consensus forecasts induced by expectations management strategies. We conduct an event study around the earnings announcement dates to measure the valuation effects induced by expectations management strategies and we investigate whether these valuation effects are related to the factors that explain the extent of analyst guidance. Similar to previous research, we find that firms which meet or beat analyst consensus forecasts display strong positive cumulative abnormal returns during the period surrounding the announcement date. However, for these firms, the market is partially able to discern analyst guidance strategies: companies that are suspected of managing analyst expectations in order to report a positive earnings surprise display a lower abnormal return at the earnings announcement than those not suspected of guiding analysts downward. Further analysis shows that this lower abnormal return is significantly and positively related to the options held by the CEOs.
Our findings complement previous research in several ways. We are the first to demonstrate the crucial role of executive compensation in explaining analyst guidance. Secondly, we complement Matsumoto’s (2002) analysis in which she shows that specific firm characteristics explain managerial incentives to avoid negative earnings surprises, although without including executive compensation components. In addition we provide the evidence that managers actually profit from taking actions to avoid negative earnings surprises. We also complement the results of Aboody and Kaznik (2000), who show that executives manipulate analyst expectations by rushing bad news reports in order to decrease the strike prices of their awarded options. While they consider only the impact of newly awarded options as incentives to manipulate analyst expectations we take into account explicitly the impact of all exercisable in-the-money options and share ownership. Finally, our investigation contributes to the earnings surprise literature by showing that the positive cumulative abnormal returns for firms that meet or beat analyst forecast are smaller if the firms are likely to achieve this through expectations management. This complements the results of Bartov et al. (2002), who draw identical conclusions, by using a different method to measure expectations management.

The remainder of the paper is organized as follows. In Section 2, we review the literature related to expectations management. In Section 3, we develop hypotheses concerning the cross-sectional relationship between expectations management and CEO compensation components as well as CEO stock and option ownership. Section 4 presents the sample and the empirical design. Results are provided in Section 5. The paper is concluded in Section 6.

2 Literature review

Three important conclusions for expectations management stand out from past research. First, reported earnings impact stock prices. Bartov et al. (2002) show that stocks of firms which meet or beat analyst forecasts command a significantly higher return at the announcement date than those with unfavorable surprises. Furthermore, they show that the cost of managing analyst expectations downward before the announcement date, is more than compensated by the stock price reaction to positive earnings surprises at the announcement date. More specifically, the stock price response to earnings announcement is 1.5 times stronger than the response to analysts’ downward revisions before the announcement date in their sample. Lopez and Rees (2000) show that the firms that beat or meet analyst estimates
over multiple subsequent quarters experience positive cumulative abnormal returns at the announcement date. Skinner and Sloan (2001) document that firms reporting negative surprises suffer large asymmetric market reactions compared to those reporting positive surprises; this applies in particular to growth firms.

Second, management is concerned about the evolution of short term stock prices for several reasons. As underlined by Richardson et al. (2001), managers of companies that intend to issue new equity are preoccupied with the current price level of their company as it directly impacts the amount of capital raised in the issue. Since many equity issues occur in the period following the public earnings announcement, a sharp price increase at the earnings release is particularly important for the success of such issues. Richardson et al. (2001) show that forecast pessimism prior to an earnings announcement is more common for firms that are about to issue new equity.

The structure of management compensation packages is another reason why executives care about their firms’ near term stock prices. Murphy (1999) documents a strong increase in option compensation for U.S. CEOs between 1991 and 1996 across all industrial sectors. He also reports a strong increase in the value of stocks held by S&P 500 CEOs over the nineties. Yermack (1997) investigates CEO timing ability with respect to corporate news announcements and finds that CEOs receive stock option awards in advance of good earnings news boosting stock prices. By the same token, earnings announcements before CEO stock option awards are less favorable on average. Yermack concludes that CEOs exert influence on the compensation committee and are therefore able to manage the timing of their awards. Aboody and Kaznik (2000) find that CEOs make opportunistic voluntary disclosure decisions that increase the value of their stock option compensation. In particular, they investigate the timing of voluntary disclosures around option awards to the CEOs of firms with fixed award schedules, and find that managers of such firms manage investor expectations downward prior to the award date, by delaying good news and rushing forward bad news. Richardson et al. (2001) show that analyst forecasts are more pessimistic for firms whose insiders are net sellers of the firm’s stock in the period following earnings announcement.

Managers may as well be concerned that a negative earnings surprise will affect their performance evaluation. Puffer and Weintrop (1991) find an increased probability of CEO turnover when earnings fall short of analyst expectations. In the same vein, Matsumoto (2002)
shows that managers of firms with high institutional ownership are more likely to take actions to avoid negative earnings surprises. She attributes her finding to the pressure for near-term performance characterizing institutional investors. Moreover, she finds that firms relying on implicit claims with stakeholders and companies in industries with high litigation risk are more likely to take actions to avoid negative earnings surprises.

Finally, prior research concludes that managers have the ability to manage analyst forecasts. This is achieved by using numerous mechanisms, including public disclosures and non-formal communications (Rao and Sivakumar 2000) or by pressure on analysts to adjust their forecasts away from their true beliefs. A crucial input to the analyst is timely access to new information about the covered companies and, most of the time, this information is obtained from the companies themselves. Consequently, analysts have to cooperate with firms to achieve less restricted access to company management (Boni and Womack 2002). Lim (2001) argues that analysts rationally issue biased forecasts in order to obtain valuable future information from management, which is one of their key sources of information. To the extent that the analyst’s employer holds large positions or maintains an investment banking relationship with the company covered, the analyst is likely subject to additional pressures regarding his forecasts. Michaely and Womack (1999) and Lin and McNichols (1998) document a systematic bias in recommendations for companies underwritten by the analyst’s institution.

Overall, past research shows that there is a strong relationship between the sign of the earnings surprise and the stock price reaction at the earnings announcement, that managers have strong incentives to avoid negative surprises, and that they have the possibility to manage analysts through various information channels or by exerting pressure on analysts to issue forecasts that are compatible with managements’ own objectives.

3 Hypotheses

In this section, we provide a description of the components that constitute most executive compensation packages: base salary, annual bonus, long term incentive plans, restricted stock plans, and stock option plans. Then, we develop hypotheses about the relationship between expectations management and these compensation components as an integral part of the CEO’s total firm-related financial exposure.
We define expectations management as the tendency of firm managements to avoid negative earnings surprises via lowering analyst expectations. Expectations management is measured by a variable comparing the analyst consensus forecast and the expected earnings forecast according to the model described in section 4.2.³

Base salary represents the fixed component in executive contracts. Salaries are typically based on general industry salary surveys, and supplemented by detailed analysis of selected industry peers. Gao and Shrieves (2002) show that high CEO base salary decreases the incentive to engage in earnings management strategies. Since the total compensation of managers with a high base salary component is less dependent on the evolution of short term stock price, we expect managers with large base salary components to be less likely to engage in expectations management strategies. This leads to our first hypothesis.

**Hypothesis 1**: The relationship between the salaries paid to CEOs and expectations management is negative.

Bonus plans awarded to top executives are generally based on a single-year performance measure. Murphy (1999) reports that most companies use two or more performance measures to pay the annual bonus to top executives and almost all companies rely on some measure of accounting profits to assess performance. Previous research suggests that the difference between analysts’ earnings forecasts and realized earnings serves as a measure for the board to assess management performance (Puffer and Weintrop 1991) and that analysts’ earnings forecasts reflect the board of directors’ expectations about future performance for their organizations (Imhoff and Lobo 1984, Fuller and Jensen 2002). Therefore, executives receiving bonus plans have an interest to keep the directors’ expectations moderate (via analyst forecasts) in order to set performance thresholds relatively low. Accordingly our second hypothesis is as follows:

**Hypothesis 2**: The relationship between expectations management and the amount paid to CEOs according to annual bonus plans is positive.

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³ We use the terms expectations management and downward guidance synonymously in this paper.
The structure of common long term incentive plans is similar to the structure of bonus plans, with the exception that long term incentive plans are typically based on rolling-averages of three or five-year cumulative performance. As a consequence, we expect the relationship between long term incentive plans and expectations management to be similar, but weaker than that between bonus plans and expectations management. This leads to our third hypothesis.

**Hypothesis 3**: The relationship between expectations management and the amount paid to CEOs according to long term incentive plans is positive.

CEO stock positions have a linear payoff with respect to the share price. As a result, we expect a positive relationship between the total value of stocks held by managers and analyst guidance. Restricted stocks are “restricted” because shares are forfeited under certain conditions typically related to employment retention. We also expect a positive relationship between restricted stocks awarded to managers and analyst guidance. However, this latter relation is expected to be weaker as our data contains the restricted stocks granted in the current fiscal year only, which may also not be at the CEO’s free disposal yet. Hence the fourth hypothesis states the following:

**Hypothesis 4**: There is a positive relationship between the stocks held by CEOs and expectations management.

Stock options provide a direct link between managerial rewards and share price appreciation. Awarded stock options are usually non-tradable, and are typically forfeited if the executive leaves the firm before vesting. Murphy (1999) documents that most options expire after ten years and are granted with strike prices equal to the “fair market value” on the date of the grant. Given the convexity of option value with respect to stock price, executives will have a strong incentive to guide analysts, particularly when the sensitivity of granted options value with respect to stock price is relatively high. This leads to the fifth hypothesis.

**Hypothesis 5**: There is a positive relationship between expectations management and the options held by the CEO (and their sensitivity with respect to stock price).

### 4 Sample and methodology
In this section, we first describe our sample selection process. Then, we present the measurement of the variables used in this paper and report their summary statistics. Finally, we describe the methodology used to test our hypotheses.

### 4.1 Sample selection

We use data from four sources. The CEO compensation information is taken from Standard and Poor’s Execucomp database. Execucomp reports components of executive compensation for approximately 1500 U.S. firms (S&P 500, S&P 400 Mid Cap, S&P 600 Small Cap) between 1992 and 2001. We obtain annual earnings forecasts from Thomson Financial’s I/B/E/S historical database. Accounting data is taken from Standard and Poor’s Compustat. Daily stock returns and market capitalization data are obtained from the Center of Research in Security Prices (CRSP). The initial sample contains 14’873 observations for 3’956 different firms in the Execucomp database. Firms are excluded from this initial sample if they are financial institutions (SIC codes 6000-6999), utilities (SIC codes 4800-4999), quasi-regulated industries (SIC codes 8000 and above), or if the firms have missing data in I/B/E/S, CRSP, or Compustat. We also exclude firm-year observations in which a company has incomplete or inconsistent details concerning the options granted to its CEO (e.g. missing maturity date, missing exercise price or a maturity date smaller than the grant date). We exclude as well firm-years in which a company belongs to an industry (defined by its two-digit SIC code) that contains less than 8 other companies for that year.

Finally, we exclude all observations for the years 1992 and 2001. In 1992, Execucomp reports compensation data for 433 CEOs only. As a result, after having filtered the data as described above, only 174 observations remain for this year. Another reason to delete this year from our sample is the fact that it was the first year in which executive compensation information had to be published in the present form and we do not want to introduce any self-selection biases in case the characteristics of the firms (not) reporting are correlated with the firm characteristics used in the construction of our explanatory variables. The final sample contains 7’787 firm-year observations.

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4 The detailed description of the compensation variables is contained in Section 4.3.

5 The exclusion of the observations for the year 2001 is due to the fact that we still have not received the latest update of the CRSP daily database. As soon as this is done, we will add these observations to our sample.

6 In 1992 only S&P500 companies were included in the database.
4.2 Measuring expectations management

In order to measure expectations management, we adapt Matsumoto’s (2002) methodology to yearly data. She defines expectations management as the difference between the last analyst consensus earnings forecast and the expected earnings per share based on a model of prior earnings and stock price changes. More formally, for each firm $i$ in industry $j$ during year $t$, the yearly change in earnings is modeled as a function of prior yearly change in earnings and returns cumulated over the current year:

$$\frac{\Delta EPS_{ijt}}{P_{ijt-1}} = \alpha_{ij} + \beta_{1ij} \cdot \frac{\Delta EPS_{ijt-1}}{P_{ijt-2}} + \beta_{2ij} \cdot CUMRET_{ijt} + \epsilon_{ijt},$$

(1)

where:

$\Delta EPS_{ijt}$ = earnings per share for firm $i$ in two-digit SIC code $j$ in year $t$, less earnings per share for the same firm one year prior, as reported by I/B/E/S.

$P_{ijt}$ = price per share for firm $i$ in two-digit SIC code $j$ at the end of year $t$.

$CUMRET_{ijt}$ = cumulative daily excess return for firm $i$ in four-digit SIC code $j$ during year $t$. Returns are cumulated from three days after year $t-1$ earnings announcement to 20 days before year $t$ earnings announcement.

The model is estimated for each industry using all firms in that year that belong to the same two-digit SIC code. In a year, there must be at least eight companies in a particular industry for the equation to be estimated. The parameter estimates from the prior industry-year are used to determine the expected change in earnings per share ($E[\Delta EPS]$):

$$E[\Delta EPS_{ijt}] = \left[ \alpha_{ijt-1} + \hat{\beta}_{1ijt-1} \cdot \frac{\Delta EPS_{ijt-1}}{P_{ijt-2}} + \hat{\beta}_{2ijt-1} \cdot CUMRET_{ijt} \right] \cdot P_{ijt-1}.$$  

(2)

This value is then added to the previous year’s earnings to obtain an estimate of the expected analyst forecast ($E[FEPS]$) for the current year’s earnings:

$$E[FEPS_{ijt}] = EPS_{ijt-1} + E[\Delta EPS_{ijt}].$$  

(3)

$^7$ Returns are intended to capture additional value-relevant information that an analyst might use to estimate earnings.
Finally, we compute the unexpected earnings forecast as the difference between the last consensus forecast released by analysts prior to the earnings announcement date ($FEPS$) and the expected analyst forecast computed from the model:

$$UEF_{jt} = FEPS_{jt} - E[FEPS_{jt}].$$  \hspace{1cm} (4)

Similar to Matsumoto (2002), we define a dichotomous variable $DOWN=1$ if $UEF < 0$ indicating that analyst expectations have been managed downward, and $DOWN=0$ if $UEF \geq 0$ indicating that analyst expectations have not been managed downward.

In Table 1, we report the average value of the coefficients obtained from the industrial regressions described in equation (1) as well as the average value of their associated $t$-statistics, together with regression $R$-squareds.

[Insert Table 1 here]

On average, changes in earnings per share are positively and significantly associated with cumulative excess returns. Earnings per share changes are also positively associated with past changes in earnings. However, the average significance level is weaker.

### 4.3 Measuring CEO compensation components and ownership variables

We obtain the dollar value of each CEO’s annual base salary, the dollar value of the CEO’s annual bonus, the amount paid out to the CEO according to the company’s long term incentive plans ($LTIP$), and the value of restricted shares ($RSG$) awarded during the year directly from the Execucomp database. In addition, we include the total percentage of the firm’s shares held by the CEO at the end of the fiscal year ($SHARE$) to assess the impact of the total share position (as opposed to the stock grants awarded in the present year only) on expectations management. In addition we use the value of in-the-money and exercisable options ($INMONEX$) held by the CEO to measure the impact of the entire relevant option position. This item is provided by Execucomp and includes all in-the-money exercisable options from prior years’ grants.

Considering the convexity of the relationship between share and option price, we should ideally compute a sensitivity measure of the INMONEX options to price movements in order
to assess the exact impact of share price changes on CEO option portfolios. However, Execucomp reports detailed characteristics (e.g. maturity, strike price) only for the options that have been granted during the current fiscal year. Therefore we compute a variable based on the average sensitivity of the latter options in the CEO’s portfolio to price changes of the underlying company stock ($OPTSENS$) to use it as a proxy for the sensitivity of the $INMONEX$ options. The sensitivity of options that have been granted to CEOs during the current fiscal year, is measured as in Core and Guay (2001). We define the sensitivity of granted options awarded to CEOs as the change in the dollar value of the holder’s option for a 1% change in the stock price. We estimate the sensitivity of stock option value to stock price as the partial derivative of the option value with respect to stock price (“delta”). The option deltas are based on the Black-Scholes (1973) formula, as modified by Merton (1973) to account for dividend payments. The detailed methodology as well as the parameters used to compute the value of the options awarded annually to CEOs are presented in the appendix.

Table 2 summarizes the CEO compensation components. The average annual base salary paid to CEOs equals $559,552. The distribution for base salary is highly skewed, some CEOs receiving no annual base salary. The mean annual bonus paid to CEOs equals approximately $0.50 million, with a range from just 0 to more than $14 million. The average value of the long term incentive plans paid to CEOs equals $127,083. Less than 33% of CEOs receive long term incentive plans. The average (median) amount of in-the-money exercisable options held by CEOs equals $8.31 (0.89) million, with a range from 0 to almost $2 billion. An increase in the share price by 1% leads to an average value increase of the stock options awarded annually to CEOs of $40,892. Again, this amount varies substantially across the sample observations, with a standard deviation of $180,398. The average amount of restricted stocks granted to CEOs is relatively small compared to other compensation components. Its mean is $289,089 and, similar to long term incentive plans, less than 33% of CEOs receive

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8 We are aware that the Black-Scholes approach has many limitations for executive stock options: executives are limited by institutional restrictions to hedge or arbitrage their option values in the secondary market, their options are subject to forfeiture if they leave the company, and they are not free to trade or sell their options. In addition, company executives are undiversified, with their financial as well as human capital invested disproportionately in their company. As a result, CEOs tend to exercise their options much earlier than outside investors would. However, as underlined by Core and Guay (2001), the Black-Scholes model can be considered as an accurate method to produce an instrumental variable to capture cross-sectional variation in option plan deltas.
restricted stocks. Finally, the mean (median) percentage of shares held by CEOs equals 3.35% (0.48%), with a range from 0% to 63.23%.

4.4 Measuring control variables

We include additional explanatory variables to control for earnings thresholds, information environment, growth prospects, and further firm-specifics that are potentially related to expectations management. Degeorge et al. (1999) suggest that executives acting in self interest and being subject to outside monitoring have strong incentives to manipulate behavioral thresholds. In their analysis of earnings per share and forecast error distributions, Degeorge et al. find evidence consistent with earnings management in order to exceed zero earnings, past earnings, and analyst expectations. We include three control variables to capture these thresholds. The indicator variable \(LOSS\) equals one if a particular firm reports a loss in the current fiscal year (annual Compustat item A18). \(MEET\) is a dummy variable that equals one if the firm’s reported EPS at the announcement date meets or beats analyst expectations, as measured by the last consensus estimate prior to the announcement date. The indicator variable \(INCEPS\) equals one if the firm reports a positive earnings variation relative to the previous year (Compustat item A18).

A priori, the direction of these threshold variables’ influence on the probability of expectations management is not unambiguous. On the one hand, meeting or beating analyst expectations leads to a significant stock price rise at the earnings announcement. Furthermore, Lopez and Rees (2000), show that this appreciation is much lower for firms that report a loss. Accordingly, the same argument could apply to firms (not) reaching positive earnings changes. Therefore, one can expect managers of firms that report a loss, that will not meet analyst expectations, or that report a fall in earnings per share to have less incentives to manage analysts. On the other hand, if managers already use earnings management to reach one or several of these behavioral thresholds, then the probability of executives making use of analyst management might decrease. Hence, the relationship between analyst guidance and \(LOSS\) might be positive and negative for \(INCEPS\) and \(MEET\).

Brown and Higgins (2002) find that guidance increases with the richness of the firm’s information environment. They characterize information environment as the availability and effectiveness of communication between managers and analysts and document a positive
relationship between a firm’s analyst coverage and the probability of expectations management. They use the absolute value of the final forecast error as an alternative proxy for information environment and document a negative relationship between forecast error magnitude and expectations management. However, this finding is to a certain extent tautological, since forecast errors will be smaller almost by construction for firms that manage analyst expectations downward. Typically, firms that beat analyst forecasts do so by a very small amount, whereas firms whose earnings fall short of the consensus frequently do so by much larger numbers (“big baths”). We measure a firm’s informational environment by using two related proxies. First, we include residual analyst coverage (RCOV) as proposed by Hong et al. (2000). Residual analyst coverage is the residual from the regression of the logarithm of one plus the number of analysts following the firm on the logarithm of the market value of the company taken at the beginning of the fiscal year. The number of analysts for a particular firm-year corresponds to the number of estimates which constitute the last consensus forecast released before the earnings announcement date. Using residual coverage instead of the number of analysts following the firm provides a measure that does not proxy for a firm’s market capitalization. As shown by Hong et al. (2000), market value is the most important determinant of analyst coverage. Consistent with Brown and Higgins (2002), we expect a positive relationship between expectations management and residual analyst coverage. Our second proxy for informational environment is the absolute value of the initial forecast error (IFE). We compute it as: $\left| FEPS_{i,t}^{ini} - EPS_{i,t} \right| / P_{i,t}$, where $FEPS_{i,t}^{ini}$ is the first consensus forecast released by analysts for company $i$ in year $t$, $EPS_{i,t}$ is the company’s actual earnings per share, and $P_{i,t}$ is the company’s share price at the beginning of the fiscal year. Matsumoto (2002) documents a strong negative relationship between the initial forecast error and the probability that a firm meets or beats analyst expectations.\(^9\)

We include the market-to-book ratio (MB) as a proxy for the growth prospects of the firm. It is computed as the market capitalization of the company divided by its book value of assets, both taken at the beginning of the fiscal year. Prior research has found growth firms (high market-to-book ratio) to suffer large and asymmetric reactions to negative earnings surprises (Skinner and Sloan 1999). Brown (2001b) shows that growth firms have a higher probability

\(^9\) Note that Matsumoto (2002) also uses the logarithm of the firm market value as control variable for the firm information environment. Due to potential multi-collinearity problems between market capitalization and most of
of managing analysts compared to value firms. He accounts for this by the increase in managerial compensation in stocks and options. Due to the asymmetric market reaction to bad news, growth firm managers’ portfolios will suffer a higher loss following a negative earnings surprise than those of value firm managers. Thus, if this explanation is valid, by including stock-based compensation and a proxy for growth jointly as explanatory variables for expectations management, there should not be any difference between the propensity of growth and value firms to engage in expectations management strategies. However, if the motives for growth firm managements to avoid negative surprises are not exclusively due to the structure of their management compensation, the growth proxy should remain positive and significant in explaining earnings management. Matsumoto (2002) reports that firms with high growth prospects (measured by the analyst long term EPS growth consensus forecast for the firm) are more likely to take actions to avoid negative surprises.\textsuperscript{10} Alternatively, firms in distress (with very low market-to-book) might depend particularly on short-term earnings surprises in order to obtain additional financing or signal recovery to stakeholders, which suggests a negative relationship between analyst guidance and market-to-book.

We include three additional variables to control for the value-relevance of earnings, reliance on implicit claims with stakeholders, and litigation risk. Matsumoto (2002) shows that firms with low value-relevance of earnings (i.e., firms whose future cash flows are predicted poorly by current earnings) are less likely to avoid negative earnings surprises, since market reactions are expected to be relatively moderate. We use $EARNRET$ to control for the value-relevance of earnings. It is computed as the decile rank of the $R^2$-squared from yearly industry-specific regressions of cumulative excess returns on yearly changes in earnings.\textsuperscript{11} Matsumoto (2002) finds that firms depending particularly on implicit claims with stakeholders are more likely to take actions to avoid negative earnings surprises. She argues that avoiding negative surprises at the earnings announcement yields more favorable terms of trade with stakeholders, such as suppliers, clients, and employees. These groups are likely to limit their

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\textsuperscript{10} We also estimate our regression with the firm consensus long term EPS growth forecast supplied by I/B/E/S instead of $MB$. Our results are insensitive to this modification.

\textsuperscript{11} Firms are grouped according to their two-digit SIC code. Every year, for each industry group, we regress cumulated daily excess returns (cumulated from three days after the fiscal year $t-1$ earnings announcement date to 20 days before fiscal year $t$ earnings announcement) on the change in earnings per share from fiscal year $t-1$ to fiscal year $t$, scaled by the share price at the end of fiscal year $t-1$. We require each industry group to contain at least 8 firms. The firms with $R^2$'s in the highest (lowest) 10% of the distribution are assigned a value of 1 (10).
assessment of a company’s financial performance to reported earnings, since the financial press focuses its attention primarily on earnings announcements rather than initial analyst forecasts. We use the proxies $LABOR$, $DUR$, and $R&D$, developed by Bowen et al. (1995) to measure reliance on implicit claims. $LABOR$ is a measure of labor intensity, defined as one minus the ratio of total gross property, plant, and equipment (Compustat item A7) to firm size, measured by total gross assets (total assets plus accumulated depreciation, depletion, and amortization with Compustat items A6 and A196 respectively). The indicator variable $DUR$ denotes membership in the durable goods industry sectors and equals one for firms with primary (three-digit) SIC codes 150-179, 245, 250-259, 283, 301, and 324-399. $R&D$ denotes research intensity, computed as annual research and development expenditures (Compustat item A46) divided by total assets (Compustat item A6). Employing factor analysis with principal component factors we transform $LABOR$, $DUR$, and $R&D$ into the single variable $ICLAIM$, representing reliance on implicit claims.\footnote{Almost one third of the observations for R&D are missing. Following Bowen et al. (1995) and Matsumoto (2002) we replace missing values by the value zero. The results do not depend on this ad-hoc assumption. We also perform all regressions with $LABOR$, $DUR$, and $R&D$ jointly and individually included as additional explanatory variables. The coefficients of $DUR$ and $R&D$ are never significantly different from zero. Only $LABOR$ is (highly) significant and positive, thus behaving identically as $ICLAIM$.}

Furthermore, a strong price drop at the earnings announcement can give rise to shareholder litigation. Therefore, firms with a higher risk of shareholders filing lawsuits may take more actions to avoid negative earnings surprises. Consistent with Francis et al. (1994), Soffer et al. (2000), Ali and Kallapur (2001), and Matsumoto (2002), we control for litigation risk by including the dummy variable $LIT$ indicating whether a firm belongs to an industry classified as litigious. $LIT$ equals one for firms with primary SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370-7374 (biotechnology, electronics, retailing, and computers).

Table 3 displays descriptive statistics of the control variables. The mean and median of $EARNRET$ with values of 6.2 and 7.0 respectively are relatively high since the industry portfolios with low $R$-squareds contain more firms on average than the industry groups with high $R$-squareds from the regressions of cumulative excess returns on annual changes in
earnings. Only 8.8% of the firm-year observations are loss reporting firms. The thresholds of meeting or beating analyst forecasts and reporting increased EPS have been reached in 65% and 69% of firm-years respectively. Firms in the durable goods industries account for 42.5% of the firm-year observations, firms in litigious industries account for 34.8%. Residual analyst coverage ranges from -1.9 to 1.4 with the median of 0.022 close to zero. Both IFE and MB display very large positive outliers. Due to the replacement of missing values with zeros, R&D is highly skewed as well, with about 30% of the values being zero. We use it together with LABOR and DUR to generate ICLAIM, which has zero mean and variance one by construction.

For the regression analysis, we measure all compensation and ownership variables as well as IFE and MB with the values of their cumulative distribution functions (hereafter referred to as cdf) for several reasons. Firstly, all these variables are highly skewed. The cdf transformation generates a uniform distribution of the transformed variables, which enhances the speed of convergence of the parameter estimates to the true population parameters. Secondly, the effect of outliers is mitigated without discarding this information completely as done in censoring the sample. Moreover, this transformation is consistent with imposing decreasing marginal effects as the variables increase. Intuitively, this postulates that the first $1000 of any compensation component have greater importance than a $1000 variation at high income or ownership levels. The cdf transformation is similar to the log transformation commonly applied to firm size. However, the log transformation is less appropriate for the compensation and ownership variables, since there is a large number of observations with value zero. Furthermore, the use of the cdf transformation is not problematic for this study, since we are mainly interested whether distinct components of executive compensation increase or decrease the probability of expectations management (i.e. we are after the sign of the estimated coefficients), rather than estimating precisely the marginal effect of a $1000 increase in executive remuneration on the probability to manage analysts.

[Insert Table 4 here]

In Table 4, we report Pearson correlation coefficients between DOWN and the exogenous variables, where SALARY, BONUS, LTIP, RSG, SHARE, INMONEX, OPTSENS, IFE, and MB are expressed as the values of their cumulative distribution functions. Except for SALARY, the signs of the correlation coefficients are consistent with those predicted by our hypotheses. The
compensation components and ownership variables are generally significantly positively correlated,\textsuperscript{13} except for the percentage of shares owned by CEOs which is negatively correlated with the compensation components and option ownership. The annual bonus awarded to CEOs is positively related to \textit{MEET} and \textit{INCEPS} and negatively related to \textit{LOSS}. The signs of the correlation coefficients between \textit{DOWN} and the firm-specific control variables are consistent with previous research.

4.5 \textit{Measuring the impact of CEO compensation on expectations management}

To test whether executive compensation components are associated with expectations management as postulated in our hypotheses, we first perform a logit regression, modeling the probability that analyst expectations have been managed downward.

For the limited dependent variable model, the existence of a latent variable $D^*$ is assumed such that:

$$
DOWN_i = \begin{cases} 
1 & \text{if } D^* > 0 \\
0 & \text{if } D^* < 0
\end{cases}
$$

with $D^* = x_i'\beta + \nu_i$, $\nu_i \sim \text{logistic}(0, \pi^2/3)$.

This corresponds to:

$$
\Pr(\text{ob}(DOWN_i = 1) = \Lambda(x_i'\beta) = \frac{e^{x_i'\beta}}{1 + e^{x_i'\beta}},
$$

where $\Lambda$ is the cdf of the logistic distribution and

$$
x_i'\beta = \beta_0 + \beta_1 \text{SALARY}_i + \beta_2 \text{BONUS}_i + \beta_3 \text{LTIP}_i + \beta_4 \text{RSG}_i + \beta_5 \text{SHARE}_i + \beta_6 \text{INMONEX}_i + \beta_7 \text{OPTSENS}_i + \beta_9 I_{94} + \ldots + \beta_{96} I_{100}
$$

Consistent with prior research on earnings management and forecast guidance (Matsumoto 2002, Brown 2002) we pool the observations from 1993 to 2000 performing the

\textsuperscript{13} We conduct multi-collinearity diagnostic tests computing the variance inflation ratios (Kennedy 2000) for all variables used in the regression analysis. None of these ratios displays a value greater than 10, thus indicating that multi-collinearity does not cause any concern.
logit regression for the entire sample. In all regressions indicator variables \(I_{03}\) to \(I_{09}\) control for year effects (relative to the base year 1993, represented by the constant \(\alpha_0\)), which are not captured by the compensation (and control) variables.

In order to evaluate the compensation and ownership hypotheses jointly with the various alternative explanations for forecast guidance, we extend the above specification by including the full set of control variables:

\[
\Pr(\text{ob}(\text{DOWN}_i = 1) = \Lambda(\beta_0 + \beta_1\text{SALARY}_i + \beta_2\text{BONUS}_i + \beta_3\text{LTIP}_i + \beta_4\text{RSG}_i \\
+ \beta_5\text{SHARE}_i + \beta_6\text{INMONEX}_i + \beta_7\text{OPTSENS}_i + \beta_8\text{LOSS}_i + \beta_9\text{INCEPS}_i + \\
+ \beta_{10}\text{MEET}_i + \beta_{11}\text{IFE}_i + \beta_{12}\text{EARNRET}_i + \beta_{13}\text{MB}_i + \beta_{14}\text{RCOV}_i + \beta_{15}\text{CLAIM}_i \\
+ \beta_{16}\text{LIT}_i + \beta_{94}\text{I94} + ... + \beta_{99}\text{I99})
\]

A potential drawback of the pooled logit specification is unobserved heterogeneity. For instance, the CEO’s ability to guide or manipulate analysts is hard to measure, but might be correlated with other explanatory variables, thus causing biased coefficient estimates. The executive’s skill to negotiate his or her compensation components with the compensation committee, for example, is likely to be correlated with the skill to deal with analysts, and will be reflected in the compensation variables. Moreover, differing attitudes toward business ethics or moral standards are just as hard to observe, but undeniably play a role in the CEO’s propensity to manage analysts. Therefore we estimate a fixed effects logit model, allowing for unobserved heterogeneity at the firm level:

\[
\Pr(\text{ob}(\text{DOWN}_i = 1) \\
= \Lambda(\beta_0 + \beta_1\text{SALARY}_i + \beta_2\text{BONUS}_i + \beta_3\text{LTIP}_i + \beta_4\text{RSG}_i + \beta_5\text{SHARE}_i \\
+ \beta_6\text{INMONEX}_i + \beta_7\text{OPTSENS}_i + \beta_8\text{LOSS}_i + \beta_9\text{INCEPS}_i \\
+ \beta_{10}\text{MEET}_i + \beta_{11}\text{IFE}_i + \beta_{12}\text{EARNRET}_i + \beta_{13}\text{MB}_i + \beta_{14}\text{RCOV}_i + \beta_{15}\text{CLAIM}_i \\
+ \beta_{16}\text{LIT}_i + \beta_{94}\text{I94} + ... + \beta_{99}\text{I99} + \alpha_i) \\
\text{with: } \Lambda(\beta'X) = \frac{e^{(\alpha + \beta'X)}}{1 + e^{(\alpha + \beta'X)}} \text{ and } \alpha_i \text{ the firm-specific fixed effect.}
\]

This implies the assumption that observations \(i = 1, ..., N\) are independent, including consecutive observations of the same firm. In order to correct for firm clustering we compute robust standard errors adjusted for clustering. However, these differ by less than \(10^{-3}\), so we do not report them (available upon request).
Since the estimation of the conditional logit model restricts the sample to firms with temporal variation in the endogenous variable, all the firms which are found to manage expectations throughout the entire sample period have to be excluded from the regression as well as the firms for which the $\text{DOWN}$ variable is 0 throughout. Moreover, the conditional logit estimator requires at least two years of observations for each firm. Since the exclusion of these "extreme" observations may diminish the significance of explanatory variables due to sample restriction, as opposed to correcting for unobserved heterogeneity, we estimate the random effects probit model, which is an alternative panel specification that takes unobserved heterogeneity into account without losing the firms deleted with the fixed effects logit method. The model is specified as follows.

$$D_{it}^{ps} = \beta_0 + \beta_1 \text{SALARY}_{it} + \beta_2 \text{BONUS}_{it} + \beta_3 \text{LTIP}_{it} + \beta_4 \text{RSG}_{it} + \beta_5 \text{SHARE}_{it}$$
$$+ \beta_6 \text{INMONEX}_{it} + \beta_7 \text{OPTSENS}_{it} + \beta_8 \text{LOSS}_{it} + \beta_9 \text{INCEPS}_{it} + \beta_{10} \text{MEET}_{it} + \beta_{11} \text{IFE}_{it} + \beta_{12} \text{EARNRET}_{it} + \beta_{13} \text{MB}_{it} + \beta_{14} \text{RCOV}_{it} + \beta_{15} \text{CLAIM}_{it} + \beta_{16} \text{LIT}_{it}$$
$$+ \beta_{94} I_{94} + \ldots + \beta_{98} I_{98} + \alpha_i + \eta_i$$

with $\eta_i \sim \text{i.i.d. } \mathcal{N}(0,1)$ and $\alpha_i \sim \mathcal{N}(0, \sigma^2_{\alpha}).$

In addition we perform further sensitivity analyses relating to variable measurement and conditioning the sample on behavioral thresholds.

5 Results

5.1 CEO compensation and expectations management

Table 5 displays the results of the pooled logit regression of the analyst guidance measure $\text{DOWN}$ on the compensation and ownership variables, controlling for year effects (coefficients on the year dummies are not reported).

[Insert Table 5 here]

Consistent with our first hypothesis salary has a negative influence on the probability of expectations management. With a $p$-value 0.000 it is highly significant. Consistent with our second hypothesis, the relationship between bonus and analyst guidance is positive. As with

15 The dummy coefficients are always highly significant jointly.
salary, the $p$-value 0.000 indicates high significance. Consistent with our third hypothesis, long term incentive plans increase the probability of expectations management. Again, with a $p$-value 0.000 the variable is highly significant. Not supporting our fourth hypothesis, the variable $RSG$ (restricted stock grants) is not significantly different from zero and has a negative sign. We attribute this result to the failure of the variable (in the raw form) to measure the value of stock at the disposal of the executive for short term transactions. However, the fourth hypothesis is strongly supported by the high significance of $SHARE$ ($p$-value 0.000) which is positively related to expectations management. $SHARE$ is likely a much better proxy to measure the CEO’s incentive from stock ownership than $RSG$, which measures the value of the restricted stocks awarded in the current year only, during which, for many the vesting period has not yet ended. Consistent with our fifth hypothesis, both option value and sensitivity are positive and (highly) significant with $p$-values 0.000 and 0.011 respectively. $INMONEX$ and $BONUS$ display the largest coefficients.

In summary, the pooled regression with year effects strongly supports our hypotheses about the relationship between expectations management and CEO compensation, stock and option ownership.

Table 6 shows the results of the pooled logit regression of $DOWN$ on the compensation and ownership variables, controlling for year effects and further firm-specific control variables.

[Insert Table 6 here]

Again, with only the exception of restricted stock grants all CEO compensation and ownership variables lend strong support to our five hypotheses. The coefficient of $SALARY$ is negative and highly significant ($p$-value 0.000). The coefficients of $BONUS$, $SHARE$, and $INMONEX$ are positive and highly significant ($p$-values 0.000), while the coefficients on $LTIP$ and $OPTSENS$ remain positive and significant at conventional levels.

The three threshold variables $LOSS$, $INCEPS$, and $MEET$ are all significant, with $INCEPS$ having a negative coefficient. Consistent with prior research (Matsumoto 2002), the variable proxying for forecasting uncertainty $IFE$, is negative and highly significant. In contrast to Matsumoto (2002) $EARNRET$ is not significant. Nor is residual analyst coverage $RCOV$, which also does not explain analyst guidance. In sharp contrast to previous research $MB$ is
negative and highly significant. Likely, as conjectured by Brown (2001b), market-to-book was found positive and significant in explaining analyst management due to growth firms’ pronounced stock and option remuneration practices. In our sample we control for these effects and find MB to have the opposite sign, possibly because it proxies for distress. Again, consistent with prior research there is a positive relation between reliance on implicit claims (ICLAIM) and analyst guidance. As in Matsumoto (2002), LIT is negative, but not significant at conventional levels.  

Overall, the inclusion of additional firm-specific control variables corroborates the importance of executive compensation with stock and option ownership for explaining expectations management.

5.2 Sensitivity tests

The results of modeling the dependence across units in a panel framework are presented in Table 7. The fixed effects logit regression of DOWN on the compensation, ownership, and control variables is displayed in Panel A.

[Insert Table 7 here]

All compensation and ownership components keep their predicted sign, but compared to the pooled logit regression, the marginal effects of the variables BONUS, INMONEX, and OPTSENS are now about twice as large and still highly significant. No longer significant however, are the compensation and ownership variables SALARY, LTIP, and SHARE. The coefficients of the threshold variables LOSS, INCEPS, and MEET stay at about the same level, but with LOSS being no more significant. Like BONUS and the option variables, the marginal effect of MB is changing remarkably, now being almost four times as large as before and still highly significant and negative. LIT becomes significant, but in opposition to the prediction, whereas ICLAIM loses significance. IFE is still negative and highly significant, EARNRET and RCOV remain insignificant.

---

16 We also investigate the relationship between expectations management and earnings management. We estimate discretionary accruals as the difference between actual accruals reported by the firms and an estimate of total accruals given by the modified Jones model (Jones 1991) described in Dechow et al. (1995). In order to control for earnings management, we run regression (6) with an additional dichotomous variable that takes a value of 1 when the estimate of discretionary accruals is positive and zero otherwise. This variable is not
The strong changes in the magnitudes of *BONUS*, *INMONEX*, and *OPTSENS* are possibly a sign of unobserved heterogeneity at the firm or equivalently CEO level, relating to skill and ethical standards. However, the conditional logit approach is flawed with the deletion of all firms with the endogenous variable indicating expectations management in all years as well as the firms without expectations management in all years. This way 943 "extreme" observations (12.1% of the sample) are ignored.

Compared to the fixed effect logit regression, the random effect probit approach has the advantage that it does not discard any firms without time series variation in *DOWN*, but it imposes the restriction that the unit specific effects $\alpha_i$ be uncorrelated with the explanatory variables. The results are displayed in Table 7, Panel B. All the variables that were significant in the pooled logit regression remain significant with the same signs as in the random effects probit regression. Again with the exception of *RSG*, the coefficients of all compensation and ownership variables support our hypotheses relating expectations management to executive compensation. *SALARY*, *BONUS*, *SHARE*, and *INMONEX* are highly significant (with $p$-values $0.000$) and LTIP is significant at the conventional level.

In a related robustness test, we check whether there is a bias in the standard errors obtained from the pooled logit regressions due to correlated regression residuals across years. We run separate yearly cross-sectional regressions for equation (6) and compute the time-series average coefficients and $t$-statistics in the style of Fama and McBeth (1973).

[Insert Table 8 here]

Table 8 shows that our main results are robust to this estimation methodology as well. The significance levels of *SALARY* and *SHARE* are reduced, but *INMONEX* and *BONUS* remain highly significant, pinpointing the importance of CEO compensation components for causing analyst guidance. However, *OPTSENS* is no more significant at conventional levels, confirming that the sensitivity of recently granted (and not necessarily exercisable) options has less impact on expectations management practices. The most important differences with respect to the pooled regression results concern the control variables: *ICLAIM* which was statistically significant and its inclusion does not impact the signs or the statistical significance of the coefficients associated with the other variables. Detailed results are available upon request.
previously highly significant is no more significant, \textit{LOSS} is no more significant, and \textit{INCEPS} is only weakly significant. \textit{MB} and \textit{IFE} remain highly significant.

To summarize, we find that pooling observations, estimating panel models, and performing Fama-MacBeth regressions altogether lend strong support to our hypotheses. Our major conclusions are not sensitive to the method applied.

We take the pooled logit specification to a final sensitivity analysis conditioning on the behavioral thresholds rather than including them directly in the regressions. This appears appropriate if the incentives produced by executive compensation components to manage analysts depend on reaching the earnings thresholds positive profits (\textit{LOSS} = 0), positive change in earnings (\textit{INCEPS} = 1), and reaching the consensus forecast (\textit{MEET} = 1). The results of conditioning the logit regression on these thresholds are displayed in Table 9.

[Insert Table 9 here]

The evidence is consistent with the view that reaching earnings thresholds is important for the influence of\textit{ certain} incentive variables on expectations management, although not for all variables. \textit{INMONEX} is always positive and highly significant, independent of reaching any of the thresholds. \textit{SALARY}, \textit{BONUS}, and \textit{SHARE} are highly significant with the predicted signs in all regressions, conditional on reaching the respective thresholds (Panel A). When the thresholds have not been reached (Panel B), these variables are typically not significant anymore, except \textit{SALARY} conditional on \textit{INCEPS} = 0. The control variable \textit{IFE} is always negative and highly significant. Similarly, \textit{MB} is negative and significant throughout.

Again we interpret these results as strong support for our hypotheses, with the compensation in stock options providing a particularly strong incentive to manage analysts in all the scenarios under test. The result that \textit{SALARY}, \textit{BONUS}, and \textit{SHARE} while being (strongly) significant in the unconditional regressions, are not significant when earnings thresholds have not been reached, can be reconciled with the fact that thresholds have been reached by far more often than missed in our sample.
5.3 **CEO compensation and earnings surprises**

With the results in the previous subsections we have demonstrated the strong role of CEO remuneration in explaining analysts (downward) guidance. A related question is whether the same compensation and ownership variables also predict the sign of realized earnings surprises, measured by MEET. We expect the same signs for the coefficients of the compensation and ownership variables as in explaining downward guidance.

[Insert Table 10 here]

Table 10 shows that most of all BONUS and INMONEX positively predict the sign of earnings surprises at high levels of significance (with p-values 0.000), while SALARY has the expected negative coefficient and is significant at the conventional level. LTIP, RSG, and SHARE have the expected signs but are not significant. Moreover, earnings threshold variables LOSS and INCEPS are highly significant as well as RCOV, ICLAIM, and LIT, with the expected positive sign.

We infer that bonus, in-the-money exercisable options, and SALARY have an equally important role in explaining the sign of earnings surprises as they have in downward guidance of analyst forecasts.

5.4 **Does the market detect discernible expectations management?**

We conduct an event study to investigate whether the market takes into account any discernible expectations management strategies. This requires the calculation of the cumulative abnormal returns around the earnings announcement date. We estimate the following equation:

\[ R_s = \alpha + \beta R_{m} + \lambda D_v + \varepsilon_s \]  

\( t \in \left[ A_t - 248; A_t + 2 \right] \)

\[ D_v = \begin{cases} 1/5 & \text{if } t \in \left[ A_t - 2; A_t + 2 \right] \\ 0 & \text{otherwise} \end{cases} \]

where
\[ A_i = \text{earnings announcement date for firm } i \]
\[ R_{it} = \log \text{return of stock } i \text{ on day } t \text{ adjusted for capital changes and dividends} \]
\[ R_{mt} = \log \text{return of the market index on day } t \]
\[ \lambda_i = \text{Cumulative abnormal return for stock } i \text{ between } A_i - 2 \text{ and } A_i + 2. \]  \[17\]

The earnings announcement date is taken from I/B/E/S, individual stock returns are obtained from CRSP, and the market index is the CRSP value-weighted stock index. Equation (9) is estimated with a weighted least square regression as in Heinkel and Kraus (1988)\[18\] to correct for missing returns. Announcement date returns are missing for 24 observations. As a result, we estimate the model for 7,763 firm-year observations.

Table 11 summarizes the cumulative abnormal returns earned by firms at the announcement dates. Consistent with previous research, firms that meet or beat analyst expectations (zero or positive earnings surprise) earn a significant positive abnormal return of 1.30% during the period surrounding the announcement date. On the other hand, firms that fail to meet analyst expectations display a cumulative abnormal return of –1.20% during that period. The return differential between firms that meet or beat expectations and those that fail to do so equals 2.40% and is highly significant.

[Insert Table 11 here]

In Table 12, we present cumulative abnormal returns conditional on whether a particular company meets or beats analyst expectations and conditional on whether expectations management can be suspected according to our method.

[Insert Table 12 here]

The cumulative abnormal returns earned by firms that meet or beat analyst forecasts by managing analyst expectations downward are 1.10% lower than the cumulative abnormal returns of firms reporting a zero or positive surprise without managing expectations downward. On average, managers who engage in analyst manipulation still earn a positive

\[17\] As a first step we conduct an analysis of abnormal returns around the earnings announcement date. We observe most significant abnormal returns during the five days chosen as the event window.

\[18\] The weights are the square roots of the number of days over which the return is computed.
abnormal return, but this abnormal return amounts to only 0.90% over the period surrounding the announcement date. This suggests that the market has some ability to anticipate the expectations management strategies implemented by managers. For firms that do not meet analyst expectations, no significant difference is observed in cumulative abnormal returns conditional on whether expectations management is suspected.

The objective of the following analysis is to investigate whether the lower abnormal returns reported for firms suspected of managing analyst expectations downward depends on CEO compensation components and on firm-specific variables which have been shown to impact analyst guidance. In other words, we aim to assess which variables are taken into account by investors to detect potential analyst manipulation strategies. In order to do so, we model the cumulative abnormal returns of firms that meet or beat analyst expectations as a function of a subset of our explanatory variables. This subset contains the explanatory variables that are either partially or fully known by the market at the earnings announcement dates. We estimate the following model.

$$\lambda_i = \delta_0 + \delta_1 \text{SHR}_i + \delta_2 \text{INMONEX}_i + \delta_3 \text{MB}_i + \delta_4 \text{ICLAIM}_i + \delta_5 \text{LIT}_i + \varepsilon_i,$$  

(10)

with all variables defined as before.\(^1\) We expect the variables which were shown to be positively related to expectations management, to be negatively related with cumulative abnormal returns at the announcement dates. More precisely, the sign of the coefficients associated with \(\text{SHR}, \text{INMONEX}, \text{ICLAIM}\) and \(\text{LIT}\) are expected to be negative. If the abnormal returns of growth firms are entirely generated by their CEOs’ stock and option positions, MB should not be significant, whereas, regarding our previous regression results, we could expect as well a positive coefficient.

Table 13 summarizes our estimation results for equation (10). Only the coefficients associated with \(\text{INMONEX}\) and \(\text{LIT}\) display statistical significance at the conventional level. As expected, \(\text{INMONEX}\) is significantly negatively related to the cumulative abnormal returns. This means that the abnormal returns at the announcement date are lower for firms

---

\(^1\) Note that it is probably difficult for investors to assess the exact value of \(\text{INMONEX}\) at announcement the date. However, due to the vesting period attached to the awarded stock options, \(\text{INMONEX}\) contains options that have generally been granted to CEOs during past fiscal years. Investors are therefore able to estimate the approximate value of \(\text{INMONEX}\) from companies’ previous proxy statements. Concerning \(\text{SHR}\), investors can also infer the shares owned by CEOs from the proxy statement. Moreover, companies have to report all insider trades on a regular basis.
whose CEOs hold relatively large positions of in-the-money exercisable options. Contrary to expectation, the coefficient associated with firms with high litigation risk is positive and significant. However, as documented above, our regression results concerning this coefficient are difficult to reconcile as $LIT$ does not seem to be positively associated with expectations management. Regarding the low adjusted $R^2$, there might be other variables that can explain the documented lower abnormal return at the announcement date for firms that manage analyst expectations downward. We leave this issue for further research.

[Insert Table 13 here]

In summary, we show that the gains for CEOs from managing earnings expectations downward also comes at a cost for executives. The abnormal return for firms that manage to meet or beat analyst forecasts by manipulating expectations downward is significantly lower than the abnormal return for firms that fulfill market estimates without manipulating analyst expectations. Our results indicate that the reduced abnormal return for companies suspected of managing analysts is positively related to the value of in-the-money exercisable options owned by CEOs.

6 Conclusion

This paper investigates whether the increasing tendency of executives to manage analyst forecasts downward is, as informally suggested by past academic research and financial media, related to a change in the structure of executive compensation packages. Using CEO compensation components in conjunction with their share and option ownership, our results are consistent with this explanation. We show that CEOs who hold considerable share and option positions are more likely to manage analyst expectations downward. Moreover, other compensation components that are not directly related to share price movements are shown to have a significant impact on CEOs’ analyst guidance motives.Expectations management is negatively related to salary, indicating that high fixed compensation decreases the incentives of managers to manipulate analyst forecasts. Furthermore, we document a positive relationship between the annual bonus paid to CEOs and expectations management. This suggests that board of directors’ expectations are related to analyst expectations and that meeting analyst expectations may be an important criterion used by boards of directors to measure CEO performance.
In a second set of investigations, we show that the cumulative abnormal return for firms that meet or beat analyst forecasts at the announcement date is significantly lower for firms that are likely to pursue expectations management strategies. We show that this lower return is significantly related to the amount of options held by CEOs. This suggests that the market has some ability to identify firms that manage analysts in order to meet or beat their forecasts more easily.

Using a large U.S. sample, we document for the first time the importance and impact of CEO compensation components on expectations management. However, our results may not generalize to all market segments, since the substantial amount of data needed to conduct this study requires a sample with relatively large firms. Moreover, since executive compensation components are only available from the main provider on an annual basis, we conduct our study with annual earnings per share forecasts. As a result, our results may not be generalized to quarterly earnings forecasts.

Promising directions for further research include extending the set of executives beyond the CEO to study compensation and ownership effects on expectations management, devising trading strategies based on executive compensation information and earnings "surprises", as well as modeling temporal trends more explicitly in order to examine whether the documented temporal patterns in analyst guidance and earnings surprises can be entirely explained by the strong growth in stock price sensitive components of executive compensation.
Appendix

Measuring the sensitivity of the CEO’s stock option award to a 1% price change of the underlying company’s stock price

The value of the options awarded yearly to CEOs can be calculated with the following formula:

\[
\text{Award value} = N \left[ Se^{-dT} \Phi(d1) - Xe^{-rT} \Phi(d1 - \sigma \sqrt{T}) \right]
\]

where

\[
d1 = \frac{\ln \left( \frac{S}{X} \right) + \left( r - d + \sigma^2 / 2 \right) T}{\sigma \sqrt{T}}
\]

\(N\) = number of shares covered by the award,\(^{20}\)
\(S\) = price of the underlying stock,
\(X\) = exercise price,
\(r\) = risk-free interest rate,
\(d\) = expected dividend rate over the life of the option,
\(\sigma\) = expected stock return volatility over the life of the option,
\(T\) = time to maturity,
\(\Phi\) = cumulative probability for the normal distribution.

The incentive sensitivity from awarded options (OPTSENS) in a given year is estimated in the following way:

\[
OPTSENS = N \cdot \Delta \cdot \left( \frac{S}{100} \right),
\]

where \(\Delta = e^{-dT} \Phi(d1)\).

\(^{20}\) We include all awarded options in our measure even those that are awarded to adjust existing options such as “reload” options. Our results are not sensitive to this inclusion.
We use the following assumptions to estimate the parameters of the Black-Scholes formula:

\[ S = \text{market price of the company’s stock on the date of the option grant.} \]

\[ r = \ln(1+\text{riskless interest rate}), \text{ where the risk-free interest rate is the approximate average yield that could have been earned in the year in which the option was granted by investing in a U.S. Treasury bond carrying a seven year term. This yield is obtained from Execucomp.} \]

\[ d = \ln(1+\text{dividend rate}), \text{ with dividend rate defined as the company’s average dividend rate over the past three-years. If, in a particular year, the dividend rate is above the 95^{th} percentile of the distribution of yields for that year, it is reduced to the 95^{th} percentile value. Dividend rate and 95^{th} percentile values are obtained from Execucomp.} \]

\[ \sigma = \text{annualized volatility, estimated from past 60 months’ returns. If, in a particular year, a company’s stock volatility is in the bottom or top 5% of the cross-sectional volatility distribution, its volatility is increased or decreased to the 5^{th} or 95^{th} percentile values. Annualized volatility and percentile values are taken from Execucomp.} \]
References


Fuller, J. and M.C. Jensen, 2002, Just say no to Wall-Street, Journal of Applied Corporate Finance 14, 41-46.


Murphy, K.J., 1999, Executive compensation, Working paper, University of Southern California.


Table 1

Summary statistics for the expectations management proxy construction

<table>
<thead>
<tr>
<th></th>
<th>Average Mean</th>
<th>Std. dev.</th>
<th>t-stat.</th>
<th>Q1</th>
<th>Median</th>
<th>Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\alpha$</td>
<td>0.043</td>
<td>0.247</td>
<td>1.320</td>
<td>-0.014</td>
<td>0.037</td>
<td>0.100</td>
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<tr>
<td>$\beta_1$</td>
<td>0.854</td>
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<td>-1.700</td>
<td>0.178</td>
<td>2.231</td>
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<tr>
<td>$\beta_2$</td>
<td>0.543</td>
<td>0.631</td>
<td>1.988</td>
<td>0.283</td>
<td>0.393</td>
<td>0.542</td>
</tr>
<tr>
<td>Adj. $R^2$</td>
<td>0.292</td>
<td>0.211</td>
<td>n.a.</td>
<td>0.165</td>
<td>0.254</td>
<td>0.342</td>
</tr>
</tbody>
</table>

Reported average parameter estimates, standard deviations, and average t-statistics from the regression of changes in earnings per share on past changes in earnings per share and cumulative excess stock returns. The regression is estimated each year using data for all firms in the same two-digit SIC code. Altogether 269 regressions are performed for 36 different two-digit SIC code groups from 1992 to 1999.
Table 2

Summary statistics for CEO compensation components

<table>
<thead>
<tr>
<th>Component</th>
<th>Mean</th>
<th>Std. dev.</th>
<th>Min</th>
<th>Q1</th>
<th>Median</th>
<th>Q3</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALARY</td>
<td>559.552</td>
<td>315.819</td>
<td>0.000</td>
<td>396.677</td>
<td>500.000</td>
<td>625.000</td>
<td>3'654.849</td>
</tr>
<tr>
<td>BONUS</td>
<td>504.575</td>
<td>787.798</td>
<td>0.000</td>
<td>149.500</td>
<td>298.000</td>
<td>500.000</td>
<td>14’276.000</td>
</tr>
<tr>
<td>LTIP</td>
<td>127.083</td>
<td>649.007</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>15’105.000</td>
</tr>
<tr>
<td>RSG</td>
<td>289.089</td>
<td>7’446.258</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>650’812.050</td>
</tr>
<tr>
<td>SHARE</td>
<td>3.346</td>
<td>7.097</td>
<td>0.000</td>
<td>0.195</td>
<td>0.483</td>
<td>1.379</td>
<td>63.230</td>
</tr>
<tr>
<td>INMONEX</td>
<td>8’312.227</td>
<td>44’984.672</td>
<td>0.000</td>
<td>162.299</td>
<td>891.250</td>
<td>2’737.279</td>
<td>1’959’915.445</td>
</tr>
<tr>
<td>OPTSENS</td>
<td>40.892</td>
<td>180.398</td>
<td>0.000</td>
<td>2.974</td>
<td>9.491</td>
<td>20.742</td>
<td>9’993.093</td>
</tr>
</tbody>
</table>

SALARY is the annual base salary paid to CEOs. BONUS denotes the annual bonus paid to CEOs. LTIP is the sum paid to CEOs in a given year according to the long term incentive plan. RSG is the value of restricted shares awarded to CEOs in a given fiscal year. SHARE is the percentage of shares held by CEOs at the end of a given fiscal year. INMONEX is the value of in-the-money exercisable options held by CEOs at the end of a given fiscal year. Option sensitivity (OPTSENS) is the dollar amount of option value change if the underlying stock price moves up 1%. Except for SHARE, which is expressed in percent, all variables are expressed in thousands of dollars. The total number of observations is 7’787.
Table 3

Summary statistics for control variables

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. dev.</th>
<th>Min</th>
<th>Q1</th>
<th>Median</th>
<th>Q3</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARNRET</td>
<td>6.231</td>
<td>2.710</td>
<td>1.000</td>
<td>4.000</td>
<td>7.000</td>
<td>9.000</td>
<td>10.000</td>
</tr>
<tr>
<td>LOSS</td>
<td>0.088</td>
<td>0.284</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>MEET</td>
<td>0.653</td>
<td>0.476</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>INCEPS</td>
<td>0.692</td>
<td>0.462</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>IFE</td>
<td>0.055</td>
<td>1.118</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.021</td>
</tr>
<tr>
<td>RCOV</td>
<td>0.000</td>
<td>0.446</td>
<td>-1.918</td>
<td>-0.285</td>
<td>0.022</td>
<td>0.295</td>
<td>1.388</td>
</tr>
<tr>
<td>MB</td>
<td>4.146</td>
<td>12.540</td>
<td>0.123</td>
<td>1.716</td>
<td>2.612</td>
<td>4.250</td>
<td>678.094</td>
</tr>
<tr>
<td>LABOR</td>
<td>0.574</td>
<td>0.216</td>
<td>0.024</td>
<td>0.429</td>
<td>0.600</td>
<td>0.742</td>
<td>0.995</td>
</tr>
<tr>
<td>DUR</td>
<td>0.425</td>
<td>0.494</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>0.040</td>
<td>0.077</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.051</td>
<td>1.395</td>
</tr>
<tr>
<td>ICLAIM</td>
<td>0.000</td>
<td>1.000</td>
<td>-1.755</td>
<td>-0.758</td>
<td>-0.099</td>
<td>0.711</td>
<td>9.131</td>
</tr>
<tr>
<td>LIT</td>
<td>0.348</td>
<td>0.476</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Returns on earnings EARNRET is the decile rank from industry specific regressions of cumulative excess returns on yearly changes in earnings. LOSS is an indicator variable which equals one if a loss is reported in the current fiscal year. MEET is an indicator variable which equals one if reported earnings meet or beat the last consensus estimate prior to the announcement. Increasing earnings per share INCEPS is an indicator variable that equals one if reported earnings per share exceed the previous year’s earnings per share. Initial forecast error IFE is the absolute value of the difference between the first consensus estimate in the fiscal year and reported earnings per share, scaled by share price at the beginning of the fiscal year. Residual analyst coverage RCOV is the residual from a regression of the log of one plus the number of analysts contributing to the last consensus estimate prior to the announcement on the log market value of the company at the beginning of the fiscal year. Market-to-book ratio MB is market value of equity divided by book value of assets at the beginning of the fiscal year. Labor intensity LABOR is defined as one minus the ratio of gross property, plant, and equipment to total gross assets. DUR is a dummy variable indicating membership in durable goods industries (SIC codes 150-179, 245, 250-259, 283, 301, 324-399). R&D is annual research expenses divided by total assets. Missing values for R&D are set to zero. ICLAIM is the score of the factor analysis combining LABOR, DUR, and R&D into a single variable measuring reliance on implicit claims. LIT is a dummy variable indicating membership in litigious industries (SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, 7370-7374). The total number of observations is 7'787.
Summary of the correlation coefficients for the variables used in the regression analysis. **SALARY, BONUS, LTIP, RSG, SHARE, INMONEX, OPTSENS, EARNRET, LOSS, MEET, INCEPS, IFE, RCOV, MB, ICLAIM, and LIT** are measured as the values of their cumulative distribution functions. The other variables are measured as described in Table 3. The total number of observations is 7,787. Bold figures denote significance at the 1% level. Figures in italic denote significance at the 5% level.

<table>
<thead>
<tr>
<th></th>
<th>SALARY</th>
<th>BONUS</th>
<th>LTIP</th>
<th>RSG</th>
<th>SHARE</th>
<th>INMONEX</th>
<th>OPTSENS</th>
<th>EARNRET</th>
<th>LOSS</th>
<th>MEET</th>
<th>INCEPS</th>
<th>IFE</th>
<th>RCOV</th>
<th>MB</th>
<th>ICLAIM</th>
<th>LIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOWN</td>
<td>0.020</td>
<td>0.142</td>
<td>0.059</td>
<td>0.009</td>
<td>0.016</td>
<td>0.169</td>
<td>0.085</td>
<td>0.003</td>
<td>-0.062</td>
<td>0.105</td>
<td>0.112</td>
<td>-0.214</td>
<td>0.024</td>
<td>0.023</td>
<td>0.046</td>
<td>0.002</td>
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<td>SALARY</td>
<td>0.503</td>
<td>0.141</td>
<td>0.134</td>
<td>-0.233</td>
<td>0.273</td>
<td>0.317</td>
<td>-0.059</td>
<td>-0.144</td>
<td>0.038</td>
<td>0.037</td>
<td>-0.107</td>
<td>0.170</td>
<td>-0.016</td>
<td>0.003</td>
<td>-0.128</td>
<td>-0.102</td>
</tr>
<tr>
<td>BONUS</td>
<td>0.166</td>
<td>0.138</td>
<td>0.209</td>
<td>0.398</td>
<td>0.341</td>
<td>-0.019</td>
<td>-0.264</td>
<td>0.183</td>
<td>0.340</td>
<td>0.349</td>
<td>0.005</td>
<td>0.114</td>
<td>0.022</td>
<td>-0.101</td>
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<tr>
<td>LTIP</td>
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<td>-0.087</td>
<td>0.097</td>
<td>0.073</td>
<td>-0.010</td>
<td>-0.089</td>
<td>0.044</td>
<td>0.080</td>
<td>-0.148</td>
<td>-0.033</td>
<td>0.057</td>
<td>-0.007</td>
<td>-0.076</td>
<td></td>
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</tr>
<tr>
<td>RSG</td>
<td>-0.072</td>
<td>0.043</td>
<td>0.074</td>
<td>-0.019</td>
<td>-0.067</td>
<td>0.029</td>
<td>0.064</td>
<td>-0.086</td>
<td>0.006</td>
<td>-0.015</td>
<td>-0.045</td>
<td>-0.082</td>
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<tr>
<td>SHARE</td>
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<td>-0.046</td>
<td>-0.018</td>
<td>-0.002</td>
<td>0.004</td>
<td>0.009</td>
<td>-0.023</td>
<td>0.007</td>
<td>-0.044</td>
<td>0.020</td>
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<tr>
<td>INMONEX</td>
<td>0.417</td>
<td>0.036</td>
<td>-0.155</td>
<td>0.170</td>
<td>0.248</td>
<td>-0.357</td>
<td>0.113</td>
<td>0.322</td>
<td>0.133</td>
<td>0.104</td>
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<tr>
<td>OPTSENS</td>
<td>0.042</td>
<td>-0.087</td>
<td>0.109</td>
<td>0.103</td>
<td>-0.193</td>
<td>0.122</td>
<td>0.202</td>
<td>0.115</td>
<td>0.082</td>
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</tr>
<tr>
<td>EARNRET</td>
<td>0.032</td>
<td>0.031</td>
<td>0.027</td>
<td>-0.034</td>
<td>-0.002</td>
<td>0.096</td>
<td>0.197</td>
<td>0.129</td>
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</tr>
<tr>
<td>LOSS</td>
<td>-0.173</td>
<td>-0.286</td>
<td>0.376</td>
<td>-0.031</td>
<td>-0.111</td>
<td>0.088</td>
<td>0.117</td>
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<td></td>
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<tr>
<td>MEET</td>
<td>0.278</td>
<td>-0.242</td>
<td>0.081</td>
<td>0.100</td>
<td>0.058</td>
<td>0.055</td>
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<tr>
<td>INCEPS</td>
<td>-0.571</td>
<td>0.075</td>
<td>0.177</td>
<td>0.031</td>
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<tr>
<td>IFE</td>
<td>-0.073</td>
<td>-0.330</td>
<td>-0.076</td>
<td>-0.068</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCOV</td>
<td>-0.008</td>
<td>-0.101</td>
<td>0.112</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MB</td>
<td>0.214</td>
<td>0.201</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ICLAIM</td>
<td>0.216</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4

Correlation coefficients for regression variables
Table 5

The relation between downward guidance and CEO compensation components

Endogenous variable: *DOWN*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted sign</th>
<th>Coefficient</th>
<th>p-value</th>
<th>Marginal Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALARY</td>
<td>-</td>
<td>-0.613</td>
<td>0.000</td>
<td>-0.139</td>
</tr>
<tr>
<td>BONUS</td>
<td>+</td>
<td>0.987</td>
<td>0.000</td>
<td>0.224</td>
</tr>
<tr>
<td>LTIP</td>
<td>+</td>
<td>0.304</td>
<td>0.000</td>
<td>0.069</td>
</tr>
<tr>
<td>RSG</td>
<td>+</td>
<td>-0.017</td>
<td>0.842</td>
<td>-0.004</td>
</tr>
<tr>
<td>SHARE</td>
<td>+</td>
<td>0.439</td>
<td>0.000</td>
<td>0.100</td>
</tr>
<tr>
<td>INMONEX</td>
<td>+</td>
<td>1.006</td>
<td>0.000</td>
<td>0.228</td>
</tr>
<tr>
<td>OPTSENS</td>
<td>+</td>
<td>0.257</td>
<td>0.011</td>
<td>0.058</td>
</tr>
</tbody>
</table>

Wald chi2(14) 614.14
Prob > chi2 0.000

Pooled logit regression results including compensation variables only; year effects are included but not reported. Except for time dummies, all exogenous variables (defined in Table 2) are expressed in terms of the values assigned by their cumulative distribution functions. *p*-values are computed with robust standard errors. Marginal effects are computed as $e^{\beta X}/(1+e^{\beta X})^2$, evaluated at the means of the elements of $X$. The chi2 statistic and the corresponding *p*-value are given for the joint test of significance of the model coefficients. *N* is the number of firm-year observations. Pseudo R2 is McFadden’s measure of goodness of fit, computed as $1-(L_u/L_c)$, where $L_u$ denotes the unconstrained Log-Likelihood of the (full) model and $L_c$ denotes the constrained Log-Likelihood of the constrained (intercept only) model.
Table 6

The relation between downward guidance, CEO compensation components, and other firm characteristic control variables

Endogenous variable: \( DOWN \)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted sign</th>
<th>Coefficient</th>
<th>p-value</th>
<th>Marginal Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALARY</td>
<td>-</td>
<td>-0.477</td>
<td>0.000</td>
<td>-0.108</td>
</tr>
<tr>
<td>BONUS</td>
<td>+</td>
<td>0.652</td>
<td>0.000</td>
<td>0.147</td>
</tr>
<tr>
<td>LTIP</td>
<td>+</td>
<td>0.200</td>
<td>0.024</td>
<td>0.045</td>
</tr>
<tr>
<td>RSG</td>
<td>+</td>
<td>-0.098</td>
<td>0.265</td>
<td>-0.022</td>
</tr>
<tr>
<td>SHARE</td>
<td>+</td>
<td>0.379</td>
<td>0.000</td>
<td>0.086</td>
</tr>
<tr>
<td>INMONEX</td>
<td>+</td>
<td>0.814</td>
<td>0.000</td>
<td>0.184</td>
</tr>
<tr>
<td>OPTSENS</td>
<td>+</td>
<td>0.210</td>
<td>0.044</td>
<td>0.047</td>
</tr>
<tr>
<td>LOSS</td>
<td>+/-</td>
<td>0.207</td>
<td>0.031</td>
<td>0.045</td>
</tr>
<tr>
<td>INCEPS</td>
<td>+/-</td>
<td>-0.230</td>
<td>0.001</td>
<td>-0.051</td>
</tr>
<tr>
<td>MEET</td>
<td>+/-</td>
<td>0.255</td>
<td>0.000</td>
<td>0.058</td>
</tr>
<tr>
<td>IFE</td>
<td>-</td>
<td>-1.574</td>
<td>0.000</td>
<td>-0.355</td>
</tr>
<tr>
<td>EARNRET</td>
<td>-</td>
<td>0.000</td>
<td>0.992</td>
<td>0.000</td>
</tr>
<tr>
<td>MB</td>
<td>+/-</td>
<td>-0.635</td>
<td>0.000</td>
<td>-0.143</td>
</tr>
<tr>
<td>RCOV</td>
<td>+</td>
<td>-0.008</td>
<td>0.892</td>
<td>-0.002</td>
</tr>
<tr>
<td>ICLAIM</td>
<td>+</td>
<td>0.092</td>
<td>0.001</td>
<td>0.021</td>
</tr>
<tr>
<td>LIT</td>
<td>+</td>
<td>-0.101</td>
<td>0.078</td>
<td>-0.023</td>
</tr>
</tbody>
</table>

Chi2(23) 786.47  N 7787
Prob > chi2 0.000  Pseudo R2 0.0919

Pooled logit regression estimates of \( DOWN \) on all explanatory variables; year effects are included but not reported. All exogenous variables are defined in Table 2 and Table 3. \( SALARY, BONUS, LTIP, RSG, SHARE, INMONEX, OPTSENS, IFE, \) and \( MB \) are expressed in terms of the values assigned by their cumulative distribution functions. All reported items are defined as in Table 5.
Table 7

Fixed and random effects estimations of the relation between downward guidance, CEO compensation components, and other firm characteristic control variables

Endogenous variable: \( \text{DOWN} \)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted sign</th>
<th>Panel A: Fixed effects logit regression</th>
<th>Panel B: Random effects probit regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Coeff.</td>
<td>p-value</td>
</tr>
<tr>
<td>SALARY</td>
<td>-</td>
<td>-0.300</td>
<td>0.280</td>
</tr>
<tr>
<td>BONUS</td>
<td>+</td>
<td>1.146</td>
<td>0.000</td>
</tr>
<tr>
<td>LTIP</td>
<td>+</td>
<td>0.171</td>
<td>0.127</td>
</tr>
<tr>
<td>RSG</td>
<td>+</td>
<td>-0.025</td>
<td>0.825</td>
</tr>
<tr>
<td>SHARE</td>
<td>+</td>
<td>0.024</td>
<td>0.905</td>
</tr>
<tr>
<td>INMONEX</td>
<td>+</td>
<td>1.492</td>
<td>0.000</td>
</tr>
<tr>
<td>OPTSENS</td>
<td>+</td>
<td>0.440</td>
<td>0.000</td>
</tr>
<tr>
<td>LOSS</td>
<td>+/-</td>
<td>0.209</td>
<td>0.128</td>
</tr>
<tr>
<td>INCEPS</td>
<td>+/-</td>
<td>-0.291</td>
<td>0.000</td>
</tr>
<tr>
<td>MEET</td>
<td>+/-</td>
<td>0.196</td>
<td>0.002</td>
</tr>
<tr>
<td>IFE</td>
<td>-</td>
<td>-1.221</td>
<td>0.000</td>
</tr>
<tr>
<td>EARNRET</td>
<td>-</td>
<td>0.003</td>
<td>0.816</td>
</tr>
<tr>
<td>MB</td>
<td>+/-</td>
<td>-2.183</td>
<td>0.000</td>
</tr>
<tr>
<td>RCOV</td>
<td>+</td>
<td>0.071</td>
<td>0.531</td>
</tr>
<tr>
<td>ICLAIM</td>
<td>+</td>
<td>0.051</td>
<td>0.677</td>
</tr>
<tr>
<td>LIT</td>
<td>+</td>
<td>-0.769</td>
<td>0.027</td>
</tr>
</tbody>
</table>

Chi2(23) = 825.93, N = 6844, Pseudo R2 = 0.1403
Prob > chi2 = 0.000

Chi2(23) = 855.81, N = 7’787, Pseudo R2 = 0.0919
Prob > chi2 = 0.000

Conditional logit (fixed effects) and random effects probit estimates of \( \text{DOWN} \) on all explanatory variables; year effects are included but not reported. All exogenous variables are defined in Table 2 and Table 3. SALARY, BONUS, LTIP, RSG, SHARE, INMONEX, OPTSENS, IFE, and MB are expressed in terms of the values assigned by their cumulative distribution functions. All reported items are defined as in Table 5.
Table 8
Fama-MacBeth yearly regressions of the relation between downward guidance, CEO compensation components, and other firm characteristic control variables

Endogenous variable: DOWN

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted sign</th>
<th>Average Coefficient</th>
<th>p-value</th>
<th>Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALARY</td>
<td>-</td>
<td>-0.413</td>
<td>0.068</td>
<td>[7/8]</td>
</tr>
<tr>
<td>BONUS</td>
<td>+</td>
<td>0.676</td>
<td>0.000</td>
<td>[8/8]</td>
</tr>
<tr>
<td>LTIP</td>
<td>+</td>
<td>0.225</td>
<td>0.032</td>
<td>[6/8]</td>
</tr>
<tr>
<td>RSG</td>
<td>+</td>
<td>-0.094</td>
<td>0.319</td>
<td>[4/8]</td>
</tr>
<tr>
<td>SHARE</td>
<td>+</td>
<td>0.405</td>
<td>0.033</td>
<td>[7/8]</td>
</tr>
<tr>
<td>INMONEX</td>
<td>+</td>
<td>0.776</td>
<td>0.000</td>
<td>[8/8]</td>
</tr>
<tr>
<td>OPTSENS</td>
<td>+</td>
<td>0.173</td>
<td>0.101</td>
<td>[3/8]</td>
</tr>
<tr>
<td>LOSS</td>
<td>+/-</td>
<td>1.728</td>
<td>0.128</td>
<td>[6/8]</td>
</tr>
<tr>
<td>INCEPS</td>
<td>+/-</td>
<td>-2.127</td>
<td>0.071</td>
<td>[7/8]</td>
</tr>
<tr>
<td>MEET</td>
<td>+/-</td>
<td>3.786</td>
<td>0.007</td>
<td>[7/8]</td>
</tr>
<tr>
<td>IFE</td>
<td>-</td>
<td>-9.664</td>
<td>0.000</td>
<td>[8/8]</td>
</tr>
<tr>
<td>EARNRET</td>
<td>-</td>
<td>0.574</td>
<td>0.584</td>
<td>[4/8]</td>
</tr>
<tr>
<td>MB</td>
<td>+/-</td>
<td>-8.585</td>
<td>0.000</td>
<td>[8/8]</td>
</tr>
<tr>
<td>RCOV</td>
<td>+</td>
<td>-0.416</td>
<td>0.690</td>
<td>[5/8]</td>
</tr>
<tr>
<td>ICLAIM</td>
<td>+</td>
<td>0.875</td>
<td>0.411</td>
<td>[6/8]</td>
</tr>
<tr>
<td>LIT</td>
<td>+</td>
<td>-0.789</td>
<td>0.456</td>
<td>[5/8]</td>
</tr>
</tbody>
</table>

N 7'787

Average coefficients of yearly logit regressions for equation (6). In the third column, \(p\)-values corresponding to the reported \(t\)-statistics are displayed. \(t\)-statistics are computed as the mean coefficient divided by its standard deviation multiplied by the square-root of the number of cross sections. In column 4, the number of yearly regressions is reported, for which the sign of the coefficient is as expected. For the variables for which no sign prediction can be made, column 4 reports the number of years, in which the sign of the coefficient corresponds to the sign obtained for the average coefficient value. All exogenous variables are defined in Table 2 and Table 3. SALARY, BONUS, LTIP, RSG, SHARE, INMONEX, OPTSENS, IFE, and MB are expressed in terms of the values assigned by their cumulative distribution functions.
Table 9 - Panel A: Conditioning on reaching behavioral thresholds.

The relation between downward guidance, CEO compensation components, and other firm characteristic control variables

Endogenous variable: DOWN

<table>
<thead>
<tr>
<th>Variable</th>
<th>Profit Reporting Firms</th>
<th>Meet = 1 Firms</th>
<th>Firms with Positive Increase in EPS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pred. sign</td>
<td>Coeff.</td>
<td>p-value</td>
</tr>
<tr>
<td>SALARY</td>
<td>–</td>
<td>-0.488</td>
<td>0.000</td>
</tr>
<tr>
<td>BONUS</td>
<td>+</td>
<td>0.683</td>
<td>0.000</td>
</tr>
<tr>
<td>LTIP</td>
<td>+</td>
<td>0.241</td>
<td>0.009</td>
</tr>
<tr>
<td>RSG</td>
<td>+</td>
<td>-0.080</td>
<td>0.385</td>
</tr>
<tr>
<td>SHARE</td>
<td>+</td>
<td>0.399</td>
<td>0.000</td>
</tr>
<tr>
<td>INMONEX</td>
<td>+</td>
<td>0.753</td>
<td>0.000</td>
</tr>
<tr>
<td>OPTSENS</td>
<td>+</td>
<td>0.185</td>
<td>0.089</td>
</tr>
<tr>
<td>IFE</td>
<td>–</td>
<td>-1.433</td>
<td>0.000</td>
</tr>
<tr>
<td>EARNRET</td>
<td>–</td>
<td>0.000</td>
<td>0.982</td>
</tr>
<tr>
<td>MB</td>
<td>+/-</td>
<td>-0.596</td>
<td>0.000</td>
</tr>
<tr>
<td>RCOV</td>
<td>+</td>
<td>0.022</td>
<td>0.721</td>
</tr>
<tr>
<td>ICLAIM</td>
<td>+</td>
<td>0.075</td>
<td>0.020</td>
</tr>
<tr>
<td>LIT</td>
<td>+</td>
<td>-0.082</td>
<td>0.169</td>
</tr>
</tbody>
</table>

Wald ch2(20) = 661.87 N = 7100
Prob > ch2 = 0.000 R2 = 0.0847

Pooled logit estimates of DOWN on all explanatory variables except for the three threshold variables on which the regressions are conditioned; year effects are included but not reported. All exogenous variables are defined in Table 2 and Table 3. SALARY, BONUS, LTIP, RSG, SHARE, INMONEX, OPTSENS, IFE, and MB are expressed in terms of the values assigned by their cumulative distribution functions. All reported items are defined as in Table 5.
Table 9 - Panel B: Conditioning on missing behavioral thresholds.

The relation between downward guidance, CEO compensation components, and other firm characteristic control variables

Endogenous variable: DOWN

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pred. sign</th>
<th>Coeff.</th>
<th>p-value</th>
<th>Marginal Effect</th>
<th>Coeff.</th>
<th>p-value</th>
<th>Marginal Effect</th>
<th>Coeff.</th>
<th>p-value</th>
<th>Marginal Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALARY</td>
<td>-</td>
<td>-0.060</td>
<td>0.868</td>
<td>-0.015</td>
<td>-0.172</td>
<td>0.318</td>
<td>-0.042</td>
<td>-0.392</td>
<td>0.027</td>
<td>-0.096</td>
</tr>
<tr>
<td>BONUS</td>
<td>+</td>
<td>-0.003</td>
<td>0.995</td>
<td>-0.001</td>
<td>0.135</td>
<td>0.481</td>
<td>-0.042</td>
<td>0.278</td>
<td>0.162</td>
<td>0.068</td>
</tr>
<tr>
<td>LTIP</td>
<td>+</td>
<td>-0.125</td>
<td>0.695</td>
<td>-0.031</td>
<td>0.383</td>
<td>0.009</td>
<td>0.093</td>
<td>0.149</td>
<td>0.340</td>
<td>0.037</td>
</tr>
<tr>
<td>RSG</td>
<td>+</td>
<td>-0.221</td>
<td>0.445</td>
<td>-0.055</td>
<td>-0.080</td>
<td>0.581</td>
<td>-0.020</td>
<td>-0.171</td>
<td>0.257</td>
<td>-0.042</td>
</tr>
<tr>
<td>SHARE</td>
<td>+</td>
<td>0.149</td>
<td>0.615</td>
<td>0.037</td>
<td>0.219</td>
<td>0.154</td>
<td>0.053</td>
<td>-0.079</td>
<td>0.629</td>
<td>-0.019</td>
</tr>
<tr>
<td>INMONEX</td>
<td>+</td>
<td>1.691</td>
<td>0.000</td>
<td>0.418</td>
<td>0.860</td>
<td>0.000</td>
<td>0.209</td>
<td>0.752</td>
<td>0.000</td>
<td>0.185</td>
</tr>
<tr>
<td>OPTSENS</td>
<td>+</td>
<td>0.932</td>
<td>0.014</td>
<td>0.230</td>
<td>0.527</td>
<td>0.004</td>
<td>0.128</td>
<td>0.384</td>
<td>0.051</td>
<td>0.094</td>
</tr>
<tr>
<td>IFE</td>
<td>-</td>
<td>-1.278</td>
<td>0.030</td>
<td>-0.316</td>
<td>-1.324</td>
<td>0.000</td>
<td>-0.322</td>
<td>-2.051</td>
<td>0.000</td>
<td>-0.504</td>
</tr>
<tr>
<td>EARNRET</td>
<td>-</td>
<td>0.022</td>
<td>0.516</td>
<td>0.005</td>
<td>0.007</td>
<td>0.656</td>
<td>0.002</td>
<td>-0.001</td>
<td>0.943</td>
<td>0.000</td>
</tr>
<tr>
<td>MB</td>
<td>+/-</td>
<td>-0.967</td>
<td>0.002</td>
<td>-0.239</td>
<td>-0.660</td>
<td>0.000</td>
<td>-0.161</td>
<td>-0.852</td>
<td>0.000</td>
<td>-0.004</td>
</tr>
<tr>
<td>RCOV</td>
<td>+</td>
<td>-0.152</td>
<td>0.395</td>
<td>-0.038</td>
<td>-0.222</td>
<td>0.017</td>
<td>-0.054</td>
<td>-0.016</td>
<td>0.871</td>
<td>-0.004</td>
</tr>
<tr>
<td>ICLAIM</td>
<td>+</td>
<td>0.182</td>
<td>0.010</td>
<td>0.045</td>
<td>0.196</td>
<td>0.000</td>
<td>0.048</td>
<td>0.204</td>
<td>0.000</td>
<td>0.050</td>
</tr>
<tr>
<td>LIT</td>
<td>+</td>
<td>-0.232</td>
<td>0.242</td>
<td>-0.057</td>
<td>-0.367</td>
<td>0.000</td>
<td>-0.090</td>
<td>-0.334</td>
<td>0.001</td>
<td>-0.082</td>
</tr>
</tbody>
</table>

Wald ch2(20) = 104.81, N = 687
Wald ch2(20) = 302.23, N = 2701
Wald ch2(20) = 251.49, N = 2395

Pseudo R2 = 0.1460
Pseudo R2 = 0.0937
Pseudo R2 = 0.0897

Pooled logit estimates of DOWN on all explanatory variables except for the three threshold variables on which the regressions are conditioned; year effects are included but not reported.

All exogenous variables are defined in Table 2 and Table 3. SALARY, BONUS, LTIP, RSG, SHARE, INMONEX, OPTSENS, IFE, and MB are expressed in terms of the values assigned by their cumulative distribution functions. All reported items are defined as in Table 5.
Table 10

The relation between meeting or beating the consensus forecast, CEO compensation components, and other firm characteristic control variables

Endogenous variable: *MEET*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted sign</th>
<th>Coefficient</th>
<th>p-value</th>
<th>Marginal Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALARY</td>
<td>-</td>
<td>-0.266</td>
<td>0.014</td>
<td>-0.061</td>
</tr>
<tr>
<td>BONUS</td>
<td>+</td>
<td>0.575</td>
<td>0.000</td>
<td>0.131</td>
</tr>
<tr>
<td>LTIP</td>
<td>+</td>
<td>0.045</td>
<td>0.616</td>
<td>0.010</td>
</tr>
<tr>
<td>RSG</td>
<td>+</td>
<td>0.019</td>
<td>0.830</td>
<td>0.005</td>
</tr>
<tr>
<td>SHARE</td>
<td>+</td>
<td>0.146</td>
<td>0.113</td>
<td>0.035</td>
</tr>
<tr>
<td>INMONEX</td>
<td>+</td>
<td>0.381</td>
<td>0.000</td>
<td>0.087</td>
</tr>
<tr>
<td>OPTSENS</td>
<td>+</td>
<td>0.116</td>
<td>0.270</td>
<td>0.031</td>
</tr>
<tr>
<td>LOSS</td>
<td>+/-</td>
<td>-0.607</td>
<td>0.000</td>
<td>-0.146</td>
</tr>
<tr>
<td>INCEPS</td>
<td>+/-</td>
<td>0.788</td>
<td>0.000</td>
<td>0.182</td>
</tr>
<tr>
<td>IFE</td>
<td>-</td>
<td>-0.562</td>
<td>0.000</td>
<td>-0.117</td>
</tr>
<tr>
<td>EARNRET</td>
<td>-</td>
<td>0.010</td>
<td>0.286</td>
<td>0.002</td>
</tr>
<tr>
<td>MB</td>
<td>+/-</td>
<td>-0.089</td>
<td>0.365</td>
<td>-0.018</td>
</tr>
<tr>
<td>RCOV</td>
<td>+</td>
<td>0.290</td>
<td>0.000</td>
<td>0.063</td>
</tr>
<tr>
<td>ICLAIM</td>
<td>+</td>
<td>0.092</td>
<td>0.001</td>
<td>0.020</td>
</tr>
<tr>
<td>LIT</td>
<td>+</td>
<td>0.183</td>
<td>0.002</td>
<td>0.041</td>
</tr>
</tbody>
</table>

Wald chi2(22) 793.84  N 7787
Prob > chi2 0.000  Pseudo R2 0.0924

Pooled logit regression results of *MEET* on all explanatory variables; year effects are included but not reported. All exogenous variables are defined in Table 2 and Table 3. *SALARY, BONUS, LTIP, RSG, SHARE, INMONEX, OPTSENS, IFE, and MB* are expressed in terms of the values assigned by their cumulative distribution functions. All reported items are defined as in Table 5.
Cumulative abnormal returns at the announcement date

<table>
<thead>
<tr>
<th>Earnings surprise</th>
<th>Zero or Positive</th>
<th>Negative</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR</td>
<td>0.013</td>
<td>-0.012</td>
<td>0.024</td>
</tr>
<tr>
<td>(p-value)</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>N</td>
<td>5’073</td>
<td>2’690</td>
<td>2’383</td>
</tr>
</tbody>
</table>

Cumulative abnormal returns (CAR) for 7'763 firm-year observations around the earnings announcement dates between 1993 and 2000. CARs are estimated with a market model type regression over 250 days ending two days after the event date, using a WLS regression as in Heinkel and Krauss (1998). The event window ranges from two days preceding the earnings announcement date to two days after this date. Companies’ cumulative abnormal returns are classified into two distinct categories according to the sign of their earnings surprise. The earnings surprise is computed as the difference between the released earnings per share and the last consensus issued by analysts for a particular firm in a given year.
Table 12

Market anticipation of expectations management at the announcement date

<table>
<thead>
<tr>
<th>Earnings surprise</th>
<th>Expectations management</th>
<th>N</th>
<th>CAR</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero or Positive</td>
<td>Suspected (DOWN=1)</td>
<td>3'423</td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(&lt;0.01)</td>
<td>(&lt;0.01)</td>
</tr>
<tr>
<td>Not suspected</td>
<td>(DOWN=0)</td>
<td>1'650</td>
<td>0.020</td>
<td>-0.011</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(&lt;0.01)</td>
<td>(&lt;0.01)</td>
</tr>
<tr>
<td>Negative</td>
<td>Suspected (DOWN=1)</td>
<td>1'530</td>
<td>-0.012</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(&lt;0.01)</td>
<td></td>
</tr>
<tr>
<td>Not suspected</td>
<td>(DOWN=0)</td>
<td>1'160</td>
<td>-0.011</td>
<td>-0.002</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(&lt;0.01)</td>
<td>(0.643)</td>
</tr>
</tbody>
</table>

Cumulative abnormal returns (CAR) for 7'763 firm-year observations around the earnings announcement dates between 1993 and 2000. CARs are estimated with a market model type regression over 250 days ending two days after the event date with a WLS regression as in Heinkel and Krauss (1998). The event window ranges from two days preceding the earnings announcement date to two days after this date. Companies’ cumulative abnormal returns are classified into four distinct categories according to the sign of their earnings surprise and the sign of their unexpected forecast error (UEF). Earnings surprise is computed as the difference between the released earnings per share and the last consensus issued by analysts for a particular firm in a given year. A given company is suspected of managing expectations in a given year if $UEF < 0$. $UEF$ is computed as described in section 4.
Table 13
Explaining the reduced abnormal returns for firms suspected of managing earnings

<table>
<thead>
<tr>
<th>Predicted sign</th>
<th>Coefficient</th>
<th>t-stat.</th>
<th>(p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.013</td>
<td>3.042</td>
<td>0.002</td>
</tr>
<tr>
<td>SHARE</td>
<td>-0.008</td>
<td>1.827</td>
<td>0.068</td>
</tr>
<tr>
<td>INMONEX</td>
<td>-0.010</td>
<td>-2.093</td>
<td>0.036</td>
</tr>
<tr>
<td>MB</td>
<td>-0.002</td>
<td>-0.371</td>
<td>0.711</td>
</tr>
<tr>
<td>ICLAIM</td>
<td>-0.003</td>
<td>-0.725</td>
<td>0.469</td>
</tr>
<tr>
<td>LIT</td>
<td>0.008</td>
<td>2.893</td>
<td>0.004</td>
</tr>
</tbody>
</table>

N 5073
Adj. $R^2$ 0.40%
F test 3.864
(p-value) 0.002

Regression results of the cumulative abnormal returns of firms that meet or beat analyst forecasts on CEO compensation components and firm-specific control variables, which are partially or entirely known by the market at the earnings announcement dates. CARs are estimated with a market model type regression over 250 days ending two days after the event date with a WLS regression as in Heinkel and Krauss (1998). The event window ranges from two days preceding the earnings announcement date to two days after this date. SHARE, INMONEX, and MB are expressed in terms of the values assigned by their cumulative distribution functions. $t$-statistics are based on White (1980).