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Option Compensation and Optimism Bias in Management Earnings Forecasts

Yu-Ho Chi[1], David A. Ziebart[2], Terry Campbell[3]

Abstract

We examine the link between the managers' option compensation and the optimism bias in management earnings forecasts. More particularly, we are interested in investigating the extent of self-serving optimism in the earnings forecasts made by managers with a high amount of option compensation. We hypothesize that managements' optimism (optimism bias in their earnings forecasts) increases with an increase in their stock option compensation. We provide evidence that managers issue optimistic forecasts since their compensation is a function of the stock price, and optimistic earnings forecasts usually result in a higher share price.

Keywords: Forecast error, management earnings forecasts, optimism bias, option compensation.
JEL Classification: G0; G1; G3; M4

Introduction

Will management, with significant option compensation, behave differently when issuing their earnings forecasts? Research suggests that the variation in managements' behavior is linked to the timing of their stock-option compensation (Yermack, 1997; Aboody & Kasznik, 2000; Cheng and Lo, 2006; McAnally, Srivastava & Weaver, 2008) and managing earnings through discretionary accruals (Bergstresser & Philippon, 2006; Gong, Li & Xie, 2009). For example, Bergstresser and Philippon (2006) and Gong et al., (2009) report that managers with significant stock and option holdings have more flexibility, and use discretionary accruals to manage earnings.

[1]College of Business in Accounting, University of Tennessee at Martin, USA. Email: ychi5@utm.edu
[2]Corresponding Author: Von Allmen School of Accountancy, University of Kentucky, USA. Email: dave.ziebart@uky.edu
[3]Department of Accounting, Kelley School of Business, Indiana University, USA. Email: terrcamp@indiana.edu

Given these findings, it seems appropriate to ask whether optimistic forecast biases are reflected in higher portions of compensation arrangements: Will management with significant option compensation behave differently when issuing an earnings forecasts? We address the question by studying the effect of CEO compensation on CEO optimism, since CEOs are most likely to have the strongest influence on earnings forecasts.

Prior evidence demonstrates that management possesses considerable discretion in choosing the frequency, precision, and horizon of their forecasts (Choi, Myers, Zang, & Ziebart, 2010; Choi, Myers, Zang, & Ziebart, 2011; Chi & Ziebart, 2014; Chi & Ziebart, 2017). Accordingly, managers with higher levels of stock options have incentives to increase forecast optimism due to the market's pricing of good news when the forecasts are issued. In addition, Chi & Ziebart (2019) suggest attributes of management earnings forecasts may indicate managements' intentions to manage earnings that may result in a restatement.

Since we are interested in forecast bias, we examine the time period between March 2001 and September 2001, when the dot-com bubble[4] burst but the Great Recession[5] has not started. Indeed, there may have been hyper-optimism just prior to the Great Recession. Our sample fits a time period with a small trough followed by a rapid recovery. This rapid recovery may have given optimism to the CEOs and others that nothing too bad would occur. We therefore expect to see a significant amount of management optimism in the data.

In this study, we investigate the question, whether managers are more optimistic in their earnings forecasts or guidance when their compensation is composed of a higher proportion of stock op-

[4]During the bull market in the late 1990s, investments in internet-based firms fuelled a rapid rise in equity valuations of U.S. technology firms. This resulted in an exponential growth in equity markets between the period 1995 to 2000, creating a dot-com bubble -also known as the tech bubble and the internet bubble. The bubble burst in 2001, causing the equities to enter a bear market in 2001 and through 2002.

[5]The period of general economic decline, between December 2007 and June 2009 (NBER Business Cycle Dating Committee)

tions? We focus on whether the extent of option compensation provides incremental explanatory power in explaining management earnings forecast bias (defined as the difference between the actual earnings and the forecasted earnings scaled by stock price)?

We argue that managers having higher option compensation issue optimistic earnings forecasts since higher equity values indirectly increase their compensation. Consequently, optimism in earnings forecasts should increase with an increase in the proportion of stock options in managerial compensation. While we focus on management earnings forecasts, other prior research suggests that CEO stock option compensation is associated with earnings management. Tying management compensation to the firm's share price incentivizes the managers to issue optimistic forecasts (Noe, 1999; Nagar, Nanda & Wysocki, 2003; Cheng & Lo, 2006). Prior studies indicate that voluntary disclosures by insiders are usually optimistic (Penman, 1980; Waymire 1984; Clarkson, Dontoh, Richardson & Sefcik, 1992; McConomy, 1998; and Clarkson, 2000).

Accounting research has given considerable attention to the impact of stock option plans on accounting methods and disclosure choices (Yermack, 1997; Aboody & Kasznik, 2000; Chauvin & Shenoy, 2001; Bartov & Mohanram, 2004; Coles, Hertzel & Kalpathy, 2006; and McAnally et al. 2008). These studies suggest opportunist timing of the option-grant date (Yermack, 1997) and voluntary disclosures (Aboody and Kasznick, 2000) to increase stock-option compensation value. McAnally et al. (2008) find that managers accelerate bad-news announcements and delay good-news earnings announcements surrounding the grant date.

Other studies focus on links between option compensation and firm performance (Guay, 1999; Core, Holthausen & Larcker, 1999; Hanlon, Rajgopal & Shevlin, 2003), investment decisions (Smith & Watts 1992; Bizjak, Brickley & Coles, 1993), and dividend policy (Lambert, Lanen & Larcker, 1989). However, little evidence exists regarding whether the stock option compensation influences management earnings forecasts during the period we examine. We extend the literature by examining whether managers apparently self-interested, voluntary disclosures undermine the usefulness of management earnings guidance.

In our study we contribute to the management disclosure and forecast literature regarding management forecast bias by providing evidence that managers express their self-serving interest by issuing upwardly biased (more optimistic) earnings forecasts. Similarly, the results of our study contribute to the option compensation literature. Our results suggest that before drafting changes to accounting standards or proposing disclosure-related policies, regulators and standard setters must consider that voluntary disclosures are intentionally biased in certain circumstances. Improving firms' information environment may not occur if the firms' disclosures are due to managers' self-interests.

Our sample consists of 39,120 yearly forecasts of EPS made by management (9,905 firms) during the period 1998 to 2005. In our analysis, we document a negative link between the forecast bias (actual earnings minus forecasted earnings) and the magnitude of the managers' stock option compensation. In our analyses, we examine both the CEO's option compensation and the option compensation of non-CEO executives. While our study finds evidence linking the magnitude of option compensation to forecast optimism, we believe a good portion of the optimism may be due to the particular time period selected. This suggests that results concerning our documented effect may vary by the general optimism in the economy.

We present a detailed literature review in the next section, followed by hypothesis development. We discuss methodology and present the empirical results in sections three and four, respectively. We conclude in section five.

2. Literature Review and Hypotheses

2.1. Stock Option Compensation

The compensation committee of the board of directors usually makes the option awards once a year, although there can be multiple awards. These awards better align shareholder and management interests and reduce agency costs (Jensen & Meckling, 1976). Since options increase interest alignment, corporate boards increase stock option awards to top-level executives (Yermack, 1995; Lakonishok & Lee, 2001; Balsam, 2002). The size and timing of the awards vary

across companies at the discretion of the company compensation committee.

In most large companies, the stock option compensation, valued using the Black-Scholes approach, is the largest single component of managerial compensation (Hall & Leibman, 1998; Murphy, 1999). Much of the prior research on option compensation focuses on the link of compensation with firm performance (Core et al., 1999; Guay, 1999; Hanlon et al., 2003). Various prior studies examine the link between option compensation and management investment decisions (Smith &Watts,1992; Bizjak et al., 1993). In addition, Lambert et al. (1989) investigate the relation of option compensation and dividend policy.

2.2. Stock Option Compensation and Stock Price

Managers have considerable discretion in their forecasting behavior (Choi et al., 2010; Choi et al., 2011) and can personally benefit from boosting stock price. Particularly, managers may try to benefit from a boost in the stock price by issuing an overly optimistic forecast (Noe, 1999; Nagar et al., 2003; Cheng & Warfield, 2005; Cheng &Lo, 2006). Richardson, Sloan, Soliman and Tuna (2005) document that managers may attempt to boost stock price if they are planning to sell some of their shares or options. Option compensation gives managers incentives to increase the stock price.

Hall and Liebman (1998) find that stock options form a significant proportion (20%) of the managers' compensation. Accordingly, stock option compensation gives managers a powerful reason to increase the company's stock prices by optimistically biasing their earnings forecasts and increasing the stock prices. Nagar et al. (2003) point out that a manager's compensation and wealth is sensitive to a firm's share price. Managers who own shares of the firm or options will gain from a boost in the stock price (Aboody & Kasznik 2000).

This study provides evidence that stock price is very important for management with option compensation. Accordingly, managers with large equity incentives are motivated to care greatly about the firms' stock prices, and optimistic earnings forecasts allow them to directly impact stock price.

2.3. Opportunistic Managerial Behavior and Optimistic Bias

McNichols (1989) confirms that managers face penalties for voluntarily issuing biased forecasts. However, despite the penalties such as reputation loss, legal actions, and negative stock returns, companies still fail to meet the earnings forecasts they issued (Trueman, 1986; Kasznik, 1999). Numerous empirical studies including Yermack (1997) and Aboody and Kasznik (2000) examine managers' opportunistic behaviors in relation to the stock options awards. Research regarding earnings forecast optimism, focus primarily on tradeoffs between forecasting optimism and inaccurate disclosures or earnings guidance. Frost (1997) and Rogers and Stocken (2005) provide incentives for managers to be optimistic in their forecasts and inflate market expectations. Since numerous incentives may exist for being optimistic, Frankel, McNichols and Wilson (1995), Lang and Lundholm (2000), and Jo and Kim (2007) focus on earnings forecasts around equity offerings. Since, management forecasts are influential to investors (Hirst, Koonce & Venkataraman, 2008; Pownall, Wasley & Waymire, 1993), managers compensated with stock options will optimistically bias their forecasts.

2.4. Hypotheses Development

Will management with significant option compensation behave differently when issuing management earnings forecasts? Managers with flexibility to manage their earnings to meet or beat their own earnings forecasts are more likely to issue optimistic management earnings forecasts. Managers with high option-based compensation may be induced to increase short-term stock price, manage accounting earnings through accruals or real earnings management, and to issue optimistic earnings forecasts. Thus, managers with significant option compensation are likely to be optimistic in their forecast due to the benefits resulting from higher stock prices and higher values for the stock options they hold. This reasoning underlies our hypothesis as follows:

H1: *The management earnings forecasts of firms where the executives have high levels of option compensation will be optimistically biased.*

This hypothesis suggests a negative association between the management earnings forecast optimism bias (based on the difference between actual earnings and forecasted earnings) and the executives' stock-option compensation.

3. Methodology

In our analysis, we focus on whether a large amount of stock option compensation motivates management to issue optimistic earnings forecasts and earnings guidance. Our regression analysis investigates the magnitude of option compensation for both the company's CEOs and the non-CEO executives using a Black-Scholes valuation model and the forecast bias in the management earnings forecasts. Using a common regression approach, we include various control variables in line with prior studies. In Section 4.2 we discuss these variables and provide references for their use in prior studies.

3.1. Sample Selection

Our sample contains 9,905 management forecasts from 1998 to 2005 comprising CEO and Non-CEO stock option grants priced using Black-Scholes valuation methodology. The management forecasts of yearly earnings per share are obtained from the First Call database. We merge the First Call observations with COMPUSTAT Fundamental yearly database (firm specific variables), IBES (analyst following information), ExecuComp (CEO compensation) and Thomson Reuters (institutional ownership and outside directors). We remove forecasts where we were unable to obtain the requisite data for our analysis. In Table 1,we describe the data filtering process and the resulting sample[6].

Table 1
Sample Selection

Annual earnings per share (EPS) forecasts from the First Call database from 1998 to 2005 inclusive	56,532
Forecast Missing COMPUSTAT data	(28,571)
Forecast Missing IBES data	(11,891)
Forecast Missing ExecuComp data	(4,028)
Forecast Missing THOMSON REUTERS data	(2,137)

[6] We drop firms in the upper and lower one percent of the distributions as outliers.

Number of Management Forecasts for CEO Compensation in the Final Sample	9,905
Number of Management Forecasts for Non- CEO Compensation in the Final Sample	29,215
Total Number of Management Forecasts in the Final Sample	39,120
Number of Firms in the Final Sample	9,905

We include both CEOs and non-CEO executives in our analysis since both may have significant influence over the earnings forecasts. The observations for which the CEOs hold the office for the full fiscal year and for which firm-specific data are available, are retained in the final sample.

In Table 2, we present the mean values for the CEO and Non-CEO stock option compensation. The mean CEO stock option compensation increases substantially from 44.36 in 1998 to a high of 99.75 in 2001 and then declines to 50.52 in 2005. We believe that this decline is likely due to the requirement that stock options be expensed (Carter, Lynch, & Tuna, 2007). However, the mean Non-CEO stock option compensation is lower and remains much more stable. During our study period, the mean Non-CEO stock option compensation ranges between 20.18 and 33.76, with the exception of 40.26 in 2001. Overall, the ratios of Non-CEO compensation (Non-CEO_BLK) to CEO compensation (CEO_BLK) for the years1998 to 2005 are approximately 45, 43, 44, 40, 41, 34, and 34 percent, respectively.

Table 2
Distribution of management forecasts across years

	Statistics of Black-Scholes			
	CEO_BLK		**Non-CEO_ BLK**	
Year	**N**	**Mean (000's)**	**N**	**Mean (000's)**
1998	1,129	44.36	3,268	20.18
1999	1,139	68.28	3,341	29.58
2000	1,185	76.62	3,379	33.76
2001	1,191	99.75	3,401	40.26
2002	1,237	72.86	3,672	29.99
2003	1,328	79.57	4,038	33.14
2004	1,374	66.04	4,148	22.57
2005	1,322	50.52	3,968	17.47
n	9,905		29,215	

Note: This table presents the summary statistics of variables of interest based for the sample of CEO and Non-CEO compensations by year.

We provide descriptive statistics in Table 3. The mean forecast bias (BIAS) of -0.0226 indicates an optimistic bias on average of about 2 percent of the lagged stock price. Overall, the dollar value of the CEO's option compensation (CEO_BLK) from 1998 to 2005 is $69.72 (000's), which is much higher than the mean Non-CEO compensation of $28.1562 (000's).

Table 3
Descriptive Statistics for Sample Characteristics

Variable	$\bar{x}$	$\tilde{x}$	Min	Max	σ	n
BIAS	-0.0226	-0.0048	-0.3969	0.0997	0.0584	39,120
CEO_BLK	69.7219	22.6962	0.0000	9,082.144	208.4996	9,905
Non-CEO_BLK	28.1565	9.2989	0.0000	3,870.318	85.3086	29,215
DISP	0.0311	0.0132	-11.0000	64.5000	0.7221	39,120
SURPRISE	0.0075	0.0041	-3.2458	4.7216	0.1762	39,120
SIZE	7.6757	7.5518	2.9457	13.1389	1.5532	39,120
LOSS	0.1442	0.0000	0.0000	1.0000	0.3513	39,120
NANA	2.1265	2.1972	0.6930	3.7800	0.7403	39,120
HORIZON	3.4722	3.4339	1.3863	6.5582	0.4173	39,120
STDROE	1.6296	0.6683	0.0007	1948.9000	27.0658	39,120
EL	1.3857	1.36420	0.2463	3.4986	0.7352	39,120
OUTDIR	64.3621	65.3785	52.6946	72.6426	15.9463	39,120
INST	58.1437	60.5143	44.0478	69.8693	25.4636	39,120
LITIGATE	0.3205	0.1954	0.0000	1.6478	0.4961	39,120
MKBK	4.826	3.4871	2.3584	5.2164	5.4759	39,120

Note: Number of Observations = n; Standard Deviation = σ; $\bar{x}$ = Mean; $\tilde{x}$ = Median

3.2. Dependent Variable – Forecast Bias

As previously described, management forecasting bias (BIAS) is measured as the value of forecasting error scaled by stock price at time t-1[7]. Deflating forecast bias by the beginning of the year stock price controls for the cross-sectional differences in earnings levels and reduces the interaction between forecast bias in the numerator and price changes in the denominator. A forecast is considered opti-

[7] To ensure consistency, the actual earnings and forecasted earnings are from First Call.

mistic if it exceeds the actual earnings. We use the most recent earnings forecast in instances where the management provides multiple forecasts[8]. The bias (BIAS) in our management earnings forecasts is computed as[9]:

$$BIAS_t = (\text{Actual}_t - \text{Forecast EPS}_t) / \text{Price}_{t-1}$$

Table 4

The earnings forecast is optimistic when $BIAS_t < 0$.

$BIAS_t$	**= Actual minus forecast EPS deflated by stock price**
$FORECAST_t$	= Management earnings forecast of annual primary EPS for year t
EPS_t	= Actual annual primary EPS for year t
$PRICE_{t-1}$	= Stock price at the end of period t-1

Since management earnings forecasts can be point, range, or other types, we focus on point and range forecasts. For range forecasts, we use the mid-point of the range[10].

3.3. Statistical Analysis

We regress the management earnings forecast bias on the compensation variables while controlling for variables that affect management earnings forecast bias in line with prior studies. We provide all variable definitions in the appendix. The model is as follow[11]:

$$BIAS = \alpha_0 + \alpha_1 CEO\_BLK + \alpha_2 NON\text{-}CEO\_BLK + \alpha_3 DISP + \alpha_4 SURPRISE + \alpha_5 SIZE + \alpha_6 LOSS + \alpha_7 NANA + \alpha_8 HORIZON + \alpha_9 STDROE + \alpha_{10} EL + \alpha_{11} OUTDIR + \alpha_{12} INST + \alpha_{13} LITIGATE + \alpha_{14} MKBK + YEAR + \varepsilon \quad (1)$$

Non-CEO options granted (NON-CEO_BLK) includes board chairman, CFO, vice president, or chief operating officer.

[8] Our regression employs firm-clustering since there are multiple observations from the same firm across different years.

[9] Extreme BIAS observations are removed as outliers (about 1 percent of the distribution).

[10] The mid-point of the range has been used extensively in prior research (for example, see Baginski et al 1993; Hirst 1999).

[11] In order to control for the presence of heteroscedasticity, we apply White's (1980) heteroscedasticity constant standard errors for the regression analysis in this study.

Atiase and Bamber (1994) use analysts' forecast dispersion (DISP) to measure predisclosure information, while Ajinkya,Atiase &Gift, (1991) use it as a proxy for investors' heterogeneous beliefs. Imhoff and Lobo (1992) use analysts' earnings forecast dispersion as a measure of ex-ante uncertainty, while Ziebart (1990) uses it as a measure of differential beliefs.

In line with Lang and Lundholm (1996), we include the earnings surprise (SURPRISE) in our analysis to control for the sign and magnitude of realized earnings. Lang and Lundholm (1996) argue that higher changes in earnings are associated with a less accurate forecast. The loss indicator (LOSS) equals one when actual earnings are negative, and zero otherwise. Hwang,Jan & Basu, (1996) report that analysts' forecasts are less accurate when a loss is reported than when a profit is reported.

Lang and Lundholm (1996) report a positive association of forecast accuracy with company size (SIZE) and the number of analysts following the company (NANA). Consistent with Bhushan 1989, we use analyst coverage to proxy for private information production (Bhushan 1989).

Kross, Ro & Schroeder (1990) find analysts' earnings forecasts to be less accurate when firms experience higher earnings volatility (STDROE). STDROE is the coefficient of variation in earnings over the prior five years. Following Richardson et al. (2005) and Choi et al. (2010), we include forecast horizon (HORIZON) as a forecast announced closer to the actual earnings announcement date (short forecast horizon) is expected to be more accurate (Das & Saudagaran, 1998; Brown, 1993). In addition, both Kang, O'Brien, and Sivaramakrishnan (1994) and Das et al. (1998) find evidence that longer horizon forecasts are more optimistic. Choi and Ziebart (2004) find management earnings forecasts with a horizon of three months or less are pessimistic, while management forecasts with a horizon of more than seven months are optimistic. Eames and Glover (2003) report that earnings level (EL) is linked with forecast accuracy. We include a yearly indicator variable (YEAR) in case forecast precision has a time-dependent trend.

To complete our analysis, we include variables representing corporate governance, litigation risk, and proprietary cost (Francis

et al., 1994; Bamber and Cheon, 1998; Ajinkya et al., 2005). Our variables include the proportion of outside board members (OUTDIR), the proportion of institutional ownership (INST), an industry litigation level indicator (LITIGATE), and the market to book value ratio as a proxy for proprietary cost.

4. Results

While we do not provide a Pearson correlation table due to space limitations, negative correlations ($p<0.01$) between (CEO and Non-CEO) stock option compensation and the management forecast bias are observed. Almost all other exogenous variables are significantly correlated (usually $p<0,01$) with forecast bias (BIAS). BIAS is negatively correlated with CEO_BLK, NON-CEO_BLK, DISP, HORIZON and LOSS[12]. BIAS is positively correlated with SURPRISE, SIZE, and NANA. These results provide preliminary evidence that managers with high stock option compensation issue more optimistic forecasts.

In order to conduct a complete analysis and provide clear inferences, we need to control for the non-option compensation variables in our regression analysis. None of the correlations between the explanatory variables appear large enough to present multicollinearity problems. Not surprising, the largest correlation (0.66) is between the company size and the number of analysts following the company (NANA).

Table 4 presents the results for the effect of forecast bias on CEO and non-CEO stock option compensations. Table 4 shows that the estimated coefficients for the CEO and non-CEO option compensation variables remain highly significant even after controlling for factors expected to influence forecast error and bias (optimism). The coefficients of major interest CEO_BLK and NONCEO_BLK are negative and significant at $p <0.01$. From this we infer that the larger the option compensation, the more optimistically biased the management earnings forecasts are. Consistent with H_1, the magnitude of CEO and non-CEO stock option compensations is positively associated with the degree of optimism in the management earnings

[12] Except for the Pearson correlations, all significance levels reported are based on a one-tailed test.

forecasts. Due to management's private incentives, the likelihood that the forecast will be biased upward (i.e. more optimistic) increases when managers are highly option compensated.

Model (1): BIAS = α0 + α1CEO_BLK+ α2NON-CEO_BLK + α3DISP + α4SURPRISE + α5SIZE+ α6LOSS + α7NANA + α8HORIZON + α9STDROE + α10EL + α11OUTDIR + α12INST + α13LITIGATE + α14MKBK + YEAR + ε

Table 5
Multivariate Test: Management Forecast Error and CEOs Compensation

	Coefficient
Intercept	-5.3510
CEO_BLK	-0.0012***
	(0.0035)
NON-CEO_BLK	-0.0031***
	(0.0038)
DISP	-0.2450***
	(0.0054)
SURPPRISE	0.0536
	(0.2743)
SIZE	0.5240***
	(0.0036)
LOSS	-7.5470***
	(0.0041)
NANA	0.1230***
	(0.0069)
HORIZON	-0.0016
	(0.2574)
STDROE	-0.0015*
	(0.0814)
EL	0.0748
	(0.1956)
YEAR	Included
OUTDIR	0.0362***
	(0.0035)
INST	0.0791***
	(0.0025)
LITIGATE	0.0564
	(0.1247)
MKBK	0.1476
	(0.2863)

	Coefficient
N	9,905
Adj.R2	0.2669

Note: All the t-statistics are based on White's (1980) heteroscedasticity-corrected standard errors and clustering procedure by each firm.
Model (1) is estimated by OLS.
*** Indicates significance at 1 percent level; ** indicates significance at 5 percent level; * indicates significance at 10 percent level in a one-tailed test.

The estimated regression coefficients for other variables in the model are consistent with prior research on management forecast errors and bias. It is important to note that management earnings forecasts tend to exhibit greater forecast errors (bias) in a longer forecast horizon, but less so towards the actual earnings announcement date. Similar to Kang et al. (1994), Das et al. (1998), Ajinkya et al. (2005), and Richardson et al. (2005), we observe that the regression coefficient on HORIZON is negative and highly significant at $p<0.01$.This suggests that managers are more likely to be optimistic with a longer forecast HORIZON. Accordingly, since our analysis is based upon the most recent management earnings forecast of the year, it is likely that earlier in the year, management earnings forecasts may have an even stronger and larger degree of optimism as the management option compensation increases.

It is important to understand that corporate governance or other monitoring mechanisms may affect the link between the management option compensation and the degree of optimism in management earnings forecasts. The estimated coefficients on outside directors (OUTDIR) and the degree of institutional ownership (INST) are positive and highly significant ($p<0.01$). This infers that these monitoring mechanisms may influence management to be less optimistic than they otherwise would be. This is consistent with Ajinkya et al. (2005) and Karamanou and Vafeas (2005). The coefficient estimates for industry litigation risk (LITIGATE) and market to book ratio (which proxy for pessimistic managerial forecast) are insignificant.

Overall, our evidence is consistent with the story that stock option compensation may incentivize managers to issue optimistic earnings forecasts. When managers have high levels of option compensation, they are more likely to issue an overly optimistic forecast

due to the resulting higher stock prices and higher values for the stock options they hold.

5. Conclusion

In this study, we investigate whether the magnitude of management's option compensation is linked to the managers issuing more optimistic earnings forecasts. Our results are consistent with our hypothesized link between managers' option compensation and optimistic bias in their forecasts. We argue that since managerial compensation is a function of stock price, and higher forecasted earnings usually result in a higher share price, managers have a strong self-serving interest in issuing optimistic forecasts. Our inferences regarding the hypothesized effect of option compensation on forecast optimism are robust to including variables found to impact the earnings forecast bias in line with prior research. Our results show that optimism bias in management earnings forecast increases as managers' stock option compensation increases. In addition, our results also suggest that the degree of optimism bias is somewhat offset by the corporate governance monitoring mechanisms.

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Appendix: A

Variable Definitions

CEO_BLK	=CEO options granted ($ - Black Scholes value), deflated by price,
NON- CEO_ BLK	=either chairman, CFO, vice president, or chief operating officer options granted ($ - Black Scholes value), deflated by price,
BIAS	=error in management' earnings forecast, defined as the difference between the actual and forecast earnings, scaled by price; If *BIAS* <0, the earnings forecast is optimistically biased,
DISP	=the standard deviation of analysts' earnings forecasts deflated by mean of analysts' earnings forecasts,
SURPRISE	=the absolute value of the difference between this year's earnings and last years' earnings deflated by stock price,
SIZE	=the natural logarithm of the market value of common equity,
LOSS	=code as 0 for firm-year observations with positive earnings and 1otherwise,
NANA	=the natural logarithm of number of analysts following the client,
HORIZON	=the natural logarithm of the number of calendar days between mean forecast announcement date and subsequent actual earnings announcement date,
STDROE	=the standard deviation of earnings over the previous five years.
EL	=earnings per share winsorized at 5 (-5),
YEAR	=the year in which the management forecast is issued (dummies),
OUTDIR	=the percentage of the board of directors that are not officers of the firm,

INST	=the percentage of the company's aggregate common stock held by institutions,
LITIGATE	=code as 1 for firms in the biotechnology (2833-2836 and 8731-8734), computers (3570-3577 and 7370-7374), electronics (3600-3674), and retail (5200-5961) industries and 0 otherwise,
MKBK	=the ratio of market value to book value of common equity at the beginning of the fiscal year.

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