

STOCK OWNERSHIP GUIDELINES AND
ANALYSTS FORECAST GUIDANCE

By

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Abstract: In this study, I examine the association between Stock Ownership Guidelines and the extent to which managers engage in analyst forecast guidance. Stock Ownership Guidelines are policies that companies adopt to obligate their executives (and board members) to acquire and hold a certain value of the company's stock. Consistent with my expectations, I find that having Stock Ownership Guidelines is positively associated with the extent of analyst forecast guidance. Additionally, I find that in firms that have adopted Stock Ownership Guidelines, forecasts are guided downward in the late years as compared to the early years of a CEO's tenure. Overall, my results suggest that adopting Stock Ownership Guidelines, a governance mechanism, might lead to sub-optimal managerial behavior.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.....	1
II. LITERATURE REVIEW.....	5
Corporate Governance	5
Analysts' Earnings Forecasts	9
III. HYPOTHESIS DEVELOPMENT.....	12
IV. MEASURING ANALYSTS FORECAST GUIDANCE	15
V. RESEARCH DESIGN.....	17
VI. SAMPLE SELECTION.....	20
VII. EMPIRICAL RESULTS	21
Descriptive Statistics.....	21
Correlation Matrix	22
Regressions Results	22

Chapter	Page
VIII. SENSITIVITY ANALYSIS	24
The Change in Behavior Between the Beginning and The Ending of CEOs' tenure – Moderated by Stock Ownership Guidelines Adoption	24
Replacing MEET with Continuous Variables that Measure CEOs Ownership.....	25
IX. CONCLUSION.....	26
REFERENCES	27
APPENDICES	33

LIST OF TABLES

Table	Page
1. Sample Selection.....	37
2. Descriptive Statistics.....	38
3. Correlation Matrix	40
4. Analysts Forecast Guidance Association with Adopting Stock Ownership Guidelines	41
5. The Change in Analysts Forecast Guidance Behavior Between the Beginning and the Ending of CEO's Tenure	42
6. The Change in Analysts Forecast Guidance Behavior Between the Beginning and the Ending of the CEO's Tenure – Moderated by Stock Ownership Guidelines Adoption	43
7. Analysts Forecast Guidance Association with Adopting Stock Ownership Guidelines – Replacing MEET With Continuous Variables to Measure CEO Ownership	44

CHAPTER I

INTRODUCTION

Economic theory has developed around the separation of ownership and control of entities, which has given rise to the agency problem and agency costs (Jensen and Meckling 1976). The agency problem refers to the conflict of interest that arises when agents (e.g., managers of a firm) make decisions on behalf of principals (e.g., owners of a firm). Agency costs occur when the agents favor personal interests in decisions rather than acting purely in the best interest of the principals. Firms incur agency costs to the extent that incentives diverge for agents and principals, creating conflicts of interest.

A popular mechanism to minimize the agency problem is granting managers ownership of the firm in order to align incentives so that the welfare of agents and principals is tied to the same incentives. Today, a significant portion of managerial compensation is paid through stock options and stock grants in an effort to align incentives¹. However, this alignment is achieved only for the amount of time the manager holds the stock which could result in very short-term strategies to boost stock price around

¹ In Kim, Kwak, Lee, and Suk (2019) sample that covers Execucomp firms for the years 2006-2011, about 44% of CEOs compensation is awarded in the form of stock or options.

certain key dates. To combat this short-term behavior, firms began mandating managers to hold the granted stock throughout their tenure at the firm via Stock Ownership Guidelines. Stock Ownership Guidelines are policies that companies adopt to obligate executives (and board members) to accumulate and hold a specific value of the firm's equity.²

This study examines whether and how Stock Ownership Guidelines are associated with the incidence and extent to which managers engage in analyst forecast guidance. Guidance of earnings forecasts refers to the influence that managers exert on analysts to issue a more favorable forecast.³ This guidance can be increasing or decreasing guidance from the original forecast depending on the managers' desired outcome. Managers can guide analysts' forecasts in many ways, such as implying a potential *quid pro quo* relationship with analysts, issuing management earnings forecasts, or through private and public disclosures. Managers engage in forecast guidance because the market rewards firms and managers that consistently meet or beat earnings targets and dramatically penalizes firms that miss an earnings target (Kasznik and McNichols 2002; Bartov, Givoly, and Hayn 2002; Rees and Sivaramakrishnan 2007; Kross, Ro, and Suk 2011). Furthermore, studies find that managers increase forecast guidance in advance of selling their personal stock holdings (Richardson, Teoh, and Wysocki 2004).

To the extent that Stock Ownership Guidelines are effective in aligning incentives and reducing managers' focus on short-term stock price changes, these policies may be related to analyst forecast guidance. Stock Ownership Guidelines mandate executives to put more "skin in the game" by contractually obligating managers to hold a set value of their firm's stock

² Penalties for violating stock ownership guidelines may be explicitly stated in the proxy statement and can be as severe as revoking the offending executive's stock options.

³ A favorable forecast can be different at the end of every period based on the firm, the manager's motivation, and the original forecast.

throughout their tenure with the firm. However, adopting Stock Ownership Guidelines might lead to unexpected consequences and less-optimal management behavior. During the accumulation period leading up to the mandated holdings specified by the Stock Ownership Guidelines, managers' incentives are not yet fully aligned with those of shareholders.⁴ During this period, managers have incentives to guide forecasts in a manner that depresses stock price in the early years of their tenure. This allows them to accumulate the required amount for a lower price, then inflate the stock price in the final years of their tenure when they are able to sell their shares. Managers might also feel that it would be best to slowly build to a high stock price, ostensibly toward the estimated end of their tenure with the firm. Forecast guidance is a tool that can be used to depress or inflate stock prices, and Stock Ownership Guidelines are a contractual tool intended to align incentives for managers and owners. This study seeks to investigate if and how Stock Ownership Guidelines are related to manager forecast guidance.

To investigate this research question, I test whether analyst forecast guidance varies based on firms' adoption of Stock Ownership Guideline policies. I predict managers in firms that have adopted Stock Ownership Guidelines engage in analyst forecast guidance to a greater extent. I also predict that managers guide analyst forecasts downward in the later years of CEOs' tenure in firms that have adopted Stock Ownership Guidelines. I test my main hypothesis using 11,756 firm-year observations from 1,845 unique firms covering a period from 2006 to 2019. Consistent with my hypothesis, I find that managers of firms that have adopted Stock Ownership Guidelines engage in analysts' forecasts guidance to a greater extent. Additionally, I find that CEOs in firms that have adopted Stock Ownership Guidelines guide analysts' forecasts downward in the later years of their tenure, as compared to the early years.

⁴ While full alignment may never be achievable, at least to the extent of the alignment required within the Stock Ownership Guidelines holding requirements.

This study contributes to the literature on corporate governance and analysts' forecasts. This study is also of interest to investors, board members, and analysts. This study examines Stock Ownership Guidelines, a governance mechanism that seeks to lower the conflict of interest between shareholders and managers. Investors and board directors will be interested in this study because I show that adopting Stock Ownership Guidelines, a new governance practice, might have some adverse consequences by distracting managers and leading them to engage in sub-optimal forecast guidance. Finally, analysts and investors will be interested in this study because manager forecast guidance and incentives are relevant to both parties and should be factored into their forecasts/valuations.

The remainder of the paper proceeds as follows. In section 2, I discuss the relevant literature. In section 3, I develop my hypotheses. In section 4, I discuss the construction of the analyst forecast guidance measure. In section 5, I present the research design. In section 6, I detail the sample selection process. Section 7 presents the results of the analyses. Section 8 presents the sensitivity analyses. Finally, I conclude in section 9.

CHAPTER II

LITERATURE REVIEW

This research draws from two streams of literature: corporate governance and analysts' earnings forecasts. I begin by reviewing management compensation literature and how firms incorporated equity compensation to align management's interest with the firm's shareholders' interest. I then discuss how equity compensation eventually evolved to Stock Ownership Guidelines policies. Finally, I examine analysts' earnings forecasts and how they affect the market and the managers' behavior.

2.1 Corporate Governance

Corporate governance refers to the rules, policies, and practices that corporations follow to conduct their operations. Many corporate governance practices seek to alleviate the adverse consequences of the separation between ownership and control of the firm (the agency relationship) (Jensen and Meckling 1976). Owners of institutions (principals) are concerned that agents may act in their own best interest, rather than the best interest of the owners (e.g., seeking to maximize personal wealth rather than the wealth of the owners). Principals try to minimize agency costs by optimizing the contractual agreement. However, Jensen and Meckling (1976) state that it is impossible to design an optimal contract that motivates agents to align their entire behavior with the principal's interests without bearing

additional costs. A notable reason is that contracts cannot cover all the scenarios and contingencies that the institution might face in the future. Additionally, principals bear the costs of the monitoring procedures implemented to ensure that agents behave in accordance with the contractual agreement.

One mechanism employed to mitigate agency relationship concerns is incentivizing managerial ownership in the firm. Managerial ownership in the firm mitigates agency concerns because it aligns managers' interests with those of shareholders. Firms have utilized equity compensation tools, such as stock options and stock grants, to increase managerial ownership for decades.

Many studies find a positive relationship between equity compensation and future market value, supporting the incentive-alignment effect of the equity compensation argument. For example, Hanlon, Rajgopal, and Shevlin (2003) find that a one-dollar increase of Black-Scholes value of option grants to the top 5 executives is associated, on average, with a \$3.71 increase in the company's future operating income over the next five years. However, at the same time, other studies find that granting executives a significant number of stocks that they can resell in the open market may also lead executives to constantly focus on the short-term value of the company to maximize short-term returns from offloading awarded stocks. Ofek and Yermack (2000) find that managers tend to sell a significant number of awarded shares (684 for every 1000) for risk diversification reasons. In addition, Cheng and Warfield (2005) find that high equity incentives lead managers to focus on short-term stock prices by managing earnings. The unintended consequences of this short-term behavior led to calls from academics to reform equity

compensation by limiting managers' freedom to unload these awarded shares that were originally intended to align incentives for the long term.

Consistent with this call, firms began adopting Stock Ownership Guidelines to address managers' short-term focus. Stock Ownership Guidelines are policies that obligate executives and board members to accumulate and hold a specific value of the firm's equity within a certain period (most commonly five years to accumulate to the required level and hold throughout the remaining tenure with the firm). The suggested goal of these guidelines is to focus on long-term incentive alignment as indicated by the 2016 proxy statement for Abbott Laboratories: "To further promote sustained shareholder return and to ensure the Company's executives remain focused on both short- and long-term objectives, the Company has established share ownership guidelines."⁵ These policies ensure that executives work toward and maintain an equity level that sufficiently incentivizes them to consider and focus on long-term value creation rather than short-term stock prices.

Firms typically disclose their Stock Ownership Guidelines policies in the annual proxy statement. These guidelines set a specific holding value that each executive is required to accumulate and hold, usually expressed as a multiple of the base salary based on the executives' position, with often higher multiples for higher positions. Firms may also specify the mandated holdings for their executives in dollar values, percentages, or a specified number of shares of stock. Failure to comply with Stock Ownership Guidelines varies from firm to firm. In their study, Core and Larcker (2002) report that 27% of their sample firms state an explicit penalty for executives who fail to meet their ownership target within the stated period. This penalty can be switching some of their cash payments to

⁵ Please see Appendix A for examples of ownership guidelines sections from proxy statements.

restricted stocks, reducing or eliminating their options grants and long-term incentives, or delaying the vesting of their outstanding restricted stocks and options.

Extant studies on Stock Ownership Guidelines examine which firms adopt these policies and their impact on firm performance. Kang and Xu (2019) find that firms with lower CEO ownership, higher CEO compensation, shorter CEO tenure, and better internal governance are more likely to adopt Stock Ownership Guidelines. Benson, Lian, and Wang (2016) find that the propensity to adopt Stock Ownership Guidelines decreases in CEO ownership but increases the quality of corporate governance and the proportion of firms that have already adopted them in the industry. Benson et al. (2016) also divide adopters into two groups, firms that set the required holdings for their CEOs above their current holdings (not meet) and firms that set the required holdings below their CEOs' current holdings (meet). In terms of CEO ownership levels, they find that ownership guidelines effectively increase CEOs' level of ownership for the 'not meet' group, while ownership levels stay the same for firms in the 'meet' group. They also find that adoption leads to improved operating performance for the 'not meet' group relative to the 'meet' group. Additionally, 'not-meet' adopters have significantly better buy and hold stock returns in years 2-4 subsequent to adoption than 'meet' adopters. Additionally, Quinn (2018) finds evidence suggesting that 'not meet' firms are less likely to meet or just beat short-term analysts earning benchmarks. While the majority of studies on Stock Ownership Guidelines focus on the adoption for top executives, some studies examine the adoption for outside board directors. These studies find that when firms adopt Stock Ownership Guidelines for outside board directors, operational performance improves and stock ownership levels increase (Bhagat and Tookes 2012; Kamal 2008).

2.2 Analysts' Earnings Forecasts

Sell-side analysts play a crucial role in capital markets. As such, researchers have examined the role of analysts across several studies. Analysts reduce information asymmetry, which in turn reduces the cost of capital (Kelly and Ljungqvist 2012). Although analysts play a positive role in capital markets, many studies suggest that analysts are not objective and tend to be positively biased as they issue, on average, optimistic earnings forecasts. Studies find that affiliated analysts' forecasts are more optimistic and favorable than unaffiliated analysts' forecasts. Analysts are affiliated when forecasted companies are also clients of the analysts' investment banking services or when the analysts' firms are the lead and co-lead underwriters for the forecasted company (Dugar and Nathan 1995; Lin and McNichols 1998). Additionally, Irvine (2004) finds that analysts can increase their trading commissions by issuing positive stock recommendations. Other researchers suggest that analysts' optimism is also a tool to motivate managers to provide and issue earnings guidance, which helps analysts issue more accurate forecasts (Das, Levine, and Sivaramakrishnan 1998; Lim 2001; Mest and Plummer 2003). Although Das et al. (1998) conclude that analysts are more likely to issue a biased forecast for firms with low earnings predictability, Eames and Glover (2003) suggest that this association is no longer significant when controlling for earnings levels.

One of the critical roles of analysts is issuing earnings forecasts for companies. Researchers have extensively studied firms' behavior regarding forecasted earnings. Degeorge, Patel, and Zeckhauser (1999) find a discontinuity in earnings distribution around analysts' earnings target level. This discontinuity indicates that firms are engaging in earnings management, which is costly, to reach that threshold. Following Degeorge et al.

(1999), researchers examined market reactions to earnings benchmarks both on the firm- and executives-level. On a firm level, studies find an asymmetry in investors' reaction to beating versus missing analysts' earnings forecasts, especially for growth firms (Barth, Elliott, and Finn 1999; Skinner and Sloan 2002). Studies also find evidence suggesting that firms who consistently beat the earnings threshold enjoy a valuation premium compared to firms that do not consistently do so (Kasznik and McNichols 2002; Bartov, Givoly, and Hayn 2002; Rees and Sivaramakrishnan 2007; Kross, Ro, and Suk 2011). Firms also face a downward price pressure that may lead to negative media coverage and even litigation if they fail to meet or beat analysts' forecasts. On an executive level, missing an earnings benchmark can decrease executives' mobility to move to an upward position or other industries. Missing earnings benchmarks also lead to a decline in CEOs' bonus compensation or even CEOs turnover as the market views them as incompetent. (Graham, Harvey, and Rajgopal 2005; Matsunaga and Park 2001; Dikolli, Mayew, and Nanda 2014). Due to the influence of analysts' forecasts on firms' stock performance and management career prospects, researchers examine how outsiders (non-analysts) attempt to influence analysts' decisions when issuing their forecasts. By focusing on public management of earnings forecasts, Cotter, Tuna, and Wysocki (2006) find results suggesting that management earnings forecasts, one of the channels managers might utilize to guide analysts' forecasts, leads analysts to issue beatable earnings targets. Francis and Philbrick (1993) also conclude that managers are able to pressure analysts to revise forecasts away from their true beliefs by utilizing the analysts' dependence on management for future information. Additionally, some researchers investigate circumstances where managers are more likely to guide analysts' earnings forecasts. Richardson et al. (2004) document that

analysts 'walk down' their forecasts more extensively when firms are close to issuing new equity and when managers are net sellers of their company's stocks following the earnings announcement. Finally, analysts' forecasts are also influenced by investment bankers as well as management. For example, Michaely and Womack (1999) find that underwriters analysts are biased when issuing forecasts for firms that they have recently taken public and conclude that analysts' forecasts are less accurate for IPO firms when the analysts work for the underwriters vs. when they do not work for the underwriters, indicating the pressure analysts face from investment bankers.

CHAPTER III

HYPOTHESIS DEVELOPMENT

The literature documents that firms and managers actively influence analysts' expectations to achieve more favorable forecasts. Soffer, Thiagarajan, and Walther (2000) examine firms' pre-announcement strategies and how they can influence market reaction on announcement days. For example, managers would only announce half of their good news before the official earning announcement date and then announce the other half of their good news on the earnings announcement day to create a positive surprise for the earnings announcement. Additionally, Cotter et al. (2006) find that analysts' switch to pessimistic forecasts appears to be concentrated around the release of management forecasts, highlighting the clear influence of management forecasts on the own-firm forecasts of analysts. Lim (2001) argues that analysts can improve their forecast accuracy by trading off bias with better access to management. Finally, Hutton (2005) finds that managers who actively provide analysts with information and guidance are less likely to experience a negative earnings surprise. Thus, the prior research suggests that managers can influence analysts' forecasts if they are willing to engage in earnings forecast guidance.

Managers can guide analysts' forecasts through public disclosures. However, Matsumoto (2002) posits that solely investigating public disclosures does not capture managers' private conversations with analysts. The SEC implemented Regulation Fair Disclosure (Reg FD) in 2000 to level the playing field for all investors. Reg FD requires firms to publicly disclose any material information managers disclose to any party in private. Soltes (2018) states that Reg FD does not explicitly prohibit managers from having private conversations with investors and analysts as long as they do not disclose material information. However, Reg FD does not define what is meant by material information. In Brown, Call, Clement, and Sharp's (2015) survey and interview study, 98% of analysts say they have direct contact with the CEO or the CFO of a typical firm they cover. Though the content may or may not be "material" information, the overwhelming percentage openly admitting to direct contact is troublesome. In addition, one analyst admitted that managers have figured out a way around Reg FD, and private communications are almost back to pre-Reg FD levels. Another way firms can communicate with analysts without violating Reg FD is through public disclosures that can be interpreted differently by analysts compared to non-analysts. Cheynel and Levine (2020) suggest that firms utilize Mosaic Theory in their public disclosures. Mosaic Theory posits that combining multiple pieces of information leads to a different conclusion as a whole than of each separate piece of information by itself. They find that there are conditions where public, voluntary disclosures lead to higher information asymmetry between informed and uninformed traders and that firms can utilize that to send a private signal to a specific group without violating Reg FD.

In the context of my study, a natural follow-up question is to examine the motivations of managers to engage in forecast guidance. By introducing Stock Ownership Guidelines policies, boards can now impose higher risk on their managers by mandating specific equity holdings. Prohibiting managers from diversifying their personal wealth until they reach their mandated holdings has the potential to alter management behavior, especially with respect to analysts when considering that the market assigns a valuation premium to firms that consistently meet or beat the analysts' forecasts (Kasznik and McNichols 2002; Bartov et al. 2002). That leads to the first hypothesis:

H1: The magnitude of analyst earnings forecast guidance is higher in firms that have adopted Stock Ownership Guideline policies for their executives.

As mentioned, Richardson et al. (2004) find that managers are more likely to have 'walked-down' analysts forecasts prior to earnings announcements where the stock is sold by the managers. By adopting Stock Ownership Guidelines, firms prohibit managers from selling their shares before reaching their mandated quota. These restrictions may affect CEOs' forecast guidance behavior. As a result, CEOs in the accumulation phase might not be incentivized to meet or beat analysts' forecasts as they accumulate the mandated holdings. However, at the end of their tenure, CEOs are expected to have accumulated excess shares that they can sell, and therefore, they are more likely to be motivated to meet and beat analysts' forecasts in order to maximize the share price when they decide to sell their shares, which leads to the second hypothesis:

H2: Firms that have adopted Stock Ownership Guidelines guide analysts' forecasts downward to a greater extent in the last two years of CEOs' tenure compared to the first two years of CEOs' tenure.

CHAPTER IV

MEASURING ANALYSTS FORECAST GUIDANCE

To construct my Analysts Forecast guidance variable, I follow Burgstahler and Eames's (2006) annual adaptation of Matsumoto (2002) analyst forecast guidance. I determine fourth quarter expected earnings using the following equation:

$$\frac{\Delta E_{ijtq}}{MV_{itjq-4}} = \beta_{0ij} + \beta_{1ijt} \left(\frac{\Delta E_{ijtq-1}}{MV_{itjq-5}} \right) + \beta_{2ijt} (CRET)_{ijtq} \quad (1)$$

Where:

i, j, q and t refer to firm, four-digit SIC code, quarter and year respectively, and

ΔE = The earnings change between the current quarter and four quarters prior.

MV = The market value of common equity.

$CRET$ = the cumulative daily excess return from three days after the four quarters prior earnings announcement to 20 days before the current quarter earnings announcement.

Following both Burgstahler and Eames (2006) and Matsumoto (2002), I (1) estimate the model for each firm-year using all firm-quarters in the year with the same four-digit SIC code except the firm I am estimating the parameters for, (2) include only firm-years with ten or more firm-quarters of data in the same industry, and (3) truncate observations in the top and bottom half-percent of the variables to mitigate the impact

of extreme values on the parameters estimates. I then use the estimated parameters from equation (1) for each firm to calculate the expected change in earnings using the following equation:

$$E(\Delta E_{ijtq}) = \beta_{0ij-1} + \beta_{1ijt-1} \left(\frac{\Delta E_{ijtq-1}}{MV_{itjq-5}} \right) + \beta_{2ijt-1} ((CRET)_{ijtq})(MV_{itjq-4}) \quad (2)$$

To obtain the annual expected forecast, I add the 3 actual earnings for the first 3 quarters then add the expected 4th quarter forecast determined from equation (2). I then calculate Analysts Forecast Guidance as follows:

$$AFG = \frac{\textit{Estimated Annual EPS} - \textit{Median Analyst Forecast}^6}{\textit{Stock Price}} \quad (3)$$

⁶ In untabulated sensitivity tests, I use the means instead of the medians for analyst forecasts. The results are categorically identical.

CHAPTER V

RESEARCH DESIGN

To test my hypotheses, I estimate several regression models. For H1, I estimate the following regression:

$$\begin{aligned} ABSAFG_i = & \beta_0 + \beta_1 OWNERSHIPGUIDELINES_i + \beta_2 MEET_i \\ & + \beta_3 GUIDELINESVALUE_i + \beta_4 DIFFICULTY_i \\ & + \beta_5 ANALYSTSFOLLOWING_i + \beta_6 SIZE_i + \beta_7 ROA_i + \beta_8 MTB_i \\ & + \beta_9 CEOTENURE_i + INDUSTRYFE + YEARFE + \epsilon \quad (4) \end{aligned}$$

I test the association between adopting Ownership Guidelines and the magnitude of analysts' forecast guidance. H1 predicts a positive coefficient on Ownership Guidelines. I use the absolute value of analysts' forecast guidance (*ABSAFG*) because I am testing the magnitude of forecast guidance rather than the direction. I control for CEO's guidelines status (*MEET*), whether they have met their mandated holding, following Benson et al. (2016) findings that CEOs act differently to Stock Ownership guidelines based on their ownership status. I define CEO ownership as the total of both shares and options owned. I also include the mandated value to be held (*GUIDELINESVALUE*) to control for the relative level of alignment, assuming more holdings should align the CEO more with the

owners. Following Bradshaw, Lee, and Peterson (2016), I include revenue difficulty (*DIFFICULTY*) to control for the inherent difficulty in forecasting the firm's earnings for the year. To measure *DIFFICULTY*, I first estimate a firm-specific AR(1) regression of revenue on lagged revenue over the prior six years. Then I subtract the R^2 from 1 to get *DIFFICULTY*. I also include the natural log of the number of analysts following the firm (*ANALYSTSFOLLOWING*) as it is likely to affect the ability and effectiveness of forecast guidance efforts. Additionally, following Quinn (2018), I include firm-level and CEO-level controls that might be associated with managers' decision and ability to forecast analysts' forecasts like *SIZE*, *ROA*, *LEVERAGE*, *MTB*, and *CEOTENURE*. Finally, *INDUSTRYFE* and *YEARFE* represent industry (based on Fama-French 48 industry definitions) and year fixed effects, respectively.⁷ I use firm and year clustered standard errors to control for cross-sectional and time-series dependence in the sample (Gow, Ormazabal, and Taylor 2010).

To test H2, I estimate the following regression:

$$\begin{aligned}
 AFG = & \beta_0 + \beta_1 LAST2_i + \beta_2 MEET_i + \beta_3 GUIDELINESVALUE_i + \beta_4 DIFFICULTY_i \\
 & + \beta_5 SIZE_i + \beta_6 ROA_i + \beta_7 MTB_i + \beta_8 ANALYSTSFOLLOWING_i \\
 & + \beta_9 CEOTENURE_i + INDUSTRYFE + YEARFE + \epsilon \quad (5)
 \end{aligned}$$

For H2, I use a sub-sample of the first two years and the last two years of each CEO's tenure for firms that have adopted Stock Ownership Guidelines. In this sub-sample, I only include firm-year observations with CEOs with a tenure of at least four years. I use directional Analysts Forecast Guidance for H2 because it predicts that CEOs will guide analysts' earnings forecasts downward in the late years of their tenure compared to the early years

⁷ Detailed definitions of these variables are provided in Appendix C.

of their tenure. *LAST2* is an indicator variable that equals 1 in the last two years of CEOs tenure, and 0 otherwise.

CHAPTER VI

SAMPLE SELECTION

To construct my sample, I start with all Execucomp firms from 2006 to 2019. Then, I identify all the firm-year observations with available information on Stock Ownership Guidelines in the proxy statement using a list of phrases that are commonly used in proxy statements (e.g., Ownership Guidelines and Ownership Requirements).⁸ Next, I search for these phrases using Direct Edgar, a tool that allows searching for words and phrases in all SEC filings. Next, I go through the results from Direct Edgar to identify all the firms that adopted Stock Ownership Guidelines, when they adopted them, and how much they require their CEOs to hold in the firm's equity. Finally, I then merge with Compustat, CRSP, and IBES to obtain the data for the other variables required for the analyses. The final sample consists of 11,756 firm-year observations from 1,845 unique firms. Table 1 shows the sample selection process.

[Insert Table 1]

⁸ The list of the used phrases and examples from proxy statements are attached in Appendix B and it is based on the phrases Kang and Xu (2019) use in their study.

CHAPTER VII

EMPIRICAL RESULTS

7.1 Descriptive Statistics

Table 2, Panel A, reports the descriptive statistics for the full sample. The mean (median) Analysts Forecast Guidance is -0.006 (-0.001). The mean for the absolute value of Analysts Forecast Guidance is 0.072 (0.013). About 33% of the sample observations have Stock Ownership Guidelines adopted for the year, while only 28% of the sample observations have a CEO who has met the mandated Stock Ownership Guidelines requirement. CEO's mean (median) ownership of their firm's equity equals \$59,950,000 (\$15,903,000), while Stock Ownership Guidelines on average mandate holdings of \$4,645,000 (\$4,500,000).

Table 2, Panel B, reports the means and the difference-in-means test for firms that have adopted Stock Ownership Guidelines and firms that have not adopted Stock Ownership Guidelines. Firms that have adopted Stock Ownership Guidelines engage more in analysts forecast guidance. They are more difficult to forecast, larger, and more levered. They also have more analyst followings and have a lower market-to-book ratio. Table 2,

Panel C, reports the means and the difference-in-means test for the second hypothesis sub-sample. I find no significant difference between analysts' forecast guidance for the first and last two years of CEOs' tenure sub-sample. However, CEOs are more likely to meet their mandated holdings in the last two years of their tenure.

[Insert Table 2]

7.2 Correlation Matrix

Table 3 reports the correlation matrix of variables in the sample. As predicted in H1, there is a positive correlation between having Stock Ownership Guidelines and the extent of analysts' forecast guidance. I also find a positive correlation between having Stock Ownership Guidelines and revenue forecasting difficulty, firm size, return on assets, leverage, and the number of analysts following the firm. Additionally, having Stock Ownership Guidelines is negatively correlated with the market-to-book ratio.

[Insert Table 3]

7.3 Regressions Results

To test H1, I estimate the regression from equation (4) and report the results in Table 4. As predicted in H1, I find a significant association between the magnitude of analyst forecast guidance and having Stock Ownership Guidelines (p-value = 0.003). This suggests that firms that have adopted Stock Ownership Guidelines engage in analysts' forecasts guidance to a greater extent. For the control variables, I find that having a CEO who has met her mandated Stock Ownership Guidelines equity holdings is negatively associated with the extent of analysts' forecast guidance. I also find that firm size and leverage are positively associated with the extent of analyst forecast guidance.

Additionally, I find that return on assets and CEO tenure are negatively associated with the extent of analysts' forecast guidance.

[Insert Table 4]

To test H2, I estimate the regression from equation (5) and report the results in Table 5. Following my prediction, *LAST2* is negative and is marginally significant. This suggests that CEOs guide analysts' forecasts downward in the last two years of their tenure compared to the first two years. This suggests that CEOs in the last two years of their tenure are guiding analysts forecasts downward to a more achievable forecasts in order to meet or beat the forecast. Meeting or beating the forecast would potentially maximize the stock price and therefore maximize the CEOs' return on their own stocks if they decide to sell them now that they are eligible to sell.

[Insert Table 5]

CHAPTER VIII

SENSITIVITY ANALYSIS

8.1. The Change in Behavior Between the Beginning and The Ending of CEOs' tenure – Moderated by Stock Ownership Guidelines Adoption

To address the concern that the sample size for H2 is not representative of the entire population, I test H2 for the entire sample and use the adoption of Stock Ownership Guidelines as a moderator. I estimate the following regressions:

$$\begin{aligned} AFG = & \beta_0 + \beta_1 OWNERSHIPGUIDELINES + \beta_2 LAST2 \\ & + \beta_3 OWNERSHIPGUIDELINES * LAST2 + \beta_4 MEET \\ & + \beta_5 GUIDELINESVALUE + \beta_6 DIFFICULTY + \beta_7 SIZE + \beta_8 ROA \\ & + \beta_9 MTB + \beta_{10} ANALYSTSFOLLOWING + \beta_{11} CEOTENURE \\ & + INDUSTRYFE + YEARFE + \epsilon \quad (6) \end{aligned}$$

I predict that the interaction term, which represents firms that have adopted Stock Ownership Guidelines and are in the last two years of their CEO's tenure, to be negative. I report the results in Table 6. Following my prediction, the interaction term is negative and marginally significant. This conforms with the results from H2 that suggest that CEOs in firms that have adopted Stock Ownership Guidelines are guiding analysts forecast

downward to a more achievable forecast in order to meet or beat the forecast.

[Insert Table 6]

8.2. Replacing *MEET* with continuous variables that measure CEOs ownership.

An additional sensitivity test I conduct is replacing *MEET* indicator variable with continuous variables that measure CEOs' ownership levels. Benson et al. (2016) find that Stock Ownership Guidelines adoption does not impact CEOs' ownership levels if CEOs meet their mandated holdings at the time of the adoption. One natural question is whether this association is more evident when including continuous variables that measure CEOs' ownership rather than an indicator variable for when they meet the Stock Ownership Guidelines mandated holdings. I use two different continuous variables for CEO ownership in the firm. The first is *CEOOWNERSHIP* which is the dollar value of the CEO's ownership in the firm scaled by total assets. The second is *EXCESSOWNERSHIP* which is the difference between the CEO's ownership and the Stock Ownership Guidelines mandated holdings in the firm, scaled by total assets. I report the results in Table 7. Inconsistent with the prediction in H1, I find that there is no significant association between the magnitude of analyst forecast guidance and having Stock Ownership Guidelines when we switch from the *MEET* indicator variable to the continuous *CEOOWNERSHIP* and *EXCESSOWNERSHIP* variables. Additionally, neither continuous variable is significantly associated with the magnitude of analysts forecast guidance though the indicator variable *MEET* is as shown in the original H1 test. These results support the findings in Benson et al. (2016) that there is a difference between firms with CEOs who have met their mandated holdings, and firms with CEOs that have not met their mandated holdings.

[Insert Table 7]

CHAPTER IX

CONCLUSION

This study investigates whether and how Stock Ownership Guidelines are associated with the incidence and extent to which managers engage in analyst forecast guidance. Stock Ownership Guidelines are policies that companies adopt to mandate executives (and board members) to accumulate and hold a certain value of their firm's equity. Stock Ownership Guidelines usually aim to align executives and board members' goals with their company's long-term value creation.

Consistent with my hypothesis, I find that firms that have adopted stock ownership guidelines policies engage in analysts' forecast guidance to a greater extent. Additionally, I find that CEOs guide analysts' forecasts downward in the last two years of their tenure compared to the first two years of their tenure in firms that have adopted Stock Ownership Guidelines. This study contributes to both corporate governance and analysts' forecast literature. I find that adopting Stock Ownership Guidelines, a governance mechanism, is associated with analyst the incidence and extent of analysts forecast guidance.

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APPENDICES

Appendix A Examples of Ownership Guidelines Sections in Proxy Statements

Hess Corp Proxy Statement 10/03/2014:

Management Stock Ownership Guidelines. In order to further align the interests of management and stockholders, we maintain stock ownership guidelines for executive officers. The guidelines require that each executive officer attain a specified level of ownership of shares of the company's common stock equal in value to a multiple of the officer's base salary within five years of the later of the date of adoption of the guidelines and the officer's first election to his or her office:

Role	Requirement (multiple of base salary)
Chief Executive Officer	6.0x
Executive Vice Presidents	4.0x
Senior Vice Presidents	3.0x
Vice Presidents	1.0x

Our NEOs maintain significant ownership in Hess stock. As of the end of 2013, each of the NEOs had attained their required level of ownership. Mr. Hess, our CEO, currently beneficially owns approximately 11% of our outstanding shares, and among the other NEOs, on average, ownership exceeds 10x base salary. This reflects significant alignment between our NEOs and our stockholders. Currently, shares owned outright by an executive, restricted stock and stock held in an executive's savings plan account are counted for purposes of determining stock ownership levels. Stock options, however, are not counted.

Anti-hedging and Anti-pledging Policies. We do not permit directors or executive officers to trade in equity derivative instruments in order to hedge the economic risks of holding the company's stock. The purpose of these guidelines is to align the interests, including the economic risk of ownership, of directors, management and stockholders. In addition, we do not permit our executives to pledge shares of company stock in which they have a financial interest.

Honeywell International Inc. Proxy Statement 03/10/2016:

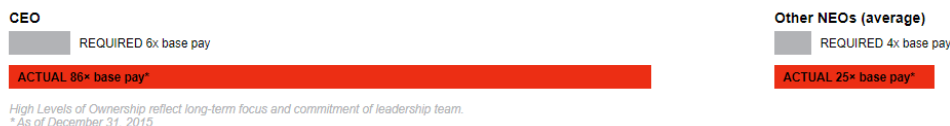
STOCK OWNERSHIP GUIDELINES

The Committee believes that our executives will more effectively pursue our shareholders' long-term interests if our executives hold substantial amounts of stock. Accordingly, the Committee adopted minimum stock ownership guidelines in May 2003 for all executive officers.

Under these guidelines, the CEO must hold shares of Common Stock equal in value to six times his current annual base salary. Other executive officers are required to own shares equal in value to four times their current base salary. Shares used in determining whether these guidelines are met include shares held personally, share equivalents held in qualified and nonqualified retirement accounts, and RSUs. In practice, the NEOs maintain ownership levels well in excess of the minimum requirements.

[Executive Compensation > Compensation Practices and Policies](#)

NAMED EXECUTIVE OFFICER STOCK OWNERSHIP



In addition, the stock ownership guidelines require officers to hold for at least one year the "net shares" from the vesting of RSUs or the "net gain shares" of Common Stock that they receive by exercising stock options. "Net shares" means the number of shares obtained when an RSU vests, less the number of shares withheld or sold to pay applicable taxes. "Net gain shares" means the number of shares obtained by exercising the option, less the number of shares the officer sells to cover the exercise price of the options and pay applicable taxes.

After the one-year holding period, officers may sell net shares or net gain shares, provided that, following any sale, they continue to hold shares of Common Stock in excess of the prescribed minimum stock ownership level.

Abbot Laboratories Proxy Statement 04/29/2016:

SHARE OWNERSHIP AND RETENTION GUIDELINES

To further promote sustained shareholder return and to ensure the Company's executives remain focused on both short- and long-term objectives, the Company has established share ownership guidelines. Each officer has five years from the date appointed/elected to his/her position to achieve the ownership level associated with the position.

Role	Guideline
Chief Executive Officer	6 times base salary
Executive Vice Presidents and Senior Vice Presidents	3 times base salary
All other officers	2 times base salary

Any officer who has not achieved at least 50% of the stock ownership guideline after three years in their current position will be required to hold 50% of future shares until they meet the ownership guideline.

All named officers with 5 years tenure in their current position meet or exceed the guidelines.

Matson Inc. Proxy Statement 10/03/2011:

Stock Ownership Guidelines

The Company has had guidelines in place since 1994 to encourage stock ownership among its executives to be achieved within a five-year period. The current ownership goals reflected below were determined by the Committee to provide a vested interest in the Company and ensure commitment to longer-term decision-making among senior officers. Executives are required to own a value of stock of 3 times to 5 times (as set forth below) the amount of the covered executive's current salary.

Position	Salary Multiple
CEO	5X
Other NEOs	3X

All NEOs but one have met, and for the most part significantly exceeded, the ownership guidelines. The remaining executive is expected to meet the guidelines within the next year.

Appendix B
Phrases used to search for Ownership Guidelines in Proxy Statements

Ownership guideline

Ownership guidelines

Ownership target

Ownership targets

Ownership requirement

Ownership requirements

Ownership goal

Ownership goals

Ownership program

Ownership programs

Ownership policy

Ownership policies

Ownership plan

Ownership plans

Appendix C

Variables Definition

Variable	Definition
<i>AFG</i>	Analysts' forecasts guidance calculated following Burgstahler and Eames (2006) and Matsumoto (2002) and then scaled by the stock price. $AFG = \frac{\text{Estimated Annual EPS} - \text{Median Analyst Forecast}}{\text{Stock Price}}$
<i>ABSOLUTEAFG</i>	The absolute value for analysts forecasts guidance (AFG) for the firm.
<i>LAST2</i>	An indicator variable that equals 1 for the last two years in CEOs tenure, 0 otherwise.
<i>OWNERSHIPGUIDELINES</i>	An indicator variable that equals 1 for firms who have adopted ownership guidelines for the year, 0 otherwise.
<i>MEET</i>	An indicator variable that equals 1 if the CEO has met the Ownership guidelines requirement, 0 otherwise.
<i>GUIDELINESVALUE</i>	The value of the company's equity (in thousands) that the CEO is required to hold, scaled by total assets.
<i>DIFFICULTY</i>	The difficulty to forecast revenues for the firm equals $1 - R^2$ from the firm-specific AR(1) regression of revenue on lagged revenue over the prior six years as defined by Bradshaw et al. (2016).
<i>SIZE</i>	The logged value of total assets.
<i>ROA</i>	Return on Assets: Earnings before extraordinary items divided by total assets.
<i>LEVERAGE</i>	The leverage ratio: total liabilities divided by total assets.
<i>MTB</i>	The market-to-book ratio
<i>ANALYSTSFOLLOWING</i>	The natural log of the number of analysts following the firm obtained from I/B/E/S.
<i>CEOTENURE</i>	The number of years the current CEO held the CEO position.
<i>SUSPECTCEO</i>	An indicator variable that equals 1 for firms with CEOs who are within 1 annual salary of their mandated holdings, and 0 otherwise.
<i>CEOOWNERSHIP</i>	The dollar value of the CEO's ownership in the firm, scaled by total assets
<i>EXCESSOWNERSHIP</i>	The difference between the CEO's ownership in the firm and the Stock Ownership Guidelines mandated holdings for the CEO, scaled by total assets.

Table 1
Sample Selection

	Observations
Total number of firm-year observations from 2006-2019 with Execucomp and Compustat data	27,860
Less: Missing I/B/E/S or CRSP variables used in the analyses	(10,818)
Less: Observations with a missing value for the Analysts Forecast Guidance	(2,109)
Less: Missing values for other variables used in the analyses	(3,177)
Final Sample	11,756
Number of unique firms	1,845

Table 2
Descriptive Statistics

Panel A: Full Sample

<u>Variables</u>	<u>Obs.</u>	<u>Mean</u>	<u>Median</u>	<u>Std. Dev.</u>	<u>Q1</u>	<u>Q3</u>
<i>AFG</i>	11,756	-0.006	-0.001	0.164	-0.015	0.012
<i>ABSOLUTEAFG</i>	11,756	0.072	0.013	0.174	0.004	0.047
<i>OWNERSHIPGUIDELINES</i>	11,756	0.328	0.000	0.469	0.000	1.000
<i>MEET</i>	11,756	0.281	0.000	0.450	0.000	1.000
<i>GUIDELINESVALUE</i>	11,756	0.488	0.000	1.204	0.000	0.282
<i>DIFFICULTY</i>	11,756	0.449	0.377	0.348	0.113	0.802
<i>SIZE</i>	11,756	8.176	8.132	1.663	6.979	9.296
<i>ROA</i>	11,756	0.040	0.040	0.084	0.012	0.078
<i>LEVERAGE</i>	11,756	0.582	0.583	0.232	0.423	0.742
<i>MTB</i>	11,756	3.034	2.150	4.312	1.358	3.564
<i>ANALYSTSFOLLOWING</i>	11,756	2.400	2.485	0.746	1.946	2.996
<i>CEOTENURE</i>	11,756	7.047	7.000	4.602	3.000	10.00

Panel B: Non-Adopters and Adopters

<u>Variables</u>	<u>Non-Adopters</u>		<u>Adopters</u>		<u>t-statistic</u>
	<u>Obs.</u>	<u>Mean</u>	<u>Obs.</u>	<u>Mean</u>	
<i>AFG</i>	7,904	-0.008	3,852	-0.003	1.48
<i>ABSOLUTEAFG</i>	7,904	0.068	3,852	0.079	3.05***
<i>MEET</i>	7,904	0.000	3,852	0.859	2.20***
<i>GUIDELINESVALUE</i>	7,904	0.000	3,852	1.488	77.19***
<i>DIFFICULTY</i>	7,904	0.429	3,852	0.489	8.79***
<i>SIZE</i>	7,904	7.969	3,852	8.601	19.65***
<i>ROA</i>	7,904	0.038	3,852	0.043	3.21***
<i>LEVERAGE</i>	7,904	0.571	3,852	0.606	7.60***
<i>MTB</i>	7,904	3.097	3,852	2.903	-2.29**
<i>ANALYSTSFOLLOWING</i>	7,904	2.351	3,852	2.500	10.23***
<i>CEOTENURE</i>	7,904	7.035	3,852	7.071	-0.39

Table 2 (continued)

Panel C: First and Last two years of CEOs tenure

<u>Variables</u>	<u>First two years</u>		<u>Last two years</u>		<u>t-statistic</u>
	<u>Obs.</u>	<u>Mean</u>	<u>Obs.</u>	<u>Mean</u>	
<i>AFG</i>	148	0.022	148	-0.006	-1.47
<i>MEET</i>	148	0.764	148	0.845	1.76*
<i>GUIDELINESVALUE</i>	148	1.061	148	1.134	0.56
<i>DIFFICULTY</i>	148	0.553	148	0.604	1.34
<i>SIZE</i>	148	8.672	148	8.788	0.74
<i>ROA</i>	148	0.037	148	0.034	-0.36
<i>LEVERAGE</i>	148	0.607	148	0.630	1.05
<i>MTB</i>	148	2.732	148	2.417	-0.89
<i>ANALYSTSFOLLOWING</i>	148	2.594	148	2.654	0.81
<i>CEOTENURE</i>	148	1.622	148	5.595	22.63***

***, **, * Indicate statistical significance at the 0.01, 0.05, and 0.1 levels or better, respectively.

Table 3
Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1 <i>AFG</i>	1											
2 <i>ABSOLUTEAFG</i>	-0.095***	1										
3 <i>OWNERSHIPGUIDELINES</i>	0.014	0.066***	1									
4 <i>MEET</i>	0.008	0.075***	0.896***	1								
5 <i>GUIDELINESVALUE</i>	0.003	-0.073***	0.580***	0.475***	1.000							
6 <i>DIFFICULTY</i>	-0.012	-0.056***	0.081***	0.052***	0.040***	1						
7 <i>SIZE</i>	0.003	0.294***	0.178***	0.187***	-0.242***	-0.002	1					
8 <i>ROA</i>	0.041***	0.051***	0.030**	0.065***	-0.011	-0.210***	0.073***	1				
9 <i>LEVERAGE</i>	0.001	0.026**	0.070***	0.052***	-0.105***	0.055***	0.480***	-0.180***	1			
10 <i>MTB</i>	0.018	0.076***	-0.021*	0.003	-0.013	-0.115***	-0.049***	0.193***	-0.028**	1		
11 <i>ANALYSTSFOLLOWING</i>	-0.028	0.264***	0.094***	0.113***	-0.171***	-0.103***	0.561***	0.170***	0.095***	0.114***	1	
12 <i>CEOTENURE</i>	-0.008	0.004	0.004	0.068***	0.039***	-0.087***	-0.018	0.041***	-0.036***	0.032***	-0.033***	1

***, **, * Indicate statistical significance at the 0.01, 0.05, and 0.1 levels or better, respectively.

Table 4

Analysts Forecast Guidance Association with Adopting Stock Ownership Guidelines

Dependent Variable: Absolute Analysts Forecast Guidance

<u>Variable</u>	<u>Prediction</u>	<u>Coeff.</u>	<u>p-value</u>
<i>OWNERSHIPGUIDELINES</i>	+	0.036***	0.003
<i>MEET</i>		-0.033***	0.007
<i>GUIDELINESVALUE</i>		-0.001	0.574
<i>DIFFICULTY</i>		0.012	0.113
<i>SIZE</i>		0.013***	0.003
<i>ROA</i>		-0.344***	0.000
<i>LEVERAGE</i>		0.029**	0.036
<i>MTB</i>		0.000	0.910
<i>ANALYSTSFOLLOWING</i>		0.008	0.132
<i>CEOTENURE</i>		-0.001*	0.053
<i>Constant</i>		-0.085**	0.030
Std. errors clusters		Firm and Year	
Fixed-effects		Year and Industry	
Adjusted R^2		0.154	
Observations		11,756	

***,**, * Indicate statistical significance at the 0.01, 0.05, and 0.1 levels or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).

Table 5**The Change in Analysts Forecast Guidance Behavior Between the Beginning and the Ending of the CEO's Tenure****Dependent Variable: Analysts Forecast Guidance**

<u>Variable</u>	<u>Prediction</u>	<u>Coeff.</u>	<u>p-value</u>
<i>LAST2</i>	-	-0.081*	0.051
<i>MEET</i>		-0.004	0.901
<i>GUIDELINESVALUE</i>		0.003	0.906
<i>DIFFICULTY</i>		0.023	0.676
<i>SIZE</i>		-0.025	0.319
<i>ROA</i>		-0.368**	0.019
<i>LEVERAGE</i>		0.146	0.221
<i>MTB</i>		0.002	0.108
<i>ANALYSTSFOLLOWING</i>		0.042	0.343
<i>CEOTENURE</i>		0.021**	0.013
<i>Constant</i>		0.136	0.578

Std. errors clusters

Firm and Year

Fixed-effects

Year and Industry

Adjusted R^2

0.159

Observations

296

***, **, * Indicate statistical significance at the 0.01, 0.05, and 0.1 levels or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).

Table 6

The Change in Analysts Forecast Guidance Behavior Between the Beginning and The Ending of the CEO's Tenure – Moderated by Stock Ownership Guidelines Adoption

Dependent Variable: Analysts Forecast Guidance

<u>Variable</u>	<u>Prediction</u>	<u>Coeff.</u>	<u>p-value</u>
<i>OWNERSHIPGUIDELINES</i>		0.070*	0.085
<i>LAST2</i>		-0.020	0.116
<i>OWNERSHIPGUIDELINES * LAST2</i>	-	-0.028*	0.098
<i>MEET</i>		-0.039	0.262
<i>GUIDELINESVALUE</i>		0.006	0.569
<i>DIFFICULTY</i>		-0.012	0.544
<i>SIZE</i>		-0.002	0.800
<i>ROA</i>		-0.018	0.870
<i>LEVERAGE</i>		0.009	0.809
<i>MTB</i>		0.001	0.542
<i>ANALYSTSFOLLOWING</i>		0.009	0.644
<i>CEOTENURE</i>		0.007**	0.032
<i>Constant</i>		0.034	0.776
Std. errors clusters		Firm and Year	
Fixed-effects		Year and Industry	
Adjusted R^2		0.053	
Observations		956	

***, **, * Indicate statistical significance at the 0.01, 0.05, and 0.1 levels or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).

Table 7

**Analysts Forecast Guidance Association with Adopting Stock Ownership Guidelines –
Replacing *MEET* With Continuous Variables to Measure CEO Ownership**

Dependent Variable: Absolute Analysts Forecast Guidance

<u>Variable</u>	<u>Prediction</u>	<u>CEOOWNERSHIP</u>		<u>EXCESSOWNERSHIP</u>	
		<u>Coeff.</u>	<u>p-value</u>	<u>Coeff.</u>	<u>p-value</u>
<i>OWNERSHIPGUIDELINES</i>	-	0.006	0.174	0.006	0.190
<i>CEOOWNERSHIP</i>		0.000	0.197		
<i>EXCESSOWNERSHIP</i>				0.000	0.826
<i>GUIDELINESVALUE</i>		-0.000	0.917	-0.000	0.833
<i>DIFFICULTY</i>		0.012	0.102	0.012	0.107
<i>SIZE</i>		0.014***	0.003	0.013***	0.003
<i>ROA</i>		-0.350***	0.000	-0.349***	0.000
<i>LEVERAGE</i>		0.031**	0.027	0.030**	0.031
<i>MTB</i>		-0.000	0.927	-0.000	0.997
<i>ANALYSTSFOLLOWING</i>		0.008	0.145	0.008	0.144
<i>CEOTENURE</i>		-0.001**	0.014	-0.001**	0.022
<i>Constant</i>		-0.086**	0.027	-0.083**	0.035
Std. errors clusters				Firm and Year	
Fixed-effects				Year and Industry	
Adjusted R^2				0.15	
Observations				11,756	

***,**, * Indicate statistical significance at the 0.01, 0.05, and 0.1 levels or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).

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