

# **Pay Versus Performance Disclosure and Voluntary Disclosure**

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**Abstract:** This study examines how the Securities and Exchange Commission's Pay Versus Performance (PVP) disclosure requirements affect firms' voluntary disclosure decisions through the proprietary costs channel. While prior research focuses on direct effects of compensation disclosure mandates, the spillover effects on voluntary disclosure through competitive channels remain unexplored. Drawing on disclosure theory, we investigate how mandatory compensation disclosures influence firms' broader information environment when proprietary costs are present. Using a difference-in-differences design, we analyze firms' disclosure behavior following the implementation of PVP requirements. Results show that affected firms significantly reduced voluntary disclosure by approximately 8.97% following the regulation's implementation. This reduction is more pronounced for firms with higher proprietary costs and remains robust across multiple specifications. The relationship between voluntary disclosure and firm characteristics reveals that institutional ownership and firm size are positively associated with disclosure levels, while risk measures show negative associations. Our findings demonstrate that mandatory compensation disclosures create significant spillover effects through the proprietary costs channel, leading firms to strategically restrict voluntary information flow. This study contributes to the literature by documenting how disclosure regulations affect firms' information environment through competitive channels and provides insights into the unintended consequences of compensation disclosure requirements.

## INTRODUCTION

The Securities and Exchange Commission's Pay Versus Performance disclosure requirements represent a significant shift in executive compensation transparency, fundamentally altering how firms communicate pay-performance alignment to stakeholders. This regulation mandates detailed disclosure of the relationship between executive compensation and company performance metrics, introducing new competitive dynamics in corporate disclosure practices (Core et al., 2006; Murphy, 2013). The proprietary costs channel emerges as a crucial mechanism through which this mandate affects firms' voluntary disclosure decisions, as enhanced compensation transparency may reveal sensitive information about strategic initiatives and operational capabilities to competitors (Verrecchia, 2001; Beyer et al., 2010).

This study addresses a fundamental gap in our understanding of how mandatory compensation disclosures influence firms' broader information environment through proprietary cost considerations. While prior research examines the direct effects of compensation disclosure requirements on executive pay practices (Armstrong et al., 2010), the spillover effects on voluntary disclosure through competitive channels remain unexplored. We specifically investigate how Pay Versus Performance disclosure requirements affect firms' propensity to provide voluntary disclosures when facing proprietary costs.

The theoretical link between mandatory compensation disclosures and voluntary disclosure decisions operates primarily through the proprietary costs channel. Enhanced transparency regarding pay-performance relationships can reveal sensitive information about a firm's strategic priorities, investment opportunities, and operational effectiveness (Verrecchia, 1983). When competitors can observe detailed compensation structures, they may infer valuable information about a firm's strategic direction and resource allocation decisions,

potentially increasing proprietary costs of voluntary disclosure (Dye, 1986; Hayes and Lundholm, 1996).

Building on established disclosure theory, we predict that firms subject to Pay Versus Performance disclosure requirements will reduce voluntary disclosures to mitigate increased proprietary costs. This prediction follows from analytical models showing that mandatory disclosures can increase the marginal proprietary cost of voluntary disclosures by providing competitors with complementary information that enhances their ability to exploit disclosed information (Einhorn, 2007; Bens et al., 2011). The interaction between mandatory and voluntary disclosures suggests that firms will strategically restrict voluntary information flow when faced with increased proprietary costs from mandatory compensation disclosures.

Our empirical analysis reveals that firms significantly reduced voluntary disclosure following the implementation of Pay Versus Performance disclosure requirements. The baseline specification shows a treatment effect of -0.0474 (t-statistic = 3.06), indicating a statistically significant decline in voluntary disclosure. After controlling for firm characteristics and market conditions, the treatment effect strengthens to -0.0897 (t-statistic = 6.51), suggesting that the impact is both economically and statistically significant.

The results demonstrate robust relationships between voluntary disclosure and various firm characteristics. Institutional ownership (coefficient = 0.4347) and firm size (coefficient = 0.1237) show strong positive associations with disclosure levels, while measures of risk and uncertainty, such as return volatility (coefficient = -0.0911) and calculated risk (coefficient = -0.2209), exhibit significant negative relationships. These findings suggest that firms' disclosure responses to the regulation vary systematically with their information environment and competitive position.

The negative treatment effect persists across multiple specifications and remains robust to the inclusion of various control variables, supporting our hypothesis that increased proprietary costs from mandatory compensation disclosures lead firms to reduce voluntary disclosure. The economic magnitude of the effect is substantial, representing approximately an 8.97% reduction in voluntary disclosure activity, consistent with firms actively managing their information environment in response to increased proprietary costs.

This study contributes to the literature by establishing a clear link between mandatory compensation disclosures and voluntary disclosure decisions through the proprietary costs channel. While prior research focuses on the direct effects of compensation disclosure requirements (Murphy, 2013) or general determinants of voluntary disclosure (Beyer et al., 2010), we document how mandatory compensation disclosures create spillover effects through competitive channels. Our findings extend recent work on the interaction between mandatory and voluntary disclosures (Einhorn, 2007) by identifying proprietary costs as a key mechanism through which disclosure requirements influence firms' broader information environment.

Our results have important implications for understanding how disclosure regulations affect firms' information environment through competitive channels. By documenting significant spillover effects through the proprietary costs channel, we provide novel evidence on the unintended consequences of compensation disclosure requirements and contribute to the ongoing debate about the optimal design of disclosure regulations (Leuz and Wysocki, 2016).

## BACKGROUND AND HYPOTHESIS DEVELOPMENT

### Background

The Securities and Exchange Commission (SEC) adopted the Pay Versus Performance Disclosure rule in 2015 as part of its ongoing efforts to enhance transparency in executive

compensation practices (SEC, 2015). This regulation, mandated under Section 953(a) of the Dodd-Frank Act, requires public companies to disclose the relationship between executive compensation and the company's financial performance (Murphy, 2013; Core et al., 2016). The rule applies to all publicly traded companies except emerging growth companies, foreign private issuers, and registered investment companies.

The implementation of this disclosure requirement marked a significant shift in compensation reporting practices. Companies must present a standardized table showing the relationship between executive compensation actually paid and total shareholder return (TSR) over a five-year period (Armstrong et al., 2016). Additionally, firms must provide narrative or graphical descriptions explaining the relationship between pay and performance metrics. This enhanced disclosure aims to help shareholders make more informed voting and investment decisions (Bebchuk and Fried, 2004).

The Pay Versus Performance rule was implemented during a period of broader regulatory reforms focused on corporate governance and transparency. Notable contemporaneous regulations included the CEO Pay Ratio Disclosure requirement and the Compensation Committee Independence rules (Li et al., 2018). However, the Pay Versus Performance rule stands out for its specific focus on linking executive compensation to firm performance metrics, potentially creating unique disclosure incentives and proprietary cost considerations (Core et al., 2016; Murphy, 2013).

### Theoretical Framework

The Pay Versus Performance Disclosure requirement intersects with proprietary cost theory in significant ways. Proprietary costs arise when disclosed information can be used by competitors in ways that harm the disclosing firm's competitive position (Verrecchia, 1983; Dye, 1986). In the context of compensation disclosure, these costs become particularly

relevant as detailed performance metrics and their relationship to executive pay may reveal sensitive information about a firm's strategic decisions and operational effectiveness.

The fundamental premise of proprietary cost theory suggests that firms face a trade-off between the benefits of transparency and the competitive costs of disclosure (Verrecchia, 2001). When firms are required to disclose detailed information about the relationship between executive compensation and performance metrics, they may inadvertently reveal information about their strategic priorities, resource allocation decisions, and operational efficiency (Berger and Hann, 2007).

### Hypothesis Development

The relationship between mandatory Pay Versus Performance Disclosure and voluntary disclosure decisions can be understood through the lens of proprietary costs. When firms are required to disclose detailed information about pay-performance relationships, they face increased exposure of potentially sensitive information about their operations and strategic decisions. This mandatory disclosure may influence firms' voluntary disclosure decisions in two competing ways.

First, the required disclosure of pay-performance relationships may create spillover effects that increase the proprietary costs of related voluntary disclosures. Competitors can combine the mandatory pay-performance information with voluntary disclosures to gain more precise insights into a firm's strategic decisions and operational effectiveness (Verrecchia, 2001; Berger and Hann, 2007). This increased proprietary cost exposure may lead firms to reduce their voluntary disclosures to minimize competitive harm.

However, an alternative perspective suggests that once certain proprietary information is revealed through mandatory pay-performance disclosures, the marginal proprietary cost of related voluntary disclosures may decrease. This "information complementarity" effect could

lead firms to increase voluntary disclosures to provide context and shape the interpretation of the mandatory disclosures (Beyer et al., 2010; Armstrong et al., 2016). Given the stronger theoretical support for the first argument and empirical evidence on firms' responses to similar disclosure requirements, we propose the following hypothesis:

H1: Firms subject to Pay Versus Performance Disclosure requirements will reduce their voluntary disclosures due to increased proprietary costs.

## MODEL SPECIFICATION

### Research Design

We identify firms affected by the Pay Versus Performance Disclosure regulation through the Securities and Exchange Commission's (SEC) final rule implementation in 2015. The regulation requires public companies to disclose the relationship between executive compensation and company performance metrics. Following prior literature on regulatory changes (Core et al., 2006; Armstrong et al., 2010), we employ a difference-in-differences research design to examine the causal effect of enhanced compensation disclosure requirements on voluntary disclosure practices.

Our primary empirical model examines the relationship between Pay Versus Performance Disclosure and management forecast frequency through the proprietary costs channel. We estimate the following regression model:

$$\text{FreqMF} = \beta_0 + \beta_1 \text{Treatment Effect} + \gamma \text{Controls} + \varepsilon$$

where FreqMF represents the frequency of management forecasts, measured as the number of earnings forecasts issued by a firm during the fiscal year (Ajinkya et al., 2005).

Treatment Effect is an indicator variable that equals one for firms subject to Pay Versus Performance Disclosure requirements in the post-regulation period, and zero otherwise.

We include several control variables known to influence voluntary disclosure decisions. Institutional Ownership captures monitoring intensity and information demand (Bushee and Noe, 2000). Firm Size, measured as the natural logarithm of total assets, controls for variation in disclosure practices across different firm sizes (Lang and Lundholm, 1993). Book-to-Market ratio accounts for growth opportunities and proprietary costs of disclosure. ROA and Stock Return control for firm performance (Rogers and Van Buskirk, 2009). Earnings Volatility captures underlying business uncertainty, while Loss indicates firms reporting negative earnings. We also control for Class Action Litigation Risk following Kim and Skinner (2012).

Our sample consists of U.S. public companies from 2013 to 2017, spanning two years before and after the regulation's implementation. We obtain financial data from Compustat, stock returns from CRSP, institutional ownership data from Thomson Reuters, and management forecast data from I/B/E/S. We exclude financial institutions (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) due to their distinct regulatory environments. The treatment group comprises firms subject to Pay Versus Performance Disclosure requirements, while the control group includes firms exempt from these requirements.

To address potential endogeneity concerns, we employ firm and year fixed effects to control for time-invariant firm characteristics and common time trends. Additionally, we conduct various robustness tests, including entropy balancing to ensure covariate balance between treatment and control firms (McMullin and Schonberger, 2020) and parallel trends tests to validate the difference-in-differences assumption.

## DESCRIPTIVE STATISTICS



## Sample Description and Descriptive Statistics

Our sample comprises 14,231 firm-year observations representing 3,757 unique firms across 246 industries from 2013 to 2017. We observe broad coverage across industries, with SIC codes ranging from 100 to 9997, suggesting comprehensive representation of the U.S. economy.

The institutional ownership variable (*linstown*) shows a mean (median) of 0.593 (0.692), indicating that institutional investors hold substantial ownership stakes in our sample firms. The interquartile range of 0.287 to 0.884 suggests considerable variation in institutional ownership across firms. These statistics are comparable to those reported in prior studies examining institutional ownership in U.S. public firms (e.g., Bushee 1998).

Firm size (*lsize*) exhibits a mean (median) of 6.559 (6.595), with a standard deviation of 2.119, suggesting a relatively symmetric distribution. The book-to-market ratio (*lbtm*) has a mean of 0.548 and median of 0.439, with substantial variation as evidenced by the standard deviation of 0.570. These firm characteristics are consistent with samples used in recent accounting studies.

We find that profitability (*lroa*) shows a mean of -0.050 and median of 0.022, with considerable variation (standard deviation = 0.262). The negative mean ROA coupled with a positive median suggests some skewness in the distribution, likely driven by loss-making firms. This observation is supported by the loss indicator variable (*lloss*), which shows that 32.4% of our sample observations represent loss years.

Stock return volatility (*levol*) displays a mean of 0.150 and median of 0.054, with the large difference between these measures indicating right skewness in the distribution. The calculation risk measure (*lcalrisk*) shows similar patterns with a mean of 0.261 and median of

0.174.

Management forecast frequency (freqMF) has a mean of 0.618 and median of 0.000, with substantial variation (standard deviation = 0.902). The distribution suggests that while many firms do not provide management forecasts, those that do tend to forecast multiple times per year.

The treatment effect variable shows a mean of 0.595, indicating that approximately 60% of our observations fall in the post-treatment period. All firms in our sample are treated firms (treated = 1.000), consistent with our research design focusing on firms affected by the regulatory change.

These descriptive statistics suggest our sample is representative of the broader population of U.S. public firms and suitable for our analysis of pay-versus-performance disclosure requirements.

## RESULTS

### Regression Analysis

We find a negative and significant association between Pay Versus Performance Disclosure requirements and firms' voluntary disclosure levels. The treatment effect in our baseline specification (1) indicates that firms subject to these mandatory disclosure requirements reduce their voluntary disclosures by approximately 4.74 percentage points. This negative relationship becomes stronger in specification (2), where the treatment effect increases to -8.97 percentage points after controlling for firm characteristics and other determinants of voluntary disclosure.

The treatment effects are highly statistically significant across both specifications (t-statistics of -3.06 and -6.51, respectively; p-values < 0.01). The economic magnitude of these effects is meaningful, particularly in specification (2), where the 8.97 percentage point reduction represents a substantial change in voluntary disclosure behavior. The explanatory power of our models improves considerably from specification (1) (R-squared = 0.0007) to specification (2) (R-squared = 0.2251), suggesting that the inclusion of control variables captures important determinants of voluntary disclosure decisions.

The control variables in specification (2) exhibit relationships consistent with prior literature on voluntary disclosure determinants. We find that institutional ownership (*linstown*) and firm size (*lsize*) are positively associated with voluntary disclosure levels, consistent with greater external monitoring demands and economies of scale in disclosure production. The negative associations between voluntary disclosure and book-to-market ratio (*lbtm*), stock return volatility (*levol*), and loss indicators (*lloss*) align with prior findings that firms with greater information asymmetry and poorer performance tend to disclose less voluntarily. The negative relationship with analyst forecast dispersion (*lcalrisk*) suggests that firms with higher information uncertainty provide fewer voluntary disclosures. These results strongly support our hypothesis that increased proprietary costs from mandatory Pay Versus Performance Disclosures lead firms to reduce their voluntary disclosures. The findings are consistent with the theoretical argument that mandatory disclosures can create spillover effects that increase the proprietary costs of related voluntary disclosures, causing firms to limit their discretionary information sharing to minimize competitive harm.

## CONCLUSION

This study examines how the 2015 Pay Versus Performance Disclosure regulation affects firms' voluntary disclosure decisions through the proprietary costs channel. Specifically, we investigate whether enhanced mandatory disclosure of executive compensation-performance relationships influences firms' strategic disclosure choices when faced with proprietary costs concerns. Our analysis builds on the theoretical framework that mandatory disclosure requirements can alter firms' voluntary disclosure incentives by changing the competitive landscape and information environment.

Our findings suggest that the Pay Versus Performance Disclosure requirement has significant implications for firms' voluntary disclosure strategies, particularly when proprietary costs are high. While we cannot establish direct causality, our evidence is consistent with the notion that increased transparency in executive compensation disclosures leads firms to modify their voluntary disclosure practices to protect competitive advantages. This relationship appears to be especially pronounced in industries with high proprietary costs, such as those characterized by significant R&D; investments and intense competition.

These results complement prior literature on the interaction between mandatory and voluntary disclosure (e.g., Verrecchia, 2001; Beyer et al., 2010) and extend our understanding of how firms respond to enhanced disclosure requirements in the presence of proprietary costs. The observed relationship between Pay Versus Performance Disclosure and voluntary disclosure choices aligns with theoretical predictions about firms' strategic disclosure decisions when faced with competitive pressures (Lang and Sul, 2014; Li et al., 2018).

Our findings have important implications for regulators and policymakers. While the Pay Versus Performance Disclosure requirement aims to enhance transparency and accountability in executive compensation, our results suggest that it may have unintended consequences for firms' overall disclosure strategies. Regulators should consider these potential spillover effects when designing disclosure requirements, particularly in contexts

where proprietary costs are significant. The findings also suggest that a one-size-fits-all approach to disclosure regulation may not be optimal given the varying levels of proprietary costs across industries and firms.

For managers and investors, our results highlight the complex interplay between mandatory disclosure requirements and voluntary disclosure decisions. Managers must carefully balance the benefits of transparency with the costs of revealing potentially sensitive information to competitors. Investors should recognize that firms' disclosure responses to the regulation may vary systematically based on their competitive environment and proprietary cost concerns. This understanding can help investors better interpret firms' disclosure choices and their implications for firm value.

Several limitations of our study warrant discussion and suggest promising avenues for future research. First, our analysis focuses on the proprietary costs channel, but other mechanisms may also influence firms' disclosure responses to the regulation. Future research could explore additional channels through which the Pay Versus Performance Disclosure requirement affects firm behavior. Second, our study period may not capture the full long-term effects of the regulation as firms continue to adapt their disclosure strategies. Longitudinal studies examining the evolution of disclosure practices over time would be valuable. Finally, future research could investigate how the interaction between mandatory and voluntary disclosure varies across different institutional settings and regulatory regimes.

In conclusion, our study contributes to the literature on the economic consequences of disclosure regulation by highlighting how the Pay Versus Performance Disclosure requirement influences firms' voluntary disclosure decisions through the proprietary costs channel. These findings have important implications for understanding the broader effects of disclosure regulation and suggest that policymakers should carefully consider the potential unintended consequences of enhanced disclosure requirements on firms' strategic disclosure choices.

## References

Here are the formatted references in APA style:.

- Ajinkya, B., Bhojraj, S., & Sengupta, P. (2005). The association between outside directors, institutional investors and the properties of management earnings forecasts. *Journal of Accounting Research*, 43 (3), 343-376.
- Armstrong, C. S., Core, J. E., & Guay, W. R. (2016). Why do CEOs hold so much equity? *Journal of Financial Economics*, 120 (3), 441-465.
- Armstrong, C. S., Guay, W. R., & Weber, J. P. (2010). The role of information and financial reporting in corporate governance and debt contracting. *Journal of Accounting and Economics*, 50 (2-3), 179-234.
- Bebchuk, L. A., & Fried, J. M. (2004). *Pay without performance: The unfulfilled promise of executive compensation*. Harvard University Press.
- Bens, D. A., Berger, P. G., & Monahan, S. J. (2011). Discretionary disclosure in financial reporting: An examination comparing internal firm data to externally reported segment data. *The Accounting Review*, 86 (2), 417-449.
- Berger, P. G., & Hann, R. N. (2007). Segment profitability and the proprietary and agency costs of disclosure. *The Accounting Review*, 82 (4), 869-906.
- Beyer, A., Cohen, D. A., Lys, T. Z., & Walther, B. R. (2010). The financial reporting environment: Review of the recent literature. *Journal of Accounting and Economics*, 50 (2-3), 296-343.
- Bushee, B. J. (1998). The influence of institutional investors on myopic R & D investment behavior. *The Accounting Review*, 73 (3), 305-333.
- Bushee, B. J., & Noe, C. F. (2000). Corporate disclosure practices, institutional investors, and stock return volatility. *Journal of Accounting Research*, 38, 171-202.
- Core, J. E., Guay, W., & Larcker, D. F. (2006). The power of the pen and executive compensation. *Journal of Financial Economics*, 88 (1), 1-25.
- Core, J. E., Hail, L., & Verdi, R. S. (2016). Mandatory disclosure quality, inside ownership, and cost of capital. *European Accounting Review*, 25 (1), 1-29.
- Dye, R. A. (1986). Proprietary and nonproprietary disclosures. *Journal of Business*, 59 (2), 331-366.
- Einhorn, E. (2007). Voluntary disclosure under uncertainty about the reporting objective. *Journal of Accounting and Economics*, 43 (2-3), 245-274.

- Hayes, R. M., & Lundholm, R. (1996). Segment reporting to the capital market in the presence of a competitor. *Journal of Accounting Research*, 34 (2), 261-279.
- Kim, I., & Skinner, D. J. (2012). Measuring securities litigation risk. *Journal of Accounting and Economics*, 53 (1-2), 290-310.
- Lang, M., & Lundholm, R. (1993). Cross-sectional determinants of analyst ratings of corporate disclosures. *Journal of Accounting Research*, 31 (2), 246-271.
- Lang, M., & Sul, E. (2014). Linking industry concentration to proprietary costs and disclosure: Challenges and opportunities. *Journal of Accounting and Economics*, 58 (2-3), 265-274.
- Leuz, C., & Wysocki, P. D. (2016). The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research. *Journal of Accounting Research*, 54 (2), 525-622.
- Li, Y., Lin, Y., & Zhang, L. (2018). Trade secrets law and corporate disclosure: Causal evidence on the proprietary cost hypothesis. *Journal of Accounting Research*, 56 (1), 265-308.
- McMullin, J. L., & Schonberger, B. (2020). Entropy-balanced accruals. *The Review of Accounting Studies*, 25 (1), 84-119.
- Murphy, K. J. (2013). Executive compensation: Where we are, and how we got there. In G. M. Constantinides, M. Harris, & R. M. Stulz (Eds.), *Handbook of the Economics of Finance* (pp. 211-356). Elsevier.
- Rogers, J. L., & Van Buskirk, A. (2009). Shareholder litigation and changes in disclosure behavior. *Journal of Accounting and Economics*, 47 (1-2), 136-156.
- Verrecchia, R. E. (1983). Discretionary disclosure. *Journal of Accounting and Economics*, 5, 179-194.
- Verrecchia, R. E. (2001). Essays on disclosure. *Journal of Accounting and Economics*, 32 (1-3), 97-180., .

**Table 1**

## Descriptive Statistics

| <b>Variables</b>             | <b>N</b> | <b>Mean</b> | <b>Std. Dev.</b> | <b>P25</b> | <b>Median</b> | <b>P75</b> |
|------------------------------|----------|-------------|------------------|------------|---------------|------------|
| FreqMF                       | 14,231   | 0.6176      | 0.9021           | 0.0000     | 0.0000        | 1.6094     |
| Treatment Effect             | 14,231   | 0.5950      | 0.4909           | 0.0000     | 1.0000        | 1.0000     |
| Institutional ownership      | 14,231   | 0.5931      | 0.3409           | 0.2872     | 0.6918        | 0.8840     |
| Firm size                    | 14,231   | 6.5590      | 2.1195           | 5.0229     | 6.5954        | 8.0455     |
| Book-to-market               | 14,231   | 0.5476      | 0.5701           | 0.2300     | 0.4391        | 0.7485     |
| ROA                          | 14,231   | -0.0501     | 0.2617           | -0.0340    | 0.0221        | 0.0632     |
| Stock return                 | 14,231   | 0.0057      | 0.4297           | -0.2229    | -0.0349       | 0.1584     |
| Earnings volatility          | 14,231   | 0.1503      | 0.3093           | 0.0229     | 0.0536        | 0.1389     |
| Loss                         | 14,231   | 0.3238      | 0.4679           | 0.0000     | 0.0000        | 1.0000     |
| Class action litigation risk | 14,231   | 0.2615      | 0.2435           | 0.0842     | 0.1739        | 0.3586     |

This table shows the descriptive statistics. All continuous variables are winsorized at the 1st and 99th percentiles.



**Table 2**  
**Pearson Correlations**  
**PayVersusPerformanceDisclosure Proprietary Costs**

|                              | Treatment Effect | FreqMF       | Institutional ownership | Firm size    | Book-to-market | ROA          | Stock return | Earnings volatility | Loss         | Class action litigation risk |
|------------------------------|------------------|--------------|-------------------------|--------------|----------------|--------------|--------------|---------------------|--------------|------------------------------|
| Treatment Effect             | 1.00             | <b>-0.03</b> | <b>0.07</b>             | <b>0.03</b>  | <b>-0.06</b>   | <b>-0.07</b> | <b>-0.07</b> | <b>0.05</b>         | <b>0.06</b>  | <b>-0.04</b>                 |
| FreqMF                       | <b>-0.03</b>     | 1.00         | <b>0.38</b>             | <b>0.44</b>  | <b>-0.16</b>   | <b>0.24</b>  | -0.01        | <b>-0.19</b>        | <b>-0.25</b> | <b>-0.05</b>                 |
| Institutional ownership      | <b>0.07</b>      | <b>0.38</b>  | 1.00                    | <b>0.62</b>  | <b>-0.19</b>   | <b>0.34</b>  | <b>-0.03</b> | <b>-0.26</b>        | <b>-0.29</b> | -0.02                        |
| Firm size                    | <b>0.03</b>      | <b>0.44</b>  | <b>0.62</b>             | 1.00         | <b>-0.32</b>   | <b>0.40</b>  | <b>0.06</b>  | <b>-0.28</b>        | <b>-0.41</b> | <b>0.08</b>                  |
| Book-to-market               | <b>-0.06</b>     | <b>-0.16</b> | <b>-0.19</b>            | <b>-0.32</b> | 1.00           | <b>0.09</b>  | <b>-0.14</b> | <b>-0.10</b>        | <b>0.02</b>  | <b>-0.05</b>                 |
| ROA                          | <b>-0.07</b>     | <b>0.24</b>  | <b>0.34</b>             | <b>0.40</b>  | <b>0.09</b>    | 1.00         | <b>0.17</b>  | <b>-0.59</b>        | <b>-0.61</b> | <b>-0.21</b>                 |
| Stock return                 | <b>-0.07</b>     | -0.01        | <b>-0.03</b>            | <b>0.06</b>  | <b>-0.14</b>   | <b>0.17</b>  | 1.00         | <b>-0.06</b>        | <b>-0.14</b> | <b>-0.06</b>                 |
| Earnings volatility          | <b>0.05</b>      | <b>-0.19</b> | <b>-0.26</b>            | <b>-0.28</b> | <b>-0.10</b>   | <b>-0.59</b> | <b>-0.06</b> | 1.00                | <b>0.39</b>  | <b>0.21</b>                  |
| Loss                         | <b>0.06</b>      | <b>-0.25</b> | <b>-0.29</b>            | <b>-0.41</b> | <b>0.02</b>    | <b>-0.61</b> | <b>-0.14</b> | <b>0.39</b>         | 1.00         | <b>0.25</b>                  |
| Class action litigation risk | <b>-0.04</b>     | <b>-0.05</b> | -0.02                   | <b>0.08</b>  | <b>-0.05</b>   | <b>-0.21</b> | <b>-0.06</b> | <b>0.21</b>         | <b>0.25</b>  | 1.00                         |

This table shows the Pearson correlations for the sample. Correlations that are significant at the 0.05 level or better are highlighted in bold.

**Table 3****The Impact of Pay Versus Performance Disclosure on Management Forecast Frequency**

|                              | (1)               | (2)               |
|------------------------------|-------------------|-------------------|
| Treatment Effect             | -0.0474*** (3.06) | -0.0897*** (6.51) |
| Institutional ownership      |                   | 0.4347*** (16.35) |
| Firm size                    |                   | 0.1237*** (25.80) |
| Book-to-market               |                   | -0.0842*** (8.09) |
| ROA                          |                   | 0.0847*** (3.41)  |
| Stock return                 |                   | -0.1133*** (8.51) |
| Earnings volatility          |                   | -0.0911*** (5.17) |
| Loss                         |                   | -0.0791*** (4.46) |
| Class action litigation risk |                   | -0.2209*** (8.52) |
| N                            | 14,231            | 14,231            |
| R <sup>2</sup>               | 0.0007            | 0.2251            |

Notes: t-statistics in parentheses. \*, \*\*, and \*\*\* represent significance at the 10%, 5%, and 1% level, respectively.