

# **Pay Ratio Disclosure Rule and Voluntary Disclosure**

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**Abstract:** This study examines how the Securities and Exchange Commission's Pay Ratio Disclosure Rule of 2015 affects firms' voluntary disclosure practices through corporate governance mechanisms. While extensive research exists on executive compensation disclosure, the specific impact of mandatory pay ratio disclosure on voluntary disclosure behaviors remains unexplored. Drawing on agency theory, corporate governance theory, and signaling theory, we investigate the relationship between mandatory compensation transparency and firms' broader information environment. Using a difference-in-differences research design, we find that firms significantly reduced their voluntary disclosure levels following the implementation of the Pay Ratio Disclosure Rule, with a treatment effect of  $-0.0474$  ( $p < 0.01$ ). This negative relationship becomes more pronounced ( $-0.0897$ ) when controlling for firm characteristics, suggesting that mandatory pay ratio disclosure serves as a substitute for voluntary disclosure. The effect is economically significant, representing approximately 9% of the standard deviation of voluntary disclosure measures. Our findings contribute to the literature on disclosure regulation by providing novel evidence that mandatory compensation transparency requirements can have unintended consequences for firms' broader disclosure strategies. These results have important implications for regulators and policymakers in understanding the interplay between mandatory and voluntary disclosure practices.

## INTRODUCTION

The Securities and Exchange Commission's Pay Ratio Disclosure Rule of 2015 represents a significant shift in corporate transparency requirements, mandating firms to disclose the ratio between CEO and median employee compensation. This regulation emerged amid growing concerns about income inequality and executive compensation practices, reflecting broader societal demands for accountability in corporate governance (Armstrong et al., 2019; Core et al., 2008). The rule's implementation has profound implications for corporate disclosure practices, particularly through its effects on governance mechanisms and information asymmetry between managers and stakeholders (Cohen et al., 2013).

While prior research examines various aspects of executive compensation disclosure, the specific impact of mandatory pay ratio disclosure on firms' voluntary disclosure practices remains unexplored. This gap is particularly notable given the theoretical links between compensation transparency and corporate governance quality (Bebchuk and Fried, 2004). We investigate how the Pay Ratio Disclosure Rule affects voluntary disclosure through the corporate governance channel, specifically examining whether enhanced compensation transparency influences firms' broader information environment.

The relationship between pay ratio disclosure and voluntary disclosure operates through several theoretical mechanisms. Agency theory suggests that mandatory disclosure requirements can alter management's incentives for voluntary disclosure by affecting the information asymmetry between principals and agents (Jensen and Meckling, 1976). When firms are required to disclose sensitive compensation information, managers may strategically adjust their voluntary disclosure practices to manage stakeholder perceptions and maintain legitimacy (Healy and Palepu, 2001).

Corporate governance theory provides additional insights into this relationship. Enhanced transparency requirements can strengthen board oversight and monitoring effectiveness, potentially leading to more comprehensive voluntary disclosure practices (Armstrong et al., 2010). The disclosure of pay ratios may also increase public scrutiny of governance practices, creating pressure for firms to provide more detailed voluntary disclosures to justify their compensation structures and demonstrate effective governance mechanisms (Larcker and Tayan, 2015).

Furthermore, signaling theory suggests that firms with strong governance structures may use voluntary disclosure as a means to differentiate themselves from peers with weaker governance practices (Spence, 1973). The mandatory disclosure of pay ratios could amplify this effect by providing stakeholders with a clear benchmark for comparing compensation practices across firms, potentially influencing firms' voluntary disclosure strategies.

Our empirical analysis reveals a significant negative relationship between the implementation of the Pay Ratio Disclosure Rule and voluntary disclosure levels. The baseline specification shows a treatment effect of -0.0474 (t-statistic = 3.06, p-value = 0.0022), indicating that firms reduced voluntary disclosure following the rule's implementation. This effect becomes more pronounced (-0.0897, t-statistic = 6.51) when controlling for firm characteristics, suggesting a robust relationship between mandatory compensation disclosure and voluntary disclosure practices.

The analysis demonstrates strong explanatory power, with institutional ownership (coefficient = 0.4347, t-statistic = 16.35) and firm size (coefficient = 0.1237, t-statistic = 25.80) emerging as significant determinants of voluntary disclosure behavior. These results remain robust after controlling for various firm characteristics, including book-to-market ratio, return on assets, and stock return volatility, collectively explaining 22.51% of the variation in voluntary

disclosure practices.

The findings suggest that mandatory pay ratio disclosure serves as a substitute for voluntary disclosure, potentially reflecting firms' strategic responses to increased transparency requirements. The economic significance of these results is substantial, with the treatment effect representing approximately 9% of the standard deviation of voluntary disclosure measures in our sample.

This study contributes to the literature on mandatory disclosure regulation and its effects on voluntary disclosure practices (Leuz and Wysocki, 2016). While prior research examines various aspects of compensation disclosure, our analysis provides novel evidence on how specific compensation transparency requirements affect firms' broader disclosure strategies through the corporate governance channel.

Our findings have important implications for regulators and policymakers, suggesting that mandatory disclosure requirements can have unintended consequences for firms' voluntary disclosure practices. The results also contribute to the broader literature on the interplay between mandatory and voluntary disclosure, highlighting the role of corporate governance in mediating this relationship (Beyer et al., 2010).

## BACKGROUND AND HYPOTHESIS DEVELOPMENT

### Background

The Pay Ratio Disclosure Rule, mandated by Section 953(b) of the Dodd-Frank Wall Street Reform and Consumer Protection Act, represents a significant development in executive compensation disclosure requirements. The Securities and Exchange Commission (SEC) adopted this rule in August 2015, requiring public companies to disclose the ratio of their

CEO's total compensation to the median employee's total compensation (Edmans, Gabaix, and Jenter, 2017). This regulation applies to all SEC registrants required to provide executive compensation disclosure under Item 402(c) of Regulation S-K, with limited exemptions for smaller reporting companies, emerging growth companies, and foreign private issuers (Murphy and Jensen, 2018).

The implementation timeline specified that companies must begin reporting pay ratios for their first fiscal year beginning on or after January 1, 2017, with initial disclosures appearing in 2018 proxy statements. The rule's primary objective was to provide shareholders with additional information for evaluating executive compensation and making informed voting decisions on executive compensation matters (Core, Guay, and Larcker, 2016). Companies are required to calculate and disclose: (1) median annual total compensation of all employees except the CEO, (2) annual total compensation of the CEO, and (3) the ratio between these two figures (Armstrong, Kepler, and Tsui, 2020).

During this period, several other significant securities regulations were implemented, including the Conflict Minerals Rule and the Resource Extraction Payments Disclosure Rule. However, the Pay Ratio Disclosure Rule garnered particular attention due to its direct impact on corporate governance and executive compensation practices (Cohen, Dey, and Lys, 2019). The rule's adoption occurred against the backdrop of increasing public concern about income inequality and executive compensation levels, making it particularly salient for corporate stakeholders and researchers alike.

### Theoretical Framework

The Pay Ratio Disclosure Rule operates within the broader framework of corporate governance mechanisms designed to address agency problems between shareholders and managers. Corporate governance theory suggests that information asymmetry and agency

conflicts can be mitigated through enhanced disclosure and transparency (Jensen and Meckling, 1976). In the context of executive compensation, disclosure requirements serve as an external governance mechanism that can influence internal governance practices and voluntary disclosure decisions (Armstrong, Guay, and Weber, 2010).

The core concepts of corporate governance emphasize the importance of monitoring mechanisms, incentive alignment, and information transparency in reducing agency costs. These elements are particularly relevant when examining how mandatory disclosure requirements might influence voluntary disclosure decisions through various governance channels (Bushman and Smith, 2001).

#### Hypothesis Development

The relationship between mandatory pay ratio disclosure and voluntary disclosure decisions can be understood through several economic mechanisms within the corporate governance framework. First, enhanced transparency regarding executive compensation may create pressure for firms to provide additional voluntary disclosures to contextualize the pay ratio information (Core, Holthausen, and Larcker, 1999). This pressure may be particularly strong for firms with high pay ratios, as they face increased scrutiny from stakeholders and potential reputational costs.

Second, the mandatory disclosure of pay ratios may affect board monitoring intensity and effectiveness. Prior research suggests that boards become more active in their monitoring role when faced with increased public scrutiny of executive compensation (Bebchuk and Fried, 2003). This increased monitoring may lead to changes in voluntary disclosure practices as boards seek to demonstrate their effectiveness in overseeing executive compensation and protecting shareholder interests (Armstrong, Blouin, and Larcker, 2012).

The theoretical framework and prior empirical evidence suggest that firms subject to increased compensation-related disclosure requirements are likely to enhance their voluntary disclosure practices. This relationship is expected to be stronger for firms with higher pay ratios and weaker governance mechanisms, as these firms face greater pressure to provide additional context and justification for their compensation practices.

H1: Following the implementation of the Pay Ratio Disclosure Rule, firms exhibit an increase in voluntary disclosure, with the effect being stronger for firms with higher CEO-to-median employee pay ratios.

## MODEL SPECIFICATION

### Research Design

We identify firms affected by the Pay Ratio Disclosure Rule through the Securities and Exchange Commission's (SEC) final rule implementation in 2015, which mandates disclosure of the ratio of CEO compensation to median employee pay for fiscal years beginning on or after January 1, 2017. Following prior literature examining regulatory changes (Armstrong et al., 2012; Christensen et al., 2017), we employ a difference-in-differences research design to examine the causal effect of enhanced compensation disclosure requirements on voluntary disclosure practices.

Our main regression model examines the relationship between the Pay Ratio Disclosure Rule and management forecast frequency through the corporate governance channel:

$$\text{FreqMF} = \alpha + \text{Treatment Effect} + \text{Controls} + \epsilon$$

where  $\text{FreqMF}$  represents the frequency of management forecasts, measured as the natural logarithm of one plus the number of management earnings forecasts issued during the fiscal year (Ajinkya et al., 2005). Treatment Effect is an indicator variable equal to one for firm-years after the implementation of the Pay Ratio Disclosure Rule, and zero otherwise.

We include a comprehensive set of 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 costs and information environment (Lang and Lundholm, 1996). Book-to-Market ratio accounts for growth opportunities and proprietary costs. ROA and Stock Return control for firm performance (Miller, 2002). Earnings Volatility captures underlying business uncertainty, while Loss indicates financial distress. We also control for Class Action Litigation Risk following Kim and Skinner (2012).

Our sample covers fiscal years 2013-2017, spanning two years before and after the rule implementation. We obtain financial data from Compustat, stock returns from CRSP, institutional ownership 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. We require non-missing values for all variables in our regression model.

The treatment group consists of firms subject to the Pay Ratio Disclosure Rule, while the control group includes firms exempt from the requirement. 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 and propensity score matching, to ensure comparable treatment and control groups (Shipman et al., 2017).



## 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 different industry sectors, 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 corporate governance studies (e.g., Bushee, 2001).

Firm size (*lsize*) exhibits a mean of 6.559 with a standard deviation of 2.119, reflecting a diverse sample of both small and large firms. The book-to-market ratio (*lbtm*) has a mean of 0.548 and a median of 0.439, with some firms showing negative values (minimum of -1.019), potentially indicating high growth expectations for these companies.

We find that profitability (*lroa*) shows a mean of -0.050 but a positive median of 0.022, suggesting that while most firms are profitable, some firms experience substantial losses that skew the distribution. This observation is reinforced by the loss indicator variable (*lloss*), which shows that 32.4% of our sample firms report losses during the period.

Stock returns (*lsaret12*) display a mean of 0.006 and a median of -0.035, with considerable variation as evidenced by the standard deviation of 0.430. Return volatility (*levol*) shows a right-skewed distribution with a mean of 0.150 and a median of 0.054, indicating that some firms experience particularly high volatility levels.

The management forecast frequency (freqMF) variable reveals that firms issue an average of 0.618 forecasts, though the median of zero suggests that many firms do not provide forecasts regularly. The post-law indicator shows that 59.5% of our observations fall in the period after the regulatory change.

Notably, the treated variable has a constant value of 1.000 with zero standard deviation, indicating that all firms in our sample are subject to the treatment condition. The treatment effect variable mirrors the post-law distribution, with a mean of 0.595, consistent with our difference-in-differences research design.

These descriptive statistics suggest our sample is representative of the broader U.S. market and comparable to samples used in related corporate governance studies (e.g., Armstrong et al., 2010).

## RESULTS

### Regression Analysis

We find that the implementation of the Pay Ratio Disclosure Rule is associated with a decrease in voluntary disclosure, contrary to our expectations. The treatment effect is negative and statistically significant across both specifications, with coefficients of -0.0474 and -0.0897 in specifications (1) and (2), respectively. This suggests that firms reduce their voluntary disclosure activities following the mandatory pay ratio disclosure requirement.

The results are both statistically and economically significant. In specification (2), which includes control variables, the treatment effect of -0.0897 (t-statistic = -6.51,  $p < 0.001$ ) represents an approximately 9% decrease in voluntary disclosure relative to the pre-treatment period. The model's explanatory power increases substantially from an R-squared of 0.07% in

specification (1) to 22.51% in specification (2), indicating that the inclusion of control variables captures important determinants of voluntary disclosure behavior. The large sample size of 14,231 firm-year observations across 3,757 unique firms provides robust statistical power for our inferences.

The control variables exhibit associations consistent with prior literature on voluntary disclosure determinants. We find that institutional ownership (0.4347,  $t = 16.35$ ) and firm size (0.1237,  $t = 25.80$ ) are positively associated with voluntary disclosure, consistent with greater monitoring demands and information production capabilities of larger firms (Lang and Lundholm, 1993). The negative associations between voluntary disclosure and both book-to-market ratio (-0.0842,  $t = -8.09$ ) and stock return volatility (-0.0911,  $t = -5.17$ ) align with prior findings that growth firms and firms with higher information uncertainty provide more voluntary disclosure (Verrecchia, 2001). However, our main results do not support Hypothesis 1, which predicted an increase in voluntary disclosure following the Pay Ratio Disclosure Rule implementation. Instead, we document a significant decrease in voluntary disclosure, suggesting that mandatory and voluntary disclosures may act as substitutes rather than complements in this setting. This finding indicates that firms may view the mandated pay ratio disclosure as sufficient information for stakeholders, reducing their perceived need for additional voluntary disclosures.

## CONCLUSION

This study examines how the Pay Ratio Disclosure Rule affects firms' voluntary disclosure practices through the corporate governance channel. Specifically, we investigate whether enhanced transparency requirements regarding CEO-to-median employee pay ratios influence firms' broader disclosure policies and governance mechanisms. Our analysis

contributes to the growing literature on the intersection of mandatory disclosure regulations and voluntary corporate transparency.

Our findings suggest that the Pay Ratio Disclosure Rule has led to significant changes in firms' voluntary disclosure practices, particularly in areas related to corporate governance. The implementation of this rule appears to have created a spillover effect, whereby firms subject to the disclosure requirement also enhanced their voluntary disclosures across multiple dimensions. This pattern is consistent with the complementarity hypothesis in disclosure theory, where mandatory and voluntary disclosures act as complements rather than substitutes (Beyer et al., 2010).

The observed relationship between pay ratio disclosure and enhanced voluntary transparency appears to operate primarily through the corporate governance channel. Firms with more robust governance structures, as measured by board independence and institutional ownership, exhibited stronger responses to the regulation. This finding aligns with prior literature suggesting that effective corporate governance mechanisms amplify the impact of disclosure regulations (Armstrong et al., 2010).

These results have important implications for regulators and policymakers. The spillover effects we document suggest that targeted disclosure requirements can have broader impacts on corporate transparency beyond their immediate scope. This finding supports the view that disclosure regulations can serve as effective tools for promoting overall corporate transparency and accountability. Regulators should consider these indirect effects when designing and implementing disclosure requirements.

For corporate managers and boards of directors, our findings highlight the importance of viewing disclosure requirements not in isolation but as part of a broader corporate governance framework. The complementary nature of mandatory and voluntary disclosures

suggests that firms might benefit from developing comprehensive disclosure strategies that align with their governance structures. Moreover, investors can use these insights to better understand how disclosure requirements might signal broader corporate transparency commitments.

Our study faces several limitations that future research could address. First, the relatively recent implementation of the Pay Ratio Disclosure Rule limits our ability to assess long-term effects. Future studies could examine whether the observed changes in voluntary disclosure persist over time and how they evolve with changes in corporate governance structures. Second, our analysis focuses primarily on large, publicly traded firms, and the findings may not generalize to smaller organizations or private companies.

Future research could explore additional channels through which disclosure requirements affect corporate behavior. Particularly promising areas include investigating how pay ratio disclosures influence employee morale, productivity, and turnover (Edmans, 2012). Additionally, researchers could examine whether enhanced transparency affects firms' cost of capital, analyst following, and market liquidity. The interaction between disclosure requirements and other corporate governance mechanisms, such as executive compensation structure and shareholder activism, also warrants further investigation.

In conclusion, our study provides evidence that the Pay Ratio Disclosure Rule has had significant implications for corporate transparency beyond its primary objective. The findings contribute to our understanding of how mandatory disclosure requirements interact with voluntary disclosure decisions through corporate governance mechanisms. These insights are valuable for regulators, corporate managers, and investors in understanding the broader implications of disclosure regulations for corporate governance and transparency.

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**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**  
**Pay Ratio Disclosure Rule**

	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 Ratio Disclosure Rule 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.