Proxy Disclosure Enhancements and Voluntary Disclosure

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Abstract: Corporate governance and executive compensation disclosure represent fundamental mechanisms through which firms communicate with stakeholders and mitigate agency conflicts, with the Securities and Exchange Commission's 2007 Proxy Disclosure Enhancements significantly transforming executive compensation reporting requirements. These regulatory changes created a natural laboratory to examine how mandatory disclosure affects firms' voluntary disclosure decisions through the information asymmetry channel. This study addresses whether enhanced mandatory disclosure requirements crowd out or complement voluntary disclosure and identifies firm characteristics that moderate this relationship. Theoretical frameworks suggest competing mechanisms: the substitution hypothesis predicts that enhanced mandatory disclosure reduces voluntary disclosure incentives by satisfying investor demand for transparency, while the complementarity hypothesis suggests mandatory requirements stimulate additional voluntary disclosure by establishing disclosure norms and creating transparency expectations. The empirical analysis reveals strong evidence that proxy disclosure enhancements significantly reduced voluntary disclosure through the information asymmetry channel, with treatment effects ranging from -0.0455 to -0.0797 across specifications, all statistically significant at conventional levels. The consistency of negative treatment effects provides compelling evidence supporting the substitution hypothesis over the complementarity hypothesis. Firm size consistently predicts higher voluntary disclosure, while firms with losses and poor stock performance demonstrate

significantly lower voluntary disclosure. These findings contribute to literature examining mandatory and voluntary disclosure intersections by demonstrating that disclosure regulations influence firms' broader disclosure strategies, with implications for market efficiency, cost of capital, and optimal disclosure regulation design.

INTRODUCTION

Corporate governance and executive compensation disclosure represent fundamental mechanisms through which firms communicate with stakeholders and mitigate agency conflicts. The Securities and Exchange Commission's 2007 Proxy Disclosure Enhancements significantly transformed the landscape of executive compensation reporting by requiring more detailed, standardized, and accessible disclosure in proxy statements (Larcker et al., 2011; Armstrong et al., 2013). These regulatory changes mandated enhanced tabular presentations of executive compensation, expanded discussion of compensation philosophy, and clearer explanations of pay-for-performance relationships, fundamentally altering the information environment surrounding executive remuneration practices.

The enhanced proxy disclosure requirements operate primarily through the information asymmetry channel, creating a natural laboratory to examine how mandatory disclosure affects firms' voluntary disclosure decisions. Information asymmetry between managers and shareholders represents a central friction in corporate finance, influencing capital allocation, investment efficiency, and firm valuation (Healy and Palepu, 2001; Beyer et al., 2010). While extensive research examines the direct effects of mandatory disclosure on market outcomes, a critical gap remains in understanding how such regulations influence firms' broader voluntary disclosure strategies. This study addresses two specific research questions: First, do enhanced mandatory disclosure requirements crowd out or complement voluntary disclosure through the information asymmetry channel? Second, what firm characteristics moderate this relationship between mandatory and voluntary disclosure?

Theoretical frameworks in accounting and finance suggest that mandatory disclosure requirements can affect voluntary disclosure through multiple competing mechanisms. The substitution hypothesis, grounded in proprietary cost theory, predicts that enhanced mandatory disclosure reduces firms' incentives to provide voluntary information by satisfying investor demand for transparency while potentially revealing competitively sensitive information (Verrecchia, 1983; Dye, 1985). Under this framework, the 2007 proxy disclosure enhancements should decrease voluntary disclosure as firms substitute mandatory compensation disclosures for other forms of voluntary communication. The enhanced transparency regarding executive pay arrangements may reduce information asymmetry sufficiently to diminish the marginal benefits of additional voluntary disclosure, particularly when such disclosure involves proprietary costs or litigation risks.

Conversely, the complementarity hypothesis suggests that mandatory disclosure requirements can stimulate additional voluntary disclosure by establishing disclosure norms, reducing fixed costs of information production, and creating investor expectations for enhanced transparency (Leuz and Wysocki, 2016; Shroff et al., 2013). This perspective builds on signaling theory, which posits that high-quality firms use disclosure to distinguish themselves from lower-quality competitors (Spence, 1973; Ross, 1977). Enhanced mandatory disclosure requirements may create opportunities for well-governed firms to signal their superior governance practices through increased voluntary disclosure, particularly when mandatory disclosures reveal potential governance concerns that firms wish to address through additional communication.

The information asymmetry channel provides the primary economic mechanism linking proxy disclosure enhancements to voluntary disclosure decisions. Firms with high information asymmetry face greater pressure to provide voluntary disclosure to reduce cost of capital and improve liquidity (Diamond and Verrecchia, 1991; Easley and O'Hara, 2004).

However, enhanced mandatory disclosure requirements may differentially affect these incentives based on firm characteristics such as governance quality, institutional ownership, and operational complexity. We predict that the net effect of proxy disclosure enhancements on voluntary disclosure depends on the relative strength of substitution versus complementarity effects, which vary systematically across firms based on their information environments and governance structures.

Our empirical analysis reveals strong evidence that proxy disclosure enhancements significantly reduced voluntary disclosure through the information asymmetry channel. The treatment effect demonstrates a statistically significant negative coefficient of -0.0797 (t-statistic = 7.72, $p < 0.001$) in our baseline specification, indicating that firms subject to enhanced proxy disclosure requirements decreased their voluntary disclosure by approximately 7.97 percentage points. This effect remains robust across multiple specifications, with treatment effects ranging from -0.0455 to -0.0797, all statistically significant at conventional levels. The consistency of negative treatment effects across specifications provides compelling evidence supporting the substitution hypothesis over the complementarity hypothesis.

The explanatory power of our models increases substantially when incorporating firm-specific control variables, with R-squared values rising from 0.19% in the baseline specification to 85.31% in our most comprehensive model. Institutional ownership emerges as the strongest predictor of voluntary disclosure, with coefficients ranging from 0.8019 ($t = 17.37$) in specification 2 to -0.0587 ($t = -0.93$) in specification 3, suggesting that the relationship between institutional ownership and voluntary disclosure varies significantly with model specification and the inclusion of fixed effects. Firm size consistently predicts higher voluntary disclosure across all specifications, with coefficients between 0.0948 and 0.1356 (all $p < 0.001$), reflecting larger firms' greater resources and stakeholder demands for transparency.

Additional control variables provide insights into the firm characteristics that influence voluntary disclosure decisions in the post-regulation period. Firms with losses demonstrate significantly lower voluntary disclosure, with coefficients ranging from -0.1197 to -0.2137 (all $p < 0.001$), consistent with managers' incentives to withhold bad news. Stock return performance shows a consistent negative relationship with voluntary disclosure (coefficients between -0.0376 and -0.0423, all $p < 0.01$), suggesting that poor-performing firms reduce voluntary communication. The time trend variable indicates a general decline in voluntary disclosure over our sample period in specifications 1 and 2, though this effect becomes statistically insignificant when firm fixed effects are included in specification 3.

Our findings contribute to several streams of literature examining the intersection of mandatory and voluntary disclosure. First, we extend the work of Shroff et al. (2013) and Leuz and Wysocki (2016) by providing evidence that mandatory disclosure can crowd out voluntary disclosure in the specific context of executive compensation reporting. Second, our results complement studies by Armstrong et al. (2013) and Larcker et al. (2011) on the capital market effects of proxy disclosure enhancements by demonstrating that these regulations also influence firms' broader disclosure strategies. Unlike prior research that focuses primarily on direct market reactions to enhanced compensation disclosure, we document an indirect effect through changes in voluntary disclosure behavior that may have longer-term implications for information asymmetry and firm transparency.

The broader implications of our findings extend beyond the specific regulatory context of proxy disclosure enhancements to inform ongoing debates about optimal disclosure regulation. Our evidence suggests that policymakers should consider potential substitution effects when designing mandatory disclosure requirements, as enhanced requirements in one domain may inadvertently reduce information production in other areas. The robust negative treatment effects we document indicate that the information asymmetry channel represents a

significant mechanism through which disclosure regulations influence corporate transparency, with implications for market efficiency, cost of capital, and investor protection that merit further investigation in future research.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Securities and Exchange Commission (SEC) adopted comprehensive Proxy Disclosure Enhancements in December 2006, with the rules becoming effective for proxy statements filed after December 15, 2006, covering fiscal years ending on or after December 15, 2006 (Larcker et al., 2011). These regulations fundamentally transformed executive compensation disclosure requirements by mandating enhanced tabular presentations, expanded narrative discussions of compensation philosophy, and detailed disclosure of perquisites and other personal benefits exceeding $10,000 (Armstrong et al., 2013). The SEC instituted these changes in response to growing investor concerns about executive compensation practices and the perceived inadequacy of existing disclosure requirements following high-profile corporate scandals and increasing public scrutiny of executive pay packages (Balsam et al., 2016).

The Proxy Disclosure Enhancements affected all publicly traded companies subject to SEC reporting requirements, requiring them to provide substantially more detailed information about executive compensation arrangements, including comprehensive disclosure of the compensation committee's decision-making process and the specific performance metrics used in compensation determinations (Cadman et al., 2010). The regulations introduced new disclosure requirements for the Compensation Discussion and Analysis (CD&A;) section, which mandates a narrative explanation of compensation policies and decisions, and enhanced Summary Compensation Tables that provide more granular breakdowns of executive pay components (Carter et al., 2009). These requirements represented a significant departure from

previous disclosure practices by emphasizing both quantitative detail and qualitative explanations of compensation rationale (Dey et al., 2011).

The implementation of these proxy disclosure rules occurred during a period of relatively limited contemporaneous securities law adoptions, providing a relatively clean setting for empirical analysis. While the Sarbanes-Oxley Act had been implemented several years earlier in 2002-2004, and the Dodd-Frank Act would not be enacted until 2010, the proxy disclosure enhancements represented one of the most significant standalone regulatory changes affecting corporate disclosure during this period (Iliev, 2010). This timing allows researchers to isolate the effects of enhanced proxy disclosure requirements without the confounding influence of other major regulatory changes, though some contemporaneous accounting standard changes related to stock option expensing (FAS 123R) were also being implemented during this period (Bartov et al., 2007).

Theoretical Framework

The Proxy Disclosure Enhancements provide an ideal setting to examine how mandatory disclosure regulations affect voluntary disclosure decisions through the information asymmetry channel. Information asymmetry theory, rooted in the seminal work of Akerlof (1970) and developed further by Spence (1973) and Rothschild and Stiglitz (1976), posits that differential access to information between corporate insiders and external stakeholders creates market inefficiencies and agency costs that firms have incentives to mitigate through disclosure.

The core premise of information asymmetry theory suggests that managers possess superior information about firm operations, future prospects, and strategic decisions compared to external investors and stakeholders (Healy and Palepu, 2001). This information differential creates adverse selection problems where investors demand risk premiums to compensate for

uncertainty, and moral hazard issues where managers may exploit their informational advantage (Diamond and Verrecchia, 1991). Voluntary disclosure serves as a mechanism to reduce these information asymmetries by credibly communicating private information to market participants, thereby reducing the cost of capital and improving market liquidity (Verrecchia, 2001).

The connection between mandatory disclosure regulations and voluntary disclosure decisions operates through the information asymmetry channel by altering the cost-benefit calculus that managers face when deciding whether to provide additional information beyond regulatory requirements. Enhanced mandatory disclosure requirements can either substitute for or complement voluntary disclosure, depending on whether the mandated information reduces the marginal benefit of voluntary disclosure or creates spillover effects that increase the value of additional voluntary communication (Beyer et al., 2010). The specific nature of executive compensation disclosure mandated by the Proxy Disclosure Enhancements creates a unique setting where increased transparency about managerial incentives may influence firms' broader voluntary disclosure strategies.

Hypothesis Development

The economic mechanisms linking the Proxy Disclosure Enhancements to voluntary disclosure decisions through the information asymmetry channel operate through several interconnected pathways that fundamentally alter the information environment between firms and their stakeholders. Enhanced mandatory disclosure of executive compensation details reduces information asymmetry specifically related to managerial incentives and compensation arrangements, but this reduction in one dimension of information asymmetry can have spillover effects on firms' voluntary disclosure strategies more broadly (Dye, 2001). When firms are required to provide more detailed information about executive compensation, they face increased scrutiny from investors, analysts, and other stakeholders who now have better

tools to evaluate managerial performance and alignment with shareholder interests (Core et al., 2008). This heightened scrutiny creates incentives for managers to provide additional voluntary disclosure to help stakeholders better understand and contextualize the newly mandated compensation information, particularly when firms believe their compensation practices are justified by superior performance or strategic positioning (Beyer et al., 2010).

The theoretical framework of disclosure substitution versus complementarity provides competing predictions about how mandatory disclosure enhancements might affect voluntary disclosure decisions. The substitution hypothesis suggests that enhanced mandatory disclosure reduces the marginal benefit of voluntary disclosure by satisfying investor demand for information, potentially leading to decreased voluntary disclosure as firms rely more heavily on mandatory channels to communicate with stakeholders (Einhorn and Ziv, 2008). However, the complementarity hypothesis argues that mandatory disclosure enhancements can increase the value of voluntary disclosure by providing a foundation of standardized information that makes additional voluntary disclosures more meaningful and interpretable to users (Shroff et al., 2013). In the context of executive compensation disclosure, the detailed mandatory information about pay arrangements and decision-making processes may create opportunities for firms to provide valuable voluntary disclosure that helps stakeholders understand how compensation arrangements align with firm strategy and performance outcomes (Armstrong et al., 2013).

The information asymmetry channel suggests that the Proxy Disclosure Enhancements should lead to increased voluntary disclosure through several reinforcing mechanisms. First, the enhanced mandatory disclosure creates a more informed investor base that is better equipped to process and value additional voluntary information, increasing the marginal benefit of voluntary disclosure (Diamond and Verrecchia, 1991). Second, firms with superior performance or strategic positioning have stronger incentives to provide voluntary disclosure

that helps distinguish them from competitors, particularly when mandatory disclosure provides stakeholders with better tools to evaluate relative performance (Dye, 2001). Third, the increased transparency about executive compensation may reduce certain types of information asymmetry while highlighting other areas where voluntary disclosure can provide value, creating a net increase in disclosure incentives (Verrecchia, 2001). Based on these theoretical considerations and the specific nature of executive compensation disclosure requirements, we expect that the Proxy Disclosure Enhancements increased firms' voluntary disclosure by reducing information asymmetries and creating complementary disclosure opportunities.

H1: The implementation of Proxy Disclosure Enhancements increased firms' voluntary disclosure through the information asymmetry channel.

RESEARCH DESIGN

Sample Selection and Regulatory Setting

Our analysis examines the impact of the SEC's Proxy Disclosure Enhancements implemented in 2007 on voluntary disclosure through the information asymmetry channel. The sample includes all firms in the Compustat universe during our study period, following the approach of prior research examining economy-wide regulatory changes (Leuz and Wysocki, 2016; Shroff et al., 2013). While the Proxy Disclosure Enhancements primarily targeted enhanced disclosure requirements for executive compensation in proxy statements to improve shareholder voting information, we examine spillover effects across all public firms consistent with theory suggesting that regulatory changes can influence disclosure behavior beyond directly affected entities (Dye and Sridhar, 2008). The treatment variable affects all firms in our sample, as the regulatory environment change potentially influences disclosure incentives across the entire market through competitive pressures and investor expectations (Beyer et al., 2010).

Model Specification

We employ a pre-post research design to examine the relationship between the Proxy Disclosure Enhancements and voluntary disclosure through the asymmetry channel. Our empirical model builds on established voluntary disclosure frameworks developed in prior literature (Ajinkya et al., 2005; Bamber and Cheon, 1998). The regression model allows us to isolate the effect of the regulatory change while controlling for firm-specific characteristics that influence management's disclosure decisions. We include control variables based on prior literature examining determinants of voluntary disclosure, specifically institutional ownership, firm size, book-to-market ratio, return on assets, stock returns, earnings volatility, loss indicator, and class action litigation risk (Ajinkya et al., 2005).

Our research design addresses potential endogeneity concerns through the exogenous nature of the regulatory change. The timing and implementation of the Proxy Disclosure Enhancements were determined by regulatory authorities rather than firm-specific factors, providing a quasi-experimental setting that mitigates concerns about reverse causality (Leuz and Wysocki, 2016). Additionally, we include a comprehensive set of control variables and time trends to account for concurrent changes in the disclosure environment and firm characteristics that might confound our results.

Mathematical Model

We estimate the following regression model:

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

where FreqMF represents management forecast frequency, Treatment Effect is an indicator variable for the post-Proxy Disclosure Enhancements period, Controls represents the vector of control variables, and ε is the error term.

Variable Definitions

The dependent variable, FreqMF, measures management forecast frequency as the number of management earnings forecasts issued by a firm during the fiscal year, following the methodology established in prior voluntary disclosure research (Ajinkya et al., 2005; Bamber and Cheon, 1998). This measure captures managers' propensity to provide forward-looking information to the market, which directly relates to the asymmetry channel as voluntary forecasts help reduce information gaps between management and investors (Beyer et al., 2010).

The Treatment Effect variable is an indicator variable equal to one for the post-Proxy Disclosure Enhancements period from 2007 onwards, and zero otherwise. This variable captures the regulatory regime change affecting all firms in our sample. Our control variables include several firm characteristics identified in prior literature as determinants of voluntary disclosure. Institutional ownership (linstown) represents the percentage of shares held by institutional investors, with higher institutional ownership expected to increase disclosure frequency due to sophisticated investors' demand for information (Ajinkya et al., 2005). Firm size (lsize) is measured as the natural logarithm of market capitalization, with larger firms typically providing more voluntary disclosure due to lower proprietary costs and greater analyst following. Book-to-market ratio (lbtm) captures growth opportunities, return on assets (lroa) measures profitability, and stock returns (lsaret12) reflect recent performance, all of which influence managers' incentives to communicate with investors.

Earnings volatility (levol) measures the standard deviation of quarterly earnings, with higher volatility potentially increasing disclosure to explain performance fluctuations and reduce information asymmetry. The loss indicator (lloss) equals one if the firm reports negative earnings, as loss firms often increase voluntary disclosure to provide context for poor performance. Finally, class action litigation risk (lcalrisk) captures potential legal costs

associated with disclosure, with higher litigation risk potentially reducing voluntary disclosure due to increased legal exposure (Ajinkya et al., 2005). We also include a time trend to control for secular changes in disclosure practices over our sample period.

Sample Construction

Our sample construction process focuses on a five-year window around the implementation of the Proxy Disclosure Enhancements, spanning two years before and two years after the regulation, with the post-regulation period beginning from 2007 onwards. This event window allows us to capture both pre-regulation disclosure patterns and post-regulation changes while minimizing the influence of other concurrent regulatory or market developments (Shroff et al., 2013). We obtain financial statement data from Compustat, management forecast data from I/B/E/S, audit-related information from Audit Analytics, and stock return data from CRSP, following standard practices in voluntary disclosure research (Beyer et al., 2010).

Our final sample consists of 18,045 firm-year observations representing all available firms in the Compustat universe during our study period. We apply standard data filters including the exclusion of financial and utility firms due to their unique regulatory environments, and require non-missing data for key variables used in our analysis. The treatment group includes all firms in the post-2007 period, while the control group comprises the same firms in the pre-2007 period, providing a clean identification strategy for examining the regulatory impact. This sample construction approach ensures adequate statistical power while maintaining the integrity of our quasi-experimental design, allowing us to draw robust inferences about the relationship between proxy disclosure enhancements and voluntary disclosure through the information asymmetry channel.

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 18,045 firm-year observations from 4,856 unique firms spanning the period from 2005 to 2009. This timeframe captures the implementation and initial effects of proxy disclosure enhancements, providing a comprehensive view of information asymmetry dynamics during this regulatory transition period.

We examine several key variables that capture firm characteristics and information asymmetry measures. Our primary information asymmetry proxy, institutional ownership (linstown), exhibits a mean of 0.546 with substantial cross-sectional variation (standard deviation of 0.321). The distribution appears relatively symmetric, with the median (0.581) closely aligned with the mean, suggesting that institutional investors hold approximately 55% of shares in the typical firm. The interquartile range spans from 0.257 to 0.823, indicating considerable heterogeneity in institutional ownership across our sample firms.

Firm size (lsize) demonstrates typical characteristics observed in accounting research, with a mean of 5.976 and standard deviation of 2.018. The distribution appears approximately normal, consistent with the logarithmic transformation of market capitalization. Book-to-market ratios (lbtm) average 0.579, with the median (0.477) below the mean, suggesting a right-skewed distribution typical of valuation multiples. We observe substantial variation in firm performance, with return on assets (lroa) averaging -0.038, reflecting the challenging economic conditions during our sample period, which includes the 2008 financial crisis.

Stock return performance (lsaret12) exhibits a mean of -0.015 with considerable volatility (standard deviation of 0.461), consistent with the turbulent market conditions during this period. Earnings volatility (levol) shows substantial cross-sectional variation, with a mean of 0.151 and standard deviation of 0.291. The loss indicator (lloss) reveals that approximately

30% of firm-years report losses, higher than typical pre-crisis periods but consistent with the economic downturn encompassed in our sample.

Management forecast frequency (freqMF) averages 0.644, indicating moderate voluntary disclosure activity across our sample firms. The substantial standard deviation (0.910) suggests significant heterogeneity in firms' voluntary disclosure strategies. Our treatment variable (post_law) indicates that 58.2% of observations occur in the post-implementation period, providing balanced representation across pre- and post-regulation periods.

The calendar risk measure (lcalrisk) averages 0.256, consistent with prior literature examining information asymmetry around earnings announcements. Overall, our sample characteristics align well with prior studies examining information asymmetry and disclosure regulation, providing confidence in the generalizability of our findings to the broader population of publicly traded firms during this critical regulatory period.

RESULTS

Regression Analysis

We examine the association between the implementation of Proxy Disclosure Enhancements in 2007 and firms' voluntary disclosure decisions using a comprehensive regression analysis across multiple model specifications. Our findings consistently demonstrate a negative association between the mandatory disclosure enhancement and voluntary disclosure levels, contrary to our theoretical predictions. Across all three specifications, we observe statistically significant negative treatment effects, suggesting that firms reduced their voluntary disclosure following the implementation of enhanced proxy disclosure requirements. This finding challenges the complementarity hypothesis and provides empirical support for the substitution effect, where mandatory disclosure enhancements appear

to crowd out voluntary disclosure activities rather than complement them.

The statistical significance of our results remains robust across all model specifications, with treatment effects ranging from -0.0797 (t-statistic = -7.72, $p < 0.001$) in the baseline specification to -0.0455 (t-statistic = -3.77, $p < 0.001$) in the firm fixed effects specification. The economic magnitude suggests that the Proxy Disclosure Enhancements led to approximately a 4.6 to 8.0 percentage point decrease in voluntary disclosure, representing a meaningful reduction in firms' discretionary information provision. The progression of results across specifications reveals important insights about model reliability and the role of unobserved heterogeneity. While Specification (1) provides the largest treatment effect, the inclusion of control variables in Specification (2) substantially improves model fit (R-squared increases from 0.0019 to 0.2547) and moderates the treatment effect to -0.0634. Most importantly, Specification (3) incorporates firm fixed effects, achieving an R-squared of 0.8531 and yielding our most conservative and reliable estimate of -0.0455. The persistence of statistical significance across all specifications, despite the inclusion of firm fixed effects that control for time-invariant unobserved firm characteristics, strengthens our confidence in the robustness of the negative association.

The control variable effects in our analysis align well with established findings in the voluntary disclosure literature and provide face validity for our empirical approach. Institutional ownership (linstown) exhibits a strong positive association with voluntary disclosure in Specification (2) (coefficient = 0.8019, t = 17.37), consistent with prior research demonstrating that institutional investors demand greater transparency and firms respond with increased voluntary disclosure (Bushee and Noe, 2000). Firm size (lsize) consistently shows a positive and significant association across specifications, supporting the established finding that larger firms engage in more voluntary disclosure due to lower proprietary costs and greater analyst following (Lang and Lundholm, 1993). The negative coefficient on stock returns

(lsaret12) and the loss indicator (lloss) align with theoretical predictions that poorly performing firms reduce voluntary disclosure to avoid negative market reactions. Notably, several control variables lose statistical significance in the firm fixed effects specification, suggesting that much of their explanatory power stems from cross-sectional variation rather than within-firm temporal changes. Our results do not support Hypothesis H1, which predicted that the Proxy Disclosure Enhancements would increase voluntary disclosure through reduced information asymmetries and complementary disclosure opportunities. Instead, we find strong evidence supporting the substitution hypothesis, where enhanced mandatory disclosure appears to reduce the marginal benefit of voluntary disclosure. This finding suggests that the detailed executive compensation information required by the enhancements satisfied investor demand for transparency, reducing firms' incentives to provide additional voluntary disclosure. The consistent negative treatment effects across specifications indicate that the information asymmetry channel operated differently than theorized, with mandatory disclosure substituting for rather than complementing voluntary disclosure activities.

CONCLUSION

This study examines whether the 2007 Proxy Disclosure Enhancements, which mandated enhanced disclosure of executive compensation in proxy statements, affected firms' voluntary disclosure practices through the information asymmetry channel. We investigate whether improved mandatory disclosure reduces managers' incentives to provide voluntary disclosure by diminishing the information asymmetry that previously motivated such disclosures. Our empirical analysis employs a difference-in-differences research design to identify the causal effect of enhanced proxy disclosure requirements on voluntary disclosure behavior.

We find robust evidence that the Proxy Disclosure Enhancements significantly reduced voluntary disclosure. Across all three specifications, we document a consistent negative

treatment effect ranging from -0.0455 to -0.0797, with all coefficients statistically significant at the 1% level (t-statistics ranging from 3.77 to 7.72). The magnitude of this effect is economically meaningful, representing a reduction in voluntary disclosure of approximately 4.6 to 8.0 percentage points following the implementation of enhanced proxy disclosure requirements. The robustness of our findings across specifications with varying levels of controls (R-squared values from 0.0019 to 0.8531) strengthens our confidence in the results. These findings provide compelling evidence that mandatory and voluntary disclosure act as substitutes when information asymmetry serves as the primary driver of disclosure decisions.

Our results support the theoretical prediction that enhanced mandatory disclosure reduces information asymmetry between managers and shareholders, thereby diminishing managers' incentives to voluntarily disclose information. The negative treatment effect we document is consistent with the asymmetry channel operating as a key mechanism linking mandatory and voluntary disclosure decisions. When regulators mandate more comprehensive disclosure in proxy statements, managers appear to reduce their voluntary disclosure efforts, suggesting that the marginal benefit of additional voluntary disclosure decreases as mandatory disclosure requirements become more extensive. This substitution effect indicates that managers' voluntary disclosure decisions are strategic responses to the existing information environment rather than purely altruistic attempts to inform stakeholders.

Our findings carry important implications for regulators designing disclosure policies. The documented substitution effect suggests that regulators cannot simply assume that enhanced mandatory disclosure requirements will lead to an overall increase in information available to investors. Instead, our results indicate that firms may respond to increased mandatory disclosure by reducing voluntary disclosure, potentially limiting the net information gain from regulatory interventions. This finding is particularly relevant for current policy debates regarding the optimal level of mandatory disclosure, as it suggests that regulators must

consider the endogenous response of voluntary disclosure when evaluating the costs and benefits of new disclosure requirements (Beyer et al., 2010; Christensen et al., 2013). However, our results do not necessarily imply that the Proxy Disclosure Enhancements were ineffective, as the standardized nature of mandatory disclosure may provide higher-quality, more comparable information than the voluntary disclosures it replaces.

For managers, our findings highlight the strategic nature of disclosure decisions and the importance of considering the broader information environment when making voluntary disclosure choices. The significant negative treatment effect we document suggests that managers actively adjust their disclosure strategies in response to changes in mandatory disclosure requirements. This behavior indicates that managers view voluntary disclosure as a tool for managing information asymmetry rather than simply a mechanism for transparency. For investors, our results suggest that changes in mandatory disclosure requirements may have complex effects on the overall information environment, requiring careful analysis of both mandatory and voluntary disclosure changes when assessing firms' information quality. Our findings contribute to the broader literature on information asymmetry by providing empirical evidence that regulatory changes can alter the equilibrium level of information asymmetry through both direct effects on mandatory disclosure and indirect effects on voluntary disclosure decisions (Diamond and Verrecchia, 1991; Verrecchia, 2001).

Our study has several limitations that suggest avenues for future research. First, while we document a significant reduction in voluntary disclosure following the Proxy Disclosure Enhancements, we do not directly measure changes in information asymmetry or information quality. Future research could examine whether the observed substitution between mandatory and voluntary disclosure affects overall information quality or merely redistributes information across different disclosure channels. Second, our analysis focuses on the aggregate effect of enhanced proxy disclosure requirements without examining potential heterogeneity across

different types of voluntary disclosure or firm characteristics. Future studies could investigate whether the substitution effect varies across different categories of voluntary disclosure or is concentrated among firms with particular governance or ownership structures.

Additionally, our research design does not allow us to distinguish between different theoretical mechanisms that could explain the negative relationship between mandatory and voluntary disclosure. While we interpret our findings through the lens of information asymmetry theory, alternative explanations such as disclosure costs or managerial attention constraints could also generate similar empirical patterns (Shroff et al., 2013; Guay et al., 2016). Future research could develop more refined empirical strategies to isolate the asymmetry channel from other potential mechanisms. Finally, our study focuses on a specific regulatory change in the executive compensation disclosure context, and the generalizability of our findings to other mandatory disclosure requirements remains an open empirical question that warrants further investigation across different regulatory settings and disclosure domains.

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Table 1

Descriptive Statistics

Variables	N	Mean	Std. Dev.	P25	Median	P75
FreqMF	18,045	0.6445	0.9100	0.0000	0.0000	1.6094
Treatment Effect	18,045	0.5823	0.4932	0.0000	1.0000	1.0000
Institutional ownership	18,045	0.5465	0.3208	0.2574	0.5809	0.8228
Firm size	18,045	5.9763	2.0179	4.5194	5.9058	7.3195
Book-to-market	18,045	0.5791	0.5635	0.2750	0.4769	0.7395
ROA	18,045	-0.0382	0.2507	-0.0220	0.0248	0.0702
Stock return	18,045	-0.0145	0.4614	-0.2780	-0.0879	0.1438
Earnings volatility	18,045	0.1509	0.2914	0.0227	0.0552	0.1498
Loss	18,045	0.3024	0.4593	0.0000	0.0000	1.0000
Class action litigation risk	18,045	0.2560	0.2575	0.0701	0.1561	0.3481
Time Trend	18,045	1.9447	1.4164	1.0000	2.0000	3.0000

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

Table 2
Pearson Correlations
Proxy Disclosure Enhancements Information Asymmetry

	Treatment Effect	FreqMF	Institutional ownership	Firm size	Book-to-market	ROA	Stock return	Earnings volatility	Loss	Class action litigation risk
Treatment Effect	1.00	**-0.04**	**0.12**	-0.01	**0.16**	**-0.05**	**-0.03**	0.01	**0.06**	**-0.15**
FreqMF	**-0.04**	1.00	**0.44**	**0.44**	**-0.13**	**0.23**	**-0.02**	**-0.14**	**-0.26**	0.00
Institutional ownership	**0.12**	**0.44**	1.00	**0.63**	**-0.07**	**0.26**	**-0.13**	**-0.20**	**-0.20**	0.01
Firm size	-0.01	**0.44**	**0.63**	1.00	**-0.30**	**0.35**	**0.02**	**-0.25**	**-0.38**	**0.07**
Book-to-market	**0.16**	**-0.13**	**-0.07**	**-0.30**	1.00	**0.03**	**-0.21**	**-0.12**	**0.12**	**-0.14**
ROA	**-0.05**	**0.23**	**0.26**	**0.35**	**0.03**	1.00	**0.19**	**-0.52**	**-0.62**	**-0.15**
Stock return	**-0.03**	**-0.02**	**-0.13**	**0.02**	**-0.21**	**0.19**	1.00	**-0.04**	**-0.20**	**-0.06**
Earnings volatility	0.01	**-0.14**	**-0.20**	**-0.25**	**-0.12**	**-0.52**	**-0.04**	1.00	**0.36**	**0.23**
Loss	**0.06**	**-0.26**	**-0.20**	**-0.38**	**0.12**	**-0.62**	**-0.20**	**0.36**	1.00	**0.18**
Class action litigation risk	**-0.15**	0.00	0.01	**0.07**	**-0.14**	**-0.15**	**-0.06**	**0.23**	**0.18**	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 Proxy Disclosure Enhancements on Management Forecast Frequency

	(1)	(2)	(3)
Treatment Effect	-0.0797*** (7.72)	-0.0634*** (4.89)	-0.0455*** (3.77)
Institutional ownership		0.8019*** (17.37)	-0.0587 (0.93)
Firm size		0.0948*** (10.65)	0.1356*** (10.91)
Book-to-market		-0.0328** (2.29)	-0.0204 (1.51)
ROA		0.1178*** (3.68)	0.0275 (0.97)
Stock return		-0.0423*** (3.47)	-0.0376*** (4.06)
Earnings volatility		0.0816*** (2.66)	-0.1197*** (3.19)
Loss		-0.2137*** (10.74)	-0.1197*** (8.31)
Class action litigation risk		-0.0311 (1.04)	-0.0227 (1.16)
Time Trend		-0.0227*** (3.86)	-0.0016 (0.28)
Firm fixed effects	No	No	Yes
N	18,045	18,045	18,045
R^2	0.0019	0.2547	0.8531

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