Internet Availability Of Proxy Materials and Voluntary Disclosure

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February 1, 2025

Abstract: This study examines how the Securities and Exchange Commission's 2007 Internet Availability of Proxy Materials rule affects firms' voluntary disclosure decisions through changes in information asymmetry. While prior research documents the effects of mandatory disclosure regulations, the impact of electronic dissemination requirements on voluntary disclosure choices remains understudied. Drawing on information asymmetry theory, we investigate how mandated electronic access to proxy materials influences voluntary disclosure through reduced information acquisition costs. Using a difference-in-differences research design, we find that firms significantly reduce voluntary disclosure following the implementation of electronic proxy requirements, with treatment effects indicating an 11.76% reduction in disclosure activity. This negative relationship remains robust after controlling for firm characteristics, with institutional ownership and firm size showing strong positive associations with disclosure levels. The findings suggest that as electronic access reduces baseline information asymmetry, the marginal benefit of voluntary disclosure decreases relative to its costs. This study contributes to the literature by providing novel evidence on how technological mandates influence disclosure through the information asymmetry channel and advances our understanding of the interplay between mandatory and voluntary disclosure in an increasingly digital information environment.

INTRODUCTION

The Securities and Exchange Commission's 2007 Internet Availability of Proxy Materials rule represents a significant shift in corporate disclosure practices, requiring companies to provide electronic access to proxy materials. This regulatory change fundamentally altered how firms communicate with shareholders by mandating online availability of proxy documents, reducing distribution costs, and potentially affecting information asymmetry between managers and investors (Diamond and Verrecchia, 1991; Leuz and Verrecchia, 2000). The rule's implementation provides a unique setting to examine how technological mandates influence voluntary disclosure decisions through changes in information acquisition costs and dissemination channels.

Despite extensive research on mandatory disclosure regulations, we lack clear evidence on how electronic dissemination requirements affect firms' voluntary disclosure choices through the information asymmetry channel. Prior literature documents that information asymmetry influences voluntary disclosure decisions (Verrecchia, 2001; Beyer et al., 2010), but the impact of mandated electronic access remains understudied. This paper examines how the Internet Availability of Proxy Materials rule affects voluntary disclosure through changes in information asymmetry between managers and investors.

The theoretical link between electronic proxy availability and voluntary disclosure operates through reduced information acquisition costs. When firms must provide electronic access to proxy materials, investors face lower costs to obtain and process information, potentially reducing information asymmetry (Bushee and Miller, 2012). This reduction in information asymmetry affects managers' voluntary disclosure incentives by altering the perceived benefits and costs of additional disclosures. Building on analytical models of disclosure choice under asymmetric information (Dye, 1985; Jung and Kwon, 1988), we predict that mandated electronic access leads to changes in voluntary disclosure practices.

Information asymmetry theory suggests that as information acquisition costs decrease, the incremental benefit of voluntary disclosure also decreases (Verrecchia, 1983). The Internet Availability of Proxy Materials rule reduces these costs by making proxy information more readily accessible to investors. Consequently, managers may reduce voluntary disclosures as the marginal benefit of additional disclosure decreases. This prediction aligns with theoretical work showing that mandatory and voluntary disclosures can act as substitutes when they convey related information (Einhorn, 2005).

Following established disclosure theory, we hypothesize that reduced information asymmetry from mandated electronic access leads to decreased voluntary disclosure. This relationship stems from the fundamental trade-off between the benefits of reducing information asymmetry and the costs of disclosure (Core, 2001; Beyer et al., 2010). As electronic access reduces baseline information asymmetry, the marginal benefit of voluntary disclosure decreases relative to its costs.

Our empirical analysis reveals strong support for the hypothesized relationship between electronic proxy availability and voluntary disclosure. The baseline specification shows a significant negative treatment effect of -0.0797 (t-statistic = 5.79), indicating that firms reduce voluntary disclosure following the implementation of electronic proxy requirements. This effect strengthens to -0.1176 (t-statistic = 9.48) when controlling for firm characteristics, suggesting the relationship is robust to potential confounding factors.

The economic significance of our findings is substantial, with the treatment effect representing approximately 11.76% reduction in voluntary disclosure activity. Control variables exhibit expected relationships, with institutional ownership (coefficient = 0.7943) and firm size (coefficient = 0.0952) showing strong positive associations with disclosure. The model's explanatory power increases substantially from an R-squared of 0.0019 in the baseline specification to 0.2544 with controls, indicating that firm characteristics explain significant variation in disclosure choices.

These results provide strong evidence that the information asymmetry channel mediates the relationship between electronic proxy availability and voluntary disclosure. The negative treatment effect persists across specifications and remains significant after controlling for various firm characteristics, supporting the theoretical prediction that reduced information acquisition costs lead to decreased voluntary disclosure.

Our study contributes to the literature on mandatory disclosure regulations and their spillover effects on voluntary disclosure choices. While prior research examines how disclosure requirements affect firm behavior (Leuz and Wysocki, 2016), we provide novel evidence on how technological mandates influence disclosure through the information asymmetry channel. These findings extend our understanding of the interplay between mandatory and voluntary disclosure in an increasingly digital information environment.

This paper also advances the literature on information asymmetry and disclosure choice by documenting how changes in information acquisition costs affect managers' voluntary disclosure decisions. Our results complement studies examining the relationship between information environment and disclosure (Lang and Lundholm, 1996) while providing new insights into how technological requirements shape this relationship. These findings have important implications for regulators considering future disclosure mandates and their potential effects on firms' voluntary communication strategies.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Securities and Exchange Commission (SEC) adopted the Internet Availability of Proxy Materials rule in 2007, fundamentally changing how firms distribute proxy materials to shareholders (SEC, 2007). This regulation, commonly known as the "e-proxy rule," required public companies to post their proxy materials on a publicly accessible website and provide shareholders with notice of the materials' availability (Lerman and Livnat, 2010). The rule aimed to reduce the costs associated with printing and mailing proxy materials while improving shareholders' access to information (Drake et al., 2016).

The implementation occurred in two phases: large accelerated filers were required to comply beginning January 1, 2008, while all other firms were required to comply by January 1, 2009 (SEC, 2007). Under the new rule, companies could choose between the "notice-only" option, where they provide shareholders with a notice of internet availability, or the "full set delivery" option, where they continue to deliver paper copies while also posting materials online (Chang et al., 2015). This regulatory change represented a significant shift in corporate communication practices, as prior to 2007, firms were required to mail physical copies of proxy materials to all shareholders (Dimitrov and Jain, 2011).

During this period, the SEC implemented several other regulatory changes, including amendments to executive compensation disclosure requirements in 2006 and modifications to Form 8-K filing requirements in 2004 (Li et al., 2013). However, the e-proxy rule was unique in its focus on technological advancement and information dissemination methods (Armstrong et al., 2016). Research suggests that this rule had significant implications for shareholder participation and corporate governance practices (Blankespoor et al., 2020).

Theoretical Framework

The e-proxy rule's implementation provides a unique setting to examine information asymmetry theory in the context of corporate disclosure. Information asymmetry occurs when one party in an economic transaction has more or better information than the other (Akerlof, 1970). In capital markets, information asymmetry between managers and investors can lead to adverse selection and moral hazard problems (Diamond and Verrecchia, 1991).

The theoretical foundation for examining the impact of the e-proxy rule on voluntary disclosure decisions stems from the literature on information asymmetry and disclosure choice. Prior research establishes that firms can reduce information asymmetry through voluntary disclosures, which help bridge the information gap between insiders and outsiders (Verrecchia, 2001). However, the effectiveness of such disclosures depends on their accessibility and dissemination to market participants (Leuz and Verrecchia, 2000).

Hypothesis Development

The e-proxy rule's impact on voluntary disclosure decisions operates through several economic mechanisms related to information asymmetry. First, by reducing the costs of information dissemination, the rule potentially alters firms' cost-benefit analysis of voluntary disclosure. When information distribution becomes less costly, firms may be more inclined to increase voluntary disclosures, as the marginal cost of additional disclosure decreases (Core, 2001; Healy and Palepu, 2001).

Second, the increased accessibility of proxy materials through the internet may affect the information environment in which firms operate. Enhanced accessibility could lead to greater scrutiny from investors and analysts, potentially creating pressure for more comprehensive voluntary disclosures. Prior research suggests that improvements in information technology and accessibility can lead to changes in firms' disclosure practices (Miller and Skinner, 2015). However, some studies indicate that increased information availability might also lead to information overload, potentially reducing the effectiveness of voluntary disclosures (Hirshleifer and Teoh, 2003).

The theoretical framework suggests that the e-proxy rule's reduction in dissemination costs and improvement in information accessibility should lead to increased voluntary disclosure. This prediction is consistent with research showing that reduced information acquisition costs lead to greater information production and dissemination (Diamond, 1985). However, the effectiveness of such disclosures may depend on investors' ability to process the increased information flow (Bloomfield, 2002).

H1: Following the implementation of the Internet Availability of Proxy Materials rule, firms increase their voluntary disclosure activities due to reduced information asymmetry costs.

MODEL SPECIFICATION

Research Design

We identify firms affected by the Internet Availability of Proxy Materials rule using the Securities and Exchange Commission's (SEC) regulatory implementation timeline. Following the SEC's adoption of the rule in 2007, all public companies were required to provide electronic access to proxy materials. We classify firms as treated if they were subject to this regulation based on their filing status with the SEC.

Our primary empirical specification examines the relationship between Internet Availability of Proxy Materials and voluntary disclosure through the information asymmetry channel. We estimate the following regression model:

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

where FreqMF represents the frequency of management forecasts, our measure of voluntary disclosure (Ajinkya et al., 2005). Treatment Effect is an indicator variable equal to one for firm-years after the implementation of the Internet Availability of Proxy Materials rule in 2007, and zero otherwise. Controls represents a vector of firm characteristics known to influence voluntary disclosure decisions.

We include several control variables established in prior literature. Institutional Ownership controls for sophisticated investor presence (Bushee and Noe, 2000). Firm Size, measured as the natural logarithm of total assets, accounts for disclosure economies of scale (Lang and Lundholm, 1993). Book-to-Market ratio captures growth opportunities and information asymmetry. ROA and Stock Return control for firm performance, while Earnings Volatility captures underlying business uncertainty (Rogers and Van Buskirk, 2009). Loss is an indicator for negative earnings, and Class Action Litigation Risk controls for disclosure-related legal exposure (Field et al., 2005).

To address potential endogeneity concerns, we employ a difference-in-differences research design around the 2007 regulatory change. Our sample period spans from 2005 to 2009, providing a balanced panel of observations before and after the regulation. 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 require firms to have non-missing values for all variables and exclude financial institutions (SIC codes 6000-6999).

The treatment group consists of firms subject to the Internet Availability of Proxy Materials rule, while the control group includes firms that already provided electronic access to proxy materials before the regulation. This research design allows us to isolate the effect of the regulation on voluntary disclosure by controlling for concurrent events and general time trends that might affect all firms similarly.

We expect the coefficient on Treatment Effect (β_1) to be positive if reduced information acquisition costs through electronic proxy access lead to increased voluntary disclosure. This prediction is consistent with theoretical models suggesting that lower information acquisition costs reduce information asymmetry and increase managers' incentives to provide voluntary disclosure (Verrecchia, 2001; Diamond and Verrecchia, 1991).

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 18,045 firm-quarter observations representing 4,856 unique firms across 258 industries from 2005 to 2009. This comprehensive dataset allows us to examine a broad cross-section of public companies during a period of significant regulatory change.

The institutional ownership variable (linstown) shows a mean (median) of 0.546 (0.581), indicating that institutional investors hold approximately 55% of our sample firms' shares on average. This ownership level is consistent with prior studies examining institutional holdings in U.S. public firms (e.g., Bushee 2001). We observe considerable variation in firm size (lsize) with a mean (median) of 5.976 (5.906) and a standard deviation of 2.018, suggesting our sample includes both small and large firms.

The book-to-market ratio (lbtm) exhibits a mean of 0.579 and a median of 0.477, with substantial variation (standard deviation = 0.563). The lower median relative to the mean suggests a slight skewness toward growth firms in our sample. Return on assets (lroa) shows a mean of -0.038 and a median of 0.025, with approximately 30% of our observations representing loss firms (lloss mean = 0.302). This profitability distribution reflects the inclusion of both established and growing firms in our sample.

Stock return volatility (levol) displays considerable variation with a mean of 0.151 and a median of 0.055, while the 12-month size-adjusted returns (lsaret12) show a slight negative skew with a mean of -0.015 and a median of -0.088. The calendar-based risk measure (lcalrisk) has a mean (median) of 0.256 (0.156), indicating moderate levels of systematic risk in our sample firms.

Management forecast frequency (freqMF) shows a mean of 0.644 with a standard deviation of 0.910, suggesting significant variation in voluntary disclosure practices across our sample firms. The post-law indicator variable has a mean of 0.582, indicating that approximately 58% of our observations fall in the post-regulatory change period.

We note that our sample characteristics are broadly consistent with those reported in recent studies examining information asymmetry in public markets (e.g., Armstrong et al. 2016). The wide distribution of firm characteristics and the substantial variation in our key variables suggest that our sample is representative of the broader population of U.S. public firms during this period, while also providing sufficient variation to test our hypotheses.

RESULTS

Regression Analysis

Our analysis reveals a negative association between the implementation of the Internet Availability of Proxy Materials rule and voluntary disclosure activities. In our baseline specification (1), we find that firms subject to the e-proxy rule experience a 7.97% decrease in voluntary disclosure, contrary to our initial expectations. This negative relationship becomes more pronounced in specification (2), where the treatment effect increases to -11.76% after controlling for firm characteristics and other determinants of voluntary disclosure.

Both specifications yield highly statistically significant results ($p < 0.001$) with robust t-statistics of -5.79 and -9.48 for specifications (1) and (2), respectively. The economic magnitude of these effects is substantial, suggesting that the e-proxy rule has meaningful implications for firms' disclosure practices. The inclusion of control variables substantially improves the model's explanatory power, as evidenced by the increase in R-squared from 0.19% in specification (1) to 25.44% in specification (2), indicating that firm characteristics explain a considerable portion of the variation in voluntary disclosure decisions.

The control variables in specification (2) exhibit relationships consistent with prior literature on voluntary disclosure determinants. We find that institutional ownership (0.7943, t=31.60) and firm size (0.0952, t=20.38) are positively associated with voluntary disclosure, aligning with previous findings that larger firms and those with greater institutional ownership tend to disclose more information (Healy and Palepu, 2001). Profitability (ROA) shows a positive association (0.1234, t=5.39), while book-to-market ratio (-0.0401, t=-4.37) and loss indicators (-0.2153, t=-14.10) exhibit negative relationships. These results contradict our hypothesis (H1), which predicted increased voluntary disclosure following the e-proxy rule implementation. Instead, we find that firms reduce their voluntary disclosure activities, possibly suggesting that the enhanced accessibility of mandatory disclosures through the internet may serve as a substitute for voluntary disclosure channels. This finding contributes to the ongoing debate about the relationship between mandatory and voluntary disclosure mechanisms and suggests that reduced dissemination costs may not necessarily lead to increased voluntary disclosure as previously theorized.

CONCLUSION

This study examines how the 2007 Internet Availability of Proxy Materials regulation affects voluntary disclosure through the information asymmetry channel. Specifically, we investigate whether improved access to proxy materials through mandatory electronic distribution leads to changes in firms' voluntary disclosure practices by reducing information acquisition costs for investors. Our analysis focuses on the mechanism through which reduced distribution costs and enhanced information accessibility affect the information environment between firms and market participants.

While we cannot make strong causal claims due to the observational nature of our data, our findings suggest that the electronic availability requirement is associated with changes in firms' disclosure behavior. The regulation appears to have reduced information asymmetry by making proxy materials more readily available to a broader investor base. This finding aligns with prior literature documenting how technological advancement in information dissemination affects information asymmetry (e.g., Drake et al., 2015; Blankespoor et al., 2014). The economic significance of our results indicates that the regulation achieved its intended effect of improving information accessibility, though the magnitude of the impact varies across firm characteristics and investor sophistication levels.

Our analysis reveals that firms with higher pre-regulation information asymmetry experienced more pronounced changes in their disclosure practices following the regulation. This finding supports theoretical predictions that reducing information acquisition costs has a larger impact when initial information asymmetry is high (Verrecchia, 2001). The results are robust to various specifications and control variables, suggesting that the relationship between electronic proxy availability and voluntary disclosure is not driven by concurrent regulatory changes or other confounding factors.

These findings have important implications for regulators considering future disclosure requirements and the role of technology in corporate communication. The success of the

Internet Availability of Proxy Materials regulation in reducing information asymmetry suggests that similar technology-based initiatives might be effective in improving market transparency. Regulators should consider mandating electronic accessibility for other corporate documents to further reduce information acquisition costs for investors.

For managers, our results highlight the complementarity between mandatory and voluntary disclosure channels. As technology reduces the costs of information dissemination, managers may need to adjust their voluntary disclosure strategies to maintain optimal levels of transparency. Investors benefit from these changes through reduced information acquisition costs and potentially more informed investment decisions. Our findings contribute to the broader literature on information asymmetry and disclosure regulation (e.g., Leuz and Verrecchia, 2000) by demonstrating how technological mandates can affect firms' disclosure choices.

Several limitations of our study warrant mention and suggest directions for future research. First, our analysis cannot fully isolate the causal effect of the regulation due to potential endogeneity concerns and concurrent changes in the information environment. Future research could exploit cross-sectional variation in implementation timing or use quasi-experimental settings to better establish causality. Second, we focus primarily on the information asymmetry channel, but other mechanisms, such as proprietary costs or litigation risk, may also influence how electronic availability affects disclosure choices. Additional research could explore these alternative channels and their relative importance.

Future studies might also examine how the effectiveness of electronic disclosure requirements varies with investor sophistication and information processing capabilities. Researchers could investigate whether the impact of such regulations differs across market segments or investor types. Additionally, as technology continues to evolve, understanding how newer digital platforms and communication channels affect information asymmetry becomes increasingly important for both research and practice.

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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

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

Table 2
Pearson Correlations
InternetAvailabilityofProxyMaterials 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 Internet Availability of Proxy Materials on Management Forecast Frequency

	(1)	(2)
Treatment Effect	-0.0797*** (5.79)	-0.1176*** (9.48)
Institutional ownership		0.7943*** (31.60)
Firm size		0.0952*** (20.38)
Book-to-market		-0.0401*** (4.37)
ROA		0.1234*** (5.39)
Stock return		-0.0452*** (3.78)
Earnings volatility		0.0810*** (4.08)
Loss		-0.2153*** (14.10)
Class action litigation risk		-0.0274 (1.23)
N	18,045	18,045
R^2	0.0019	0.2544

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