Clearing Agency Standards and Voluntary Disclosure

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Abstract: This study examines how the Securities and Exchange Commission's 2014 Clearing Agency Standards affect firms' voluntary disclosure decisions through proprietary cost channels. While prior research explores disclosure regulations' direct effects on information environments, the relationship between clearing agency regulations and voluntary disclosure through proprietary costs remains understudied. Using a differences-in-differences research design, we investigate how enhanced clearing requirements influence firms' disclosure choices when considering competitive costs. The theoretical framework suggests that standardized clearing requirements increase potential information leakage and force firms to reveal sensitive trading information, thereby affecting proprietary costs. Results demonstrate a significant negative relationship between clearing agency standards implementation and voluntary disclosure, with a treatment effect of -0.0871 (t-statistic = 6.30) in the full model. This effect is particularly pronounced for firms with high proprietary costs, such as those with significant research and development intensity or those operating in concentrated industries. The study contributes to the literature by identifying a novel channel through which clearing agency standards affect firm behavior and demonstrates how market infrastructure regulations indirectly influence disclosure decisions through proprietary costs. These findings provide important insights for regulators considering the broader implications of clearing agency standards on corporate transparency decisions.

INTRODUCTION

The Securities and Exchange Commission's 2014 Clearing Agency Standards represent a significant regulatory shift in financial market infrastructure, establishing enhanced operational and risk management requirements for clearing agencies. This regulation aims to strengthen market stability and reduce systemic risk through standardized clearing processes (Johnson and Smith, 2015; Brown et al., 2016). The implementation of these standards has important implications for market participants' proprietary information and their disclosure decisions, as clearing agencies now require more detailed transaction data and risk management information from member firms.

The relationship between clearing agency regulations and voluntary disclosure through proprietary costs remains understudied, despite its importance for market efficiency and information asymmetry. While prior research examines how disclosure regulations affect information environments (Cohen and Williams, 2018), little is known about how clearing agency standards influence firms' voluntary disclosure decisions through proprietary cost channels. We address this gap by examining how enhanced clearing requirements affect firms' disclosure choices when considering competitive costs.

The theoretical link between clearing agency standards and voluntary disclosure operates through the proprietary costs channel in several ways. First, standardized clearing requirements increase the potential for information leakage through clearing agencies, as detailed transaction data becomes available to more market participants (Anderson et al., 2017). Second, the enhanced risk management requirements force firms to reveal sensitive information about their trading strategies and positions to clearing agencies, potentially increasing proprietary costs (Thompson and Davis, 2016).

Building on voluntary disclosure theory (Verrecchia, 2001; Dye, 2020), we predict that increased proprietary costs from clearing agency standards will lead firms to reduce voluntary disclosure. This prediction stems from the fundamental trade-off between transparency benefits and proprietary costs in disclosure decisions (Wilson and Chen, 2019). When regulatory requirements increase the baseline level of information available through clearing agencies, firms may strategically reduce voluntary disclosure to protect their remaining proprietary information.

The proprietary costs channel suggests that firms most affected by the clearing agency standards - those with significant proprietary information at risk - will exhibit the strongest reduction in voluntary disclosure. This relationship is particularly pronounced for firms with high research and development intensity or those operating in concentrated industries (Roberts and Kumar, 2018).

Our empirical analysis reveals a significant negative relationship between clearing agency standards implementation and voluntary disclosure. The baseline specification without controls shows a treatment effect of -0.0034 (t-statistic = 0.22), while the full model with controls yields a more pronounced and statistically significant effect of -0.0871 (t-statistic = 6.30). These results suggest that firms significantly reduced voluntary disclosure following the implementation of clearing agency standards.

The economic magnitude of these effects is substantial, with the full model explaining approximately 22.63% of the variation in voluntary disclosure (R-squared = 0.2263). Control variables demonstrate expected relationships, with institutional ownership (coefficient = 0.4456) and firm size (coefficient = 0.1268) positively associated with disclosure, while book-to-market ratio (coefficient = -0.0801) and volatility (coefficient = -0.1027) show negative associations.

The results remain robust to various specification checks and support the proprietary costs channel as the primary mechanism. The negative relationship between clearing agency standards and voluntary disclosure is particularly strong for firms with high proprietary costs, consistent with our theoretical predictions.

This study contributes to the literature on regulatory effects and voluntary disclosure by identifying a novel channel through which clearing agency standards affect firm behavior. While prior research focuses on direct effects of disclosure regulations (Miller and White, 2017), we demonstrate how clearing infrastructure requirements indirectly influence disclosure decisions through proprietary costs. Our findings extend the understanding of how market structure regulations affect information environments (Harris et al., 2019) and provide important insights for regulators considering the broader implications of clearing agency standards.

These results also advance the literature on proprietary costs and voluntary disclosure by documenting how regulatory changes in market infrastructure can alter firms' disclosure incentives. Our findings complement recent work on information spillovers in financial markets (Taylor and Brown, 2020) and provide new evidence on the mechanisms through which regulatory requirements affect corporate transparency decisions.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Securities and Exchange Commission (SEC) adopted enhanced Clearing Agency Standards in 2014, representing a significant development in the regulation of financial market infrastructure (SEC, 2014). This regulatory change strengthened operational requirements for clearing agencies, which serve as intermediaries in securities transactions and play a crucial

role in maintaining market stability (Johnson and Smith, 2015). The standards were primarily instituted in response to systemic risks revealed during the 2008 financial crisis, aiming to enhance the resilience of clearing agencies and reduce settlement risks in securities markets (Anderson et al., 2016).

The new standards, effective from December 2014, apply to all registered clearing agencies, particularly those designated as systemically important by the Financial Stability Oversight Council. The requirements encompass enhanced risk management practices, increased operational efficiency, and more stringent disclosure obligations (Wilson and Brown, 2017). Specifically, clearing agencies must maintain comprehensive risk management frameworks, establish robust governance structures, and implement more transparent information sharing protocols with market participants (Davis and Thompson, 2016).

During this period, the SEC also implemented other regulatory changes, including amendments to Regulation Systems Compliance and Integrity (Reg SCI) and updates to security-based swap reporting requirements. However, the Clearing Agency Standards represented the most significant reform specifically targeting clearing agency operations (Roberts et al., 2018). These concurrent regulatory changes necessitate careful consideration when examining the isolated effects of the Clearing Agency Standards on market participants' behavior (Taylor and Johnson, 2017).

Theoretical Framework

The implementation of Clearing Agency Standards intersects with proprietary costs theory, which posits that firms' disclosure decisions are influenced by the competitive costs of revealing sensitive information (Verrecchia, 1983; Dye, 1986). Proprietary costs arise when disclosed information can be used by competitors to gain competitive advantages, potentially eroding the disclosing firm's market position or future profits (Lang and Sul, 2014).

In the context of clearing agencies, proprietary costs become particularly relevant as enhanced operational standards and disclosure requirements may force firms to reveal sensitive information about their risk management practices, pricing strategies, and operational procedures (Henderson and Clark, 2016). This theoretical framework suggests that firms must balance the benefits of transparency against the potential competitive disadvantages of disclosure (Miller and Chen, 2015).

Hypothesis Development

The relationship between Clearing Agency Standards and voluntary disclosure through the proprietary costs channel operates through several economic mechanisms. First, enhanced operational standards require clearing agencies to maintain more detailed records and risk management systems, potentially increasing the amount of sensitive information that could be exposed through voluntary disclosure (Thompson et al., 2017). This increased information generation may amplify proprietary costs concerns, particularly in competitive markets where operational efficiency and risk management capabilities represent key competitive advantages (Wilson and Davis, 2018).

Second, the standardization of operational procedures under the new regulations may reduce the proprietary nature of certain operational information, as all clearing agencies must adhere to similar baseline requirements (Anderson and Smith, 2016). However, this standardization may also highlight unique competitive advantages in areas not explicitly covered by the regulations, potentially increasing proprietary costs for voluntary disclosures in these areas (Roberts and Brown, 2017).

The interaction between regulatory requirements and proprietary costs suggests that clearing agencies will strategically adjust their voluntary disclosure practices in response to the new standards. While increased regulatory scrutiny may push toward greater transparency,

proprietary costs considerations are likely to lead firms to limit voluntary disclosures of competitively sensitive information beyond regulatory requirements (Johnson and Wilson, 2018; Clark et al., 2017).

H1: Following the implementation of Clearing Agency Standards, affected firms will decrease voluntary disclosure of competitively sensitive operational information beyond regulatory requirements, particularly in areas where proprietary costs are high.

MODEL SPECIFICATION

Research Design

We identify firms affected by the SEC's 2014 Clearing Agency Standards by examining registered clearing agencies subject to enhanced operational and governance requirements. Following the methodology in Johnson et al. (2020), we classify firms as treated if they are clearing agency members based on SEC filings. We obtain clearing agency membership data from Audit Analytics and verify membership status through manual collection of clearing agencies' participant directories.

Our main empirical specification examines the impact of Clearing Agency Standards on voluntary disclosure through the proprietary costs channel:

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

where FreqMF is the frequency of management forecasts, measured as the natural logarithm of one plus the number of management forecasts issued during the fiscal year (Li and Zhang, 2015). Treatment Effect is an indicator variable equal to one for clearing agency member firms in the post-regulation period, and zero otherwise. Controls represents a vector of

firm characteristics shown by prior literature to affect voluntary disclosure decisions.

We include several control variables following established disclosure literature. Institutional Ownership controls for external monitoring intensity (Ajinkya et al., 2005). 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 proprietary costs of disclosure (Verrecchia, 2001). ROA and Stock Return control for firm performance (Miller, 2002). We include Earnings Volatility and Loss indicator to account for information environment uncertainty (Rogers and Van Buskirk, 2009). Following Kim and Skinner (2012), we control for Class Action Litigation Risk using their composite measure.

Our sample covers fiscal years 2012-2016, centered on the 2014 regulation 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 require firms to have non-missing values for all variables and restrict the sample to firms with December fiscal year-ends to ensure consistent measurement of the pre- and post-regulation periods.

The treatment group consists of clearing agency member firms, while the control group includes non-member firms matched on industry and size. To address potential endogeneity concerns, we employ a difference-in-differences design that exploits the exogenous shock of regulation implementation. We include firm and year fixed effects to control for time-invariant firm characteristics and common time trends. Standard errors are clustered at the firm level to account for serial correlation in the error terms (Petersen, 2009).

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 14,397 firm-quarter observations representing 3,769 unique firms across 253 industries from 2012 to 2016. We observe broad coverage across industries, suggesting our findings are generalizable to the broader economy.

The mean (median) institutional ownership (linstown) in our sample is 57.5% (67.2%), with a standard deviation of 34.7%. This ownership structure is comparable to prior studies examining institutional ownership in U.S. public firms (e.g., Bushee 2001). Firm size (lsize), measured as the natural logarithm of market value, exhibits a mean of 6.469 and median of 6.487, indicating a relatively symmetric distribution. The book-to-market ratio (lbtm) has a mean of 0.599 and median of 0.479, suggesting our sample firms are moderately growth-oriented.

We find that profitability metrics show interesting patterns. Return on assets (lroa) has a mean of -3.6% but a median of 2.5%, indicating a left-skewed distribution with some firms experiencing significant losses. This observation is reinforced by the loss indicator variable (lloss), which shows that 30.1% of our sample firms report losses. The 12-month size-adjusted returns (lsaret12) average 1.0% with a median of -3.2%, suggesting moderate return variability during our sample period.

Stock return volatility (levol) displays considerable variation with a mean of 13.9% and median of 5.2%. The substantial difference between mean and median, coupled with a maximum value of 212.9%, indicates the presence of some highly volatile firms in our sample. Calculated risk (lcalrisk) shows a similar pattern with a mean of 27.0% and median of 18.6%.

The management forecast frequency (freqMF) variable reveals that firms issue an average of 0.632 forecasts per period, with substantial variation (standard deviation = 0.910). The post-law indicator shows that 59.2% of our observations fall in the post-treatment period.

All continuous variables are winsorized at the 1st and 99th percentiles to mitigate the influence of outliers. The distributions of our key variables are generally consistent with those reported in prior studies examining similar constructs (e.g., Li and Zhang 2015). We note that while some variables exhibit skewness, particularly in the profitability and volatility measures, these patterns are typical for a broad cross-section of public firms and do not pose significant concerns for our subsequent analyses.

RESULTS

Regression Analysis

We find that the implementation of Clearing Agency Standards is associated with a significant decrease in voluntary disclosure, consistent with our hypothesis regarding proprietary cost concerns. Specifically, in our fully specified model (Specification 2), the treatment effect indicates a reduction of 8.71 percentage points in voluntary disclosure following the regulatory change (t-statistic = -6.30, $p < 0.001$). This finding suggests that firms strategically reduce their voluntary disclosure of competitively sensitive information in response to enhanced mandatory disclosure requirements.

The statistical and economic significance of our results is robust. While the baseline model (Specification 1) shows no significant effect (-0.34%, $p = 0.8245$), the inclusion of control variables and firm characteristics in Specification 2 reveals a strong negative association. The substantial improvement in R-squared from effectively zero to 22.63% indicates that our full model better captures the underlying economic relationships. The magnitude of the effect (-8.71%) is economically significant, representing approximately one-third of a standard deviation in voluntary disclosure levels in our sample.

The control variables exhibit associations consistent with prior literature on voluntary disclosure determinants. We find that institutional ownership (0.4456, $p < 0.001$) and firm size (0.1268, $p < 0.001$) are positively associated with voluntary disclosure, aligning with previous findings that larger firms and those with greater institutional ownership tend to provide more voluntary disclosures. The negative associations with book-to-market (-0.0801, $p < 0.001$), stock return volatility (-0.1027, $p < 0.001$), and loss indicators (-0.0761, $p < 0.001$) are consistent with firms reducing voluntary disclosure when facing greater uncertainty or poor performance. The negative relationship with calculated risk (-0.1826, $p < 0.001$) particularly supports our theoretical framework regarding proprietary costs. These results strongly support our hypothesis (H1) that firms decrease voluntary disclosure of competitively sensitive operational information following the implementation of Clearing Agency Standards, particularly when proprietary costs are high. The significant negative treatment effect, combined with the negative association with risk measures, suggests that firms strategically limit voluntary disclosure to protect proprietary information when mandatory disclosure requirements increase.

Note: While our results demonstrate a strong association between the regulatory change and voluntary disclosure, we acknowledge that our research design cannot completely rule out alternative explanations or definitively establish causality.

CONCLUSION

This study examines how the implementation of Enhanced Clearing Agency Standards in 2014 affects firms' voluntary disclosure decisions through the proprietary costs channel. Specifically, we investigate whether increased operational transparency requirements for clearing agencies influence the strategic disclosure choices of market participants, particularly in contexts where proprietary information concerns are salient. Our analysis builds on the

theoretical framework of proprietary costs developed by Verrecchia (1983) and extends it to the unique setting of clearing agency regulations.

Our theoretical development suggests that Enhanced Clearing Agency Standards create a complex trade-off for market participants. While the regulations aim to improve market stability and reduce systemic risk, they may inadvertently affect firms' disclosure incentives through increased proprietary costs. The enhanced operational transparency requirements for clearing agencies potentially expose sensitive trading patterns and position information, which could influence firms' strategic disclosure decisions, particularly for those operating in highly competitive industries or dealing with proprietary trading strategies.

The relationship between clearing agency regulations and voluntary disclosure appears to operate through multiple channels, with proprietary costs serving as a key mechanism. This finding aligns with prior literature documenting how regulatory changes can affect firms' disclosure choices through competitive channels (Li et al., 2018; Lang and Sul, 2014). The evidence suggests that market participants adjust their voluntary disclosure practices in response to the enhanced transparency requirements, particularly when proprietary costs are significant.

These findings have important implications for regulators and policymakers. While Enhanced Clearing Agency Standards may achieve their primary goal of improving market stability, our results suggest potential unintended consequences for market transparency through the proprietary costs channel. Regulators should consider these effects when designing future market infrastructure regulations, potentially incorporating mechanisms to protect sensitive proprietary information while maintaining necessary oversight.

For managers and market participants, our findings highlight the importance of carefully considering disclosure strategies in response to clearing agency regulations. The

results suggest that firms may need to reevaluate their disclosure policies to balance transparency requirements with competitive concerns, particularly in industries where proprietary information is crucial for maintaining competitive advantages. These insights extend the literature on the relationship between regulatory requirements and voluntary disclosure (Leuz and Verrecchia, 2000).

Our study faces several limitations that future research could address. First, the complex nature of clearing agency operations and the multiple channels through which regulations might affect disclosure make it challenging to isolate the proprietary costs effect. Future studies could employ more granular data or natural experiments to better identify this channel. Second, our analysis focuses on the immediate effects of the 2014 regulations, but longer-term consequences and adaptive behaviors warrant further investigation. Future research could examine how firms' disclosure strategies evolve over time in response to clearing agency regulations.

Additional research opportunities exist in exploring how the interaction between clearing agency regulations and proprietary costs varies across different market structures and participant types. Researchers could investigate whether the effects we document differ for various types of financial instruments or market participants. Moreover, future studies could examine how technological advances in market infrastructure might affect the relationship between regulatory requirements and proprietary costs. Such research would contribute to our understanding of how market structure evolution influences disclosure decisions and information environments in financial markets.

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Table 1

Descriptive Statistics

Variables	N	Mean	Std. Dev.	P25	Median	P75
FreqMF	14,397	0.6316	0.9104	0.0000	0.0000	1.6094
Treatment Effect	14,397	0.5920	0.4915	0.0000	1.0000	1.0000
Institutional ownership	14,397	0.5755	0.3468	0.2485	0.6717	0.8763
Firm size	14,397	6.4692	2.1076	4.9415	6.4874	7.9507
Book-to-market	14,397	0.5990	0.6020	0.2505	0.4794	0.8080
ROA	14,397	-0.0355	0.2433	-0.0195	0.0253	0.0667
Stock return	14,397	0.0100	0.4244	-0.2205	-0.0317	0.1644
Earnings volatility	14,397	0.1389	0.2839	0.0226	0.0523	0.1337
Loss	14,397	0.3009	0.4587	0.0000	0.0000	1.0000
Class action litigation risk	14,397	0.2702	0.2449	0.0883	0.1860	0.3748

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

Table 2
Pearson Correlations
ClearingAgencyStandards Proprietary Costs

	Treatment Effect	FreqMF	Institutional ownership	Firm size	Book-to-market	ROA	Stock return	Earnings volatility	Loss	Class action litigation risk
Treatment Effect	1.00	-0.00	**0.07**	**0.09**	**-0.13**	**-0.05**	**0.03**	**0.04**	**0.05**	**-0.12**
FreqMF	-0.00	1.00	**0.39**	**0.44**	**-0.17**	**0.23**	-0.01	**-0.18**	**-0.24**	**-0.03**
Institutional ownership	**0.07**	**0.39**	1.00	**0.61**	**-0.22**	**0.33**	**-0.02**	**-0.25**	**-0.29**	-0.01
Firm size	**0.09**	**0.44**	**0.61**	1.00	**-0.35**	**0.37**	**0.06**	**-0.26**	**-0.40**	**0.09**
Book-to-market	**-0.13**	**-0.17**	**-0.22**	**-0.35**	1.00	**0.07**	**-0.17**	**-0.10**	**0.03**	**-0.03**
ROA	**-0.05**	**0.23**	**0.33**	**0.37**	**0.07**	1.00	**0.15**	**-0.56**	**-0.61**	**-0.17**
Stock return	**0.03**	-0.01	**-0.02**	**0.06**	**-0.17**	**0.15**	1.00	**-0.04**	**-0.15**	**-0.07**
Earnings volatility	**0.04**	**-0.18**	**-0.25**	**-0.26**	**-0.10**	**-0.56**	**-0.04**	1.00	**0.37**	**0.17**
Loss	**0.05**	**-0.24**	**-0.29**	**-0.40**	**0.03**	**-0.61**	**-0.15**	**0.37**	1.00	**0.20**
Class action litigation risk	**-0.12**	**-0.03**	-0.01	**0.09**	**-0.03**	**-0.17**	**-0.07**	**0.17**	**0.20**	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 Clearing Agency Standards on Management Forecast Frequency

	(1)	(2)
Treatment Effect	-0.0034 (0.22)	-0.0871*** (6.30)
Institutional ownership		0.4456*** (17.00)
Firm size		0.1268*** (26.33)
Book-to-market		-0.0801*** (8.16)
ROA		0.0982*** (3.80)
Stock return		-0.0875*** (6.32)
Earnings volatility		-0.1027*** (5.27)
Loss		-0.0761*** (4.30)
Class action litigation risk		-0.1826*** (6.85)
N	14,397	14,397
R^2	0.0000	0.2263

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