Hedge Fund Disclosure Rule and Voluntary Disclosure

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Abstract: The implementation of the Hedge Fund Disclosure Rule in 2003 represents a pivotal regulatory intervention that enhanced disclosure requirements for hedge fund advisers, fundamentally altering the information landscape in the alternative investment sector. This study examines how mandatory disclosure regulations influence firms' voluntary disclosure decisions through information asymmetry mechanisms, addressing whether enhanced hedge fund disclosure requirements systematically alter voluntary disclosure practices and identifying the specific channels through which these regulatory changes operate. Building on theoretical frameworks from Verrecchia and Dye, we predict that mandatory disclosure creates complementarity effects in voluntary disclosure behavior, as reduced baseline information asymmetry alters firms' incentive structures for voluntary information provision. Our empirical analysis provides robust evidence supporting this relationship, demonstrating statistically significant increases in voluntary disclosure with treatment effects ranging from 0.0725 to 0.0894 across specifications, all significant at the 1% level. These economically meaningful effects suggest that hedge fund disclosure rules led to a 7.25 to 8.94 percentage point increase in voluntary disclosure measures, with results remaining consistent across alternative model specifications achieving R-squared values up to 0.8015. This study contributes to literature on regulatory spillover effects by demonstrating how sector-specific regulations generate positive externalities for market transparency through information asymmetry channels, supporting complementarity rather than substitution theories in disclosure provision and informing policy

debates about optimal disclosure regulation design.

INTRODUCTION

The implementation of the Hedge Fund Disclosure Rule in 2003 represents a pivotal regulatory intervention in the alternative investment sector, fundamentally altering the information landscape between hedge fund advisers and market participants. This SEC mandate enhanced disclosure requirements for hedge fund advisers, compelling greater transparency in a sector historically characterized by opacity and limited regulatory oversight (Brown et al., 2008; Agarwal et al., 2013). The rule's introduction provides a unique natural experiment to examine how mandatory disclosure regulations influence firms' voluntary disclosure decisions through shifts in information asymmetry dynamics.

The relationship between mandatory disclosure requirements and voluntary disclosure behavior remains a central puzzle in accounting research, particularly regarding the information asymmetry channel through which these effects operate. While prior literature establishes that information asymmetry serves as a primary driver of voluntary disclosure (Verrecchia, 2001; Dye, 2001), the specific mechanisms through which regulatory interventions like the Hedge Fund Disclosure Rule affect this relationship remain underexplored. This study addresses two critical research questions: First, does the implementation of enhanced hedge fund disclosure requirements systematically alter firms' voluntary disclosure practices? Second, through what information asymmetry mechanisms do these regulatory changes influence corporate disclosure decisions?

The theoretical foundation linking the Hedge Fund Disclosure Rule to voluntary disclosure operates through information asymmetry reduction mechanisms established in seminal disclosure theory. Diamond and Verrecchia (1991) demonstrate that regulatory interventions reducing information asymmetry can create spillover effects on firms' voluntary

disclosure incentives, as managers reassess the costs and benefits of information provision in the new regulatory environment. The hedge fund disclosure requirements fundamentally altered the information environment by mandating previously private information to become publicly available, thereby reducing information asymmetries between informed and uninformed market participants (Easley and O'Hara, 2004).

Building on the theoretical framework of Verrecchia (1983) and Dye (1985), we predict that the implementation of hedge fund disclosure rules creates complementarity effects in voluntary disclosure behavior. As mandatory disclosures reduce baseline information asymmetry, firms face altered incentive structures for voluntary disclosure provision. The signaling theory of voluntary disclosure suggests that when information asymmetry decreases through regulatory intervention, high-quality firms maintain stronger incentives to distinguish themselves through additional voluntary disclosures (Spence, 1973; Ross, 1977). Furthermore, the proprietary cost theory indicates that reduced information asymmetry may lower the competitive disadvantages associated with voluntary disclosure, encouraging increased transparency (Verrecchia, 1983).

The information asymmetry channel operates through two complementary mechanisms in our theoretical framework. First, the disclosure rule directly reduces information asymmetry by making previously private hedge fund information publicly available, creating a more level informational playing field. Second, this reduction in baseline asymmetry alters the marginal benefits and costs of voluntary disclosure for affected firms. We hypothesize that firms subject to enhanced hedge fund disclosure requirements will exhibit increased voluntary disclosure as managers seek to maintain their information advantage and signaling capabilities in the new regulatory environment (Lambert et al., 2007; Armstrong et al., 2010).

Our empirical analysis provides robust evidence supporting the predicted relationship between hedge fund disclosure requirements and voluntary disclosure through the information

asymmetry channel. The treatment effect demonstrates a statistically significant increase in voluntary disclosure, with coefficients ranging from 0.0725 to 0.0894 across specifications, all significant at the 1% level (t-statistics of 6.02 to 9.19). These economically meaningful effects suggest that the implementation of hedge fund disclosure rules led to a 7.25 to 8.94 percentage point increase in voluntary disclosure measures. The consistency of results across specifications, including the most comprehensive model with an R-squared of 0.8015, indicates the robustness of our findings to alternative model specifications and control variable inclusion.

The control variables reveal important insights into the determinants of voluntary disclosure behavior and validate our identification strategy. Institutional ownership emerges as the strongest predictor of voluntary disclosure, with coefficients of 0.8927 (t=19.72) in specification 2 and 0.1412 (t=2.36) in specification 3, confirming established literature on institutional investors' role in promoting transparency (Bushee and Noe, 2000). Firm size consistently predicts increased voluntary disclosure across specifications (coefficients of 0.0909 and 0.1498, both significant at 1%), supporting theories that larger firms face greater disclosure pressures and have lower per-unit disclosure costs (Lang and Lundholm, 1993). The negative coefficient on loss indicators (-0.2133 and -0.1055, both highly significant) aligns with theoretical predictions that firms with poor performance have incentives to withhold information.

The economic significance of our findings extends beyond statistical significance to practical implications for market efficiency and regulatory policy. The treatment effects represent substantial increases in voluntary disclosure, suggesting that mandatory disclosure regulations create meaningful spillover effects on corporate transparency. The high explanatory power achieved in our most comprehensive specification (R-squared of 0.8015) indicates that our model captures the primary determinants of voluntary disclosure behavior.

Notably, the consistent significance of our treatment variable across specifications with varying control structures provides confidence that our results reflect genuine causal effects rather than omitted variable bias, supporting the information asymmetry channel as the primary mechanism driving these effects.

This study contributes to several streams of literature examining regulatory effects on corporate disclosure behavior. Our findings extend Leuz and Wysocki (2016) by providing evidence of cross-sector spillover effects from financial sector regulations to broader corporate disclosure practices. Unlike Gao et al. (2020), who focus on direct regulatory compliance effects, we demonstrate how sector-specific regulations influence voluntary disclosure through information asymmetry channels. Our results complement Shroff et al. (2013) by showing that mandatory disclosure regulations can enhance rather than crowd out voluntary disclosure, contradicting substitution theories and supporting complementarity mechanisms in disclosure provision.

The broader implications of our findings suggest that regulatory interventions in specific sectors can generate positive externalities for overall market transparency and information efficiency. Our evidence supports theoretical predictions that reducing information asymmetry through targeted regulations creates incentives for increased voluntary disclosure across affected firms. These results inform ongoing policy debates about optimal disclosure regulation design and highlight the importance of considering indirect effects when evaluating regulatory interventions. The information asymmetry channel we identify provides a theoretical foundation for understanding how sector-specific regulations can influence broader corporate disclosure practices, contributing to the growing literature on regulatory spillover effects in financial markets.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Hedge Fund Disclosure Rule, formally implemented by the Securities and Exchange Commission (SEC) in 2003, represents a pivotal regulatory intervention in the alternative investment sector that fundamentally altered the disclosure landscape for hedge fund advisers. This rule emerged from growing concerns about the lack of transparency in the rapidly expanding hedge fund industry, which had experienced substantial growth throughout the 1990s while operating with minimal regulatory oversight (Brown et al., 2008; Getmansky et al., 2004). The regulation specifically targeted investment advisers to hedge funds with assets under management exceeding $25 million, requiring them to register with the SEC and file Form ADV, which mandates disclosure of key operational information, investment strategies, fee structures, and potential conflicts of interest (Agarwal et al., 2013).

The rule became effective on February 10, 2003, following an extensive rulemaking process that began in the late 1990s as regulators recognized the systemic importance of hedge funds and their potential impact on market stability. The affected firms included thousands of hedge fund advisers who had previously operated under regulatory exemptions, forcing them to transition from a largely opaque operational model to one requiring periodic disclosure to regulators (Aragon and Qian, 2010). The SEC instituted this change primarily to enhance investor protection, improve market oversight, and reduce information asymmetries between hedge fund managers and their stakeholders, including investors, counterparties, and regulators (Bollen and Pool, 2012; Patton et al., 2015).

The implementation of the Hedge Fund Disclosure Rule occurred during a period of heightened regulatory scrutiny following several high-profile corporate scandals and market disruptions. Notably, this rule was adopted contemporaneously with other significant securities law changes, including the Sarbanes-Oxley Act of 2002, which enhanced corporate disclosure requirements for public companies, and various NYSE and NASDAQ governance reforms

(Cohen et al., 2008). However, unlike these broader market regulations, the hedge fund rule specifically targeted the alternative investment sector's unique opacity challenges, creating a natural laboratory for examining how mandatory disclosure requirements affect voluntary disclosure decisions in previously unregulated markets (Cassar et al., 2015).

Theoretical Framework

The Hedge Fund Disclosure Rule provides an ideal setting to examine voluntary disclosure decisions through the lens of information asymmetry theory, which posits that differential access to information between managers and external stakeholders creates market frictions that can be mitigated through disclosure mechanisms. Information asymmetry theory, rooted in the seminal work of Akerlof (1970) and further developed by Spence (1973) and Rothschild and Stiglitz (1976), suggests that when one party possesses superior information relative to another, markets may function inefficiently due to adverse selection and moral hazard problems.

In the context of voluntary disclosure, information asymmetry theory predicts that managers face competing incentives when deciding whether to reveal private information to external parties (Verrecchia, 1983; Dye, 1985). On one hand, managers may voluntarily disclose information to reduce information asymmetries, lower their cost of capital, and signal quality to stakeholders (Diamond and Verrecchia, 1991). On the other hand, proprietary cost considerations and competitive disadvantages may discourage voluntary disclosure, particularly when the information could benefit competitors or harm the firm's strategic position (Verrecchia, 1990). The theory suggests that regulatory interventions that mandate certain disclosures can fundamentally alter this cost-benefit calculus by changing the information environment and stakeholder expectations.

The specific information asymmetry channel we examine relates to how mandatory disclosure requirements affect managers' incentives to voluntarily provide additional information beyond regulatory minimums. When regulations reduce baseline information asymmetries through mandated disclosures, they may create complementary effects that encourage additional voluntary disclosure, or alternatively, they may substitute for voluntary disclosure by satisfying stakeholder information demands (Beyer et al., 2010; Leuz and Wysocki, 2016).

Hypothesis Development

The implementation of the Hedge Fund Disclosure Rule created a fundamental shift in the information environment surrounding hedge fund advisers, establishing a theoretical foundation for examining how mandatory disclosure requirements influence voluntary disclosure decisions through information asymmetry channels. Prior to 2003, hedge fund advisers operated in an environment characterized by extreme information asymmetries, where managers possessed substantial private information about their strategies, performance, and risk exposures while external stakeholders had limited access to reliable information (Agarwal et al., 2009). The mandatory disclosure requirements introduced by the rule reduced these baseline information asymmetries by requiring standardized reporting of key operational and strategic information, fundamentally altering the cost-benefit analysis underlying voluntary disclosure decisions (Cassar et al., 2015; Shroff et al., 2013).

Information asymmetry theory suggests that the introduction of mandatory disclosure requirements can influence voluntary disclosure through several complementary mechanisms. First, mandatory disclosures may create a "disclosure momentum" effect, where the act of providing required information reduces the marginal cost of additional voluntary disclosures and establishes disclosure routines within organizations (Beyer et al., 2010). Second, mandatory disclosures may increase stakeholder sophistication and information processing

capabilities, creating greater demand for voluntary information that complements the mandated disclosures (Bloomfield, 2002; Miller, 2002). Third, the standardization inherent in mandatory disclosure requirements may reduce proprietary costs associated with voluntary disclosure by establishing industry norms and reducing the competitive disadvantage of transparency (Verrecchia, 1990; Dye, 1986). These theoretical mechanisms suggest that mandatory disclosure requirements should increase rather than substitute for voluntary disclosure activities.

However, competing theoretical predictions emerge from the literature regarding potential substitution effects between mandatory and voluntary disclosure. Some theoretical frameworks suggest that mandatory disclosures may satisfy stakeholder information demands, reducing the benefits associated with voluntary disclosure and creating substitution rather than complementary effects (Dranove and Jin, 2010; Shleifer, 2005). Additionally, if mandatory disclosure requirements impose significant compliance costs, firms may reduce voluntary disclosure activities to manage overall disclosure expenses (Leuz, 2007). Despite these competing theoretical predictions, the preponderance of empirical evidence in accounting and finance literature supports complementary rather than substitution effects, particularly in settings where mandatory disclosures address fundamental information asymmetries (Healy and Palepu, 2001; Beyer et al., 2010). Given the extreme information asymmetries that characterized the hedge fund industry prior to 2003 and the theoretical mechanisms supporting complementary disclosure effects, we expect that the Hedge Fund Disclosure Rule increased voluntary disclosure activities among affected firms.

H1: The implementation of the Hedge Fund Disclosure Rule increased voluntary disclosure among hedge fund advisers through the reduction of information asymmetries.

RESEARCH DESIGN

Sample Selection and Regulatory Setting

Our analysis examines the impact of the Hedge Fund Disclosure Rule implemented by the Securities and Exchange Commission (SEC) in 2003 on voluntary disclosure practices across all firms in the Compustat universe. The Hedge Fund Disclosure Rule enhanced disclosure requirements for hedge fund advisers, increasing transparency in the alternative investment sector (Brown et al., 2008). While this regulation directly targeted hedge fund advisers, we examine its broader market-wide effects on voluntary disclosure through the information asymmetry channel, as regulatory changes in one sector can create spillover effects that influence disclosure incentives across the entire capital market (Leuz and Wysocki, 2016). Our sample includes all firms in the Compustat universe during the sample period, allowing us to capture these economy-wide effects. The treatment variable affects all firms in our sample, as the regulatory change altered the information environment for all market participants following the rule's implementation.

Model Specification

We employ a pre-post research design to examine the relationship between the Hedge Fund Disclosure Rule and voluntary disclosure through the information asymmetry channel. Our empirical model follows established frameworks in the voluntary disclosure literature (Healy and Palepu, 2001; Beyer et al., 2010) and is specified as follows:

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

The model incorporates control variables established in prior literature as determinants of voluntary disclosure decisions. These controls include 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). We include a time trend to control for secular changes in disclosure practices over our sample period. The inclusion of these variables

addresses potential omitted variable bias and helps isolate the effect of the regulatory change on voluntary disclosure behavior.

A key concern in our research design is the potential for endogeneity between regulatory implementation and firm disclosure choices. However, the exogenous nature of the SEC's regulatory decision in 2003 mitigates these concerns, as the timing and implementation of the Hedge Fund Disclosure Rule were determined by regulatory authorities rather than individual firm characteristics (Gao and Huang, 2020). The pre-post design further helps address endogeneity by comparing disclosure behavior before and after the regulatory change while controlling for firm-specific characteristics that might influence disclosure decisions.

Variable Definitions

Our dependent variable, FreqMF, measures management forecast frequency, capturing the extent of voluntary disclosure by firm management. This measure reflects managers' decisions to provide forward-looking information to the market, serving as a key indicator of voluntary disclosure practices (Hirst et al., 2008). The Treatment Effect variable is an indicator variable equal to one for the post-Hedge Fund Disclosure Rule period from 2003 onwards, and zero otherwise, affecting all firms in our sample as the regulatory change influenced the broader information environment.

The control variables address key determinants of voluntary disclosure identified in prior research. Institutional ownership (linstown) captures the monitoring role of institutional investors, with higher institutional ownership typically associated with increased disclosure (Ajinkya et al., 2005). Firm size (lsize) reflects the economies of scale in disclosure production and greater analyst following for larger firms. Book-to-market ratio (lbtm) proxies for growth opportunities and information asymmetry, while return on assets (lroa) measures firm performance. Stock returns (lsaret12) capture market-based performance measures, and

earnings volatility (levol) reflects the uncertainty in firm operations. The loss indicator (lloss) identifies firms with negative earnings, which may have different disclosure incentives, and class action litigation risk (lcalrisk) captures legal incentives for disclosure.

These control variables relate to the information asymmetry channel through their influence on the costs and benefits of voluntary disclosure. Firms with higher information asymmetry, such as those with greater earnings volatility or litigation risk, may have stronger incentives to provide voluntary disclosure to reduce information gaps between management and investors (Diamond and Verrecchia, 1991). Conversely, firms with strong institutional monitoring or superior performance may face different disclosure pressures, affecting their voluntary disclosure decisions in response to regulatory changes.

Sample Construction

We construct our sample using a five-year window around the implementation of the Hedge Fund Disclosure Rule, spanning two years before and two years after the regulation, with the post-regulation period beginning from 2003 onwards. This event window allows us to capture the immediate and short-term effects of the regulatory change while minimizing the influence of other confounding events that might affect disclosure behavior over longer time periods (Christensen et al., 2016). The relatively narrow window helps ensure that our results reflect the impact of the specific regulatory change rather than broader market or economic trends.

Our data comes from multiple sources to construct a comprehensive dataset. 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. We merge these datasets using standard identifiers to create a panel dataset that captures both financial and disclosure characteristics of firms. The integration of multiple data sources allows us to

control for various factors that might influence voluntary disclosure decisions while maintaining a large sample size for statistical power.

The final sample consists of 21,237 firm-year observations after applying standard data filters and requiring non-missing values for key variables. We exclude financial firms and utilities due to their unique regulatory environments and disclosure requirements. The sample construction process involves removing observations with missing data for dependent and independent variables, ensuring that our analysis is based on complete information. In our research design, all firms serve as treated units in the post-regulation period, as the Hedge Fund Disclosure Rule's impact on the information environment affects the entire market rather than specific subsets of firms (Shroff et al., 2013). This approach allows us to examine the economy-wide effects of sectoral regulation on voluntary disclosure practices.

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 21,237 firm-quarter observations from 5,592 unique firms spanning the period from 2001 to 2005. This timeframe captures the critical period surrounding the implementation of hedge fund disclosure regulations, providing a comprehensive view of information asymmetry dynamics during this regulatory transition.

We examine several key variables that proxy for information asymmetry and firm characteristics. Our primary measure of institutional ownership (linstown) exhibits substantial variation, with a mean of 0.406 and standard deviation of 0.293. The distribution shows meaningful dispersion across quartiles, ranging from 0.131 at the 25th percentile to 0.658 at the 75th percentile, indicating heterogeneous institutional investor presence across our sample firms. The maximum value of 1.110 suggests some firms experience institutional ownership exceeding 100%, consistent with short positions or data timing differences commonly

observed in institutional holdings data.

Firm size (lsize) demonstrates the expected right-skewed distribution typical in accounting research, with a mean of 5.408 and median of 5.323. The interquartile range spans from 3.844 to 6.843, reflecting substantial size variation from small to large publicly traded firms. Book-to-market ratios (lbtm) average 0.683 with considerable dispersion (standard deviation of 0.697), while the negative minimum value of -1.019 indicates some firms exhibit negative book values during our sample period.

Profitability measures reveal interesting patterns. Return on assets (lroa) shows a mean of -0.073 but a positive median of 0.014, suggesting a left-skewed distribution with some firms experiencing significant losses. This observation aligns with our loss indicator variable (lloss), which shows 35.9% of firm-quarters report losses. Stock returns over the prior 12 months (lsaret12) average near zero (0.002) with substantial volatility, consistent with efficient market expectations.

Our information asymmetry proxy, earnings volatility (levol), exhibits the expected right-skewed distribution with a mean of 0.168 and median of 0.059. The substantial difference between mean and median, combined with a standard deviation of 0.318, indicates considerable heterogeneity in earnings predictability across firms. Similarly, our alternative information asymmetry measure (lcalrisk) shows a mean of 0.440 with notable dispersion.

The regulatory variables show that 57% of observations occur in the post-regulation period (post_law), providing balanced representation across the regulatory change. Our mutual fund frequency measure (freqMF) exhibits substantial variation, with many firms showing zero frequency while others demonstrate significant mutual fund attention, creating natural variation for identification purposes.

RESULTS

Regression Analysis

We present regression results examining the association between the implementation of the Hedge Fund Disclosure Rule in 2003 and voluntary disclosure behavior among hedge fund advisers. Our analysis employs three model specifications to assess the robustness of the treatment effect, progressing from a simple difference-in-differences specification to increasingly comprehensive models that incorporate control variables and firm fixed effects. Across all three specifications, we find consistent evidence of a positive and statistically significant association between the mandatory disclosure requirement and voluntary disclosure activities. The treatment effect remains remarkably stable, ranging from 0.0725 to 0.0894, suggesting that the Hedge Fund Disclosure Rule increased voluntary disclosure among affected firms by approximately 7.3 to 8.9 percentage points.

The statistical significance of our main finding is robust across all model specifications, with t-statistics ranging from 6.02 to 9.19 and p-values consistently below 0.001, providing strong evidence against the null hypothesis of no association. The economic magnitude of the treatment effect is substantial, representing an increase in voluntary disclosure of approximately 8 percentage points following the rule implementation. This effect size is economically meaningful in the context of voluntary disclosure decisions, particularly given the historically opaque nature of the hedge fund industry prior to 2003. The progression across model specifications demonstrates the robustness of our findings, with the R-squared increasing from 0.0025 in the baseline specification to 0.8015 in the firm fixed effects specification, indicating that our most comprehensive model explains approximately 80% of the variation in voluntary disclosure behavior. Notably, the treatment effect actually increases slightly when firm fixed effects are included (from 0.0725 to 0.0894), suggesting that unobserved firm-level heterogeneity does not drive our main results and may actually attenuate

the true treatment effect.

The control variable effects in our analysis are largely consistent with established findings in the voluntary disclosure literature. We find that institutional ownership (linstown) exhibits a positive and significant association with voluntary disclosure across all specifications, consistent with prior research suggesting that institutional investors demand greater transparency (Bushee and Noe, 2000; Ajinkya et al., 2005). Firm size (lsize) demonstrates a consistently positive relationship with voluntary disclosure, supporting the established finding that larger firms face greater public scrutiny and have lower proprietary costs of disclosure (Lang and Lundholm, 1993). The negative coefficient on losses (lloss) aligns with prior literature indicating that firms experiencing poor performance may reduce disclosure to avoid negative market reactions (Kothari et al., 2009). Interestingly, some control variables exhibit different signs between specifications 2 and 3, particularly stock return volatility (levol) and stock returns (lsaret12), suggesting that firm fixed effects capture important unobserved heterogeneity that affects these relationships. The negative time trend coefficient across all specifications indicates a general decline in voluntary disclosure over our sample period, making our positive treatment effect even more economically significant as it represents an increase in disclosure against this broader declining trend. These results strongly support our hypothesis (H1) that the implementation of the Hedge Fund Disclosure Rule increased voluntary disclosure among hedge fund advisers through the reduction of information asymmetries, providing empirical evidence for complementary rather than substitution effects between mandatory and voluntary disclosure in this regulatory setting.

CONCLUSION

This study examines how the Hedge Fund Disclosure Rule of 2003 affected voluntary disclosure practices through the information asymmetry channel. We investigate whether enhanced disclosure requirements for hedge fund advisers created spillover effects that

influenced corporate disclosure behavior by altering the information environment and competitive dynamics between informed and uninformed market participants. Our research contributes to the growing literature on how regulatory changes in one sector can generate unintended consequences in related markets through information asymmetry mechanisms (Bushman et al., 2004; Armstrong et al., 2010).

Our empirical analysis provides robust evidence that the Hedge Fund Disclosure Rule significantly increased voluntary disclosure activity. Across all three specifications, we find consistently positive and statistically significant treatment effects ranging from 0.0725 to 0.0894, with t-statistics exceeding 6.0 and p-values below 0.001. The economic magnitude of these effects is substantial, representing an approximate 7-9 percentage point increase in voluntary disclosure propensity following the rule's implementation. The stability of our treatment effect across specifications with varying control structures—from a parsimonious model with minimal controls ($R^2 = 0.0025$) to a comprehensive specification including firm fixed effects ($R^2 = 0.8015$)—demonstrates the robustness of our findings. These results suggest that the regulatory intervention successfully reduced information asymmetries by compelling firms to increase their voluntary disclosure activities, consistent with theoretical predictions that enhanced transparency requirements create incentives for broader market participation in information production (Diamond and Verrecchia, 1991; Kim and Verrecchia, 1994).

The control variables in our most comprehensive specification reveal additional insights about the determinants of voluntary disclosure in this context. We find that institutional ownership and firm size remain significant positive predictors of disclosure activity, with coefficients of 0.1412 and 0.1498 respectively, supporting prior literature on the role of sophisticated investors in demanding transparency (Healy et al., 1999; Bushee and Noe, 2000). Notably, the negative coefficient on losses (-0.1055) indicates that firms experiencing poor performance are less likely to engage in voluntary disclosure, consistent with managers'

incentives to withhold bad news (Kothari et al., 2009). The negative time trend (-0.0398) suggests a general decline in disclosure propensity over our sample period, making our positive treatment effect even more economically meaningful.

Our findings carry important implications for regulators seeking to enhance market transparency and efficiency. The results demonstrate that targeted disclosure regulations can generate positive spillover effects beyond their immediate scope, suggesting that policymakers should consider these broader market-wide impacts when designing regulatory interventions. The evidence that the Hedge Fund Disclosure Rule increased voluntary disclosure through the asymmetry channel supports the view that information-based regulations can improve overall market functioning by reducing information frictions (Leuz and Wysocki, 2016). For corporate managers, our findings suggest that regulatory changes affecting the information environment create new incentives for voluntary disclosure, potentially as a competitive response to increased transparency among other market participants. Managers should anticipate that disclosure regulations in related sectors may indirectly affect their own optimal disclosure strategies. From an investor perspective, our results indicate that regulatory interventions targeting specific market segments can improve information availability more broadly, potentially enhancing investment decision-making and reducing the cost of capital for firms that respond with increased voluntary disclosure (Lambert et al., 2007).

Our study has several important limitations that should be acknowledged. First, while we document a significant association between the Hedge Fund Disclosure Rule and increased voluntary disclosure, we cannot definitively establish that information asymmetry is the sole mechanism driving this relationship. Alternative channels, such as changes in litigation risk or competitive dynamics, may also contribute to our observed effects. Second, our analysis focuses on the immediate post-implementation period, and the long-term sustainability of these disclosure effects remains unclear. Third, we do not directly measure the quality or

informativeness of the voluntary disclosures, focusing instead on disclosure propensity. Future research could examine whether the observed increase in disclosure quantity translates into meaningful improvements in information quality and market efficiency.

Several promising avenues for future research emerge from our findings. First, researchers could investigate the specific types of voluntary disclosure that are most responsive to asymmetry-reducing regulations, potentially revealing which information categories are most sensitive to competitive information dynamics. Second, future studies could examine whether the effects we document vary across different institutional environments or regulatory regimes, providing insights into the boundary conditions of asymmetry-based disclosure incentives. Third, researchers could explore the welfare implications of these spillover effects, investigating whether the increased voluntary disclosure we document actually improves market efficiency and reduces the cost of capital. Finally, future work could examine how technological changes and evolving market structures affect the relationship between regulatory disclosure requirements and voluntary disclosure incentives, particularly as alternative investment strategies become increasingly sophisticated and interconnected with traditional markets (Badertscher et al., 2013; Shroff et al., 2013).

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Table 1

Descriptive Statistics

Variables	N	Mean	Std. Dev.	P25	Median	P75
FreqMF	21,237	0.6466	0.8752	0.0000	0.0000	1.3863
Treatment Effect	21,237	0.5697	0.4951	0.0000	1.0000	1.0000
Institutional ownership	21,237	0.4059	0.2933	0.1313	0.3791	0.6579
Firm size	21,237	5.4082	2.1271	3.8441	5.3231	6.8428
Book-to-market	21,237	0.6827	0.6968	0.2893	0.5255	0.8672
ROA	21,237	-0.0730	0.2939	-0.0581	0.0138	0.0570
Stock return	21,237	0.0022	0.6119	-0.3599	-0.1159	0.1883
Earnings volatility	21,237	0.1684	0.3184	0.0235	0.0591	0.1649
Loss	21,237	0.3595	0.4799	0.0000	0.0000	1.0000
Class action litigation risk	21,237	0.4398	0.3468	0.1163	0.3455	0.7816
Time Trend	21,237	1.9038	1.4048	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
Hedge Fund Disclosure Rule 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	**0.05**	**0.14**	**0.10**	**-0.13**	**0.07**	0.00	**-0.04**	**-0.07**	**-0.10**
FreqMF	**0.05**	1.00	**0.48**	**0.48**	**-0.16**	**0.22**	-0.00	**-0.13**	**-0.25**	**0.07**
Institutional ownership	**0.14**	**0.48**	1.00	**0.69**	**-0.18**	**0.28**	**-0.11**	**-0.22**	**-0.24**	**0.05**
Firm size	**0.10**	**0.48**	**0.69**	1.00	**-0.38**	**0.32**	**-0.02**	**-0.23**	**-0.34**	**0.06**
Book-to-market	**-0.13**	**-0.16**	**-0.18**	**-0.38**	1.00	**0.06**	**-0.15**	**-0.11**	**0.10**	**-0.08**
ROA	**0.07**	**0.22**	**0.28**	**0.32**	**0.06**	1.00	**0.18**	**-0.59**	**-0.59**	**-0.29**
Stock return	0.00	-0.00	**-0.11**	**-0.02**	**-0.15**	**0.18**	1.00	**-0.05**	**-0.17**	**-0.09**
Earnings volatility	**-0.04**	**-0.13**	**-0.22**	**-0.23**	**-0.11**	**-0.59**	**-0.05**	1.00	**0.39**	**0.31**
Loss	**-0.07**	**-0.25**	**-0.24**	**-0.34**	**0.10**	**-0.59**	**-0.17**	**0.39**	1.00	**0.35**
Class action litigation risk	**-0.10**	**0.07**	**0.05**	**0.06**	**-0.08**	**-0.29**	**-0.09**	**0.31**	**0.35**	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 Hedge Fund Disclosure Rule on Management Forecast Frequency

	(1)	(2)	(3)
Treatment Effect	0.0882*** (9.19)	0.0725*** (6.02)	0.0894*** (7.53)
Institutional ownership		0.8927*** (19.72)	0.1412** (2.36)
Firm size		0.0909*** (12.84)	0.1498*** (14.50)
Book-to-market		-0.0060 (0.62)	0.0136 (1.30)
ROA		0.1331*** (5.53)	0.0284 (1.17)
Stock return		0.0215*** (2.64)	-0.0188*** (2.68)
Earnings volatility		0.0863*** (3.27)	-0.0333 (0.86)
Loss		-0.2133*** (13.11)	-0.1055*** (7.88)
Class action litigation risk		0.2193*** (10.35)	0.0033 (0.21)
Time Trend		-0.0420*** (8.53)	-0.0398*** (7.83)
Firm fixed effects	No	No	Yes
N	21,237	21,237	21,237
R^2	0.0025	0.2903	0.8015

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