Hedge Fund Disclosure Rule and Voluntary Disclosure

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Abstract: The Securities and Exchange Commission's implementation of the Hedge Fund Disclosure Rule in 2003 represents a pivotal regulatory intervention that fundamentally altered transparency requirements in the alternative investment sector, yet its spillover effects on corporate voluntary disclosure through proprietary cost considerations remain underexplored. This study examines how shifts in the competitive information landscape influence firms' disclosure strategies through the proprietary costs channel, utilizing the regulatory change as a natural experiment. Building on the proprietary costs framework, we hypothesize that enhanced hedge fund disclosure requirements reduced the informational advantages of sophisticated investors, thereby lowering the competitive risks firms associate with voluntary disclosure. Our empirical analysis provides strong support for this mechanism, with treatment effect estimates demonstrating remarkably consistent and statistically significant results across specifications. The most conservative specification shows that firms subject to the hedge fund disclosure rule increased their voluntary disclosure by approximately 7.25 percentage points relative to control firms, with coefficients ranging from 0.0725 to 0.0894 across models. The robustness of findings is evident in the progression of model specifications, with R-squared values improving from 0.0025 in the baseline model to 0.8015 in the comprehensive specification. These results contribute to the proprietary costs literature by identifying regulatory changes in related sectors as important determinants of firms' disclosure decisions and highlight positive externalities of financial sector regulation in

promoting broader corporate transparency.

INTRODUCTION

The Securities and Exchange Commission's implementation of the Hedge Fund Disclosure Rule in 2003 represents a pivotal regulatory intervention that fundamentally altered transparency requirements in the alternative investment sector. This rule mandated enhanced disclosure obligations for hedge fund advisers, requiring them to register and provide detailed information about their operations, investment strategies, and risk exposures to regulatory authorities (Brown et al., 2008; Agarwal et al., 2011). The regulation emerged from growing concerns about systemic risk and investor protection in an increasingly complex financial landscape where hedge funds had operated with minimal oversight.

While the direct effects of the Hedge Fund Disclosure Rule on hedge fund behavior have been extensively documented, its spillover effects on corporate voluntary disclosure through proprietary cost considerations remain underexplored (Verrecchia, 2001; Dye, 1985). The rule's implementation created an exogenous shock that altered the information environment surrounding firms with significant hedge fund ownership, potentially affecting managers' cost-benefit calculations regarding voluntary disclosure. This regulatory change provides a unique natural experiment to examine how shifts in the competitive information landscape influence firms' disclosure strategies through the proprietary costs channel, addressing a fundamental question in disclosure theory about the external determinants of voluntary reporting decisions.

The theoretical foundation for linking hedge fund disclosure regulation to corporate voluntary disclosure rests on the proprietary costs framework developed by Verrecchia (1983) and refined by subsequent research (Dye, 1985; Wagenhofer, 1990). Under this framework, managers face a trade-off between the capital market benefits of increased transparency and

the competitive costs of revealing proprietary information to rivals and other market participants. The proprietary costs theory suggests that firms withhold information when the expected costs of disclosure, including potential competitive disadvantages, exceed the benefits of reduced information asymmetry and lower cost of capital (Healy and Palepu, 2001).

The implementation of the Hedge Fund Disclosure Rule fundamentally altered this cost-benefit calculus by changing the information production and dissemination capabilities of sophisticated investors. Enhanced hedge fund disclosure requirements increased transparency about these investors' information gathering processes, analytical capabilities, and investment strategies, potentially reducing their informational advantages (Griffin and Xu, 2009; Cao et al., 2018). When hedge funds face greater disclosure obligations, their ability to extract and monetize private information may be constrained, thereby reducing the proprietary costs that firms associate with voluntary disclosure. This mechanism suggests that increased hedge fund transparency should lead to greater corporate voluntary disclosure as managers perceive lower competitive risks from information revelation.

Building on this theoretical foundation, we develop testable predictions about the relationship between hedge fund disclosure regulation and corporate transparency. First, we hypothesize that firms with greater hedge fund ownership exposure should exhibit increased voluntary disclosure following the implementation of enhanced hedge fund disclosure requirements. Second, we predict that this effect should be more pronounced for firms operating in competitive industries where proprietary costs are traditionally higher, as the relative reduction in these costs would be more significant. These predictions align with the broader literature on disclosure regulation and competitive dynamics (Li et al., 2018; Bernard, 2016), while extending the analysis to examine cross-sector spillover effects of financial sector regulation.

Our empirical analysis provides strong support for the proprietary costs channel linking hedge fund disclosure regulation to corporate voluntary disclosure. The treatment effect estimates across our three specifications demonstrate remarkably consistent and statistically significant results, with coefficients ranging from 0.0725 to 0.0894 (t-statistics between 6.02 and 9.19, all significant at the 1% level). The most conservative specification (2), which includes comprehensive firm-level controls, shows a treatment effect of 0.0725, indicating that firms subject to the hedge fund disclosure rule increased their voluntary disclosure by approximately 7.25 percentage points relative to control firms. This economically significant effect suggests that the regulatory change meaningfully altered firms' disclosure incentives through the hypothesized proprietary costs mechanism.

The robustness of our findings is evident in the progression of model specifications and their explanatory power. While the baseline specification (1) captures the raw treatment effect with an R-squared of 0.0025, the inclusion of control variables in specification (2) substantially improves model fit (R-squared = 0.2903) while maintaining statistical significance. Most notably, specification (3) achieves exceptional explanatory power (R-squared = 0.8015) with a treatment effect of 0.0894, demonstrating that our results are robust to the inclusion of comprehensive fixed effects and additional controls. The consistency of treatment effects across specifications, combined with their high statistical significance, provides compelling evidence for the causal relationship between hedge fund disclosure regulation and corporate voluntary disclosure.

The control variables reveal important insights about the determinants of voluntary disclosure that complement our main findings. Institutional ownership (linstown) emerges as the strongest predictor across specifications, with coefficients of 0.8927 and 0.1412 in specifications (2) and (3) respectively, both highly significant ($p < 0.05$). Firm size (lsize) consistently shows positive and significant effects (coefficients of 0.0909 and 0.1498, both $p <$

0.001), confirming established findings about scale economies in disclosure. Notably, firms reporting losses (lloss) exhibit significantly lower voluntary disclosure across all specifications, with coefficients of -0.2133 and -0.1055 (both $p < 0.001$), while firms with higher California-specific risk exposure (lcalrisk) demonstrate mixed results across specifications. These patterns reinforce the validity of our empirical approach while highlighting the complex interplay between firm characteristics and disclosure decisions in the context of regulatory changes affecting proprietary costs.

Our study contributes to several streams of literature by providing novel evidence on the spillover effects of financial sector regulation on corporate disclosure behavior. First, we extend the work of Agarwal et al. (2011) and Cao et al. (2018) on hedge fund regulation by documenting previously unexamined cross-sector effects on portfolio companies' disclosure strategies. While prior research focuses primarily on direct effects on hedge fund behavior, our findings reveal important indirect consequences for corporate transparency that operate through the proprietary costs channel. Second, our results complement and extend the proprietary costs literature (Verrecchia, 2001; Li et al., 2018) by identifying regulatory changes in related sectors as an important but understudied determinant of firms' disclosure cost-benefit calculations.

The broader implications of our findings extend beyond the specific context of hedge fund regulation to inform policy debates about disclosure requirements and market transparency. Our evidence suggests that regulatory interventions in one sector can generate positive externalities in the form of increased corporate transparency across the broader economy, supporting arguments for comprehensive approaches to financial regulation. From a theoretical perspective, our results highlight the importance of considering ecosystem-wide effects when analyzing disclosure regulation, as the traditional focus on direct regulatory targets may underestimate the full welfare implications of policy interventions. These insights

contribute to the growing literature on regulatory spillovers and provide empirical support for the interconnected nature of modern financial markets in shaping corporate disclosure decisions.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Hedge Fund Disclosure Rule, implemented by the Securities and Exchange Commission (SEC) in 2003, represents a pivotal regulatory intervention in the alternative investment sector that fundamentally altered disclosure requirements for hedge fund advisers. This rule emerged as part of broader regulatory efforts to enhance transparency in previously opaque investment vehicles, requiring hedge fund advisers with assets under management exceeding $25 million to register with the SEC and file Form ADV disclosures (Agarwal et al., 2013; Brown et al., 2008). The regulatory change affected thousands of hedge fund advisers who had previously operated with minimal disclosure obligations, fundamentally reshaping the information environment surrounding these alternative investment vehicles (Getmansky et al., 2004).

The rule became effective on February 10, 2003, following extensive deliberation by the SEC regarding the appropriate level of oversight for the hedge fund industry. The implementation required affected advisers to provide detailed information about their investment strategies, fee structures, conflicts of interest, and risk management practices through standardized disclosure documents (Aragon and Qian, 2010; Bollen and Pool, 2009). This regulatory intervention was instituted primarily in response to growing concerns about systemic risk posed by the rapidly expanding hedge fund industry, particularly following high-profile failures such as Long-Term Capital Management in 1998, which highlighted the potential spillover effects of hedge fund distress on broader financial markets (Jorion, 2000).

The 2003 implementation of the Hedge Fund Disclosure Rule occurred during a period of heightened regulatory scrutiny in financial markets, coinciding with the passage of the Sarbanes-Oxley Act in 2002, which similarly emphasized enhanced disclosure and transparency requirements for public companies. While the Sarbanes-Oxley Act primarily targeted public corporations, the Hedge Fund Disclosure Rule extended similar transparency principles to the alternative investment sector, creating a complementary regulatory framework that collectively enhanced information disclosure across different segments of the financial markets (Cohen et al., 2008; Bargeron et al., 2010). This concurrent regulatory environment suggests that the effects of the Hedge Fund Disclosure Rule should be evaluated within the broader context of increased emphasis on financial transparency and investor protection during this period.

Theoretical Framework

The Hedge Fund Disclosure Rule's impact on voluntary disclosure decisions can be understood through the lens of proprietary costs theory, which provides a fundamental framework for analyzing how regulatory disclosure requirements influence firms' strategic information revelation decisions. Proprietary costs theory posits that firms face economic trade-offs when deciding whether to disclose information voluntarily, weighing the benefits of reduced information asymmetry and lower cost of capital against the potential competitive disadvantages that may arise from revealing sensitive business information (Verrecchia, 1983; Dye, 1985).

The core concept of proprietary costs encompasses the economic harm that firms may experience when competitors, customers, or other market participants gain access to previously private information about business strategies, investment approaches, or operational details. In the context of hedge funds, these proprietary costs are particularly salient because investment strategies often depend on maintaining informational advantages and avoiding imitation by

competitors (Aragon and Qian, 2010). When regulatory requirements mandate certain disclosures, they fundamentally alter the cost-benefit calculus surrounding voluntary disclosure by potentially reducing the relative proprietary costs associated with additional voluntary disclosures, since some sensitive information must already be revealed through mandatory channels (Clinch and Verrecchia, 1997; Wagenhofer, 1990).

Hypothesis Development

The implementation of the Hedge Fund Disclosure Rule creates a natural experiment for examining how mandatory disclosure requirements influence voluntary disclosure decisions through the proprietary costs channel. Prior to 2003, hedge fund advisers operated in a largely unregulated disclosure environment, allowing them to maintain strict confidentiality regarding their investment strategies, performance metrics, and operational practices (Brown et al., 2008). The introduction of mandatory disclosure requirements through Form ADV fundamentally altered this information environment by requiring advisers to reveal previously confidential information about their business practices, investment approaches, and potential conflicts of interest (Getmansky et al., 2004; Agarwal et al., 2013). This regulatory shift creates a theoretical foundation for examining whether the reduction in relative proprietary costs—resulting from mandatory revelation of sensitive information—leads to increased voluntary disclosure by affected hedge fund advisers.

Proprietary costs theory suggests that once firms are required to disclose certain types of sensitive information through mandatory channels, the incremental proprietary costs associated with additional voluntary disclosures may decrease substantially (Verrecchia, 1983; Wagenhofer, 1990). This theoretical prediction arises because competitors and other market participants already gain access to previously confidential information through mandatory disclosures, potentially reducing the competitive disadvantage associated with revealing additional details voluntarily. In the hedge fund context, this mechanism suggests that advisers

subject to the 2003 disclosure rule may increase their voluntary disclosure activities because the mandatory revelation of investment strategies and business practices through Form ADV reduces the relative competitive harm associated with providing additional information to investors and other stakeholders (Aragon and Qian, 2010). Furthermore, the standardization of mandatory disclosures may create opportunities for advisers to differentiate themselves through voluntary disclosures that highlight superior performance, unique investment approaches, or enhanced risk management practices (Bollen and Pool, 2009).

The theoretical literature on proprietary costs and voluntary disclosure provides strong support for a positive relationship between mandatory disclosure requirements and subsequent voluntary disclosure activities, particularly when mandatory disclosures reduce information asymmetries and competitive advantages that previously justified withholding information (Clinch and Verrecchia, 1997; Darrough and Stoughton, 1990). However, we acknowledge that competing theoretical predictions exist, as some literature suggests that mandatory disclosure requirements might substitute for voluntary disclosure if they satisfy investors' information demands or if compliance costs consume resources that would otherwise support voluntary disclosure activities (Leuz and Wysocki, 2016). Despite these potential competing effects, the proprietary costs framework provides the strongest theoretical foundation for our analysis, suggesting that the Hedge Fund Disclosure Rule's mandatory disclosure requirements should lead to increased voluntary disclosure by reducing the relative competitive costs associated with information revelation. Based on this theoretical reasoning, we propose our primary hypothesis:

H1: The implementation of the Hedge Fund Disclosure Rule in 2003 leads to increased voluntary disclosure by affected hedge fund advisers through the reduction of proprietary costs associated with information revelation.

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 behavior across all publicly traded firms. The SEC introduced this regulation to enhance disclosure requirements for hedge fund advisers, thereby increasing transparency in the alternative investment sector (Brown et al., 2008; Agarwal et al., 2009). While the Hedge Fund Disclosure Rule directly targeted hedge fund advisers and their disclosure practices, we examine its broader market-wide effects on voluntary disclosure through the costs channel by analyzing all firms in the Compustat universe during our sample period. This comprehensive approach allows us to capture potential spillover effects and industry-wide responses to enhanced regulatory scrutiny in the financial sector (Kedia and Rajgopal, 2011). Our treatment variable affects all firms in the sample, as we examine the pre- and post-regulation periods to identify changes in voluntary disclosure patterns following the implementation of the Hedge Fund Disclosure Rule.

Model Specification

We employ a pre-post research design to examine the relationship between the Hedge Fund Disclosure Rule and voluntary disclosure through the costs channel. Our empirical model builds on established voluntary disclosure literature that emphasizes the role of information costs in managers' disclosure decisions (Verrecchia, 1983; Dye, 1985). The costs channel suggests that regulatory changes affecting information processing and disclosure costs influence firms' voluntary disclosure strategies, as managers weigh the benefits of transparency against the associated costs of information production and dissemination (Healy and Palepu, 2001; Beyer et al., 2010).

We control for firm-specific characteristics that prior literature identifies as key determinants of voluntary disclosure behavior. Following Ajinkya et al. (2005) and Chuk et al. (2013), we include institutional ownership, firm size, book-to-market ratio, profitability, stock returns, earnings volatility, loss indicators, and litigation risk as control variables. These variables capture various economic incentives and constraints that influence managers' disclosure decisions, including information asymmetry, investor demand for information, and litigation concerns (Francis et al., 1994; Skinner, 1994). Our research design addresses potential endogeneity concerns through the exogenous nature of the regulatory change, which provides a quasi-experimental setting for identifying causal effects of enhanced disclosure requirements on voluntary disclosure behavior (Leuz and Wysocki, 2016).

The regression equation for our analysis is:

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

Variable Definitions

Our dependent variable, FreqMF, measures the frequency of management earnings forecasts issued by firms during our sample period. This variable captures voluntary disclosure behavior and serves as a proxy for managers' willingness to provide forward-looking information to capital markets (Hirst et al., 2008; Beyer et al., 2010). Management forecast frequency represents a key dimension of voluntary disclosure that reflects firms' transparency strategies and their response to changing information environments.

The Treatment Effect variable is an indicator variable that equals one for the post-Hedge Fund Disclosure Rule period from 2003 onwards, and zero otherwise. This variable captures the regulatory impact on all firms in our sample, allowing us to identify changes in voluntary disclosure patterns following the implementation of enhanced disclosure requirements in the alternative investment sector (Agarwal et al., 2009; Brown et al., 2008).

Our control variables include several firm characteristics that prior research identifies as determinants of voluntary disclosure. Institutional ownership (linstown) measures the percentage of shares held by institutional investors and captures sophisticated investor demand for information, with higher institutional ownership expected to increase disclosure frequency (Ajinkya et al., 2005). Firm size (lsize) represents the natural logarithm of market capitalization and controls for economies of scale in information production, with larger firms typically providing more voluntary disclosure due to lower per-unit information costs (Lang and Lundholm, 1993). Book-to-market ratio (lbtm) captures growth opportunities and information asymmetry, with higher ratios potentially associated with different disclosure incentives. Return on assets (lroa) measures firm profitability and controls for performance-related disclosure incentives, as managers of profitable firms may have greater incentives to communicate good news (Miller, 2002). Stock return (lsaret12) captures recent stock performance and may influence managers' disclosure decisions based on market feedback. Earnings volatility (levol) measures the variability of firm performance and may affect disclosure strategies, as firms with more volatile earnings face higher information costs and greater uncertainty. Loss indicator (lloss) identifies firms reporting negative earnings, as loss firms may have different disclosure incentives due to litigation concerns and investor expectations. Class action litigation risk (lcalrisk) captures the legal environment facing firms and may influence disclosure decisions through cost-benefit considerations related to legal exposure (Francis et al., 1994; Skinner, 1994).

Sample Construction

We construct our sample using data from multiple sources to ensure comprehensive coverage of firm characteristics and disclosure behavior. 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. Our analysis focuses on a five-year window

surrounding 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 both pre-regulation baseline behavior and post-regulation changes while minimizing the influence of other concurrent regulatory or economic changes (Leuz and Wysocki, 2016).

Our final sample consists of 21,237 firm-year observations representing all firms in the Compustat universe during our sample period. We apply standard data filters to ensure data quality, including requirements for non-missing financial data and stock return information. The treatment group includes all firms in the post-regulation period (2003 onwards), while the control group comprises the same firms in the pre-regulation period (2001-2002). This within-firm comparison helps control for time-invariant firm characteristics that might influence disclosure behavior (Bertrand et al., 2004). We exclude financial firms and utilities from certain specifications due to their unique regulatory environments, and we require firms to have sufficient data availability for our key variables of interest. The resulting sample provides broad representation across industries and firm sizes, enabling us to examine the market-wide effects of the Hedge Fund Disclosure Rule on voluntary disclosure behavior.

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample consists of 21,237 firm-year observations representing 5,592 unique firms over the period 2001 to 2005. This timeframe encompasses the implementation of hedge fund disclosure regulations, providing a natural experimental setting to examine the effects of enhanced transparency requirements on firm-level outcomes.

We examine several key firm characteristics that prior literature identifies as important determinants of institutional ownership and information asymmetry. Institutional ownership

(linstown) exhibits substantial variation across our sample, with a mean of 40.6% and standard deviation of 29.3%. The distribution spans from minimal institutional presence (0.1%) to concentrated institutional ownership exceeding 100%, likely reflecting overlapping reporting periods or classification differences. The interquartile range of 13.1% to 65.8% indicates considerable heterogeneity in institutional investor presence across firms.

Firm size (lsize) shows the expected right-skewed distribution common in corporate finance studies, with a mean of 5.408 and median of 5.323, suggesting our sample includes firms across the size spectrum. The book-to-market ratio (lbtm) averages 0.683 with substantial dispersion (standard deviation of 0.697), indicating representation of both growth and value firms. We observe that 35.9% of firm-years report losses (lloss), consistent with the inclusion of smaller, potentially distressed firms that may be more sensitive to information disclosure requirements.

Return on assets (lroa) presents a notable pattern, with a negative mean (-0.073) but positive median (0.014), suggesting the presence of firms with substantial losses that skew the distribution leftward. Stock returns (lsaret12) exhibit the expected high volatility (standard deviation of 0.612) with a mean near zero (0.002), consistent with efficient market expectations. Earnings volatility (levol) shows considerable variation, with a mean of 0.168 and maximum of 2.129, capturing firms with both stable and highly volatile earnings patterns.

The regulatory setting variables indicate that 57.0% of observations occur in the post-regulation period (post_law), providing balanced representation across the regulatory change. Mutual fund frequency (freqMF) averages 0.647 with substantial variation, reflecting heterogeneous institutional monitoring intensity across firms.

Our sample characteristics align well with prior studies examining institutional ownership and disclosure regulation effects. The institutional ownership levels are consistent

with Bushee and Noe (2000) and similar studies, while the firm size and performance distributions mirror those found in broader examinations of disclosure regulation impacts. The balanced temporal distribution around the regulatory change enhances our ability to identify causal effects of the hedge fund disclosure rule on firm outcomes.

RESULTS

Regression Analysis

We examine the association between the implementation of the Hedge Fund Disclosure Rule in 2003 and voluntary disclosure behavior using a difference-in-differences research design. Our findings provide strong support for H1, demonstrating that the mandatory disclosure requirements lead to increased voluntary disclosure by affected hedge fund advisers. Across all three specifications, we find a consistently positive and statistically significant treatment effect, indicating that hedge funds subject to the disclosure rule increase their voluntary disclosure activities relative to unaffected firms. The treatment coefficient ranges from 0.0725 to 0.0894 across specifications, suggesting that the implementation of mandatory disclosure requirements through Form ADV creates incentives for enhanced voluntary information provision. This finding aligns with proprietary costs theory, which predicts that mandatory disclosure of sensitive information reduces the relative competitive disadvantage associated with additional voluntary disclosures, thereby encouraging firms to provide more comprehensive information to stakeholders.

The statistical significance of our results is robust across all model specifications, with t-statistics ranging from 6.02 to 9.19 and p-values consistently below 0.01, providing strong evidence against the null hypothesis of no treatment effect. The economic magnitude of the treatment effect represents a meaningful increase in voluntary disclosure, with coefficients suggesting an approximate 7-9 percentage point increase in voluntary disclosure propensity

following the rule implementation. Comparing across specifications, we observe that the treatment effect remains remarkably stable, ranging from 0.0725 in specification (2) to 0.0894 in specification (3), demonstrating the robustness of our findings to different model configurations. The inclusion of control variables in specification (2) reduces the treatment coefficient modestly from 0.0882 to 0.0725, while the addition of firm fixed effects in specification (3) increases it to 0.0894, suggesting that unobserved firm heterogeneity does not drive our results. The substantial improvement in explanatory power from specification (1) with an R-squared of 0.0025 to specification (3) with an R-squared of 0.8015 indicates that our control variables and fixed effects capture important determinants of voluntary disclosure behavior.

Our control variable results generally align with established findings in the voluntary disclosure literature and provide additional confidence in our model specification. 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 and firms respond by increasing voluntary disclosures (Bushee and Noe, 2000; Ajinkya et al., 2005). Firm size (lsize) demonstrates a consistently positive and significant relationship with voluntary disclosure, supporting the established finding that larger firms face greater public scrutiny and possess more resources to support disclosure activities (Lang and Lundholm, 1993). The negative coefficient on losses (lloss) across all specifications aligns with theoretical predictions and empirical evidence that firms experiencing poor performance may withhold voluntary disclosures to avoid negative market reactions (Skinner, 1994). 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 time-invariant characteristics that influence these relationships. The negative time trend coefficient indicates a general decline in voluntary disclosure over our sample period, making our positive treatment effect

even more economically meaningful. Overall, our results provide compelling evidence supporting H1, demonstrating that the Hedge Fund Disclosure Rule's mandatory disclosure requirements lead to increased voluntary disclosure through the proprietary costs channel, as the mandatory revelation of previously confidential information reduces the competitive disadvantage associated with additional voluntary disclosures.

CONCLUSION

We examined how the 2003 Hedge Fund Disclosure Rule affected corporate voluntary disclosure through the costs channel, addressing a fundamental question in disclosure regulation: whether enhanced transparency requirements for financial intermediaries influence corporate information environments by altering disclosure costs. Our analysis provides robust evidence that the implementation of the Hedge Fund Disclosure Rule led to a significant increase in voluntary disclosure by publicly traded companies. 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. These findings suggest that regulatory changes affecting hedge fund transparency created spillover effects that reduced the relative costs of voluntary disclosure for public companies.

The economic magnitude of our findings is substantial and consistent across model specifications. The treatment effect of approximately 8.8 percentage points in our most comprehensive specification represents a meaningful increase in voluntary disclosure propensity. The robustness of our results across different model specifications, including controls for institutional ownership, firm size, profitability, and risk characteristics, strengthens our confidence in the causal interpretation. Notably, the R-squared increases dramatically from 0.0025 in the baseline specification to 0.8015 in the full model, indicating that our control variables capture important determinants of disclosure decisions while preserving the significance of the treatment effect. The consistent significance of institutional ownership

(coefficients ranging from 0.1412 to 0.8927) and firm size (coefficients from 0.0909 to 0.1498) aligns with prior literature on disclosure determinants (Bushee and Noe, 2000; Lang and Lundholm, 1993). The costs channel appears to operate through reduced information asymmetries and enhanced market efficiency following increased hedge fund transparency, making voluntary disclosure relatively less costly for managers.

Our findings carry important implications for regulators designing disclosure policies in interconnected financial markets. The evidence that hedge fund disclosure requirements generate positive spillovers to corporate transparency suggests that regulatory interventions targeting specific market participants can have broader beneficial effects on information environments. This supports a more holistic approach to disclosure regulation that considers cross-market linkages and indirect effects through cost channels (Leuz and Wysocki, 2016). For managers, our results indicate that changes in the broader information environment can alter the cost-benefit calculus of voluntary disclosure decisions. The significant positive treatment effect suggests that managers responded to reduced disclosure costs by increasing their voluntary communication with stakeholders, potentially improving their access to capital and reducing information risk premiums.

From an investor perspective, our findings highlight how regulatory changes affecting one segment of the market can improve information quality more broadly. The enhanced voluntary disclosure following the hedge fund rule implementation likely benefited all investors through reduced information asymmetries and improved price discovery (Diamond and Verrecchia, 1991). The strong positive association between institutional ownership and voluntary disclosure in our results reinforces the role of sophisticated investors in demanding transparency and suggests that regulatory changes affecting institutional investors can have cascading effects on corporate disclosure practices (Bushee et al., 2010). Our evidence contributes to the growing literature on disclosure externalities and regulatory spillovers,

demonstrating that the costs channel represents a viable mechanism through which targeted regulations can generate broader market benefits.

Several limitations constrain the interpretation of our findings and suggest avenues for future research. First, while our difference-in-differences design provides evidence of a causal relationship, we cannot definitively isolate the costs channel from other potential mechanisms such as increased investor demand for information or competitive pressures. Future research could employ more granular measures of disclosure costs or exploit cross-sectional variation in exposure to hedge fund activity to better identify the specific mechanisms at work. Second, our analysis focuses on the immediate effects of the regulation and does not examine longer-term equilibrium adjustments in disclosure practices or potential unintended consequences. Longitudinal studies examining the persistence of disclosure effects and any subsequent regulatory responses would provide valuable insights into the dynamic effects of disclosure regulation.

Future research could extend our analysis by examining heterogeneous treatment effects across different types of firms, industries, or disclosure channels to better understand when and how the costs mechanism operates most effectively. Additionally, investigating whether similar spillover effects occur following other regulatory changes affecting financial intermediaries would help establish the generalizability of our findings. The interaction between mandatory and voluntary disclosure in response to regulatory changes represents another promising research direction, particularly as regulators continue to refine disclosure requirements in evolving market environments (Christensen et al., 2013; Shroff et al., 2013). Finally, examining the welfare implications of these disclosure spillovers, including effects on capital allocation efficiency and market liquidity, would provide important evidence for policy evaluation and the optimal design of disclosure regulation in interconnected financial markets.

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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 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	**0.05**	**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.