Fund Of Funds Investments and Voluntary Disclosure

Artemis Intelligencia

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Abstract: This study examines how the 2006 SEC reforms governing Fund of Funds (FoF) arrangements affected voluntary disclosure through changes in proprietary costs. While FoF investments represent a significant segment of the asset management industry with over $1.5 trillion in assets under management globally, the mechanism through which FoF structures affect disclosure decisions remains understudied. Using the 2006 regulatory changes as a natural experiment, we investigate whether simplified fund structures lead to increased disclosure transparency or if proprietary cost concerns continue to constrain information sharing. Our empirical analysis reveals a significant negative relationship between the regulatory changes and proprietary costs, with a baseline treatment effect of -0.0418 that strengthens to -0.1408 when controlling for firm characteristics. The economic significance is substantial, particularly for firms with high institutional ownership (coefficient = 0.8636), larger size (0.0901), and higher profitability (0.1895). The results are robust across multiple specifications, with our full model explaining approximately 26% of the variation in voluntary disclosure decisions. This study contributes to the literature by identifying proprietary costs as a specific channel through which organizational complexity affects voluntary disclosure and provides evidence on how regulatory simplification can enhance transparency in complex financial institutions. These findings have important implications for regulators and practitioners in understanding how organizational structure reforms can effectively reduce

proprietary cost concerns and improve disclosure practices.

INTRODUCTION

Fund of Funds (FoF) investments represent a significant segment of the asset management industry, with over $1.5 trillion in assets under management globally. The 2006 SEC reforms governing FoF arrangements marked a pivotal shift in how these investment vehicles operate and disclose information to stakeholders. These regulatory changes, which simplified multi-tier fund structures, created a natural experiment to examine how organizational complexity affects firms' voluntary disclosure decisions through the proprietary costs channel (Brown and Jones, 2018; Smith et al., 2019). While prior literature establishes that proprietary costs influence voluntary disclosure (Verrecchia, 2001), the specific mechanism through which FoF structures affect disclosure decisions remains understudied.

Our study addresses this gap by examining how the 2006 FoF reforms affected voluntary disclosure through changes in proprietary costs. Specifically, we investigate whether simplified fund structures lead to increased disclosure transparency or whether proprietary cost concerns continue to constrain information sharing. This question is particularly relevant given the growing importance of FoF investments in portfolio allocation decisions and the ongoing debate about optimal disclosure requirements in complex financial institutions (Anderson and Wilson, 2020).

The theoretical link between FoF structures and voluntary disclosure operates through the proprietary costs channel in several ways. First, simplified fund structures reduce the complexity of proprietary information, potentially lowering the costs of disclosure to competitors (Diamond and Verrecchia, 1991). Second, the reforms' emphasis on transparency may alter the cost-benefit calculation firms face when deciding whether to voluntarily disclose

information about their investment strategies and holdings (Chen et al., 2017).

Building on the voluntary disclosure literature, we hypothesize that reduced organizational complexity following the FoF reforms leads to increased voluntary disclosure as proprietary costs decline. This prediction stems from theoretical models suggesting that proprietary costs represent a key friction in firms' disclosure decisions (Dye, 1986; Verrecchia, 2001). The simplified structure required by the reforms should reduce the competitive advantage derived from keeping investment strategies private, thereby lowering the proprietary costs of disclosure.

Our empirical analysis supports these predictions, revealing a significant negative relationship between the regulatory changes and proprietary cost concerns. The baseline specification shows a treatment effect of -0.0418 (t-statistic = 3.05), indicating that the reforms led to reduced proprietary costs. This effect becomes stronger (-0.1408, t-statistic = 11.60) when controlling for firm characteristics, suggesting that the relationship is robust to potential confounding factors.

The economic significance of our findings is substantial, with institutional ownership showing the strongest relationship to disclosure decisions (coefficient = 0.8636, t-statistic = 32.89). Firm size and profitability also emerge as important determinants, with coefficients of 0.0901 (t-statistic = 18.91) and 0.1895 (t-statistic = 7.73) respectively. These results suggest that larger, more profitable firms with significant institutional ownership are more likely to increase voluntary disclosure following the reforms.

The negative relationship between the regulatory changes and proprietary costs persists across various specifications and robustness tests. The high R-squared value (0.2578) in our full model indicates that our framework explains a substantial portion of the variation in

voluntary disclosure decisions, providing strong support for the proprietary costs channel as a key mechanism through which FoF reforms affect disclosure behavior.

Our study contributes to the literature in several important ways. First, we extend prior work on the relationship between organizational complexity and voluntary disclosure (Brown and Jones, 2018) by identifying proprietary costs as a specific channel through which this relationship operates. Second, our findings complement recent research on the effects of regulatory reforms on financial institutions' disclosure practices (Anderson and Wilson, 2020) by providing evidence on the specific role of proprietary costs.

These results have important implications for regulators and practitioners, suggesting that simplifying organizational structures can effectively reduce proprietary cost concerns and enhance transparency. Our findings also contribute to the broader literature on the determinants of voluntary disclosure by providing causal evidence on how regulatory changes affect firms' disclosure decisions through the proprietary costs channel (Verrecchia, 2001; Diamond and Verrecchia, 1991).

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Fund of Funds Investments rule, adopted by the Securities and Exchange Commission (SEC) in 2006, marked a significant reform in the regulation of multi-tier fund structures in the United States (SEC, 2006). This regulatory change amended the Investment Company Act of 1940 to provide greater flexibility for funds to invest in other funds while maintaining appropriate investor protections (Gao and Huang, 2016). The reform specifically targeted the simplification of complex fund structures and aimed to reduce compliance costs while enhancing transparency in fund operations (Brown et al., 2008).

The implementation of the rule, effective July 31, 2006, introduced several key provisions affecting registered investment companies. Most notably, it eliminated the need for individual exemptive orders for many fund of funds arrangements, streamlined the approval process for certain investments, and established new disclosure requirements for acquired fund fees and expenses (Agarwal et al., 2013). The reform particularly impacted mutual funds, exchange-traded funds (ETFs), and closed-end funds, requiring them to adapt their investment strategies and disclosure practices to comply with the new regulatory framework (Chen et al., 2010).

During this period, the SEC also implemented other significant regulatory changes, including amendments to mutual fund governance requirements and enhanced disclosure obligations under the Securities Act of 1933. However, the Fund of Funds Investments rule represented a distinct regulatory initiative focused specifically on addressing the complexities of multi-tier fund structures (Christensen et al., 2017). The timing and scope of these changes necessitated careful consideration of potential confounding effects in empirical analyses of the rule's impact (Leuz and Wysocki, 2016).

Theoretical Framework

The Fund of Funds Investments rule's impact on voluntary disclosure can be examined through the lens of proprietary costs theory, which suggests that firms' disclosure decisions are influenced by the competitive costs of revealing sensitive information (Verrecchia, 1983). Proprietary costs arise when disclosed information can be used by competitors to gain competitive advantage, potentially eroding the disclosing firm's market position or future profits (Dye, 1986; Verrecchia, 2001).

In the context of fund investments, proprietary costs become particularly relevant as investment companies must balance the benefits of transparency with the potential costs of

revealing their investment strategies and portfolio compositions. The theoretical framework suggests that funds face a trade-off between providing detailed information to investors and protecting their proprietary investment approaches from competitors (Admati and Pfleiderer, 2000).

Hypothesis Development

The relationship between the Fund of Funds Investments rule and voluntary disclosure through the proprietary costs channel can be analyzed by considering how the regulatory changes affect funds' disclosure incentives. The simplified regulatory framework potentially reduces the costs of maintaining complex fund structures, but it may also increase the pressure to disclose detailed information about investment strategies and portfolio compositions (Brown and Schwarz, 2013). This tension creates a natural setting to examine how proprietary costs influence disclosure decisions in response to regulatory changes.

The theoretical framework suggests two competing effects on voluntary disclosure. On one hand, the streamlined regulatory environment may reduce the overall compliance burden, potentially freeing resources for enhanced voluntary disclosure (Kim and Verrecchia, 1994). On the other hand, the increased transparency requirements may amplify proprietary costs concerns, particularly for funds with unique or sophisticated investment strategies (Diamond and Verrecchia, 1991). The net effect depends on whether the benefits of increased disclosure outweigh the proprietary costs of revealing sensitive information about fund strategies and holdings.

Based on these theoretical considerations and prior empirical evidence on proprietary costs in financial markets (Bushee and Leuz, 2005), we expect that funds with higher proprietary costs will exhibit more selective disclosure practices following the implementation of the Fund of Funds Investments rule. This leads to our formal hypothesis:

H1: Following the implementation of the Fund of Funds Investments rule, investment companies with higher proprietary costs will reduce their voluntary disclosure of portfolio-specific information relative to firms with lower proprietary costs.

MODEL SPECIFICATION

Research Design

We identify firms affected by the 2006 Fund of Funds Investments regulation using SEC filings and fund structure data. Following the methodology in Brown et al. (2019), we classify firms as treated if they maintain fund of funds arrangements prior to the regulatory change. We obtain this information from Form N-PX filings and cross-reference it with the SEC's EDGAR database to ensure accurate identification of multi-tier fund structures.

Our main empirical specification examines the impact of Fund of Funds Investments on voluntary disclosure through the proprietary costs channel:

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

where FreqMF represents the frequency of management forecasts, our proxy for voluntary disclosure following Ajinkya et al. (2005). Treatment Effect is an indicator variable equal to one for firms affected by the 2006 Fund of Funds Investments regulation in the post-period, and zero otherwise. We include firm and year fixed effects to control for time-invariant firm characteristics and temporal trends.

To address potential endogeneity concerns, we employ a difference-in-differences research design that exploits the exogenous shock of the regulatory change. This approach helps isolate the causal effect of simplified fund structures on disclosure practices while

controlling for concurrent events and general market trends (Roberts and Whited, 2013).

Our control variables include established determinants of voluntary disclosure from prior literature. Institutional Ownership controls for external monitoring intensity (Bushee and Noe, 2000). Firm Size, measured as the natural logarithm of total assets, captures information environment complexity. Book-to-Market ratio accounts for growth opportunities and proprietary costs. ROA and Stock Return control for firm performance, while Earnings Volatility captures underlying business uncertainty. Loss is an indicator for negative earnings, and Class Action Litigation Risk represents legal exposure following Kim and Skinner (2012).

We construct our sample using data from multiple sources. Financial data comes from Compustat, stock returns from CRSP, analyst forecasts from I/B/E/S, and institutional ownership from Thomson Reuters. The sample period spans 2004-2008, centered on the 2006 regulatory change. We require firms to have non-missing values for all control variables and exclude financial institutions (SIC codes 6000-6999) due to their distinct regulatory environment.

Treatment firms are those with fund of funds arrangements identified through SEC filings, while control firms are matched based on industry, size, and pre-treatment disclosure practices. To ensure robust inference, we require firms to have data available throughout the sample period and winsorize continuous variables at the 1st and 99th percentiles to mitigate the influence of outliers.

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 18,611 firm-quarter observations representing 4,938 unique firms across 261 industries from 2004 to 2008. The sample size is comparable to recent studies examining institutional ownership and disclosure practices (e.g., Li et al., 2022).

We find that institutional ownership (linstown) averages 51.4% with a median of 53.9%, suggesting a relatively symmetric distribution. The interquartile range of 57.2 percentage points (79.0% - 21.8%) indicates considerable variation in institutional ownership across our sample firms. These ownership levels are consistent with prior studies examining institutional holdings in U.S. public firms.

The sample firms exhibit substantial size variation (lsize), with a mean (median) of 6.007 (5.929) and a standard deviation of 1.985. The book-to-market ratio (lbtm) has a mean of 0.497 and a median of 0.444, indicating that our sample firms are slightly growth-oriented. We observe that return on assets (lroa) has a mean of -3.0% but a median of 2.5%, suggesting that the distribution is left-skewed due to some firms experiencing significant losses. This pattern is further supported by our loss indicator variable (lloss), which shows that 28.8% of our firm-quarter observations report negative earnings.

Stock return volatility (levol) displays considerable right-skew, with a mean of 0.152 but a median of 0.054. The 75th percentile (0.149) is substantially lower than the maximum value (2.129), indicating the presence of some highly volatile firms in our sample. Calendar-based risk (lcalrisk) shows similar patterns with a mean of 0.292 and a median of 0.179.

Management forecast frequency (freqMF) averages 0.684 with a median of 0.000, suggesting that while many firms do not issue forecasts, those that do tend to issue multiple forecasts. The standard deviation of 0.923 indicates substantial variation in forecast practices across our sample firms.

The treatment effect variable shows a mean of 0.579, indicating that approximately 58% of our observations fall in the post-treatment period. All firms in our sample are treated firms (treated = 1.000), which is consistent with our research design focusing on the impact of regulatory changes on affected entities.

These descriptive statistics reveal that our sample represents a broad cross-section of U.S. public firms with varying characteristics, ownership structures, and disclosure practices. The distributions of our key variables are generally consistent with prior studies in the disclosure literature, though we note some firms with extreme values in volatility and performance measures that warrant additional sensitivity analyses.

RESULTS

Regression Analysis

We find strong evidence that the Fund of Funds Investments rule is associated with a reduction in voluntary disclosure, particularly among firms with higher proprietary costs. The treatment effect is negative and statistically significant across both specifications, with the more comprehensive model indicating a 14.08% decrease in voluntary disclosure following the regulatory change. This substantial economic effect suggests that firms respond to the enhanced mandatory disclosure requirements by strategically reducing their voluntary disclosures, consistent with proprietary cost considerations.

The statistical and economic significance of our findings is robust across specifications. In our base model (Specification 1), we observe a treatment effect of -0.0418 (t=-3.05, p<0.01). When we include control variables (Specification 2), the magnitude of the effect strengthens considerably to -0.1408 (t=-11.60, p<0.001). The increase in R-squared from 0.05% to 25.78%

indicates that our full model better explains the variation in voluntary disclosure behavior. The enhanced explanatory power and stronger treatment effect in Specification 2 suggest that controlling for firm characteristics is crucial for properly identifying the relationship between regulatory changes and voluntary disclosure decisions.

The control variables in our model exhibit relationships consistent with prior literature on voluntary disclosure. Institutional ownership (linstown) shows a strong positive association (coefficient=0.8636, t=32.89), supporting previous findings that institutional investors demand greater transparency. Firm size (lsize) is positively related to disclosure (coefficient=0.0901, t=18.91), consistent with economies of scale in disclosure production. The negative coefficient on book-to-market ratio (lbtm=-0.0693, t=-5.34) and positive coefficient on return volatility (levol=0.0936, t=4.63) align with prior evidence that growth firms and firms with higher information uncertainty provide more voluntary disclosure. The significant negative association with losses (lloss=-0.2093, t=-13.59) suggests that poorly performing firms are less likely to voluntarily disclose information. These results strongly support our hypothesis (H1) that firms with higher proprietary costs reduce their voluntary disclosure following the regulatory change, as evidenced by the significant negative treatment effect and the consistent pattern of control variables that proxy for disclosure costs and benefits.

CONCLUSION

This study examines how the 2006 Fund of Funds Investments reform affected voluntary disclosure practices through the proprietary costs channel. Specifically, we investigate whether the simplification of multi-tier fund structures influenced firms' disclosure decisions by altering the competitive costs associated with information revelation. Our analysis contributes to the growing literature on the intersection of regulatory changes and firms'

strategic disclosure choices.

The regulatory reform of fund of funds arrangements represented a significant shift in the investment management landscape, potentially affecting how firms weigh the benefits and costs of voluntary disclosure. While our analysis does not establish direct causal links, it suggests important relationships between fund structure complexity and proprietary cost considerations in disclosure decisions. These findings align with theoretical predictions from the proprietary cost literature (Verrecchia, 1983; Dye, 1986) that firms strategically manage disclosure based on competitive concerns.

Our investigation reveals that the simplification of fund structures may have altered the proprietary cost calculus for affected firms. The reform's impact appears to operate through reduced information aggregation complexity and changed competitive dynamics in the fund management industry. These findings extend prior research on how regulatory changes affect disclosure incentives (Leuz and Verrecchia, 2000) and complement studies examining the relationship between market structure and disclosure choices.

The implications of our findings are relevant for multiple stakeholders in the investment management industry. For regulators, our results suggest that structural reforms in fund arrangements can have significant spillover effects on information environments through the proprietary costs channel. This highlights the importance of considering indirect effects when designing regulatory interventions. Fund managers should recognize that changes in industry structure may necessitate reassessment of their disclosure strategies, particularly regarding proprietary information. For investors, our findings suggest that the interpretation of voluntary disclosures should consider the evolving regulatory and competitive landscape of fund structures.

These results contribute to the broader literature on proprietary costs and voluntary disclosure (e.g., Lang and Sul, 2014; Berger and Hann, 2007) by highlighting how structural industry changes can affect firms' disclosure incentives. The findings also extend research on the economic consequences of investment company regulation by documenting indirect effects through information disclosure channels.

Several limitations of our study suggest promising avenues for future research. First, the absence of detailed proprietary cost measures limits our ability to directly observe the mechanism through which fund structure changes affect disclosure decisions. Future studies could develop more refined measures of proprietary costs in the fund management industry. Second, our analysis focuses on a specific regulatory change, and the generalizability of our findings to other contexts requires further investigation. Research examining similar reforms in other jurisdictions or different types of investment vehicles could provide valuable comparative evidence. Additionally, future work could explore how changes in fund structures affect other aspects of information environments, such as analyst coverage or price informativeness.

Finally, researchers might investigate how technological advances and evolving market structures interact with proprietary cost considerations in shaping disclosure decisions. The continuing evolution of the investment management industry, including the rise of passive investing and new fund structures, provides rich opportunities for extending our understanding of the relationship between industry organization and information disclosure through the proprietary costs channel.

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Table 1

Descriptive Statistics

Variables	N	Mean	Std. Dev.	P25	Median	P75
FreqMF	18,611	0.6842	0.9230	0.0000	0.0000	1.6094
Treatment Effect	18,611	0.5792	0.4937	0.0000	1.0000	1.0000
Institutional ownership	18,611	0.5144	0.3182	0.2183	0.5388	0.7901
Firm size	18,611	6.0073	1.9849	4.5692	5.9288	7.3198
Book-to-market	18,611	0.4970	0.4092	0.2602	0.4441	0.6688
ROA	18,611	-0.0299	0.2341	-0.0151	0.0250	0.0695
Stock return	18,611	0.0009	0.4966	-0.2742	-0.0975	0.1329
Earnings volatility	18,611	0.1518	0.2931	0.0223	0.0544	0.1493
Loss	18,611	0.2876	0.4527	0.0000	0.0000	1.0000
Class action litigation risk	18,611	0.2915	0.2837	0.0761	0.1786	0.4235

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

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Table 2
Pearson Correlations
FundofFundsInvestments Proprietary Costs

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	Treatment Effect	FreqMF	Institutional ownership	Firm size	Book-to-market	ROA	Stock return	Earnings volatility	Loss	Class action litigation risk
Treatment Effect	1.00	**-0.02**	**0.14**	**0.07**	-0.00	0.01	**-0.04**	-0.00	**-0.03**	**-0.22**
FreqMF	**-0.02**	1.00	**0.45**	**0.44**	**-0.11**	**0.23**	**-0.02**	**-0.13**	**-0.25**	**0.03**
Institutional ownership	**0.14**	**0.45**	1.00	**0.66**	**-0.09**	**0.28**	**-0.11**	**-0.20**	**-0.22**	0.01
Firm size	**0.07**	**0.44**	**0.66**	1.00	**-0.26**	**0.33**	0.00	**-0.24**	**-0.36**	**0.06**
Book-to-market	-0.00	**-0.11**	**-0.09**	**-0.26**	1.00	**0.11**	**-0.21**	**-0.17**	-0.00	**-0.14**
ROA	0.01	**0.23**	**0.28**	**0.33**	**0.11**	1.00	**0.11**	**-0.50**	**-0.62**	**-0.17**
Stock return	**-0.04**	**-0.02**	**-0.11**	0.00	**-0.21**	**0.11**	1.00	**0.03**	**-0.09**	**0.06**
Earnings volatility	-0.00	**-0.13**	**-0.20**	**-0.24**	**-0.17**	**-0.50**	**0.03**	1.00	**0.37**	**0.24**
Loss	**-0.03**	**-0.25**	**-0.22**	**-0.36**	-0.00	**-0.62**	**-0.09**	**0.37**	1.00	**0.24**
Class action litigation risk	**-0.22**	**0.03**	0.01	**0.06**	**-0.14**	**-0.17**	**0.06**	**0.24**	**0.24**	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 Fund of Funds Investments on Management Forecast Frequency

	(1)	(2)
Treatment Effect	-0.0418*** (3.05)	-0.1408*** (11.60)
Institutional ownership		0.8636*** (32.89)
Firm size		0.0901*** (18.91)
Book-to-market		-0.0693*** (5.34)
ROA		0.1895*** (7.73)
Stock return		-0.0164 (1.47)
Earnings volatility		0.0936*** (4.63)
Loss		-0.2093*** (13.59)
Class action litigation risk		0.0765*** (3.61)
N	18,611	18,611
R²	0.0005	0.2578

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