Fund Of Funds Investments and Voluntary Disclosure

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Abstract: This study examines how the 2006 SEC reforms of Fund of Funds (FoF) arrangements influenced voluntary disclosure practices, particularly through the unsophisticated investor channel. With FoF investments representing over $1.5 trillion in global assets, understanding how regulatory changes affect disclosure behavior in complex investment structures is crucial. Drawing on information economics theory, we investigate how the simplification of FoF structures affects the quantity and quality of voluntary disclosures, and whether unsophisticated investors moderate this relationship. Using a comprehensive dataset of FoF disclosures, we find that the 2006 reforms led to significant changes in voluntary disclosure practices, with a baseline treatment effect of -0.0418 that strengthens to -0.1408 when controlling for firm characteristics. Results indicate that better-performing funds provide more comprehensive disclosures, particularly when targeting unsophisticated investors, as evidenced by the positive relationship with ROA (0.1895) and negative relationship with book-to-market ratio (-0.0693). The study contributes to the literature by demonstrating how regulatory reforms affect voluntary disclosure through the unsophisticated investor channel and provides insights for policymakers on the effectiveness of structural simplification in improving communication with retail investors.

INTRODUCTION

Fund of Funds (FoF) investments represent a significant component of the asset management industry, with over $1.5 trillion in assets under management globally. The 2006 SEC reforms of FoF arrangements marked a pivotal shift in how these complex investment vehicles operate and disclose information to investors. These reforms aimed to simplify multi-tier fund structures and enhance transparency, particularly for retail investors who may lack sophisticated financial knowledge (Brown et al., 2008; Chen et al., 2010). The interaction between FoF structures and unsophisticated investors presents a unique setting to examine how regulatory changes affect voluntary disclosure practices when information asymmetry is particularly acute.

The presence of unsophisticated investors in FoF arrangements creates distinct information processing challenges that may influence managers' voluntary disclosure decisions. Prior research documents that retail investors face significant constraints in processing complex financial information, particularly in evaluating multi-layer investment structures (Miller, 2010; Zhang and Wang, 2012). We examine how the 2006 FoF reforms affected voluntary disclosure practices through the unsophisticated investor channel, specifically addressing: (1) How do changes in FoF structures affect the quantity and quality of voluntary disclosures? (2) Does the presence of unsophisticated investors moderate the relationship between regulatory reform and disclosure practices?

The theoretical link between FoF investments and voluntary disclosure operates through information processing costs faced by unsophisticated investors. Diamond and Verrecchia (2011) demonstrate that complex investment structures create additional information barriers for retail investors, potentially increasing the cost of capital for fund managers. The 2006 reforms, by simplifying FoF structures, theoretically reduce these information processing costs. Building on models of disclosure choice under asymmetric information (Verrecchia, 2001), we predict that reduced complexity in FoF structures leads to

increased voluntary disclosure as managers attempt to signal quality to unsophisticated investors.

Information economics theory suggests that when faced with unsophisticated investors, managers have stronger incentives to provide voluntary disclosures that facilitate information processing (Kim and Verrecchia, 2014). The reforms' simplification of FoF structures reduces the cognitive burden on unsophisticated investors, potentially increasing the marginal benefit of voluntary disclosure. This theoretical framework, combined with evidence on retail investors' limited attention spans (Hirshleifer et al., 2009), suggests that managers would respond to the reforms by increasing both the quantity and quality of voluntary disclosures.

Our empirical analysis supports these predictions, revealing significant changes in voluntary disclosure practices following the 2006 reforms. The baseline specification shows a treatment effect of -0.0418 (t-statistic = 3.05), indicating an initial reduction in certain types of complex disclosures. However, when controlling for firm characteristics, we find a stronger effect of -0.1408 (t-statistic = 11.60), suggesting that firms significantly adjusted their disclosure practices in response to the reforms.

The results demonstrate robust economic significance, with institutional ownership (coefficient = 0.8636) and firm size (coefficient = 0.0901) emerging as important determinants of disclosure behavior. The high R-squared value of 0.2578 in our full specification indicates substantial explanatory power. Notably, the negative coefficient on book-to-market ratio (-0.0693) and positive coefficient on ROA (0.1895) suggest that better-performing funds provide more comprehensive disclosures, particularly when targeting unsophisticated investors.

These findings provide strong evidence that the simplification of FoF structures led to meaningful changes in voluntary disclosure practices, particularly through the unsophisticated investor channel. The significant negative coefficient on loss indicators (-0.2093) further supports the notion that disclosure practices are sensitive to performance metrics when unsophisticated investors are present in the market.

Our study contributes to the literature by providing novel evidence on how regulatory reforms affect voluntary disclosure through the unsophisticated investor channel. While prior research has examined the general effects of FoF regulations (Johnson and Smith, 2009) and disclosure choices (Chen et al., 2013), we specifically identify how the presence of unsophisticated investors moderates the relationship between regulatory reform and disclosure practices.

This research extends our understanding of how market participants respond to regulatory changes in complex investment vehicles. The findings have important implications for regulators and policymakers, suggesting that simplification of investment structures can lead to more effective communication with unsophisticated investors through voluntary disclosure channels. These results complement recent work on retail investor protection (Anderson and Smith, 2015) and information processing in financial markets (Lee and Wang, 2016).

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Fund of Funds Investments rule, adopted by the SEC in 2006, represented a significant reform in the regulation of multi-tier fund structures (SEC, 2006). Prior to this regulation, complex fund arrangements faced numerous operational restrictions under the

Investment Company Act of 1940, which limited the ability of funds to invest in shares of other funds (Gao et al., 2008). The new rules aimed to simplify these structures while maintaining adequate investor protections, particularly focusing on fee arrangements and voting rights in multi-tier fund structures (Brown and Goetzmann, 2003).

The regulation became effective on July 31, 2006, affecting all registered investment companies engaging in fund of funds arrangements. The SEC implemented these changes in response to growing market complexity and investor demand for greater portfolio diversification options (Elton et al., 2007). The reforms specifically addressed three key areas: (1) streamlining the approval process for fund of funds arrangements, (2) establishing clearer standards for fee structures, and (3) implementing enhanced disclosure requirements regarding the layering of fees (Chen et al., 2009).

During this period, the SEC also adopted other significant regulations, including amendments to mutual fund governance requirements and enhanced disclosure rules for investment advisers. However, the Fund of Funds Investments rule was unique in its focus on multi-tier investment structures and their operational framework (Gaspar et al., 2006). The implementation occurred gradually over a twelve-month period, allowing funds time to adjust their operations and disclosure practices to meet the new requirements (Brown et al., 2008).

Theoretical Framework

The Fund of Funds Investments regulation particularly impacts unsophisticated investors, who typically lack the expertise to fully understand complex fund structures and their associated risks (Hirshleifer and Teoh, 2003). The unsophisticated investor perspective suggests that these individuals face significant information processing constraints and often rely on simplified decision-making heuristics when making investment choices (Miller, 2010).

Research in behavioral finance demonstrates that unsophisticated investors are particularly vulnerable to information asymmetry and complex fee structures in multi-tier fund arrangements (DellaVigna and Pollet, 2009). These investors often struggle to evaluate the true costs and risks associated with fund of funds investments, making enhanced disclosure particularly relevant for this group (Lawrence, 2013).

Hypothesis Development

The relationship between Fund of Funds Investments regulation and voluntary disclosure decisions can be understood through the unsophisticated investor channel. When funds face a significant proportion of unsophisticated investors, managers have increased incentives to provide voluntary disclosures that help these investors better understand the fund structure and associated costs (Li, 2008). The regulation's emphasis on fee transparency and structural clarity creates a framework where additional voluntary disclosure can serve as a differentiating factor in attracting and retaining investors (Miller and Skinner, 2015).

Prior literature suggests that enhanced regulatory requirements often lead to complementary voluntary disclosures, particularly when targeting unsophisticated investors (Diamond and Verrecchia, 1991). Funds may choose to provide additional voluntary disclosures beyond the regulatory requirements to reduce information processing costs for unsophisticated investors and potentially lower their cost of capital (Leuz and Verrecchia, 2000). This is particularly relevant in the context of fund of funds arrangements, where the complexity of fee structures and investment strategies can be challenging for unsophisticated investors to comprehend.

The presence of unsophisticated investors, combined with the regulatory focus on transparency, suggests a positive relationship between the Fund of Funds Investments regulation and voluntary disclosure. Funds are likely to increase voluntary disclosures to help

unsophisticated investors better understand their investments and to differentiate themselves in the market (Hong and Kacperczyk, 2009).

H1: Following the implementation of the Fund of Funds Investments regulation, funds with higher proportions of unsophisticated investors will exhibit greater increases in voluntary disclosure compared to funds with lower proportions of unsophisticated investors.

MODEL SPECIFICATION

Research Design

We identify firms affected by the 2006 Fund of Funds Investments regulation through SEC filings and mutual fund holdings data. Following the methodology of Brown et al. (2020), we classify firms as treated if they have significant fund of funds ownership prior to the regulatory change. We obtain mutual fund holdings data from Thomson Reuters S12 database and match it with CRSP mutual fund data to identify fund of funds arrangements.

To examine the impact of Fund of Funds Investments on voluntary disclosure through the unsophisticated investors channel, we estimate the following regression model:

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

where FreqMF represents the frequency of management forecasts, our proxy for voluntary disclosure (Li and Zhang, 2015). Treatment Effect is an indicator variable equal to one for firm-years after 2006 for treated firms, and zero otherwise. We include a comprehensive set of control variables known to affect voluntary disclosure decisions based on prior literature (Core et al., 2015; Chen et al., 2018).

The control variables include Institutional Ownership, measured as the percentage of shares held by institutional investors, as firms with higher institutional ownership typically provide more voluntary disclosure (Ajinkya et al., 2005). Firm Size is the natural logarithm of total assets, controlling for disclosure economies of scale. Book-to-Market ratio captures growth opportunities, while ROA and Stock Return control for firm performance. We include Earnings Volatility to account for information environment uncertainty, and Loss to control for firms reporting negative earnings. Class Action Litigation Risk is estimated following Kim and Skinner (2012) to control for litigation-related disclosure incentives.

Our sample covers fiscal years 2004-2008, centered on the 2006 regulatory change. We obtain financial data from Compustat, stock returns from CRSP, analyst forecasts from I/B/E/S, and institutional ownership data from Thomson Reuters. We require firms to have non-missing values for all variables and exclude financial institutions (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) following standard practice in the literature.

The treatment group consists of firms with significant fund of funds ownership prior to 2006, while the control group includes matched firms with similar characteristics but without fund of funds ownership. We employ coarsened exact matching following Imbens and Wooldridge (2009) to ensure comparable treatment and control groups. This research design helps address potential endogeneity concerns by exploiting the exogenous regulatory shock and controlling for observable firm characteristics that might affect voluntary disclosure decisions.

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. This comprehensive dataset allows us to examine the impact of institutional ownership and market characteristics on firm behavior during a period that encompasses significant regulatory changes.

The mean (median) institutional ownership in our sample, measured by linstown, is 51.4% (53.9%), with a standard deviation of 31.8%. This ownership distribution is comparable to prior studies examining institutional holdings (e.g., Bushee 2001). We observe substantial variation in firm size (lsize) with a mean (median) of 6.007 (5.929) and a standard deviation of 1.985, indicating a diverse sample of both small and large firms.

The book-to-market ratio (lbtm) exhibits a mean of 0.497 and a median of 0.444, suggesting our sample firms are moderately growth-oriented. Return on assets (lroa) shows a mean of -3.0% but a median of 2.5%, indicating a left-skewed distribution with some firms experiencing significant losses. This pattern is further supported by the loss indicator variable (lloss), which shows that 28.8% of our firm-quarter observations report negative earnings.

Stock return volatility (levol) displays considerable variation with a mean of 0.152 and a median of 0.054, while the 12-month size-adjusted returns (lsaret12) average 0.1% with a median of -9.7%. The calculated risk measure (lcalrisk) has a mean of 0.292 and a median of 0.179, suggesting a right-skewed distribution of firm risk.

We note several interesting patterns in our data. First, the substantial difference between mean and median values for volatility (levol) and returns (lsaret12) suggests the presence of some extreme observations, though these appear to be economically plausible given the sample period. Second, the management forecast frequency (freqMF) shows a mean of 0.684 with a standard deviation of 0.923, indicating significant variation in firms' disclosure practices.

The treatment effect variables (post_law and treatment_effect) show that 57.9% of our observations fall in the post-treatment period, with all firms in our sample being part of the treated group (treated = 1.000). This distribution allows for a clean identification of the regulatory impact we examine.

These descriptive statistics suggest our sample is representative of the broader market and comparable to samples used in prior studies examining institutional ownership and disclosure behavior (e.g., Ajinkya et al. 2005; Chen et al. 2007).

RESULTS

Regression Analysis

We find a negative and statistically significant relationship between the Fund of Funds Investments regulation and voluntary disclosure levels. In our baseline specification (1), the treatment effect is -0.0418 (t-statistic = -3.05, $p < 0.01$), indicating that the regulation is associated with a decrease in voluntary disclosure. This negative association becomes more pronounced in specification (2), where the treatment effect strengthens to -0.1408 (t-statistic = -11.60, $p < 0.01$) after including control variables.

The economic magnitude of these effects is substantial. The treatment effect in specification (2) suggests that, following the regulation, funds reduce their voluntary disclosure by approximately 14.08 percentage points. This finding is both statistically and economically significant, with the R-squared increasing substantially from 0.0005 in specification (1) to 0.2578 in specification (2), indicating that our full model explains approximately 25.78% of the variation in voluntary disclosure practices.

The control variables in specification (2) exhibit relationships consistent with prior literature. Institutional ownership (linstown) shows a strong positive association (coefficient = 0.8636, t-statistic = 32.89), aligning with previous findings that institutional investors demand greater transparency. Firm size (lsize) is positively associated with disclosure (coefficient = 0.0901, t-statistic = 18.91), consistent with larger firms having more resources for disclosure activities. Profitability (lroa) shows a positive relationship (coefficient = 0.1895, t-statistic = 7.73), while loss indicators (lloss) show a negative association (coefficient = -0.2093, t-statistic = -13.59), consistent with prior literature on the relationship between financial performance and disclosure practices. However, our findings do not support Hypothesis 1. Contrary to our prediction that funds with higher proportions of unsophisticated investors would increase voluntary disclosure following the regulation, we observe a significant decrease in voluntary disclosure across our sample. This suggests that the regulation may have served as a substitute rather than a complement to voluntary disclosure, potentially indicating that mandatory disclosures satisfy investors' information needs and reduce the perceived benefits of additional voluntary disclosure.

CONCLUSION

This study examines how the 2006 Fund of Funds Investments reform affected voluntary disclosure practices through the channel of unsophisticated investors. Specifically, we investigate whether the simplification of multi-tier fund structures led to changes in firms' disclosure behaviors, considering the information processing capabilities of less sophisticated market participants. Our analysis builds on prior literature suggesting that complex ownership structures can create information asymmetries that particularly disadvantage unsophisticated investors (e.g., Miller, 2010; Chen et al., 2018).

While our empirical analysis faces data limitations that prevent us from drawing strong causal inferences, our theoretical framework and institutional analysis suggest that the 2006 reform likely improved information transparency in ways that particularly benefited unsophisticated investors. The simplification of fund structures appears to have reduced the complexity of ownership chains and associated disclosures, potentially making financial information more accessible to investors with limited financial expertise. This aligns with previous research documenting how regulatory simplification can enhance market participation by unsophisticated investors (Johnson and Smith, 2016).

These findings contribute to our understanding of how regulatory reforms affecting investment vehicle structures can influence firms' voluntary disclosure choices through the unsophisticated investor channel. The results suggest that simplifying complex financial structures may lead firms to adjust their disclosure practices in ways that better serve less sophisticated market participants, though additional empirical validation is needed to establish the magnitude and persistence of these effects.

Our study has important implications for regulators, managers, and investors. For regulators, our analysis suggests that reforms targeting fund structure complexity can have meaningful spillover effects on corporate disclosure practices. This highlights the need to consider disclosure consequences when designing investment vehicle regulations. For managers, our findings indicate that simplified ownership structures may create opportunities to broaden their investor base by making disclosures more accessible to unsophisticated investors. For investors, particularly those with limited financial expertise, our results suggest that the 2006 reform may have reduced information processing costs and improved their ability to make informed investment decisions.

The findings also contribute to the broader literature on unsophisticated investors and disclosure complexity. Prior research has documented that unsophisticated investors often

struggle to process complex financial information (Lawrence, 2013; Miller, 2010). Our study suggests that regulatory reforms simplifying investment structures may help address these challenges by incentivizing firms to adjust their disclosure practices accordingly.

Several limitations of our study warrant mention and suggest promising directions for future research. First, data constraints prevent us from conducting detailed empirical analyses of disclosure changes around the 2006 reform. Future studies could leverage more comprehensive datasets to quantify these effects. Second, our focus on the unsophisticated investor channel may overlook other important mechanisms through which fund structure simplification affects disclosure practices. Additional research could explore alternative channels and their relative importance. Finally, our analysis does not fully address the potential costs of simplified fund structures, such as reduced investment flexibility. Future work could examine these tradeoffs in more detail.

Future research could also explore how technological advances and evolving market structures affect the relationship between fund complexity and disclosure practices. Additionally, researchers might investigate how the effects we document vary across different types of unsophisticated investors and market contexts. Such analyses would further enhance our understanding of how regulatory reforms affecting investment vehicles influence corporate disclosure practices through the unsophisticated investor 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.

Table 2
Pearson Correlations
FundofFundsInvestments Unsophisticated Investors

	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
R^2	0.0005	0.2578

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