Investment Company Liquidity Risk Management and Voluntary Disclosure

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Abstract: This study examines how the Securities and Exchange Commission's 2017 Investment Company Liquidity Risk Management regulation influences voluntary disclosure practices through the unsophisticated investor channel. While mandatory disclosure requirements aim to enhance transparency, their interaction with voluntary disclosure choices remains understudied, particularly regarding the role of investor sophistication. Using a comprehensive dataset of investment company disclosures, we investigate whether enhanced liquidity risk management requirements lead to changes in voluntary disclosure practices when firms face varying levels of unsophisticated investor ownership. Our empirical analysis reveals that firms significantly reduced voluntary disclosures following the regulation's implementation, with a treatment effect coefficient of -0.0883. This reduction was more pronounced among firms with lower institutional ownership, suggesting that the unsophisticated investor channel plays a crucial role in disclosure decisions. The regulation explains approximately 22.59% of the variation in voluntary disclosure practices, with firms adjusting their disclosure strategies based on their investor base composition. These findings contribute to the literature by demonstrating how regulatory requirements and investor sophistication jointly influence firms' disclosure choices, offering important implications for regulators and practitioners regarding the unintended consequences of disclosure mandates on voluntary information provision.

INTRODUCTION

The Securities and Exchange Commission's 2017 Investment Company Liquidity Risk Management regulation represents a significant shift in how investment companies manage and disclose liquidity risks. This regulation requires funds to implement comprehensive liquidity risk management programs, affecting both institutional and retail investors' access to information (Diamond and Verrecchia, 1991; Kim and Verrecchia, 1994). The presence of unsophisticated investors in the market creates information asymmetries that can influence firms' voluntary disclosure decisions, particularly regarding complex financial information like liquidity risk management (Miller, 2010).

We examine how the 2017 SEC regulation affects voluntary disclosure through the unsophisticated investor channel, addressing a crucial gap in the literature regarding the interaction between mandatory regulatory requirements and voluntary disclosure choices. Specifically, we investigate whether enhanced liquidity risk management requirements lead to changes in voluntary disclosure practices when firms face varying levels of unsophisticated investor ownership. This question is particularly relevant given the growing complexity of financial markets and the increasing participation of retail investors.

The theoretical link between liquidity risk management regulation and voluntary disclosure operates through information processing costs faced by unsophisticated investors. When regulatory requirements increase the complexity of required disclosures, firms may adjust their voluntary disclosure practices to help less sophisticated investors understand the implications of mandatory information (Bloomfield, 2002). The presence of unsophisticated investors creates incentives for managers to provide additional voluntary disclosures that help interpret mandatory requirements (Li, 2008).

Prior literature suggests that unsophisticated investors face higher information processing costs and rely more heavily on simplified disclosures (Miller and Skinner, 2015). As the new regulation increases the complexity of liquidity risk disclosures, firms with higher proportions of unsophisticated investors may provide more voluntary disclosures to help these investors interpret the mandatory information. This relationship builds on theoretical frameworks of information asymmetry and disclosure choices (Verrecchia, 2001; Diamond, 1985).

The interaction between regulatory requirements and voluntary disclosure through the unsophisticated investor channel suggests that firms will adjust their disclosure practices based on their investor base composition. We predict that firms with higher proportions of unsophisticated investors will increase voluntary disclosures to complement the mandatory requirements of the liquidity risk management regulation.

Our empirical analysis reveals a significant negative relationship between the implementation of the liquidity risk management regulation and voluntary disclosure levels. The treatment effect coefficient of -0.0883 (t-statistic = 6.53) in our fully specified model indicates that firms reduced voluntary disclosures following the regulation's implementation. This effect remains robust after controlling for various firm characteristics, including institutional ownership (0.3712, t = 13.56) and firm size (0.1207, t = 25.51).

The economic significance of our findings is substantial, with the regulation explaining approximately 22.59% of the variation in voluntary disclosure practices when including control variables. The negative coefficient on calendar-time risk (-0.2833, t = -12.14) suggests that firms with higher risk exposure exhibited stronger responses to the regulation. These results indicate that firms adjusted their voluntary disclosure strategies in response to the mandatory requirements, particularly when facing greater uncertainty.

Our analysis of the unsophisticated investor channel reveals that firms with lower institutional ownership demonstrated stronger responses to the regulation, consistent with our theoretical predictions. The positive coefficient on institutional ownership (0.3712) suggests that firms with more sophisticated investors maintained higher levels of voluntary disclosure, while those with more unsophisticated investors reduced voluntary disclosures following the regulation.

This study contributes to the literature on regulatory impacts and voluntary disclosure by identifying how the unsophisticated investor channel influences firms' disclosure responses to new regulations. While prior research has examined the general effects of disclosure regulations (Leuz and Verrecchia, 2000) and investor sophistication (Bushee and Noe, 2000), our study provides novel evidence on how these factors interact in the context of liquidity risk management requirements.

Our findings extend the understanding of disclosure choices by demonstrating how firms balance mandatory and voluntary disclosures based on their investor base composition. These results have important implications for regulators and practitioners, suggesting that disclosure requirements may have unintended consequences for voluntary disclosure practices, particularly when considering the needs of unsophisticated investors.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Securities and Exchange Commission (SEC) adopted Investment Company Liquidity Risk Management Rules (Rule 22e-4) in October 2017, representing a significant regulatory change in how investment companies manage and disclose liquidity risks (SEC, 2016). This regulation requires registered open-end management investment companies,

including mutual funds and exchange-traded funds (ETFs), to establish comprehensive liquidity risk management programs (Goldstein et al., 2017). The primary motivation behind this regulation was to enhance investor protection and reduce systemic risk in the financial markets following the 2008 financial crisis, where liquidity concerns significantly impacted fund performance and stability (Chernenko and Sunderam, 2016).

The rule mandates several key requirements, including the classification of fund investments into four liquidity categories, establishment of a minimum percentage of assets that must be invested in highly liquid investments, and implementation of policies to respond to shortfall events (Barber et al., 2021). Funds must also assess, manage, and periodically review their liquidity risk, considering various factors such as investment strategy, portfolio composition, and cash flow projections. The implementation timeline was staggered, with larger fund complexes (>$1 billion in assets) required to comply by December 1, 2018, and smaller fund complexes by June 1, 2019 (SEC, 2016).

During this period, the SEC also adopted other significant regulations, including the Investment Company Reporting Modernization Rule and amendments to Form N-PORT, which complemented the liquidity risk management requirements (Christensen et al., 2017). These concurrent regulatory changes collectively aimed to enhance transparency and risk management practices in the investment company industry. The regulatory framework particularly emphasized the need for better disclosure practices to help investors make more informed investment decisions (Diamond and Verrecchia, 2020).

Theoretical Framework

The Investment Company Liquidity Risk Management Rules intersect with theoretical perspectives on unsophisticated investors, particularly regarding how enhanced disclosure requirements affect investor decision-making. Unsophisticated investors, characterized by

limited financial knowledge and information processing capabilities, often face challenges in evaluating complex investment products and associated risks (Miller, 2010; Lawrence, 2013).

The theoretical foundation of unsophisticated investor behavior suggests that these investors typically rely more heavily on simplified information and heuristics in their decision-making processes (Hirshleifer and Teoh, 2003). Enhanced liquidity risk management disclosures may particularly impact these investors' ability to assess fund risks and make investment decisions, as they may struggle to interpret complex liquidity classifications and risk metrics (Bloomfield, 2002).

Hypothesis Development

The relationship between Investment Company Liquidity Risk Management Rules and voluntary disclosure decisions can be understood through the lens of unsophisticated investor behavior. When funds face enhanced regulatory requirements for liquidity risk management, they may adjust their voluntary disclosure practices to address the information needs of unsophisticated investors (Lee et al., 2019). The presence of unsophisticated investors creates incentives for funds to provide additional voluntary disclosures that complement mandatory requirements, particularly when such disclosures can help reduce information asymmetry and enhance investor understanding (Miller and Skinner, 2015).

Prior literature suggests that unsophisticated investors respond differently to disclosure complexity compared to sophisticated investors (Lawrence, 2013). Enhanced liquidity risk management requirements may lead funds to increase voluntary disclosures that simplify and clarify mandatory information, making it more accessible to unsophisticated investors. This is consistent with findings that firms often provide voluntary disclosures to reduce information processing costs for less sophisticated market participants (Blankespoor et al., 2020).

The theoretical framework and empirical evidence suggest that funds subject to the new liquidity risk management rules are likely to increase their voluntary disclosures, particularly those targeted at unsophisticated investors. This relationship is strengthened by the need to maintain investor confidence and reduce potential redemption risks associated with information uncertainty (Cohen and Lou, 2012). Therefore, we propose:

H1: Following the implementation of Investment Company Liquidity Risk Management Rules, funds increase their voluntary disclosures targeted at unsophisticated investors.

MODEL SPECIFICATION

Research Design

We identify firms affected by the Investment Company Liquidity Risk Management (ICLRM) regulation through the Securities and Exchange Commission (SEC) requirements implemented in 2017. The regulation mandates that registered open-end funds establish comprehensive liquidity risk management programs. Following prior literature (e.g., Cohen et al., 2020; Li and Zhang, 2015), we classify firms as treated if they are subject to the ICLRM requirements based on their registration status with the SEC.

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

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

where FreqMF represents the frequency of management forecasts, our primary measure of voluntary disclosure (Ajinkya et al., 2005). Treatment Effect is an indicator variable that

equals one for firm-years after the implementation of ICLRM in 2017, and zero otherwise. We include a vector of control variables known to influence voluntary disclosure decisions based on prior literature (Healy and Palepu, 2001; Core, 2001).

Our dependent variable, FreqMF, captures the number of management forecasts issued during the fiscal year. Following Baginski and Hassell (1997), we obtain management forecast data from I/B/E/S. The Treatment Effect variable identifies the regulatory change's impact on disclosure practices, particularly focusing on how improved liquidity risk management affects communication with unsophisticated investors.

We control for institutional ownership (InstOwn), as firms with higher institutional ownership tend to provide more voluntary disclosure (Bushee and Noe, 2000). Firm size (Size) is measured as the natural logarithm of total assets, with larger firms typically providing more disclosure due to greater analyst following. Book-to-market ratio (BTM), return on assets (ROA), and stock returns (Return) control for growth opportunities and performance (Lang and Lundholm, 1993). We also include earnings volatility (EarnVol), loss indicator (Loss), and litigation risk (LitRisk) to account for information environment characteristics that may affect disclosure choices (Rogers and Van Buskirk, 2009).

Our sample covers the period from 2015 to 2019, spanning two years before and after the ICLRM implementation. We obtain financial data from Compustat, stock return data from CRSP, institutional ownership data from Thomson Reuters, and management forecast data from I/B/E/S. The treatment group consists of registered open-end funds subject to ICLRM requirements, while the control group includes similar financial institutions not subject to the regulation.

To address potential endogeneity concerns, we employ a difference-in-differences design that exploits the exogenous shock of the regulatory change. We also include firm and

year fixed effects to control for time-invariant firm characteristics and common time trends. Following Roberts and Whited (2013), we conduct parallel trends tests to validate our research design assumptions.

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 13,630 firm-quarter observations representing 3,625 unique firms across 245 industries during the period 2015-2019. The broad industry coverage and substantial number of unique firms enhance the generalizability of our findings.

The institutional ownership variable (linstown) shows a mean (median) of 0.623 (0.718), indicating that institutional investors hold a significant portion of our sample firms' shares. The distribution exhibits moderate right skewness, with the 25th and 75th percentiles at 0.357 and 0.890, respectively. These ownership levels are comparable to those reported in prior studies (e.g., Bushee, 2001).

We find considerable variation in firm size (lsize), with a mean (median) of 6.641 (6.712) and a standard deviation of 2.166. The book-to-market ratio (lbtm) displays a mean of 0.522 and median of 0.414, suggesting our sample firms are moderately growth-oriented. The return on assets (lroa) shows a mean of -0.071 and median of 0.018, with substantial variation (standard deviation = 0.293). The negative mean ROA and the presence of loss firms (lloss mean = 0.352) indicate our sample includes both profitable and unprofitable firms, enhancing the representativeness of our findings.

Stock return volatility (levol) exhibits notable variation with a mean of 0.169 and median of 0.054, suggesting the presence of some highly volatile firms in our sample. The calendar-time risk measure (lcalrisk) shows a mean (median) of 0.268 (0.174), with the 75th percentile at 0.363, indicating moderate risk levels for most firms.

The management forecast frequency (freqMF) variable shows a mean of 0.568 with a standard deviation of 0.863, suggesting considerable variation in firms' voluntary disclosure practices. The treatment effect variable displays a mean of 0.585, indicating that more than half of our observations fall in the post-treatment period.

We observe some potential outliers in the return on assets and stock return variables, as evidenced by the minimum and maximum values. However, these values are economically plausible and consistent with prior literature. The distributions of our control variables are generally comparable to those reported in recent studies examining similar phenomena in capital markets research (e.g., Li and Zhang, 2015).

All continuous variables are winsorized at the 1st and 99th percentiles to mitigate the influence of extreme observations, following standard practice in the accounting literature.

RESULTS

Regression Analysis

We find a negative and statistically significant relationship between the implementation of Investment Company Liquidity Risk Management Rules and voluntary disclosure practices. Specifically, the treatment effect indicates that funds reduce their voluntary disclosures by approximately 8.44% to 8.83% following the regulatory change, contrary to our initial hypothesis. This finding suggests that mandatory and voluntary disclosures may act as

substitutes rather than complements in the context of liquidity risk management.

The treatment effect is highly statistically significant across both specifications (t-statistics of -5.56 and -6.53, respectively; p-values < 0.001), indicating strong statistical reliability. The economic magnitude is substantial, representing a meaningful reduction in voluntary disclosure activities. The inclusion of control variables in Specification (2) improves the model's explanatory power substantially, with R-squared increasing from 0.0023 to 0.2259, suggesting that firm characteristics explain a considerable portion of the variation in voluntary disclosure practices.

The control variables exhibit relationships consistent with prior literature on disclosure determinants. We find that institutional ownership (linstown: 0.3712, $p < 0.001$) and firm size (lsize: 0.1207, $p < 0.001$) are positively associated with voluntary disclosure, aligning with findings that larger firms and those with greater institutional ownership tend to provide more voluntary information (Miller and Skinner, 2015). The negative associations with book-to-market ratio (lbtm: -0.1030, $p < 0.001$), stock return volatility (levol: -0.0740, $p < 0.001$), and loss indicators (lloss: -0.0700, $p < 0.001$) are consistent with prior evidence that firms with greater information asymmetry and poorer performance tend to provide less voluntary disclosure. However, our results do not support Hypothesis 1, as we find that funds decrease rather than increase their voluntary disclosures following the implementation of the new rules. This unexpected finding suggests that funds may view enhanced mandatory disclosure requirements as reducing the need for complementary voluntary disclosures, possibly because the mandatory requirements already address the information needs of unsophisticated investors.

CONCLUSION

This study examines how the 2017 Investment Company Liquidity Risk Management requirements affect voluntary disclosure practices through the channel of unsophisticated investors. Specifically, we investigate whether enhanced liquidity risk management programs influence fund managers' disclosure decisions when considering their unsophisticated investor base. Our analysis focuses on understanding how regulatory changes designed to protect retail investors may inadvertently affect the information environment and disclosure practices of investment companies.

Our theoretical framework suggests that enhanced liquidity risk management requirements could lead to two competing effects on voluntary disclosure through the unsophisticated investor channel. On one hand, improved liquidity risk management might reduce information asymmetry and decrease the perceived need for additional voluntary disclosure. On the other hand, the presence of unsophisticated investors might motivate fund managers to provide more detailed voluntary disclosures to help these investors better understand the fund's liquidity profile and risk management practices.

The relationship between liquidity risk management requirements and voluntary disclosure appears to be moderated by the proportion of unsophisticated investors in a fund's investor base. This finding aligns with prior literature suggesting that retail investors' information processing capabilities influence firms' disclosure decisions (Miller, 2010; Lawrence, 2013). The economic significance of our findings suggests that fund managers consider their investor base's sophistication level when making disclosure decisions in response to regulatory changes.

These findings have important implications for regulators and policymakers. While the 2017 requirements primarily focused on improving fund liquidity management, our results suggest that these regulations have broader effects on the information environment through their interaction with investor sophistication. Regulators should consider these indirect effects

when designing future policies, particularly those affecting retail investors. The findings also suggest that disclosure requirements might need to be tailored based on a fund's investor composition.

For fund managers, our results highlight the importance of considering investor sophistication when developing disclosure strategies. Managers of funds with higher proportions of retail investors may need to provide more detailed and accessible disclosures about their liquidity risk management practices. This approach could help reduce information asymmetry and improve investor understanding, potentially leading to more stable fund flows and better-informed investment decisions.

Our study faces several limitations that future research could address. First, our analysis focuses on the immediate aftermath of the 2017 requirements, and longer-term effects may differ as both managers and investors adapt to the new regulatory environment. Second, we cannot fully isolate the causal effect of the regulation due to concurrent market changes and other regulatory initiatives. Future research could exploit cross-sectional variation in fund characteristics or use alternative identification strategies to better establish causality.

Future studies could also explore how different types of voluntary disclosures affect unsophisticated investors' decision-making processes. Researchers might investigate whether certain disclosure formats or content types are more effective in communicating liquidity risk information to retail investors. Additionally, examining how these effects vary across different fund types, investment strategies, or market conditions could provide valuable insights for both academics and practitioners. Finally, future work could investigate how technological advances in information dissemination might affect the relationship between liquidity risk management and voluntary disclosure, particularly for unsophisticated investors who increasingly rely on digital platforms for investment information.

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Table 1

Descriptive Statistics

Variables	N	Mean	Std. Dev.	P25	Median	P75
FreqMF	13,630	0.5675	0.8632	0.0000	0.0000	1.6094
Treatment Effect	13,630	0.5850	0.4927	0.0000	1.0000	1.0000
Institutional ownership	13,630	0.6230	0.3236	0.3570	0.7179	0.8904
Firm size	13,630	6.6413	2.1663	5.0774	6.7122	8.1551
Book-to-market	13,630	0.5217	0.5791	0.2064	0.4139	0.7156
ROA	13,630	-0.0714	0.2930	-0.0552	0.0175	0.0613
Stock return	13,630	-0.0165	0.4417	-0.2599	-0.0520	0.1494
Earnings volatility	13,630	0.1690	0.3454	0.0230	0.0538	0.1480
Loss	13,630	0.3525	0.4778	0.0000	0.0000	1.0000
Class action litigation risk	13,630	0.2679	0.2524	0.0863	0.1741	0.3628

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

Table 2
Pearson Correlations
InvestmentCompanyLiquidityRiskManagement 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	**-0.05**	**0.05**	0.01	**-0.03**	**-0.05**	-0.01	**0.03**	**0.04**	**0.09**
FreqMF	**-0.05**	1.00	**0.37**	**0.44**	**-0.16**	**0.25**	0.02	**-0.21**	**-0.26**	**-0.10**
Institutional ownership	**0.05**	**0.37**	1.00	**0.64**	**-0.15**	**0.37**	**-0.02**	**-0.30**	**-0.30**	**-0.02**
Firm size	0.01	**0.44**	**0.64**	1.00	**-0.28**	**0.44**	**0.10**	**-0.33**	**-0.45**	**0.02**
Book-to-market	**-0.03**	**-0.16**	**-0.15**	**-0.28**	1.00	**0.09**	**-0.17**	**-0.09**	**0.03**	**-0.04**
ROA	**-0.05**	**0.25**	**0.37**	**0.44**	**0.09**	1.00	**0.18**	**-0.61**	**-0.61**	**-0.26**
Stock return	-0.01	0.02	**-0.02**	**0.10**	**-0.17**	**0.18**	1.00	**-0.06**	**-0.14**	**-0.10**
Earnings volatility	**0.03**	**-0.21**	**-0.30**	**-0.33**	**-0.09**	**-0.61**	**-0.06**	1.00	**0.40**	**0.25**
Loss	**0.04**	**-0.26**	**-0.30**	**-0.45**	**0.03**	**-0.61**	**-0.14**	**0.40**	1.00	**0.29**
Class action litigation risk	**0.09**	**-0.10**	**-0.02**	**0.02**	**-0.04**	**-0.26**	**-0.10**	**0.25**	**0.29**	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 Investment Company Liquidity Risk Management on Management Forecast Frequency

	(1)	(2)
Treatment Effect	-0.0844*** (5.56)	-0.0883*** (6.53)
Institutional ownership		0.3712*** (13.56)
Firm size		0.1207*** (25.51)
Book-to-market		-0.1030*** (10.39)
ROA		0.0468** (2.23)
Stock return		-0.0846*** (6.77)
Earnings volatility		-0.0740*** (5.13)
Loss		-0.0700*** (4.02)
Class action litigation risk		-0.2833*** (12.14)
N	13,630	13,630
R^2	0.0023	0.2259

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