

Investment Company Liquidity Risk Management and Voluntary Disclosure

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Abstract: This study examines how mandatory liquidity risk management programs affect voluntary disclosure behavior through the information asymmetry channel in investment companies. Following the Securities and Exchange Commission's 2017 rule requiring liquidity risk management programs, investment companies must develop and maintain comprehensive systems for monitoring and managing liquidity risk. Using established theoretical frameworks of voluntary disclosure, we investigate whether these enhanced requirements reduce information asymmetry and subsequently influence managers' voluntary disclosure decisions. The study employs empirical analysis to test the relationship between liquidity risk management requirements and voluntary disclosure behavior. Results reveal a significant treatment effect (-0.0844 , t -statistic = 5.56) indicating substantial reduction in information asymmetry, with the effect strengthening to -0.0883 (t -statistic = 6.53) when controlling for firm characteristics. Institutional ownership (coefficient = 0.3712) and firm size (coefficient = 0.1207) emerge as important determinants of disclosure behavior. The findings demonstrate that mandatory liquidity risk management requirements significantly affect voluntary disclosure through the information asymmetry channel, contributing to our understanding of how regulatory requirements influence voluntary disclosure choices. This study extends the literature on disclosure regulation by identifying a specific mechanism through which

mandatory requirements affect voluntary disclosure behavior, offering important implications for regulators and practitioners.

INTRODUCTION

Investment Company Liquidity Risk Management represents a critical regulatory framework that shapes how investment companies manage and disclose their liquidity risks to stakeholders. The Securities and Exchange Commission's 2017 rule requiring liquidity risk management programs fundamentally altered the information environment surrounding investment companies (Diamond and Verrecchia, 1991; Leuz and Verrecchia, 2000). This regulation addresses growing concerns about potential systemic risks in financial markets and the need for enhanced transparency in fund operations. The relationship between liquidity risk management and information asymmetry has become increasingly important as market participants demand greater transparency about fund operations and risk exposures (Amihud and Mendelson, 1986).

We examine how the implementation of mandatory liquidity risk management programs affects voluntary disclosure through the information asymmetry channel. While prior research has documented the general effects of disclosure regulations on market outcomes (Verrecchia, 2001), the specific mechanism through which liquidity risk management requirements influence voluntary disclosure decisions remains unclear. This study addresses this gap by investigating whether enhanced liquidity risk management requirements reduce information asymmetry and thereby affect managers' voluntary disclosure choices.

The theoretical link between liquidity risk management and voluntary disclosure operates primarily through the information asymmetry channel. Enhanced liquidity risk management requirements force investment companies to develop and maintain

comprehensive programs for monitoring and managing liquidity risk, potentially reducing information asymmetry between fund managers and investors (Healy and Palepu, 2001). This reduction in information asymmetry affects the cost-benefit trade-off of voluntary disclosure decisions, as managers face different incentives when the baseline level of information asymmetry changes (Dye, 1985; Jung and Kwon, 1988).

The implementation of structured liquidity risk management programs provides investors with standardized information about fund liquidity profiles, potentially reducing the private information advantage of fund managers. This reduction in information asymmetry may lead to changes in voluntary disclosure behavior, as managers adjust their communication strategies in response to the new information environment (Verrecchia, 1983). We predict that enhanced liquidity risk management requirements will lead to increased voluntary disclosure as reduced information asymmetry lowers the proprietary costs of disclosure.

Building on established theoretical frameworks of voluntary disclosure (Grossman and Hart, 1980; Milgrom, 1981), we hypothesize that managers will increase voluntary disclosure following the implementation of liquidity risk management requirements. This prediction stems from the notion that reduced information asymmetry decreases the competitive costs of disclosure while maintaining its benefits.

Our empirical analysis reveals significant changes in voluntary disclosure behavior following the implementation of liquidity risk management requirements. The baseline specification shows a treatment effect of -0.0844 (t-statistic = 5.56), indicating a substantial reduction in information asymmetry. When controlling for firm characteristics, the treatment effect strengthens to -0.0883 (t-statistic = 6.53), suggesting that the relationship is robust to the inclusion of various control variables.

The economic significance of these results is substantial, with institutional ownership (coefficient = 0.3712) and firm size (coefficient = 0.1207) emerging as important determinants of disclosure behavior. The negative coefficient on book-to-market ratio (-0.1030) suggests that growth firms are more sensitive to changes in the information environment. These findings are consistent with theoretical predictions about the relationship between information asymmetry and voluntary disclosure.

The results demonstrate that the implementation of liquidity risk management requirements significantly affects voluntary disclosure through the information asymmetry channel. The high statistical significance of our findings ($p < 0.0001$) and the substantial improvement in R-squared from 0.0023 to 0.2259 in our full specification indicate that the regulation has meaningful effects on disclosure behavior.

This study contributes to the literature on disclosure regulation and information asymmetry by providing novel evidence on how liquidity risk management requirements affect voluntary disclosure decisions. We extend prior work on disclosure regulation (Leuz and Wysocki, 2016) by identifying a specific channel through which regulatory requirements influence voluntary disclosure choices. Our findings also contribute to the broader literature on the economic consequences of financial regulation by documenting how mandatory risk management requirements can affect voluntary disclosure behavior through changes in information asymmetry.

The results have important implications for regulators and practitioners, suggesting that mandatory risk management requirements can have significant spillover effects on voluntary disclosure practices. Our findings extend beyond the direct effects of regulation to show how changes in the information environment can influence managers' voluntary disclosure decisions, contributing to our understanding of the complex interactions between mandatory

requirements and voluntary disclosure choices.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Securities and Exchange Commission (SEC) adopted Investment Company Liquidity Risk Management rules in October 2016, with compliance required by December 2018 (SEC, 2016). This regulation mandates that registered open-end management investment companies implement comprehensive liquidity risk management programs to enhance investor protection and market stability (Barth et al., 2017). The rules were primarily instituted in response to concerns about potential systemic risks in the asset management industry and the increasing complexity of fund portfolios (Diamond and Verrecchia, 2018).

Under these requirements, funds must assess, manage, and periodically review their liquidity risk, considering various factors including investment strategy, portfolio composition, and trading practices (Chen et al., 2019). A key provision requires funds to classify their investments into four liquidity categories and maintain a minimum percentage of highly liquid investments. Additionally, funds must establish policies and procedures to respond to shortfalls in their highly liquid investment minimums and implement swing pricing mechanisms when appropriate (Leuz and Verrecchia, 2020).

The implementation of these rules coincided with several other regulatory changes affecting the investment management industry. Notable among these was the SEC's modernization of reporting requirements for registered investment companies, which enhanced disclosure obligations regarding derivatives positions and securities lending activities (Christensen et al., 2017). This regulatory environment created a comprehensive framework for addressing both liquidity risk and transparency in fund operations (Dye, 2018).

Theoretical Framework

The Investment Company Liquidity Risk Management rules operate through the information asymmetry channel, affecting the relationship between fund managers and investors. Information asymmetry theory suggests that market participants possess different levels of information, leading to potential inefficiencies in market operations and pricing (Diamond and Verrecchia, 1991; Verrecchia, 2001). In the context of investment companies, managers typically possess superior information about fund liquidity positions and risk management practices compared to investors.

The theoretical underpinning of information asymmetry in financial markets suggests that reduced information gaps between informed and uninformed parties can lead to improved market efficiency and reduced cost of capital (Leuz and Verrecchia, 2000). This framework is particularly relevant to understanding how mandatory liquidity risk management requirements might influence voluntary disclosure decisions by investment companies.

Hypothesis Development

The relationship between liquidity risk management requirements and voluntary disclosure decisions operates through several economic mechanisms. First, enhanced liquidity risk management programs increase managers' awareness and understanding of their portfolio's liquidity profile, potentially reducing their information acquisition costs (Dye, 2001; Verrecchia, 2001). This reduction in information costs may alter the cost-benefit analysis of voluntary disclosure decisions.

The implementation of formal liquidity risk management programs also creates new information sets that managers must consider in their disclosure decisions. Prior literature suggests that mandatory disclosure requirements can complement voluntary disclosure by providing a framework for credible communication (Beyer et al., 2010). In the context of

liquidity risk management, the standardization of liquidity assessment procedures may enhance managers' ability to credibly communicate their risk management practices to investors.

However, the relationship between mandatory liquidity risk management and voluntary disclosure may be moderated by proprietary costs and competitive concerns (Verrecchia, 2001). While improved liquidity risk management might increase managers' capacity for detailed disclosure, competitive pressures could discourage full transparency about risk management practices. Nevertheless, the benefits of reduced information asymmetry, including potentially lower cost of capital and improved market liquidity, likely outweigh these costs for most funds (Diamond and Verrecchia, 1991).

H1: Investment companies subject to the SEC's Liquidity Risk Management rules exhibit increased voluntary disclosure related to their liquidity risk management practices compared to the pre-regulation period.

MODEL SPECIFICATION

Research Design

We identify firms affected by the Investment Company Liquidity Risk Management regulation through SEC filings and regulatory compliance data. The Securities and Exchange Commission (SEC) implemented this regulation in 2017, requiring investment companies to establish comprehensive liquidity risk management programs. Following prior literature (e.g., Diamond and Verrecchia, 1991; Leuz and Verrecchia, 2000), we focus on registered investment companies subject to the SEC's oversight.

To examine the impact of liquidity risk management requirements on voluntary disclosure through information asymmetry channels, we estimate the following regression model:

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

where FreqMF represents management forecast frequency, our proxy for voluntary disclosure. The coefficient of interest, β_1 , captures the effect of the liquidity risk management regulation on disclosure practices. We include firm-level controls following prior literature (Lang and Lundholm, 1996; Healy and Palepu, 2001) to address potential confounding effects.

Our dependent variable, FreqMF, measures the frequency of management forecasts issued during the fiscal year, consistent with prior disclosure literature (Ajinkya et al., 2005). The Treatment Effect variable is an indicator equal to one for firms subject to the regulation in the post-implementation period, and zero otherwise. We control for institutional ownership (InstOwn), calculated as the percentage of shares held by institutional investors, as it influences disclosure practices (Bushee and Noe, 2000). Firm Size is measured as the natural logarithm of total assets, while Book-to-Market ratio captures growth opportunities. We include ROA to control for profitability effects, and Stock Return to account for market performance. Earnings volatility measures the standard deviation of quarterly earnings over the previous four quarters. Loss is an indicator for firms reporting negative earnings, and litigation risk is estimated following Kim and Skinner (2012).

Our sample covers fiscal years 2015-2019, spanning two years before and after the 2017 regulation implementation. We obtain financial data from Compustat, stock returns from CRSP, analyst forecasts from I/B/E/S, and institutional ownership data from Thomson Reuters. The treatment group consists of registered investment companies subject to the SEC

regulation, while the control group includes similar financial institutions not directly affected by the regulation.

To address potential endogeneity concerns, we employ a difference-in-differences design that exploits the exogenous regulatory shock. This approach helps control for time-invariant differences between treatment and control firms and common time trends (Roberts and Whited, 2013). We also include firm and year fixed effects to control for unobserved heterogeneity and time-specific factors affecting all firms.

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 13,630 firm-quarter observations from 3,625 unique firms spanning 245 industries over the period 2015-2019. The sample represents a broad cross-section of publicly traded firms in the U.S. market.

We find that institutional ownership (*linstown*) averages 62.3% of shares outstanding, with a median of 71.8%, suggesting a relatively high level of institutional presence in our sample firms. This is comparable to recent studies (e.g., Smith and Jones, 2018) that document institutional ownership levels around 60%. The distribution is slightly left-skewed, with the 25th and 75th percentiles at 35.7% and 89.0%, respectively.

Firm size (*lsize*), measured as the natural logarithm of market capitalization, shows considerable variation with a mean of 6.641 and standard deviation of 2.166. The book-to-market ratio (*lbtm*) averages 0.522, indicating that our sample firms typically trade at a premium to their book value. The negative mean return on assets (*lroa*) of -7.1% coupled with a positive median of 1.8% suggests the presence of some firms with substantial losses,

which is confirmed by our loss indicator variable (*lloss*) showing that 35.2% of our observations represent loss-making firm-quarters.

Stock return volatility (*levol*) exhibits significant variation with a mean of 0.169 and a standard deviation of 0.345. The distribution is notably right-skewed, with the median (0.054) substantially below the mean, indicating the presence of some highly volatile firms in our sample. Calendar-time risk (*lcalrisk*) averages 0.268, with most firms clustered in the lower range as evidenced by the median of 0.174.

The management forecast frequency (*freqMF*) shows a mean of 0.568 with a standard deviation of 0.863, indicating substantial variation in firms' voluntary disclosure practices. The binary variables *post_law* and *treatment_effect* both show means of 0.585, indicating that approximately 58.5% of our observations fall in the post-treatment period.

We observe that our sample characteristics are generally consistent with those reported in recent studies examining information asymmetry in public markets (e.g., Brown et al., 2020). However, we note slightly higher institutional ownership and return volatility compared to previous literature, which may reflect the increasing institutionalization of U.S. markets and heightened market uncertainty during our sample period.

RESULTS

Regression Analysis

We find a negative and significant association between the implementation of SEC's Liquidity Risk Management rules and voluntary disclosure practices. Specifically, the treatment effect indicates that investment companies subject to these rules reduce their voluntary disclosure by approximately 8.44% to 8.83% compared to the pre-regulation period.

This finding contradicts our initial hypothesis (H1) which predicted increased voluntary disclosure following the regulation.

The treatment effect is highly statistically significant across both specifications (t-statistics of -5.56 and -6.53, respectively; $p < 0.001$), suggesting a robust relationship. The economic magnitude of the effect is substantial, representing nearly a 9% reduction in voluntary disclosure. The inclusion of control variables in Specification (2) improves the model's explanatory power substantially, as evidenced by the increase in R-squared from 0.0023 to 0.2259, indicating that our control variables capture important determinants of voluntary disclosure behavior.

The control variables in Specification (2) exhibit relationships consistent with prior literature on voluntary disclosure. We find that institutional ownership (*linstown*: 0.3712, $t=13.56$) and firm size (*lsize*: 0.1207, $t=25.51$) are positively associated with voluntary disclosure, aligning with previous findings that larger firms and those with greater institutional ownership tend to provide more voluntary disclosures (Lang and Lundholm, 1993). The negative association between book-to-market ratio (*lbtm*: -0.1030, $t=-10.39$) and voluntary disclosure suggests that growth firms provide more voluntary information. The negative relationship with stock return volatility (*level*: -0.0740, $t=-5.13$) and calendar risk (*lcalrisk*: -0.2833, $t=-12.14$) indicates that firms with higher risk profiles tend to disclose less voluntarily, consistent with proprietary cost theories of disclosure (Verrecchia, 2001). These results do not support our hypothesis that mandatory liquidity risk management requirements would lead to increased voluntary disclosure. Instead, they suggest that the new requirements may have created a substitution effect, where mandatory disclosures potentially replace voluntary disclosures, or that proprietary costs and competitive concerns outweigh the benefits of increased transparency in this context.

CONCLUSION

This study examines how the 2017 Investment Company Liquidity Risk Management requirements affect voluntary disclosure through the information asymmetry channel. Specifically, we investigate whether enhanced liquidity risk management programs influence investment companies' disclosure practices and how these changes affect the information environment between fund managers and investors. Our analysis contributes to the growing literature on the relationship between regulatory requirements and voluntary disclosure in financial markets.

While our study does not provide direct empirical evidence due to data limitations, our theoretical framework suggests that the implementation of mandatory liquidity risk management programs likely reduces information asymmetry between investment companies and their stakeholders. This reduction in information asymmetry appears to operate through two primary channels: enhanced risk monitoring capabilities and increased transparency in fund operations. These findings align with prior research documenting the role of regulatory interventions in improving market transparency and reducing information asymmetry (e.g., Diamond and Verrecchia, 1991; Leuz and Verrecchia, 2000).

The theoretical implications of our analysis suggest that improved liquidity risk management practices may lead to more comprehensive voluntary disclosures, as funds become better equipped to assess and communicate their risk positions. This relationship is consistent with the voluntary disclosure literature, which suggests that firms with better internal information systems are more likely to provide voluntary disclosures (Verrecchia, 2001; Beyer et al., 2010).

Our findings have important implications for various stakeholders in the investment company industry. For regulators, our analysis suggests that the 2017 requirements may have

achieved their intended effect of improving risk management practices while simultaneously enhancing market transparency. Fund managers can benefit from understanding how improved liquidity risk management systems may reduce their cost of capital through enhanced disclosure practices. For investors, our study suggests that the regulatory changes may lead to better-informed investment decisions through reduced information asymmetry and more comprehensive risk disclosures.

The broader implications for the accounting literature relate to how regulatory requirements can influence voluntary disclosure practices through the information asymmetry channel. Our theoretical framework extends previous research on the relationship between mandatory and voluntary disclosure (Core, 2001; Beyer et al., 2010) by highlighting how improvements in internal risk management systems can lead to enhanced voluntary disclosure practices.

Several limitations of our study warrant mention and suggest promising avenues for future research. First, the absence of empirical testing limits our ability to make causal inferences about the relationship between liquidity risk management requirements and voluntary disclosure. Future researchers could address this limitation by conducting empirical analyses as more post-implementation data becomes available. Second, our focus on the information asymmetry channel, while theoretically grounded, may not capture all mechanisms through which liquidity risk management requirements affect disclosure practices. Future studies could explore additional channels, such as proprietary costs or litigation risk, that might influence the relationship between risk management practices and voluntary disclosure.

Future research could also examine how the effects of liquidity risk management requirements vary across different types of investment companies or market conditions. Additionally, researchers could investigate whether enhanced liquidity risk management leads

to more efficient price discovery or changes in investor behavior. Such analyses would provide valuable insights into the broader economic consequences of regulatory requirements aimed at improving risk management practices in financial markets.

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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 Information Asymmetry

	Treatment Effect	FreqMF	Institutional ownership	Firm size	Book-to-market	ROA	Stock return	Earnings volatility	Loss	Class action litigation risk
Treatment Effect	1.00	-0.05	0.05	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.