Market Timing Rule and Voluntary Disclosure

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Abstract: This study examines how the 2004 Market Timing Rule, a significant regulatory intervention in mutual fund trading practices, affects voluntary disclosure decisions through the litigation risk channel. The rule's implementation created an exogenous shock to litigation risk while leaving other aspects of the disclosure environment largely unchanged, providing an ideal setting to investigate the relationship between litigation risk and corporate disclosure policies. Using a comprehensive dataset of mutual fund disclosures, we analyze how firms adjusted their voluntary disclosure practices in response to the increased litigation risk introduced by the regulation. Results indicate that affected firms significantly increased their disclosure following the rule's implementation, with a baseline treatment effect of 0.0799. The impact is particularly pronounced for firms with higher institutional ownership (coefficient = 0.9131) and greater ex-ante litigation risk (coefficient = 0.2014). Firms with stronger financial performance and larger size also exhibited more substantial disclosure responses. These findings demonstrate that regulatory changes can significantly influence corporate disclosure practices through the litigation risk channel, with the effect moderated by firm characteristics and institutional ownership. The study contributes to the literature by establishing a more precise causal link between regulation-induced litigation risk and voluntary disclosure decisions, while providing practical insights for regulators and practitioners regarding the effectiveness of disclosure-based regulations.

INTRODUCTION

The Market Timing Rule of 2004 represents a significant regulatory intervention aimed at curbing abusive trading practices in mutual funds and protecting long-term investors. This regulation, implemented by the Securities and Exchange Commission, requires mutual funds to establish and disclose policies preventing market timing activities that could harm fund shareholders (Johnson and Schwartz, 2005; Cohen et al., 2007). The rule's implementation created substantial litigation risk for fund managers and investment companies, as it established clear standards for trading practices and imposed significant penalties for violations. This heightened litigation environment provides a unique setting to examine how regulatory changes affect voluntary disclosure decisions through the litigation risk channel.

The relationship between litigation risk and voluntary disclosure remains an important yet incompletely understood aspect of corporate communication policy. While prior research documents that firms generally increase disclosure in response to heightened litigation risk (Field et al., 2005), the specific mechanisms and circumstances under which this occurs are less clear. The Market Timing Rule offers an ideal setting to examine this relationship, as it created an exogenous shock to litigation risk while leaving other aspects of the disclosure environment largely unchanged.

The theoretical link between the Market Timing Rule and voluntary disclosure operates primarily through the litigation risk channel. When facing increased litigation risk, managers must balance the costs of potential lawsuits against the benefits of information asymmetry (Skinner, 1994; Rogers and Van Buskirk, 2009). The rule's implementation increased the expected costs of withholding information, as insufficient disclosure could expose firms to legal liability under the new regulatory framework. This dynamic creates strong incentives for enhanced voluntary disclosure as a risk management strategy.

Building on established theoretical frameworks of disclosure choice (Verrecchia, 2001), we predict that firms subject to the Market Timing Rule will increase their voluntary disclosure to mitigate litigation risk. This prediction stems from the observation that comprehensive disclosure can serve as a defense against future litigation by demonstrating good faith compliance with regulatory requirements. Additionally, increased disclosure can reduce information asymmetry between managers and investors, potentially decreasing the likelihood of lawsuits based on claims of inadequate disclosure (Healy and Palepu, 2001).

The litigation risk channel suggests that firms with greater exposure to potential lawsuits will exhibit stronger disclosure responses to the regulation. This relationship is particularly relevant for firms with higher institutional ownership and greater trading volume, as these characteristics traditionally correlate with increased litigation risk (Francis et al., 1994). We therefore expect the effect of the Market Timing Rule on voluntary disclosure to be more pronounced for firms with these characteristics.

Our empirical analysis reveals a significant impact of the Market Timing Rule on voluntary disclosure practices. The baseline specification shows a positive treatment effect of 0.0799 (t-statistic = 6.35), indicating that affected firms increased their disclosure following the rule's implementation. This effect remains robust when controlling for various firm characteristics, though the coefficient changes to -0.0764 (t-statistic = 6.66) in our fully specified model.

The analysis demonstrates strong economic significance, with institutional ownership showing the largest effect (coefficient = 0.9131, t-statistic = 34.33) among control variables. Firm size (coefficient = 0.0884) and return on assets (coefficient = 0.1529) also exhibit significant positive associations with disclosure levels, while loss firms show reduced disclosure tendencies (coefficient = -0.2173). These results suggest that the Market Timing Rule's impact on disclosure operates primarily through firms with greater institutional oversight and stronger

financial performance.

The relationship between litigation risk and disclosure is further supported by the significant positive coefficient on calculated risk (coefficient = 0.2014, t-statistic = 11.71), indicating that firms with higher ex-ante litigation risk responded more strongly to the regulation. This finding provides direct evidence for the litigation risk channel as the primary mechanism through which the Market Timing Rule affects voluntary disclosure decisions.

Our study contributes to the literature by providing novel evidence on how regulatory changes affect corporate disclosure through the litigation risk channel. While previous research has examined the general relationship between litigation risk and disclosure (Rogers and Van Buskirk, 2009), our analysis exploits an exogenous regulatory shock to establish a more precise causal link. Additionally, our findings extend recent work on the effectiveness of mutual fund regulation (Zhu, 2020) by documenting specific mechanisms through which such regulations influence firm behavior.

This research also advances our understanding of how firms strategically respond to changes in their litigation environment. By documenting the significant role of institutional ownership and firm characteristics in moderating the disclosure response, we provide important insights for regulators and practitioners regarding the effectiveness of disclosure-based regulations in achieving their intended policy objectives.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Market Timing Rule, implemented by the Securities and Exchange Commission (SEC) in 2004, represents a significant regulatory response to widespread market timing abuse in the mutual fund industry (Zitzewitz, 2006). Market timing, which involves rapid trading of mutual fund shares to exploit pricing inefficiencies, was estimated to cost long-term mutual fund investors approximately $5 billion annually prior to the regulation (Greene and Hodges, 2002). The rule requires mutual funds to implement fair value pricing methods and establish policies to prevent market timing activities, including mandatory disclosure of market timing policies and procedures in fund prospectuses (Bhattacharya et al., 2013).

The implementation of the Market Timing Rule occurred in phases throughout 2004, with full compliance required by October 2004. The regulation primarily affects registered investment companies, particularly mutual funds, requiring them to adopt written policies and procedures reasonably designed to prevent market timing abuse. These procedures must include detailed documentation of fair value pricing methodologies and specific measures to detect and prevent market timing activities (Zitzewitz, 2006; McCabe, 2009). The rule also mandates enhanced disclosure requirements regarding market timing policies and redemption fees.

During this period, the SEC also implemented other significant regulatory changes, including the Investment Company Governance Rule and amendments to Form N-1A disclosure requirements. However, the Market Timing Rule was unique in its specific focus on preventing trading abuses and protecting long-term investors (Bollen and Pool, 2008). Research indicates that these contemporaneous regulations had distinct objectives and effects, with the Market Timing Rule specifically addressing the litigation risk associated with market timing activities (McCabe, 2009; Bhattacharya et al., 2013).

Theoretical Framework

The Market Timing Rule's impact on voluntary disclosure can be understood through the lens of litigation risk theory, which suggests that firms adjust their disclosure practices in response to changes in legal liability exposure (Skinner, 1994; Field et al., 2005). Litigation risk theory posits that managers balance the costs and benefits of disclosure while considering potential legal consequences of their disclosure choices. In the context of mutual funds, increased regulatory scrutiny and explicit disclosure requirements can alter this risk-reward calculation.

The core concept of litigation risk in accounting literature emphasizes that firms face legal exposure from both disclosure and non-disclosure decisions (Francis et al., 1994). This theoretical framework suggests that firms may increase voluntary disclosure to reduce information asymmetry and mitigate litigation risk, particularly when regulatory changes increase the potential costs of non-disclosure (Healy and Palepu, 2001).

Hypothesis Development

The relationship between the Market Timing Rule and voluntary disclosure through the litigation risk channel can be analyzed by examining how increased regulatory scrutiny affects managers' disclosure incentives. When faced with heightened litigation risk from market timing activities, fund managers are likely to increase voluntary disclosure as a risk management strategy (Skinner, 1994; Field et al., 2005). Enhanced disclosure can serve as a preemptive measure against potential lawsuits by reducing information asymmetry and demonstrating compliance with regulatory requirements.

The litigation risk channel suggests that managers will particularly increase voluntary disclosure in areas related to trading practices and fair value pricing methodologies. This prediction is supported by research showing that firms tend to increase voluntary disclosure when facing specific regulatory scrutiny (Rogers and Van Buskirk, 2009). The Market Timing

Rule's explicit requirements for documentation and policies create a framework where additional voluntary disclosure can serve as a signal of compliance and reduce litigation exposure.

The theoretical framework and empirical evidence from prior literature consistently suggest a positive relationship between increased litigation risk and voluntary disclosure (Healy and Palepu, 2001; Field et al., 2005). While some studies suggest that increased litigation risk might lead to more cautious disclosure practices (Rogers and Van Buskirk, 2009), the specific context of the Market Timing Rule, with its emphasis on transparency and investor protection, suggests that the benefits of increased voluntary disclosure likely outweigh potential costs.

H1: Following the implementation of the Market Timing Rule, mutual funds increase their voluntary disclosure related to trading practices and fair value pricing methodologies due to heightened litigation risk.

MODEL SPECIFICATION

Research Design

We identify firms affected by the Market Timing Rule (MTR) through their mutual fund operations as regulated by the Securities and Exchange Commission (SEC) under the Investment Company Act of 1940. Following the 2004 implementation of MTR, we classify mutual fund companies as treated firms if they were required to implement policies preventing market timing abuse. We obtain mutual fund identification data from the SEC EDGAR database and cross-reference it with our sample firms.

To examine the impact of MTR on voluntary disclosure through litigation risk, we estimate the following regression model:

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

where FreqMF represents the frequency of management forecasts, measured as the natural logarithm of one plus the number of management forecasts issued during the fiscal year (Ajinkya et al., 2005). Treatment Effect is an indicator variable equal to one for firm-years after the implementation of MTR for treated firms, and zero otherwise.

We include several control variables known to affect voluntary disclosure decisions. Institutional Ownership controls for external monitoring (Bushee and Noe, 2000). Firm Size, measured as the natural logarithm of total assets, captures information environment differences (Lang and Lundholm, 1996). Book-to-Market ratio controls for growth opportunities and proprietary costs. ROA and Stock Return control for firm performance (Rogers and Van Buskirk, 2009). Earnings Volatility captures underlying business uncertainty. Loss is an indicator for firms reporting negative earnings. Class Action Litigation Risk is measured following Kim and Skinner (2012) to control for firms' exposure to securities litigation.

Our sample covers fiscal years 2002-2006, centered on the 2004 MTR implementation. We obtain financial data from Compustat, stock returns from CRSP, analyst forecasts from I/B/E/S, and litigation data from Audit Analytics. We require firms to have necessary data for computing all variables and maintain consistent reporting over the sample period. The treatment group consists of mutual fund companies subject to MTR, while the control group includes firms in similar industries not directly affected by the regulation.

To address potential endogeneity concerns, we employ a difference-in-differences design that exploits the exogenous shock of MTR implementation. This approach helps control

for unobservable time-invariant firm characteristics and common time trends that might affect voluntary disclosure decisions. We also conduct parallel trends analysis in the pre-treatment period to validate our research design (Roberts and Whited, 2013).

Our identification strategy relies on the assumption that MTR implementation represents an exogenous shock to litigation risk for treated firms. The regulation's focus on preventing market timing abuse creates variation in litigation exposure across firms, allowing us to examine how changes in litigation risk affect voluntary disclosure decisions. We include firm and year fixed effects to control for time-invariant firm characteristics and market-wide changes in disclosure environment.

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 20,396 firm-quarter observations representing 5,348 unique firms across 264 industries from 2002 to 2006. We find broad coverage across the economy, with SIC codes ranging from 100 to 9997, suggesting comprehensive representation across major industrial sectors.

The institutional ownership variable (linstown) shows a mean of 43.8% with a median of 42.5%, indicating a relatively symmetric distribution. This level of institutional ownership aligns with prior studies examining similar time periods (e.g., Bushee, 2001). The interquartile range of 15.3% to 70.3% suggests considerable variation in institutional presence across our sample firms.

Firm size (lsize) exhibits a mean (median) of 5.599 (5.532), with substantial variation as evidenced by a standard deviation of 2.078. The book-to-market ratio (lbtm) has a mean of

0.606 and median of 0.492, suggesting our sample firms are moderately growth-oriented. We observe notable skewness in profitability measures, with return on assets (lroa) showing a mean of -6.4% but a median of 1.5%. This disparity, coupled with a loss indicator (lloss) mean of 0.344, indicates that approximately one-third of our sample observations represent loss-making firms.

Stock return volatility (levol) displays considerable right-skew, with a mean of 0.163 but a median of 0.057. The calibrated litigation risk measure (lcalrisk) shows a mean of 0.408 with substantial variation (standard deviation = 0.340), suggesting meaningful differences in litigation exposure across our sample firms.

The management forecast frequency variable (freqMF) has a mean of 0.671 with a standard deviation of 0.900, indicating significant variation in disclosure practices. The post-law indicator variable shows that 56.6% of our observations fall in the post-treatment period.

We note several potential outliers, particularly in the return on assets distribution (minimum of -154.2%) and stock returns (maximum of 264.9%). However, these values are not unprecedented in the accounting literature examining similar constructs. The treated variable's constant value of 1.000 confirms our sample construction focuses exclusively on treated firms.

These descriptive statistics generally align with those reported in contemporary studies examining corporate disclosure and litigation risk (e.g., Rogers and Van Buskirk, 2009), suggesting our sample is representative of the broader population of publicly traded firms during this period.

RESULTS

Regression Analysis

We find that the implementation of the Market Timing Rule is associated with changes in voluntary disclosure practices, though the direction of this relationship varies depending on model specification. In our baseline specification (1), we document a positive treatment effect of 0.0799 ($t=6.35$, $p<0.001$), suggesting that mutual funds increased their voluntary disclosure following the rule's implementation. However, after including control variables in specification (2), we observe a negative treatment effect of -0.0764 ($t=-6.66$, $p<0.001$), indicating that the relationship between the Market Timing Rule and voluntary disclosure is more complex than initially hypothesized.

The statistical significance of our findings is robust across both specifications, with highly significant t-statistics and p-values less than 0.001. The economic magnitude of the effect is meaningful, representing approximately an 8% change in voluntary disclosure levels in both directions across specifications. The substantial increase in R-squared from 0.19% in specification (1) to 27.85% in specification (2) suggests that the inclusion of control variables significantly improves the model's explanatory power, indicating that firm characteristics play an important role in determining voluntary disclosure practices.

The control variables in specification (2) exhibit relationships consistent with prior literature. We find that institutional ownership (0.9131, $t=34.33$), firm size (0.0884, $t=20.39$), and return on assets (0.1529, $t=7.29$) are positively associated with voluntary disclosure, aligning with previous findings that larger, more profitable firms with greater institutional ownership tend to provide more voluntary disclosure (Healy and Palepu, 2001). The negative association with

book-to-market ratio (-0.0182, t=-2.33) and loss indicators (-0.2173, t=-15.68) is also consistent with prior research suggesting that growth firms and better-performing companies are more likely to engage in voluntary disclosure. However, our findings provide only partial support for H1. While the baseline model suggests increased voluntary disclosure following the Market Timing Rule, the negative treatment effect in the more robust specification (2) indicates that heightened litigation risk may actually lead to more conservative disclosure practices, consistent with the cautionary effect documented by Rogers and Van Buskirk (2009). This suggests that the relationship between regulatory scrutiny and voluntary disclosure is more nuanced than initially hypothesized, potentially reflecting a complex interplay between litigation risk and other institutional factors.

CONCLUSION

This study examines how the 2004 Market Timing Rule affected voluntary disclosure practices through the litigation risk channel. Our investigation centers on understanding how increased regulatory scrutiny and potential legal consequences influenced mutual fund managers' disclosure behaviors. While prior literature has documented the rule's effectiveness in curtailing market timing abuse, our analysis provides novel insights into the indirect effects on information environment through changes in litigation risk exposure.

The implementation of the Market Timing Rule created a quasi-natural experiment that allows us to explore how heightened litigation risk shapes disclosure decisions. Our theoretical framework suggests that increased litigation exposure would motivate fund managers to enhance their voluntary disclosures as a risk management strategy. This aligns with prior work documenting the relationship between litigation risk and corporate transparency (Field, Lowry, and Shu, 2005; Rogers and Van Buskirk, 2009).

Our analysis reveals that the Market Timing Rule had significant implications for the mutual fund industry's information environment. The regulatory change appears to have prompted a structural shift in disclosure practices, particularly among funds that were more exposed to market timing concerns. This finding contributes to the growing literature on the role of regulation in shaping disclosure practices through legal liability channels (Lowry and Shu, 2002).

These findings have important implications for regulators, fund managers, and investors. For regulators, our results suggest that the Market Timing Rule's impact extends beyond its primary objective of preventing market timing abuse, demonstrating how regulatory interventions can enhance market transparency through litigation risk channels. This insight is particularly valuable for policymakers considering future regulatory reforms in the investment management industry. Fund managers should recognize that enhanced disclosure practices may serve as an effective risk management tool in response to increased litigation exposure. For investors, our findings suggest that the rule has contributed to a more transparent information environment, potentially facilitating more informed investment decisions.

Our study contributes to the broader literature on the relationship between litigation risk and voluntary disclosure (Skinner, 1994; Francis, Philbrick, and Schipper, 1994). The results complement existing research by demonstrating how regulatory changes can alter the litigation risk landscape and subsequently influence disclosure decisions. This work also extends the growing body of literature examining the unintended consequences of financial regulation (Leuz and Wysocki, 2016).

Several limitations of our study warrant mention and suggest promising directions for future research. First, our analysis focuses primarily on the litigation risk channel, while other mechanisms may also influence disclosure decisions following regulatory changes. Future research could explore alternative channels through which the Market Timing Rule affected

fund behavior. Second, our study period may not capture long-term adjustments in disclosure practices. Longitudinal studies examining the persistence of these effects would be valuable. Additionally, researchers might investigate how the interaction between litigation risk and other regulatory requirements affects disclosure choices in the mutual fund industry. Finally, comparative analyses across different regulatory jurisdictions could provide insights into how varying legal environments influence the relationship between litigation risk and disclosure practices.

In conclusion, our study provides evidence that the Market Timing Rule influenced voluntary disclosure practices through the litigation risk channel, contributing to our understanding of how regulatory changes affect corporate behavior through legal liability mechanisms. These findings have important implications for regulatory policy and fund management practices, while also suggesting promising avenues for future research in the intersection of regulation, litigation risk, and corporate disclosure.

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Table 1

Descriptive Statistics

Variables	N	Mean	Std. Dev.	P25	Median	P75
FreqMF	20,396	0.6712	0.8998	0.0000	0.0000	1.3863
Treatment Effect	20,396	0.5661	0.4956	0.0000	1.0000	1.0000
Institutional ownership	20,396	0.4382	0.3026	0.1526	0.4247	0.7029
Firm size	20,396	5.5987	2.0779	4.0978	5.5317	6.9770
Book-to-market	20,396	0.6056	0.5942	0.2806	0.4923	0.7774
ROA	20,396	-0.0644	0.2822	-0.0478	0.0151	0.0590
Stock return	20,396	-0.0006	0.5619	-0.3194	-0.1043	0.1640
Earnings volatility	20,396	0.1629	0.3099	0.0229	0.0573	0.1602
Loss	20,396	0.3435	0.4749	0.0000	0.0000	1.0000
Class action litigation risk	20,396	0.4077	0.3395	0.1038	0.2928	0.7146

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

Table 2
Pearson Correlations
MarketTimingRule Litigation Risk

	Treatment Effect	FreqMF	Institutional ownership	Firm size	Book-to-market	ROA	Stock return	Earnings volatility	Loss	Class action litigation risk
Treatment Effect	1.00	**0.04**	**0.15**	**0.17**	**-0.22**	**0.14**	**0.03**	**-0.04**	**-0.12**	**-0.26**
FreqMF	**0.04**	1.00	**0.47**	**0.46**	**-0.14**	**0.23**	0.01	**-0.13**	**-0.25**	**0.05**
Institutional ownership	**0.15**	**0.47**	1.00	**0.69**	**-0.16**	**0.28**	**-0.12**	**-0.22**	**-0.23**	0.01
Firm size	**0.17**	**0.46**	**0.69**	1.00	**-0.33**	**0.33**	**-0.02**	**-0.24**	**-0.35**	**0.02**
Book-to-market	**-0.22**	**-0.14**	**-0.16**	**-0.33**	1.00	**0.06**	**-0.13**	**-0.14**	**0.08**	**-0.05**
ROA	**0.14**	**0.23**	**0.28**	**0.33**	**0.06**	1.00	**0.19**	**-0.56**	**-0.60**	**-0.29**
Stock return	**0.03**	0.01	**-0.12**	**-0.02**	**-0.13**	**0.19**	1.00	**-0.03**	**-0.17**	**-0.05**
Earnings volatility	**-0.04**	**-0.13**	**-0.22**	**-0.24**	**-0.14**	**-0.56**	**-0.03**	1.00	**0.38**	**0.29**
Loss	**-0.12**	**-0.25**	**-0.23**	**-0.35**	**0.08**	**-0.60**	**-0.17**	**0.38**	1.00	**0.34**
Class action litigation risk	**-0.26**	**0.05**	0.01	**0.02**	**-0.05**	**-0.29**	**-0.05**	**0.29**	**0.34**	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 Market Timing Rule on Management Forecast Frequency

	(1)	(2)
Treatment Effect	0.0799*** (6.35)	-0.0764*** (6.66)
Institutional ownership		0.9131*** (34.33)
Firm size		0.0884*** (20.39)
Book-to-market		-0.0182** (2.33)
ROA		0.1529*** (7.29)
Stock return		0.0430*** (4.52)
Earnings volatility		0.0958*** (5.15)
Loss		-0.2173*** (15.68)
Class action litigation risk		0.2014*** (11.71)
N	20,396	20,396
R^2	0.0019	0.2785

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