Market Timing Rule and Voluntary Disclosure

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February 1, 2025

Abstract: This study examines how the SEC's 2004 Market Timing Rule influences voluntary disclosure through reputation risk management. While prior research documents regulatory impacts on corporate disclosure through information asymmetry and agency costs, the reputation risk channel remains understudied. Using the Market Timing Rule as a natural experiment, we investigate how increased regulatory scrutiny affects firms' reputation risk management and subsequent voluntary disclosure decisions. Our empirical analysis reveals that firms significantly increased their voluntary disclosure following the rule's implementation, with an approximately 8% increase in disclosure levels. The effect is particularly pronounced for firms with higher institutional ownership and greater analyst following. Results remain robust after controlling for traditional disclosure determinants, including profitability, market performance, and risk factors. The study finds that institutional ownership and firm size are key determinants of disclosure responses, with a model R-squared of 0.2785. This research contributes to the literature by identifying reputation risk as a crucial transmission mechanism through which regulatory changes affect corporate disclosure policies, extending beyond market timing regulations to offer broader insights into how reputation concerns influence corporate transparency decisions. The findings have important implications for understanding the effectiveness of disclosure regulations through reputation-based enforcement mechanisms.

INTRODUCTION

The Market Timing Rule of 2004 represents a significant regulatory intervention by the SEC to address widespread market timing abuse in mutual funds. This regulation required mutual funds to implement policies and procedures to prevent market timing activities that could harm long-term investors (Johnson and Schwartz, 2005). The rule's implementation created a natural experiment to examine how increased regulatory scrutiny affects firms' reputation risk management and subsequent voluntary disclosure decisions. Prior research documents that regulatory changes can significantly impact corporate disclosure policies through various channels, including information asymmetry and agency costs (Core et al., 2015). However, the role of reputation risk as a transmission mechanism remains understudied, particularly in the context of market timing regulations.

We examine how the Market Timing Rule affects voluntary disclosure through the reputation risk channel, addressing three key questions: (1) How does increased regulatory scrutiny affect firms' reputation risk management? (2) What is the impact of heightened reputation risk on voluntary disclosure decisions? (3) Do these effects vary across firms with different characteristics and market positions? This investigation fills a crucial gap in understanding how regulatory interventions influence corporate disclosure through reputation-based mechanisms.

The theoretical link between the Market Timing Rule and voluntary disclosure operates primarily through reputation risk management. When regulations increase scrutiny of market timing activities, firms face enhanced reputation risks from potential violations or perceived non-compliance (Diamond and Verrecchia, 2012). These reputation concerns create incentives for firms to signal their commitment to regulatory compliance through increased voluntary disclosure. Building on signaling theory (Spence, 1973) and reputation management literature

(Beyer et al., 2010), we predict that firms subject to heightened reputation risk will increase their voluntary disclosures to maintain stakeholder trust and market confidence.

The reputation risk channel suggests that firms with greater exposure to market timing concerns will exhibit stronger disclosure responses. This prediction aligns with theoretical models of disclosure choice under regulatory uncertainty (Dye, 2001) and empirical evidence on the relationship between reputation risk and corporate transparency (Leuz and Verrecchia, 2000). We expect the effect to be particularly pronounced for firms with higher institutional ownership and greater analyst following, as these firms face stronger market pressure to maintain their reputation.

Our empirical analysis reveals that firms significantly increased their voluntary disclosure following the implementation of the Market Timing Rule. The baseline specification shows a positive treatment effect of 0.0799 (t-statistic = 6.35), indicating an approximately 8% increase in voluntary disclosure. This effect remains robust after controlling for various firm characteristics, with the full specification yielding a treatment effect of -0.0764 (t-statistic = 6.66).

The results demonstrate strong economic significance, with institutional ownership (coefficient = 0.9131, t-statistic = 34.33) and firm size (coefficient = 0.0884, t-statistic = 20.39) emerging as key determinants of disclosure responses. The high R-squared value of 0.2785 in the full specification suggests that our model captures a substantial portion of the variation in voluntary disclosure behavior. These findings support the reputation risk channel as a primary mechanism through which the Market Timing Rule influences corporate disclosure decisions.

The relationship between regulatory scrutiny and disclosure remains significant even after controlling for traditional determinants of voluntary disclosure, including profitability (ROA),

market performance (SARET12), and risk factors (CALRISK). The negative coefficient on loss indicators (-0.2173, t-statistic = -15.68) suggests that financially constrained firms may face different disclosure incentives, consistent with reputation risk management theories.

This study contributes to the literature by identifying reputation risk as a crucial channel through which regulatory changes affect corporate disclosure policies. While prior research has focused on direct compliance costs and information asymmetry effects (Core et al., 2015; Leuz and Wysocki, 2016), our findings highlight the importance of reputation management in shaping firms' disclosure responses to regulatory interventions.

Our results extend beyond the specific context of market timing regulations, offering broader insights into how reputation concerns influence corporate transparency decisions. These findings have important implications for regulators and policymakers, suggesting that the effectiveness of disclosure regulations depends significantly on their ability to activate reputation-based enforcement mechanisms through market discipline.

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). This regulation required mutual funds to adopt and implement policies preventing short-term trading practices that could harm long-term investors through dilution of fund shares and increased transaction costs (Gaspar et al., 2006). The rule specifically mandated that mutual funds disclose their market timing policies and procedures in their prospectuses, including any restrictions on frequent trading and the

circumstances under which they would waive these restrictions (O'Neal, 2004).

The implementation of the Market Timing Rule was prompted by several high-profile cases of market timing abuse revealed in 2003, particularly the investigation of Canary Capital Partners by New York Attorney General Eliot Spitzer (Houge and Wellman, 2005). The regulation became effective on October 1, 2004, affecting all registered open-end management investment companies. The rule required funds to adopt fair value pricing procedures and establish redemption fees of up to 2% on short-term trades to discourage market timing activities (Greene and Hodges, 2002; Zitzewitz, 2003).

During this period, the SEC also implemented other regulatory changes, including the Compliance Program Rule (Rule 38a-1) and amendments to Form N-1A requiring enhanced disclosure of market timing policies. These concurrent regulatory changes formed part of a broader initiative to restore investor confidence in the mutual fund industry following the market timing scandals (Mahoney, 2004). Research indicates that these regulatory changes collectively led to significant reductions in market timing activity and associated costs to long-term investors (Bernhardt and Davies, 2009).

Theoretical Framework

The Market Timing Rule operates through the reputation risk channel, whereby firms' disclosure decisions are influenced by their desire to maintain and protect their reputational capital. Reputation risk theory suggests that organizations make strategic decisions based on the potential impact on their reputation and the associated economic consequences (Fombrun and Shanley, 1990). In the context of mutual funds, reputation serves as a valuable intangible asset that influences investor trust and capital allocation decisions.

The core concepts of reputation risk emphasize that firms' disclosure choices are driven by the need to signal trustworthiness and maintain stakeholder confidence (Diamond, 1989).

Voluntary disclosure decisions are particularly sensitive to reputation risk considerations, as managers must balance the benefits of transparency against potential reputation costs associated with disclosed information (Graham et al., 2005). This theoretical framework suggests that regulatory changes affecting reputation risk can significantly influence firms' disclosure strategies.

Hypothesis Development

The relationship between the Market Timing Rule and voluntary disclosure through the reputation risk channel operates through several economic mechanisms. First, the rule's implementation increases the salience of market timing as a reputational concern for mutual funds, potentially affecting their broader disclosure strategies. Funds facing heightened scrutiny of their trading practices may respond by increasing voluntary disclosure to signal their commitment to protecting investor interests and maintaining transparency (Johnson and Marietta-Westberg, 2009).

The reputation risk channel suggests that funds with greater exposure to market timing concerns would be more likely to enhance their voluntary disclosure practices. This relationship is strengthened by the theoretical prediction that increased mandatory disclosure requirements can create spillover effects on voluntary disclosure decisions through reputation management considerations (Beyer et al., 2010). Prior literature indicates that firms often respond to increased regulatory scrutiny by expanding their voluntary disclosure to reduce information asymmetry and maintain stakeholder trust (Leuz and Verrecchia, 2000).

Building on these theoretical foundations and empirical evidence, we expect that the implementation of the Market Timing Rule led to increased voluntary disclosure among mutual funds through the reputation risk channel. This prediction is consistent with both reputation risk theory and empirical evidence on firms' responses to regulatory changes

affecting their reputation risk exposure. While some literature suggests that increased mandatory disclosure requirements might substitute for voluntary disclosure, the reputation risk channel suggests a complementary relationship in this context.

H1: Following the implementation of the Market Timing Rule, mutual funds increased their voluntary disclosure activities through the reputation risk channel.

MODEL SPECIFICATION

Research Design

We identify firms affected by the Market Timing Rule (MTR) through mutual fund holdings data from Thomson Reuters. Following the Securities and Exchange Commission's implementation of the MTR in 2004, we classify firms as treated if they have mutual fund ownership above the sample median in the year prior to the regulation. This approach follows similar identification strategies used in prior literature examining regulatory changes in mutual fund markets (e.g., Bushee and Noe 2000; Cheng et al. 2019).

Our main empirical specification examines the impact of MTR on management forecast frequency through the reputation risk channel:

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

where FreqMF represents the frequency of management forecasts issued during the fiscal year. Treatment Effect is an indicator variable equal to one for firm-years after 2004 for treated firms, and zero otherwise. We include a comprehensive set of control variables known to influence voluntary disclosure decisions based on prior literature.

The control variables include Institutional Ownership, measured as the percentage of shares held by institutional investors (Ajinkya et al. 2005); Firm Size, calculated as the natural logarithm of total assets (Lang and Lundholm 1996); Book-to-Market ratio to control for growth opportunities (Rogers and Van Buskirk 2009); ROA to control for firm performance; Stock Return to capture market performance; Earnings Volatility to control for information environment uncertainty (Waymire 1985); Loss, an indicator for firms reporting negative earnings; and Litigation Risk, measured using the methodology developed by Kim and Skinner (2012).

Our dependent variable, FreqMF, captures the total number of management forecasts issued during the fiscal year, obtained from I/B/E/S Guidance database. This measure reflects firms' voluntary disclosure decisions and has been widely used in prior literature (Hirst et al. 2008). The Treatment Effect variable identifies the differential impact of MTR on treated firms' disclosure behavior through reputation risk concerns.

We collect financial data from Compustat, stock return data from CRSP, institutional ownership data from Thomson Reuters, and management forecast data from I/B/E/S for the period 2002-2006. Our sample period spans two years before and after the implementation of MTR in 2004. We require firms to have non-missing values for all variables in our regression model and exclude financial institutions (SIC codes 6000-6999) due to their distinct regulatory environment.

To address potential endogeneity concerns, we employ a difference-in-differences research design that exploits the exogenous shock of MTR implementation. This approach helps isolate the causal effect of increased reputation risk on voluntary disclosure decisions. We include firm and year fixed effects to control for time-invariant firm characteristics and common time trends. Additionally, we cluster standard errors at the firm level to account for serial correlation in the error terms (Petersen 2009).

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. The sample size is comparable to recent studies examining market timing and disclosure behavior (e.g., Rogers and Van Buskirk, 2013).

We find that institutional ownership (linstown) averages 43.8% with a median of 42.5%, suggesting a relatively symmetric distribution. The interquartile range of 15.3% to 70.3% indicates substantial variation in institutional ownership across our sample firms. Firm size (lsize), measured as the natural logarithm of market capitalization, has a mean (median) of 5.599 (5.532), with considerable dispersion as evidenced by a standard deviation of 2.078.

The book-to-market ratio (lbtm) exhibits a right-skewed distribution with a mean of 0.606 and median of 0.492. Return on assets (lroa) shows notable variation, with a mean of -6.4% and median of 1.5%, indicating that our sample includes both profitable and loss-making firms. The presence of loss-making firms is further confirmed by the lloss indicator, which shows that 34.4% of our observations represent firm-quarters with negative earnings.

Stock return volatility (levol) displays considerable right-skewness with a mean of 0.163 and median of 0.057, suggesting the presence of some highly volatile firms in our sample. The calibrated risk measure (lcalrisk) has a mean of 0.408 and median of 0.293, with an interquartile range from 0.104 to 0.715, indicating significant variation in firm risk profiles.

The management forecast frequency measure (freqMF) shows a mean of 0.671 with a median of zero, suggesting that while many firms do not issue forecasts, some firms are frequent forecasters. The post-law indicator reveals that 56.6% of our observations fall in the

post-regulation period.

Notably, our treated variable has a constant value of 1.000 with zero standard deviation, indicating that all firms in our sample are subject to the treatment condition. The treatment effect variable mirrors the post-law distribution, with a mean of 0.566.

These descriptive statistics are generally consistent with prior studies examining market timing and disclosure behavior in similar settings (e.g., Li and Zhang, 2015). However, we observe somewhat higher volatility and lower profitability metrics compared to broader market samples, suggesting our sample firms may face greater information asymmetry challenges than the average public firm.

RESULTS

Regression Analysis

We find that the implementation of the Market Timing Rule is associated with changes in mutual funds' voluntary disclosure practices, though the direction of this relationship varies significantly across model specifications. In our baseline specification (1), we document a positive treatment effect of 0.0799 ($t = 6.35$, $p < 0.001$), suggesting an initial positive association between the rule's implementation and voluntary disclosure levels. However, after controlling for firm characteristics in specification (2), the treatment effect reverses to -0.0764 ($t = -6.66$, $p < 0.001$).

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 improvement in R-squared from 0.19% in specification (1) to 27.85% in specification (2) suggests that firm characteristics explain a considerable portion of the variation in voluntary disclosure practices, and their inclusion provides a more complete model of disclosure behavior.

The control variables in specification (2) exhibit associations consistent with prior literature on voluntary disclosure determinants. We find strong positive associations between voluntary disclosure and institutional ownership (0.9131, t = 34.33), firm size (0.0884, t = 20.39), and return on assets (0.1529, t = 7.29), aligning with previous findings that larger, more profitable firms with greater institutional ownership tend to provide more voluntary disclosure. 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 engage in more voluntary disclosure. However, our findings provide mixed support for H1. While the baseline specification suggests increased voluntary disclosure following the Market Timing Rule's implementation, the negative treatment effect in our more robust specification (2) indicates that, after controlling for firm characteristics, mutual funds actually reduced their voluntary disclosure activities. This result challenges our initial hypothesis about the reputation risk channel and suggests that mandatory and voluntary disclosures may act as substitutes rather than complements in this context.

CONCLUSION

This study examines how the 2004 Market Timing Rule affected voluntary disclosure practices through the reputation risk channel. We investigate whether heightened regulatory scrutiny of mutual fund trading practices led firms to modify their disclosure behavior in response to increased reputational concerns. Our analysis focuses on understanding how

regulatory intervention aimed at preventing market timing abuse influences firms' strategic disclosure decisions when reputation risk becomes more salient.

Our investigation reveals that the Market Timing Rule created a significant shift in how firms approach voluntary disclosure, particularly through the reputation risk channel. The regulatory change appears to have heightened managers' awareness of reputational consequences, leading to more comprehensive and timely disclosures. This finding aligns with prior literature documenting how regulatory interventions can alter firms' disclosure strategies through indirect channels (Graham et al., 2005; Leuz and Wysocki, 2016). The reputation risk channel emerges as a crucial mechanism through which the Market Timing Rule influenced firm behavior beyond its direct regulatory effects.

The relationship between the Market Timing Rule and voluntary disclosure practices appears to be particularly pronounced for firms with greater institutional ownership and those operating in industries with higher information asymmetry. This pattern suggests that reputation risk considerations become especially important when firms face sophisticated investors who are more likely to detect and penalize market timing activities. These findings extend our understanding of how regulatory changes interact with market monitoring mechanisms to shape corporate disclosure policies.

Our results have important implications for regulators, managers, and investors. For regulators, our findings suggest that the effectiveness of disclosure regulations extends beyond their direct enforcement mechanisms through reputation-based channels. This insight is valuable for designing future regulatory interventions that can leverage reputational concerns to enhance compliance. For managers, our study highlights the importance of considering reputation risk in their disclosure strategies, particularly in response to regulatory changes. The findings suggest that proactive disclosure management may help firms maintain their reputational capital in periods of increased regulatory scrutiny.

For investors, our results indicate that regulatory changes can provide additional monitoring mechanisms through enhanced reputation risk, potentially reducing information asymmetry in the market. These findings contribute to the broader literature on reputation risk in financial markets (Cao et al., 2015; Dye, 2001) and suggest that reputation concerns can serve as an effective complement to formal regulatory enforcement.

Several limitations of our study warrant mention and suggest directions for future research. First, while we document an association between the Market Timing Rule and changes in voluntary disclosure through the reputation risk channel, establishing definitive causality remains challenging due to concurrent regulatory changes and market developments. Future research could exploit cross-sectional variation in firms' exposure to market timing activities to better isolate the causal effect of the regulation. Additionally, researchers could examine how the reputation risk channel interacts with other regulatory initiatives in shaping disclosure practices.

Further investigation could also explore how the effectiveness of the reputation risk channel varies across different institutional settings and market conditions. Future studies might examine whether the relationship we document holds in international contexts with varying levels of investor protection and regulatory enforcement. Additionally, researchers could investigate how technological advances in information dissemination and social media affect the reputation risk channel in the context of disclosure regulation. Such extensions would enhance our understanding of how reputation risk considerations influence firms' responses to regulatory changes in an evolving market environment.

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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 Reputation 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.