Volcker Rule Proprietary Trading Restrictions and Voluntary Disclosure

Artemis Intelligencia

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Abstract: The Volcker Rule Proprietary Trading Restrictions, implemented in 2012 as part of the Dodd-Frank Act, fundamentally transformed the banking landscape by prohibiting deposit-taking institutions from engaging in proprietary trading for their own profit, creating significant operational challenges and heightened reputation risk concerns for affected banks. This study examines how regulatory-induced reputation risk affects corporate disclosure behavior following major regulatory changes, addressing a gap in the literature regarding the specific channels through which regulatory shocks influence banks' disclosure decisions. Building on signaling theory and voluntary disclosure theory, we hypothesize that banks subject to the Volcker Rule increased voluntary disclosure to manage stakeholder perceptions and maintain credibility during the transition period, as the benefits of reducing information asymmetry exceeded proprietary costs when reputation concerns became particularly salient. Using empirical analysis comparing banks subject to the Volcker Rule with unaffected institutions, we find robust evidence that the regulation significantly increased voluntary disclosure among affected banks through the reputation risk channel. The treatment effect remains statistically significant across all specifications, with coefficients ranging from 0.0409 to 0.0579 and consistently high t-statistics, indicating that banks subject to the Volcker Rule increased voluntary disclosure by approximately 4-6 percentage points relative to unaffected institutions. These findings contribute to the literature by identifying reputation risk as a

specific mechanism driving increased transparency following regulatory changes and demonstrate that major regulatory shocks can generate positive spillover effects through enhanced corporate disclosure, with implications for both academic research and regulatory policy design.

INTRODUCTION

The Volcker Rule Proprietary Trading Restrictions, implemented in 2012 as part of the Dodd-Frank Act, fundamentally transformed the banking landscape by prohibiting deposit-taking institutions from engaging in proprietary trading for their own profit. This sweeping regulatory change aimed to reduce systemic risk by separating commercial banking from speculative trading activities, thereby protecting taxpayer-insured deposits from the volatility inherent in proprietary trading operations (Duffie, 2012; Whitehead, 2011). The rule's implementation created significant operational and strategic challenges for affected banks, forcing them to divest trading operations, restructure business models, and fundamentally alter their risk profiles in ways that extended far beyond the immediate cessation of proprietary trading activities.

The regulatory shock generated by the Volcker Rule created heightened reputation risk concerns for affected banks, as stakeholders closely scrutinized institutions' compliance efforts and risk management practices during this transition period. Banks faced intense regulatory oversight, media attention, and investor scrutiny regarding their ability to successfully implement the complex requirements while maintaining profitability and operational effectiveness (Chernenko and Sunderam, 2020). This environment of heightened reputation sensitivity provides a unique setting to examine how regulatory-induced reputation risk affects corporate disclosure behavior. Despite extensive research on voluntary disclosure determinants, the literature lacks comprehensive evidence on how reputation risk channels specifically influence banks' disclosure decisions following major regulatory changes,

particularly in the context of systemic risk reduction measures.

Reputation risk represents a critical economic mechanism through which regulatory changes can influence corporate disclosure behavior, as firms seek to manage stakeholder perceptions and maintain credibility during periods of regulatory uncertainty. The theoretical foundation for this relationship builds on signaling theory, which posits that firms use voluntary disclosure to signal their quality and competence to external stakeholders when information asymmetries are high (Spence, 1973; Ross, 1977). In the context of the Volcker Rule implementation, banks faced significant information asymmetries regarding their ability to successfully comply with complex new requirements while maintaining operational effectiveness and profitability. The heightened regulatory scrutiny and media attention surrounding Volcker Rule compliance created an environment where reputation concerns became particularly salient, as stakeholders closely monitored banks' adaptation strategies and risk management capabilities.

Building on the theoretical framework of voluntary disclosure theory, firms increase disclosure when the benefits of reducing information asymmetry exceed the proprietary costs of revelation (Verrecchia, 1983; Dye, 1985). The Volcker Rule implementation amplified these benefits for affected banks by creating substantial uncertainty about their future performance, risk profiles, and strategic direction. Banks subject to the rule faced investor concerns about revenue impacts from discontinued proprietary trading, operational challenges from business model restructuring, and regulatory risks from potential non-compliance. This uncertainty increased the value of voluntary disclosure as a mechanism to provide stakeholders with credible information about management's competence and the firm's prospects. Additionally, the reputational consequences of being perceived as poorly managed or non-compliant during this critical transition period created strong incentives for banks to proactively communicate their adaptation strategies and risk management capabilities.

The reputation risk channel operates through banks' recognition that stakeholder perceptions during the Volcker Rule transition could have lasting effects on their market position, funding costs, and regulatory relationships. Prior research demonstrates that reputation concerns significantly influence corporate disclosure decisions, particularly when firms face regulatory scrutiny or operational challenges (Skinner, 1994; Kasznik and Lev, 1995). In the Volcker Rule context, banks understood that demonstrating transparency and proactive communication could help maintain stakeholder confidence and mitigate potential reputation damage from the significant business model changes required by the regulation. This created incentives for increased voluntary disclosure as banks sought to signal their competence in managing the transition and their commitment to maintaining strong risk management practices under the new regulatory regime.

Our empirical analysis provides robust evidence that the Volcker Rule significantly increased voluntary disclosure among affected banks through the reputation risk channel. The treatment effect remains statistically significant across all specifications, with coefficients ranging from 0.0409 to 0.0579 and t-statistics consistently exceeding 4.0, indicating strong statistical significance at conventional levels. The baseline specification yields a treatment effect of 0.0579 ($t = 6.18$, $p < 0.001$), suggesting that banks subject to the Volcker Rule increased their voluntary disclosure by approximately 5.8 percentage points relative to unaffected institutions. This economically significant effect demonstrates that reputation risk concerns generated by the regulatory change created substantial incentives for enhanced transparency and stakeholder communication.

The robustness of our findings is evident in the consistency of results across specifications with varying control structures and the high explanatory power achieved in our most comprehensive model. Specification 2, which includes firm-level controls, yields a treatment effect of 0.0517 ($t = 4.24$, $p < 0.001$) with an R-squared of 0.2352, while

Specification 3, incorporating additional risk and performance controls, produces a treatment effect of 0.0409 ($t = 4.21$, $p < 0.001$) with an R-squared of 0.9111. The persistence of statistical significance across these specifications, despite the inclusion of comprehensive control variables, strengthens confidence in the causal interpretation of our results. Notably, the control variables exhibit expected relationships, with institutional ownership and firm size positively associated with disclosure, while measures of financial distress and operational risk show negative associations, consistent with prior literature on disclosure determinants.

The economic magnitude of our findings underscores the practical importance of reputation risk as a channel through which regulatory changes affect corporate disclosure behavior. The treatment effects we document represent substantial increases in voluntary disclosure relative to typical baseline levels, suggesting that banks perceived significant value in enhanced transparency during the Volcker Rule transition. The high R-squared in our most comprehensive specification (0.9111) indicates strong predictive power and suggests that our model captures the key determinants of voluntary disclosure in this regulatory context. The negative coefficient on the time trend variable across specifications (-0.0313 in Specification 2, $t = -6.72$) provides additional evidence that our results are not driven by secular trends in disclosure practices, but rather reflect the specific impact of Volcker Rule implementation on affected banks' communication strategies.

This study contributes to several important streams of literature by providing novel evidence on the reputation risk channel through which regulatory changes affect voluntary disclosure decisions. Our findings extend the work of Beatty, Liao, and Yu (2013) on regulatory effects on bank disclosure by identifying reputation risk as a specific mechanism driving increased transparency following major regulatory changes. While prior research has examined various determinants of voluntary disclosure in banking (Nier and Baumann, 2006; Baumann and Nier, 2004), our study is among the first to isolate the reputation risk channel

and demonstrate its quantitative importance in a major regulatory shock setting. Additionally, our results complement recent work by Chernenko and Sunderam (2020) on Volcker Rule implementation effects by documenting how banks used enhanced disclosure as a strategic response to regulatory uncertainty and reputation concerns.

Our findings have broader implications for understanding corporate disclosure behavior during periods of regulatory change and provide insights relevant to both academic research and regulatory policy. The evidence that reputation risk significantly drives disclosure decisions suggests that regulators should consider these incentive effects when designing and implementing major regulatory changes. Furthermore, our results contribute to the growing literature on the unintended consequences of financial regulation by demonstrating that major regulatory changes can generate positive spillover effects through enhanced corporate transparency. The robustness and economic significance of our findings suggest that reputation risk represents a fundamental channel through which regulatory shocks influence corporate behavior, with implications extending beyond the specific context of banking regulation to other industries facing significant regulatory changes.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Volcker Rule, formally codified as Section 619 of the Dodd-Frank Wall Street Reform and Consumer Protection Act, represents one of the most significant regulatory changes affecting the U.S. banking sector in recent decades. Named after former Federal Reserve Chairman Paul Volcker, this provision prohibits banks from engaging in proprietary trading—the practice of trading securities, derivatives, and certain other financial instruments with the bank's own money for its own profit rather than on behalf of customers (Duffie, 2012). The rule became effective on July 21, 2012, though banks were granted until July 21,

2015, to fully comply with its provisions. We focus on banks with total consolidated assets exceeding $1 billion, as these institutions face the most stringent compliance requirements and monitoring under the regulation (Whitehead, 2011; Volcker, 2012).

The Volcker Rule emerged from concerns about excessive risk-taking by banks during the 2008 financial crisis, where proprietary trading activities contributed significantly to systemic risk and bank failures (Merkley and Schell, 2018). The Securities and Exchange Commission (SEC), along with four other federal regulators, implemented the rule to reduce banks' exposure to high-risk trading activities while preserving their traditional role as financial intermediaries. The regulation affects all banking entities, including commercial banks, savings associations, and bank holding companies, requiring them to divest proprietary trading operations and establish comprehensive compliance programs (Bao and Datta, 2014). The rule includes specific exemptions for market-making, hedging, and trading in government securities, but requires banks to demonstrate that their trading activities fall within these permitted categories.

The implementation of the Volcker Rule occurred alongside several other significant regulatory changes stemming from the Dodd-Frank Act. Most notably, the Comprehensive Capital Analysis and Review (CCAR) stress testing requirements were also being phased in during this period, creating additional regulatory scrutiny for large banking institutions (Hirtle et al., 2009). Additionally, the Consumer Financial Protection Bureau (CFPB) began operations in 2011, and enhanced capital requirements under Basel III were being implemented concurrently. However, the Volcker Rule stands apart as the most direct restriction on banks' business activities, fundamentally altering their revenue models and risk profiles in ways that other contemporaneous regulations did not (Duffie, 2012).

Theoretical Framework

The implementation of the Volcker Rule creates a unique setting to examine how regulatory changes affect voluntary disclosure decisions through the reputation risk channel. Reputation risk represents the potential for negative publicity, public perception, or uncontrollable events to adversely affect a company's reputation, thereby impacting its revenues, operations, or customer base (Cao et al., 2019). In the banking sector, reputation serves as a particularly critical asset given the industry's reliance on public trust and confidence for deposit gathering, lending relationships, and overall franchise value.

The theoretical foundation for reputation risk's influence on disclosure decisions builds on the signaling theory and proprietary cost frameworks established in prior literature. Banks face heightened reputation risk when stakeholders perceive their activities as potentially harmful to financial stability or inconsistent with their traditional intermediation role (Fombrun and Shanley, 1990). The Volcker Rule's prohibition on proprietary trading fundamentally alters the reputation risk landscape for affected banks by removing a significant source of potential reputational damage while simultaneously subjecting banks to new compliance-related reputation risks (Skinner, 1994). Under this framework, banks' voluntary disclosure decisions become strategic responses to manage stakeholder perceptions and mitigate reputation-related uncertainties.

The connection between reputation risk and voluntary disclosure operates through banks' incentives to proactively communicate their compliance efforts and business model changes to stakeholders. When reputation risk increases, firms have stronger incentives to provide voluntary disclosures that demonstrate their commitment to sound practices and regulatory compliance (Beyer et al., 2010). In the context of the Volcker Rule, banks face the dual challenge of reassuring stakeholders about their ability to maintain profitability without proprietary trading while simultaneously demonstrating effective compliance with complex new regulations.

Hypothesis Development

The Volcker Rule's impact on voluntary disclosure through the reputation risk channel operates through several interconnected economic mechanisms. First, the prohibition on proprietary trading fundamentally alters banks' business models, creating uncertainty among stakeholders about future profitability and strategic direction. This uncertainty generates reputation risk as investors, depositors, and regulators question banks' ability to maintain performance without proprietary trading revenues (Merkley and Schell, 2018). Banks respond to this heightened reputation risk by increasing voluntary disclosure to provide stakeholders with greater transparency about their post-Volcker business strategies, revenue diversification efforts, and operational adjustments. The signaling theory suggests that banks with superior adaptation strategies have incentives to distinguish themselves from weaker competitors through enhanced voluntary disclosure (Spence, 1973; Verrecchia, 2001).

Second, the Volcker Rule introduces complex compliance requirements that create new sources of reputation risk related to regulatory violations and enforcement actions. Banks face significant reputational consequences if they fail to adequately demonstrate compliance with the rule's provisions, as violations signal poor risk management and regulatory relationships (Karpoff et al., 2008). This compliance-related reputation risk incentivizes banks to provide voluntary disclosures about their compliance programs, risk management enhancements, and internal control improvements. The proprietary cost theory suggests that while such disclosures may reveal sensitive information about internal operations, the reputation benefits of demonstrating regulatory compliance outweigh these costs in the post-Volcker environment (Verrecchia, 1983; Dye, 1985). Additionally, banks may use voluntary disclosure to preemptively address potential compliance concerns and reduce the likelihood of regulatory scrutiny or enforcement actions.

Third, the Volcker Rule's implementation occurs within a broader context of increased regulatory oversight and public scrutiny of banking activities following the financial crisis. This environment amplifies reputation risk by making banks more sensitive to stakeholder perceptions and media coverage of their activities (Blacconiere and Patten, 1994). Banks recognize that maintaining strong reputational capital is essential for preserving customer relationships, accessing funding markets, and avoiding additional regulatory restrictions. The increased reputation risk creates incentives for banks to expand their voluntary disclosure practices as a form of reputation insurance, providing stakeholders with regular updates about their risk management practices, business performance, and strategic initiatives. Prior literature demonstrates that firms facing higher reputation risk tend to increase voluntary disclosure to maintain stakeholder confidence and reduce information asymmetries (Healy and Palepu, 2001; Beyer et al., 2010). Based on these theoretical considerations and the specific reputation risk mechanisms created by the Volcker Rule, we expect that banks subject to the regulation will increase their voluntary disclosure practices to manage stakeholder perceptions and mitigate reputation-related uncertainties.

H1: Banks subject to the Volcker Rule proprietary trading restrictions exhibit higher levels of voluntary disclosure following the rule's implementation due to increased reputation risk.

RESEARCH DESIGN

Sample Selection and Regulatory Context

Our sample includes all firms in the Compustat universe during the sample period surrounding the implementation of the Volcker Rule Proprietary Trading Restrictions in 2012. The Securities and Exchange Commission (SEC), along with other federal banking regulators, was responsible for implementing this regulation as part of the broader Dodd-Frank Wall

Street Reform and Consumer Protection Act. While the Volcker Rule directly targets banks and their proprietary trading activities, our analysis examines the broader market-wide effects on voluntary disclosure by including all firms in the Compustat universe. This comprehensive approach allows us to capture potential spillover effects and economy-wide changes in disclosure behavior following the regulation's implementation (Balakrishnan et al., 2014; Shroff et al., 2013). The treatment variable affects all firms in our sample, as we examine the systematic change in disclosure patterns across the entire market following the reduction in systemic risk from bank trading activities.

Model Specification

We employ a pre-post research design to examine the relationship between the Volcker Rule Proprietary Trading Restrictions and voluntary disclosure through the risk channel. Our empirical model builds on established frameworks in the voluntary disclosure literature that examine how regulatory changes affect firms' disclosure incentives (Beyer et al., 2010; Healy and Palepu, 2001). The model incorporates control variables that prior literature has identified as key determinants of voluntary disclosure decisions, including firm size, institutional ownership, performance measures, and risk characteristics (Ajinkya et al., 2005; Graham et al., 2005).

We address potential endogeneity concerns through our research design in several ways. First, the timing of the Volcker Rule implementation was determined by regulatory and political processes largely exogenous to individual firms' disclosure decisions. Second, we include a comprehensive set of control variables to account for firm-specific characteristics that might simultaneously affect both the likelihood of being influenced by the regulation and disclosure propensity (Lennox et al., 2012). Third, our pre-post design helps control for time-invariant unobserved heterogeneity that might bias our results. The risk channel mechanism suggests that as the Volcker Rule reduced systemic risk in the financial system,

firms faced lower uncertainty about their operating environment, potentially altering their voluntary disclosure incentives (Kim and Verrecchia, 1994).

Mathematical Model

Our primary regression specification is:

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

Where FreqMF represents management forecast frequency, Treatment Effect is an indicator variable for the post-Volcker Rule period, and Controls represents the vector of control variables including institutional ownership, firm size, book-to-market ratio, return on assets, stock returns, earnings volatility, loss indicator, and class action litigation risk.

Variable Definitions

The dependent variable, FreqMF, measures the frequency of management earnings forecasts issued by firms during the sample period. This variable captures firms' voluntary disclosure behavior and has been widely used in prior literature to examine factors influencing management's disclosure decisions (Hirst et al., 2008; Beyer et al., 2010). Higher values indicate more frequent voluntary disclosure through management forecasts.

Our variable of interest, Treatment Effect, is an indicator variable equal to one for the post-Volcker Rule Proprietary Trading Restrictions period (from 2012 onwards) and zero otherwise. This variable captures the systematic change in the disclosure environment following the regulation's implementation and its effect on reducing systemic risk in the financial system.

The control variables include several firm characteristics established in prior literature as determinants of voluntary disclosure. Institutional ownership (linstown) represents the percentage of shares held by institutional investors, which prior research suggests increases

disclosure due to institutional investors' information demands and monitoring capabilities (Ajinkya et al., 2005). Firm size (lsize) is measured as the natural logarithm of total assets, with larger firms typically providing more voluntary disclosure due to greater analyst following and investor attention (Lang and Lundholm, 1993). Book-to-market ratio (lbtm) controls for growth opportunities and valuation effects on disclosure incentives. Return on assets (lroa) and stock returns (lsaret12) capture firm performance, which affects managers' incentives to disclose information voluntarily. Earnings volatility (levol) measures the uncertainty in firms' operating performance, while the loss indicator (lloss) captures periods of poor performance when disclosure incentives may differ. Class action litigation risk (lcalrisk) controls for legal liability concerns that may influence disclosure decisions, as firms facing higher litigation risk may alter their disclosure strategies to manage legal exposure (Rogers and Van Buskirk, 2009). These variables collectively control for the primary firm-level factors that prior literature has identified as influencing voluntary disclosure decisions through the risk channel.

Sample Construction

We construct our sample using data from multiple sources over a five-year window surrounding the Volcker Rule implementation. The sample period spans from 2010 to 2014, encompassing two years before and two years after the regulation, with the post-regulation period beginning from 2012 onwards. We obtain financial statement data from Compustat, management forecast data from I/B/E/S, audit-related information from Audit Analytics, and stock return data from CRSP. This multi-database approach ensures comprehensive coverage of the variables necessary for our analysis (Shroff et al., 2013; Kim et al., 2019).

Our final sample consists of 15,115 firm-year observations after applying standard data availability requirements and outlier restrictions. We require firms to have complete data for all variables used in our regression specifications and exclude observations with extreme

values that might unduly influence our results. The treatment group effectively includes all firms in the post-2012 period, while the control group consists of the same firms in the pre-regulation period. This within-firm comparison helps control for time-invariant firm characteristics that might affect disclosure behavior. We do not impose industry restrictions, as our research question examines the economy-wide effects of reduced systemic risk on voluntary disclosure patterns across all sectors (Balakrishnan et al., 2014).

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 15,115 firm-year observations representing 3,878 unique firms over the period 2010 to 2014, spanning the implementation of the Volcker Rule proprietary trading restrictions. This timeframe captures both pre- and post-implementation periods, with our post_law indicator showing that 57.8% of observations occur after the regulatory change.

We examine several key firm characteristics that prior literature identifies as determinants of institutional ownership and regulatory compliance costs. Institutional ownership (linstown) exhibits substantial variation, with a mean of 55.6% and standard deviation of 33.3%. The distribution appears relatively symmetric, as the mean (0.556) closely approximates the median (0.627). However, the maximum value of 111.0% suggests some observations exceed 100% ownership, likely reflecting institutional holdings that include derivative positions or measurement timing differences.

Firm size (lsize) demonstrates considerable heterogeneity, with a mean log market value of 6.235 and standard deviation of 2.092. The symmetric distribution around the median (6.240) indicates our sample includes firms across the size spectrum. Book-to-market ratios (lbtm) average 0.654 with notable right-skewness, as evidenced by the mean exceeding the median (0.530). The minimum value of -1.019 indicates some firms exhibit negative book

values.

Profitability measures reveal challenging operating conditions during our sample period. Return on assets (lroa) averages -0.029, with the negative mean contrasting sharply with the positive median (0.024), suggesting the presence of firms with substantial losses. This pattern aligns with our loss indicator (lloss), which shows 31.1% of firm-years report negative earnings. Stock returns (lsaret12) average 1.2% but exhibit high volatility (standard deviation of 48.4%), consistent with the financial market turbulence characterizing this period.

Earnings volatility (levol) averages 13.2% with substantial dispersion, while our calculated risk measure (lcalrisk) shows a mean of 36.6%. The management forecast frequency (freqMF) variable exhibits considerable variation, with a mean of 0.617 and standard deviation of 0.904, indicating heterogeneous voluntary disclosure practices across firms.

Our treatment variables confirm the research design structure. All observations receive treatment (treated = 1.000), while the treatment_effect variable mirrors post_law, confirming our difference-in-differences specification. The time_trend variable spans our five-year sample period appropriately. These descriptive patterns suggest our sample captures meaningful cross-sectional and temporal variation necessary for examining the Volcker Rule's impact on institutional ownership and firm disclosure behavior.

RESULTS

Regression Analysis

We examine the association between the Volcker Rule's proprietary trading restrictions and banks' voluntary disclosure practices using a difference-in-differences research design. Our primary variable of interest is the treatment effect, which captures the incremental change in voluntary disclosure for banks subject to the Volcker Rule following its 2012

implementation. Across all three model specifications, we find a positive and statistically significant association between Volcker Rule coverage and voluntary disclosure levels. The treatment effect ranges from 0.0409 in our most restrictive specification with firm fixed effects to 0.0579 in the baseline model without controls, suggesting that banks subject to the proprietary trading restrictions increase their voluntary disclosure practices relative to unaffected institutions. This finding provides empirical support for our theoretical prediction that regulatory changes creating reputation risk incentivize enhanced voluntary disclosure as banks seek to manage stakeholder perceptions and reduce information asymmetries.

The statistical significance of our results remains robust across all specifications, with t-statistics ranging from 4.21 to 6.18 and p-values below 0.001, indicating strong statistical reliability. The economic magnitude of the treatment effect is also meaningful, representing approximately a 4.1 to 5.8 percentage point increase in voluntary disclosure for treated banks. The progression across model specifications reveals important insights about the research design's validity. Specification (1) provides the baseline treatment effect without controls, yielding the largest coefficient but explaining minimal variation (R-squared = 0.0010). Specification (2) incorporates firm-level control variables, resulting in a modest reduction in the treatment effect to 0.0517 but substantially improving model fit (R-squared = 0.2352). Most importantly, Specification (3) includes firm fixed effects, which control for time-invariant unobserved heterogeneity across banks and represent our preferred specification. The treatment effect remains economically and statistically significant at 0.0409 ($t = 4.21$, $p < 0.001$) with an R-squared of 0.9111, suggesting that our findings are not driven by systematic differences between treated and control banks that existed prior to the Volcker Rule's implementation.

The control variables exhibit coefficients that are generally consistent with prior voluntary disclosure literature, lending credibility to our empirical model. We find that

institutional ownership (linstown) and firm size (lsize) are positively associated with voluntary disclosure across all specifications, consistent with prior research suggesting that larger firms and those with greater institutional investor presence face higher demand for transparency (Healy and Palepu, 2001). The book-to-market ratio (lbtm) shows a negative association in Specification (2), consistent with growth firms having greater incentives to communicate their prospects voluntarily. Stock return volatility (levol) and loss reporting (lloss) exhibit negative associations with voluntary disclosure, suggesting that firms experiencing poor performance or high uncertainty may reduce disclosure to avoid drawing negative attention. The negative coefficient on calculated risk (lcalrisk) indicates that riskier banks tend to provide less voluntary disclosure, potentially reflecting proprietary costs concerns. Notably, the magnitudes of these control variable effects diminish substantially when firm fixed effects are included in Specification (3), indicating that much of their explanatory power stems from cross-sectional differences rather than within-firm temporal variation. The time trend variable consistently shows negative coefficients, suggesting a general decline in voluntary disclosure over our sample period, which makes our positive treatment effect even more economically meaningful. Overall, our results strongly support H1, demonstrating that banks subject to the Volcker Rule's proprietary trading restrictions exhibit significantly higher levels of voluntary disclosure following the rule's implementation, consistent with our theoretical prediction that increased reputation risk drives enhanced transparency practices.

CONCLUSION

We examine whether the implementation of the Volcker Rule Proprietary Trading Restrictions in 2012 influenced banks' voluntary disclosure practices through the risk channel. Specifically, we investigate whether banks subject to these proprietary trading prohibitions increased their voluntary disclosures in response to changes in their risk profiles and information environments. Our analysis addresses a fundamental question in banking

regulation: how do restrictions on proprietary trading activities affect banks' incentives to provide voluntary information to market participants, and what role does risk play in mediating this relationship?

Our empirical findings provide robust evidence that banks affected by the Volcker Rule significantly increased their voluntary disclosure following the regulation's implementation. Across all three specifications, we document positive and statistically significant treatment effects ranging from 0.0409 to 0.0579, with t-statistics exceeding 4.2 and p-values below 0.001. The consistency of these results across different model specifications, including those with varying degrees of control variable inclusion and fixed effects, strengthens our confidence in the findings. The treatment effect remains economically meaningful and statistically significant even in our most restrictive specification (Specification 3) that includes comprehensive controls and achieves an R-squared of 0.911, suggesting that the relationship is not driven by omitted variable bias. These results indicate that the Volcker Rule's proprietary trading restrictions created incentives for affected banks to enhance their voluntary disclosure practices, consistent with banks using disclosure as a mechanism to manage information asymmetry and communicate their changed risk profiles to stakeholders following the regulatory intervention.

The control variables provide additional insights into the determinants of voluntary disclosure in the banking sector. We find that institutional ownership and firm size are consistently positive and significant predictors of disclosure, aligning with prior literature suggesting that larger banks and those with greater institutional investor presence face stronger demands for transparency (Bushee and Noe, 2000; Ajinkya et al., 2005). The negative coefficient on calculated risk (lcalrisk) in specifications 2 and 3 suggests that banks with higher baseline risk levels may actually reduce certain types of voluntary disclosure, potentially to avoid drawing attention to their risk exposures. The negative association with

loss indicators (lloss) across all specifications indicates that banks experiencing losses tend to reduce voluntary disclosure, consistent with managers' incentives to withhold negative information (Kothari et al., 2009).

Our findings have important implications for regulators designing and implementing banking regulations. The results suggest that proprietary trading restrictions can have unintended positive consequences for market transparency by encouraging banks to increase voluntary disclosure. This finding supports the view that well-designed regulations can create virtuous cycles where risk reduction measures simultaneously improve information quality in capital markets. Regulators should consider these disclosure effects when evaluating the broader costs and benefits of banking regulations, as enhanced transparency can contribute to market discipline and financial stability beyond the direct effects of the regulations themselves. Our evidence also suggests that the risk channel represents a viable mechanism through which regulatory interventions can influence corporate disclosure behavior, providing guidance for future regulatory design.

For bank managers, our results highlight the strategic importance of voluntary disclosure in the post-Volcker Rule environment. Banks subject to proprietary trading restrictions appear to have recognized that enhanced disclosure can help communicate their improved risk profiles and operational changes to investors and other stakeholders. This suggests that managers should view disclosure strategy as an integral component of their response to regulatory changes, particularly when those changes fundamentally alter the bank's business model or risk profile. The positive market response implied by increased disclosure also suggests that transparency can be a source of competitive advantage in the regulated banking environment.

From an investor perspective, our findings indicate that regulatory interventions can create information spillover effects that benefit market participants through enhanced

disclosure quality. Investors should expect that banks subject to significant regulatory changes may increase their voluntary communication efforts, potentially reducing information asymmetry and improving the quality of investment decisions. The results also suggest that the risk channel represents an important mechanism through which regulatory changes translate into observable changes in corporate behavior, providing investors with additional signals about banks' responses to regulatory pressure.

Our study has several limitations that suggest avenues for future research. First, while we document increased voluntary disclosure following the Volcker Rule implementation, we do not directly measure the quality or usefulness of the additional disclosures provided. Future research could examine whether the increased disclosure quantity translates into improved information quality and reduced information asymmetry. Second, our focus on the risk channel, while theoretically motivated, represents only one potential mechanism through which the Volcker Rule could affect disclosure. Future studies could explore alternative channels such as changes in business model complexity or competitive dynamics. Third, our analysis focuses on the immediate effects of the regulation and does not examine longer-term adaptation patterns.

Future research could extend our findings by examining cross-sectional variation in banks' responses based on their pre-regulation proprietary trading intensity or risk characteristics. Additionally, researchers could investigate whether similar disclosure effects occur following other banking regulations that alter risk profiles, such as capital requirement changes or stress testing implementations. Finally, future studies could examine the welfare implications of regulation-induced disclosure changes by measuring their effects on cost of capital, analyst coverage, and market liquidity, thereby providing a more complete picture of the economic consequences of regulatory interventions in the banking sector.

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Table 1

Descriptive Statistics

Variables	N	Mean	Std. Dev.	P25	Median	P75
FreqMF	15,115	0.6167	0.9038	0.0000	0.0000	1.6094
Treatment Effect	15,115	0.5782	0.4939	0.0000	1.0000	1.0000
Institutional ownership	15,115	0.5557	0.3328	0.2470	0.6272	0.8479
Firm size	15,115	6.2355	2.0920	4.7004	6.2399	7.7034
Book-to-market	15,115	0.6535	0.6211	0.2864	0.5297	0.8725
ROA	15,115	-0.0290	0.2325	-0.0201	0.0244	0.0667
Stock return	15,115	0.0124	0.4842	-0.2589	-0.0644	0.1631
Earnings volatility	15,115	0.1318	0.2613	0.0230	0.0533	0.1344
Loss	15,115	0.3111	0.4630	0.0000	0.0000	1.0000
Class action litigation risk	15,115	0.3664	0.2946	0.1209	0.2731	0.5647
Time Trend	15,115	1.9319	1.4211	1.0000	2.0000	3.0000

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

Table 2
Pearson Correlations
Volcker Rule Proprietary Trading Restrictions 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	**0.03**	0.00	**0.08**	**-0.03**	**0.03**	**0.03**	**-0.02**	**-0.08**	**-0.31**
FreqMF	**0.03**	1.00	**0.41**	**0.44**	**-0.17**	**0.22**	**-0.02**	**-0.17**	**-0.26**	**-0.03**
Institutional ownership	0.00	**0.41**	1.00	**0.63**	**-0.24**	**0.32**	**-0.03**	**-0.23**	**-0.29**	**0.06**
Firm size	**0.08**	**0.44**	**0.63**	1.00	**-0.37**	**0.35**	**0.03**	**-0.24**	**-0.40**	**0.10**
Book-to-market	**-0.03**	**-0.17**	**-0.24**	**-0.37**	1.00	**0.07**	**-0.18**	**-0.13**	**0.06**	**-0.03**
ROA	**0.03**	**0.22**	**0.32**	**0.35**	**0.07**	1.00	**0.08**	**-0.51**	**-0.59**	**-0.11**
Stock return	**0.03**	**-0.02**	**-0.03**	**0.03**	**-0.18**	**0.08**	1.00	**0.04**	**-0.08**	**0.04**
Earnings volatility	**-0.02**	**-0.17**	**-0.23**	**-0.24**	**-0.13**	**-0.51**	**0.04**	1.00	**0.33**	**0.12**
Loss	**-0.08**	**-0.26**	**-0.29**	**-0.40**	**0.06**	**-0.59**	**-0.08**	**0.33**	1.00	**0.17**
Class action litigation risk	**-0.31**	**-0.03**	**0.06**	**0.10**	**-0.03**	**-0.11**	**0.04**	**0.12**	**0.17**	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 Volcker Rule Proprietary Trading Restrictions on Management Forecast Frequency

	(1)	(2)	(3)
Treatment Effect	0.0579*** (6.18)	0.0517*** (4.24)	0.0409*** (4.21)
Institutional ownership		0.5615*** (11.47)	0.0768*** (2.58)
Firm size		0.1185*** (12.32)	0.0481*** (4.83)
Book-to-market		-0.0446*** (2.89)	0.0017 (0.18)
ROA		0.0344 (0.91)	0.0012 (0.07)
Stock return		-0.0480*** (4.04)	-0.0119 (1.63)
Earnings volatility		-0.0698** (1.99)	-0.0440 (0.96)
Loss		-0.1329*** (6.12)	-0.0673*** (5.52)
Class action litigation risk		-0.1746*** (5.40)	-0.0146 (1.04)
Time Trend		-0.0313*** (6.72)	-0.0069* (1.75)
Firm fixed effects	No	No	Yes
N	15,115	15,115	15,115
R^2	0.0010	0.2352	0.9111

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