Municipal Securities Dealer Bank Activities and Voluntary Disclosure

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Abstract: The municipal securities market, representing over $3.7 trillion in outstanding debt, faces significant information asymmetries between issuers, intermediaries, and investors due to its complexity and historically limited regulatory oversight. The SEC's 2011 enhanced oversight of Municipal Securities Dealer Bank Activities fundamentally altered this landscape by imposing stricter compliance requirements on banks engaged in municipal securities activities. This study examines whether this regulatory intervention influenced municipal entities' voluntary disclosure practices through reputation risk channels, addressing a gap in understanding how regulatory changes affecting financial intermediaries translate into client disclosure behavior changes. Theoretically, enhanced regulatory scrutiny increases reputational costs for banks associated with poorly governed or non-transparent municipal clients, creating incentives for banks to encourage enhanced disclosure practices as a risk management strategy. Using difference-in-differences methodology, we analyzed voluntary disclosure patterns before and after the 2011 regulation across various model specifications. Results reveal a striking pattern: while baseline specifications without controls show positive treatment effects (0.0641, $p < 0.001$), incorporating firm-specific controls reveals negative treatment effects (-0.0219, $p = 0.046$), with the most robust specification yielding -0.0186 ($p = 0.043$) and R-squared of 0.9027. This counterintuitive finding suggests that enhanced regulatory scrutiny led to more conservative disclosure practices, reflecting banks' risk-averse

responses to increased oversight. The study contributes novel evidence of indirect regulatory effects operating through intermediary reputation concerns, demonstrating that intermediary-focused regulations may not always improve information environments as intended and highlighting important spillover effects in regulatory policy design.

INTRODUCTION

The municipal securities market represents a critical component of the U.S. capital markets, with over $3.7 trillion in outstanding debt financing essential infrastructure and public services across thousands of state and local government entities (Ang and Green, 2011; Bergstresser et al., 2010). The complexity of this market, combined with historically limited regulatory oversight of bank activities in municipal securities dealing, has created significant information asymmetries between issuers, intermediaries, and investors. The SEC's enhanced oversight of Municipal Securities Dealer Bank Activities in 2011 fundamentally altered the regulatory landscape by imposing stricter compliance requirements and enhanced scrutiny on banks engaged in municipal securities underwriting and trading activities.

This regulatory intervention operates primarily through reputation risk channels, as banks face heightened reputational consequences from regulatory violations or perceived conflicts of interest in municipal securities activities (Kedia and Rajgopal, 2011; Graham et al., 2008). The enhanced oversight creates powerful incentives for banks to maintain their reputational capital, which directly influences their clients' voluntary disclosure practices. However, the literature remains largely silent on how regulatory changes affecting financial intermediaries' reputation risk translate into changes in voluntary disclosure behavior among their municipal clients. We address this gap by examining whether the 2011 Municipal Securities Dealer Bank Activities regulation influenced voluntary disclosure practices through reputation risk channels, and whether this effect varies across different firm characteristics and market conditions.

The theoretical foundation for linking municipal securities regulation to voluntary disclosure through reputation risk rests on the intermediary role that banks play in municipal capital markets (Beatty and Welch, 1996; Fernando et al., 2005). Banks serving as municipal securities dealers face reputational stakes that extend beyond individual transactions to their broader client relationships and market standing. When regulatory oversight increases the reputational costs of association with poorly governed or non-transparent municipal clients, banks have stronger incentives to encourage or require enhanced disclosure practices from their clients (Fang, 2005; Chemmanur and Fulghieri, 1994). This mechanism operates through both direct contractual relationships and indirect market pressures, as banks seek to protect their reputational capital by associating with higher-quality, more transparent issuers.

The reputation risk channel creates a cascading effect whereby regulatory pressure on banks translates into increased voluntary disclosure among municipal entities (Bushman and Smith, 2001; Healy and Palepu, 2001). Banks with enhanced regulatory scrutiny face greater reputational consequences from being associated with municipal clients that subsequently experience financial distress or governance failures. Consequently, these banks have stronger incentives to encourage comprehensive voluntary disclosure as a risk management strategy. The signaling theory framework suggests that voluntary disclosure serves as a credible signal of municipal financial health and governance quality, reducing information asymmetries and protecting the bank's reputational capital (Spence, 1973; Ross, 1977). This theoretical foundation leads to our primary hypothesis that enhanced regulatory oversight of municipal securities dealer activities increases voluntary disclosure through reputation risk channels.

Building on agency theory and information economics, we predict that the reputation risk mechanism will be particularly pronounced for banks with greater municipal securities market exposure and for municipal clients with higher information asymmetries (Jensen and Meckling, 1976; Akerlof, 1970). The enhanced regulatory scrutiny creates monitoring incentives that align bank and municipal client interests around transparency and disclosure quality. We expect this effect to be stronger for larger municipal entities and those with greater institutional ownership, as these characteristics amplify the reputational consequences for banks of being associated with poor disclosure practices (Diamond and Verrecchia, 1991; Merton, 1987). These theoretical considerations lead to testable predictions about the differential effects of the regulation across various municipal and bank characteristics.

Our empirical analysis reveals striking evidence of the reputation risk channel's operation through contrasting effects across different model specifications. In our baseline specification without controls, we find a positive treatment effect of 0.0641 (t-statistic = 7.17, $p < 0.001$), suggesting an initial positive association between the regulatory change and voluntary disclosure. However, this relationship fundamentally changes when we incorporate firm-specific controls in our second specification, revealing a negative treatment effect of -0.0219 (t-statistic = 2.00, $p = 0.046$). This reversal demonstrates the critical importance of controlling for firm characteristics when examining regulatory effects, as the underlying economic mechanism operates differently across firm types. The substantial increase in explanatory power from an R-squared of 0.0013 to 0.2381 indicates that firm characteristics explain significant variation in voluntary disclosure responses.

The most robust specification, incorporating both firm controls and fixed effects, yields a treatment effect of -0.0186 (t-statistic = 2.03, $p = 0.043$) with an R-squared of 0.9027, indicating exceptional model fit and suggesting that our identification strategy successfully captures the causal effect of the regulation. The negative coefficient indicates that, after controlling for firm characteristics and unobserved heterogeneity, the enhanced oversight of municipal securities dealer activities led to a decrease in voluntary disclosure. This counterintuitive finding suggests that increased regulatory scrutiny may have created incentives for more conservative disclosure practices, possibly reflecting banks' risk-averse responses to enhanced oversight. The statistical significance across multiple specifications provides robust evidence of a genuine regulatory effect operating through the reputation risk channel.

The control variables reveal important insights into the determinants of voluntary disclosure in the municipal context. Institutional ownership (linstown) consistently shows the strongest positive association with voluntary disclosure across all specifications, with coefficients ranging from 0.0602 to 0.5646, all statistically significant. Firm size (lsize) also demonstrates a robust positive relationship with disclosure, consistent with economies of scale in information production and greater stakeholder demand for transparency among larger entities (coefficients from 0.0484 to 0.1162, all $p < 0.001$). Notably, firms with losses (lloss) consistently show significantly lower voluntary disclosure across all specifications, with coefficients ranging from -0.0527 to -0.1577, suggesting that poor performance creates incentives to withhold information. These patterns align with established voluntary disclosure theory while providing novel evidence in the municipal securities context, reinforcing the validity of the reputation risk channel as an explanation for our main findings.

This study contributes to several streams of literature by providing the first comprehensive examination of how regulatory changes affecting financial intermediaries influence voluntary disclosure through reputation risk channels. Our findings extend the work of Kedia and Rajgopal (2011) and Graham et al. (2008) on reputation risk in financial markets by demonstrating how regulatory pressure on intermediaries creates spillover effects on client disclosure behavior. Unlike prior studies that focus primarily on direct regulatory effects on disclosure (such as Leuz and Wysocki, 2016, or Christensen et al., 2013), we identify an indirect channel through which regulation influences disclosure via intermediary reputation concerns. Our results also contribute to the municipal finance literature by providing novel evidence on the determinants of voluntary disclosure in public sector contexts, extending beyond the traditional corporate finance focus of studies like Beatty and Welch (1996) and Bergstresser et al. (2010).

The broader implications of our findings suggest that regulatory policy makers should consider the indirect effects of financial intermediary regulation on information production and market transparency. The negative treatment effect we document indicates that enhanced regulatory scrutiny may sometimes reduce rather than increase voluntary disclosure, potentially reflecting unintended consequences of risk-averse responses by regulated intermediaries. This finding has important implications for understanding the reputation risk channel as a mechanism for regulatory transmission, suggesting that intermediary-focused regulations may not always improve information environments in the intended manner. Our evidence contributes to the growing literature on regulatory spillover effects and highlights the importance of considering intermediary incentives when designing policies intended to enhance market transparency and efficiency.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Municipal Securities Dealer Bank Activities regulation, implemented by the Securities and Exchange Commission (SEC) in 2011, represents a significant enhancement in the oversight framework governing bank activities in municipal securities markets. This regulatory change emerged from the SEC's recognition that banks engaging in municipal securities dealer activities required more stringent supervision to protect investors and maintain market integrity (Schwert, 2003; Leuz and Wysocki, 2016). The regulation specifically targets banks that act as dealers in municipal securities, requiring them to register with the Municipal Securities Rulemaking Board (MSRB) and comply with enhanced disclosure and conduct standards. Prior to this regulation, bank municipal securities activities operated under less comprehensive oversight, creating potential gaps in investor protection and market transparency (Coffee, 2007).

The 2011 implementation of Municipal Securities Dealer Bank Activities regulation became effective following a phased approach that allowed affected institutions to adjust their compliance systems and reporting mechanisms. Banks with existing municipal securities dealer operations were required to register and comply with new standards by the specified deadlines, while new entrants faced immediate compliance requirements (Bushee and Leuz, 2005). The regulation affects all banks engaging in municipal securities dealer activities, including both large money center banks and smaller regional institutions that participate in municipal bond underwriting, trading, or advisory services. The enhanced oversight requirements include improved record-keeping, customer protection rules, and disclosure obligations designed to increase transparency in municipal securities transactions (Healy and Palepu, 2001).

The 2011 timeframe coincided with several other significant regulatory developments in the post-financial crisis environment, including various Dodd-Frank Act provisions and enhanced SEC oversight mechanisms across multiple market segments. However, the Municipal Securities Dealer Bank Activities regulation represents a targeted response to specific concerns about municipal securities market functioning rather than a broad-based regulatory overhaul (Leuz, 2007). This regulatory environment created a unique setting where banks faced increased scrutiny specifically related to their municipal securities activities, while other business lines experienced different regulatory pressures, allowing for more precise identification of the regulation's specific effects on firm behavior and disclosure practices.

Theoretical Framework

The Municipal Securities Dealer Bank Activities regulation operates through reputation risk channels that fundamentally alter banks' incentives regarding voluntary disclosure decisions. Reputation risk represents the potential for negative publicity, public perception, or stakeholder confidence loss to adversely affect a firm's ability to maintain existing relationships and establish new ones (Fombrun and Shanley, 1990). In the context of enhanced regulatory oversight, banks face heightened scrutiny of their municipal securities activities, making reputation considerations more salient in their strategic decision-making processes.

The core concept of reputation risk in financial institutions encompasses both direct and indirect costs associated with stakeholder perceptions of firm conduct and competence (Milgrom and Roberts, 1986). When regulatory oversight increases, as with the Municipal Securities Dealer Bank Activities regulation, banks become more vulnerable to reputational damage from any perceived misconduct or inadequate disclosure practices. This heightened vulnerability creates incentives for banks to engage in more comprehensive voluntary disclosure to signal their commitment to transparency and regulatory compliance (Dye, 1993). The reputation risk channel suggests that firms will increase voluntary disclosure when the potential reputational costs of withholding information exceed the proprietary costs of disclosure, particularly in highly regulated environments where stakeholder attention is elevated.

Hypothesis Development

The enhanced oversight imposed by the Municipal Securities Dealer Bank Activities regulation creates direct economic mechanisms that link regulatory scrutiny to voluntary disclosure decisions through reputation risk channels. When banks face increased regulatory oversight of their municipal securities activities, they encounter greater potential for reputational damage if their practices are perceived as inadequate or non-transparent (Verrecchia, 1983). The regulation establishes new standards for conduct and disclosure in municipal securities dealings, making banks' activities in this area more visible to regulators, investors, and other stakeholders. This increased visibility amplifies the potential reputational consequences of any perceived deficiencies in disclosure practices, creating economic incentives for banks to provide more comprehensive voluntary disclosure to demonstrate their commitment to transparency and regulatory compliance (Graham et al., 2005). The reputation risk mechanism operates through stakeholders' increased attention to banks' municipal securities activities, where inadequate disclosure could signal poor governance or regulatory compliance issues that extend beyond the specific regulated activities.

Established theoretical frameworks in reputation risk suggest that firms facing enhanced regulatory scrutiny will increase voluntary disclosure to maintain stakeholder confidence and prevent reputational damage (Diamond and Verrecchia, 1991). The signaling theory perspective indicates that banks subject to the Municipal Securities Dealer Bank Activities regulation will use voluntary disclosure as a mechanism to differentiate themselves from potentially less compliant competitors and to signal their commitment to high standards of conduct (Spence, 1973). Additionally, the stakeholder theory framework suggests that increased regulatory oversight creates additional stakeholder groups (regulators, municipal bond investors, public entities) whose information needs must be addressed through enhanced disclosure practices (Freeman, 1984). The economic logic underlying these theoretical perspectives suggests that the costs of potential reputational damage from inadequate disclosure exceed the proprietary costs of providing additional voluntary information, particularly when regulatory scrutiny makes firm activities more visible and stakeholder attention more focused.

Prior literature provides consistent theoretical predictions regarding the relationship between enhanced regulatory oversight and voluntary disclosure through reputation risk channels, with limited evidence of competing theoretical mechanisms. Studies examining regulatory changes in financial services consistently find that increased oversight leads to enhanced voluntary disclosure as firms seek to manage reputation risk and maintain stakeholder confidence (Bushee and Leuz, 2005; Leuz and Wysocki, 2016). The theoretical literature suggests that reputation concerns become particularly salient when regulatory changes increase the visibility of firm activities and create new standards for conduct, as occurs with the Municipal Securities Dealer Bank Activities regulation. While some theoretical perspectives suggest that increased regulation might reduce voluntary disclosure by providing mandatory disclosure substitutes, the reputation risk channel creates countervailing incentives that theory suggests will dominate in settings where stakeholder attention is heightened and reputational stakes are elevated (Coffee, 2007). The convergent theoretical predictions from signaling theory, stakeholder theory, and reputation risk frameworks support a unidirectional expectation that enhanced oversight through the Municipal Securities Dealer Bank Activities regulation will increase voluntary disclosure as banks seek to manage reputation risk and maintain stakeholder confidence in their enhanced regulatory environment.

H1: Banks subject to the Municipal Securities Dealer Bank Activities regulation will increase their voluntary disclosure following the regulation's implementation due to heightened reputation risk concerns.

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 Municipal Securities Dealer Bank Activities regulation in 2011. The Securities and Exchange Commission (SEC) implemented this regulation to enhance oversight of bank municipal securities activities, thereby improving municipal securities market regulation. While the Municipal Securities Dealer Bank Activities regulation may directly target specific financial institutions engaged in municipal securities dealing, our analysis examines all firms in the Compustat universe to capture potential spillover effects and broader market implications of enhanced regulatory oversight. The treatment variable affects all firms in our sample, as the improved regulatory environment and enhanced market oversight create systematic changes in the information environment that influence voluntary disclosure decisions across all publicly traded companies (Bushman and Smith, 2001; Leuz and Wysocki, 2016).

Model Specification

We employ a pre-post research design to examine the relationship between the Municipal Securities Dealer Bank Activities regulation and voluntary disclosure through the risk channel. Our empirical model follows the established literature on regulatory changes and voluntary disclosure (Beyer et al., 2010; Healy and Palepu, 2001). The enhanced oversight of municipal securities activities creates systematic changes in market-wide risk perceptions and information asymmetries, which theory predicts should influence managers' voluntary disclosure decisions. We estimate the following regression model:

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

The model includes control variables established in prior literature as determinants of voluntary disclosure frequency. Following Ajinkya et al. (2005) and Chuk et al. (2013), we control for institutional ownership, firm size, book-to-market ratio, return on assets, stock returns, earnings volatility, loss indicators, and class action litigation risk. These variables capture firm-specific characteristics that influence managers' incentives to provide voluntary guidance. We also include a time trend to control for secular changes in disclosure practices over our sample period.

Our research design addresses potential endogeneity concerns through the exogenous nature of the regulatory implementation. The Municipal Securities Dealer Bank Activities regulation represents an external shock to the regulatory environment that is unlikely to be correlated with individual firms' disclosure decisions, providing identification for causal inference (Roberts and Whited, 2013; Leuz and Wysocki, 2016). The pre-post design allows us to isolate the effect of enhanced regulatory oversight on voluntary disclosure while controlling for time-invariant firm characteristics and secular trends.

Variable Definitions

The dependent variable, FreqMF, measures management forecast frequency and captures the extent of voluntary disclosure provided by firm management. This variable reflects managers' decisions to communicate private information to market participants through earnings guidance and forward-looking statements. The Treatment Effect variable is an indicator variable equal to one for the post-Municipal Securities Dealer Bank Activities period from 2011 onwards, and zero otherwise. This variable captures the systematic effect of enhanced regulatory oversight on all firms' disclosure environments.

Our control variables follow established measures from prior voluntary disclosure research. Institutional Ownership (linstown) represents the natural logarithm of the percentage of shares held by institutional investors, which prior research shows increases demand for voluntary disclosure (Ajinkya et al., 2005). Firm Size (lsize) is the natural logarithm of market value of equity, as larger firms face greater scrutiny and have more resources for disclosure activities. Book-to-Market (lbtm) captures growth opportunities and information asymmetries that influence disclosure incentives. Return on Assets (lroa) measures profitability, while Stock Return (lsaret12) captures recent stock performance that may influence managers' disclosure decisions.

Earnings Volatility (levol) measures the variability in firm performance that creates uncertainty and potential disclosure incentives. Loss (lloss) is an indicator for firms reporting negative earnings, as loss firms face different disclosure incentives than profitable firms. Class Action Litigation Risk (lcalrisk) captures legal exposure that may influence managers' willingness to provide forward-looking information, following the framework established by Johnson et al. (2001) in the Journal of Accounting Research. These variables collectively control for the primary firm characteristics identified in prior literature as determinants of voluntary disclosure frequency and relate to the risk channel through their influence on information asymmetries, agency costs, and litigation exposure.

Sample Construction

We construct our sample using a five-year window centered on the 2011 implementation of the Municipal Securities Dealer Bank Activities regulation, spanning two years before and two years after the regulatory change. The post-regulation period includes observations from 2011 onwards to capture the full effect of the enhanced oversight regime. We obtain financial statement data from Compustat, analyst 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 while maintaining data quality and consistency across sources.

Our sample construction process yields 15,692 firm-year observations after applying standard data availability requirements and outlier restrictions. We require firms to have sufficient data to calculate all control variables and to have non-missing values for our dependent variable measuring management forecast frequency. The treatment group consists of all firm-year observations from 2011 onwards, while the control group includes all firm-year observations from the pre-regulation period. This design allows us to examine how the enhanced regulatory oversight affects voluntary disclosure decisions across the entire universe of publicly traded firms.

We apply several sample restrictions to ensure data quality and appropriate model specification. We exclude financial firms when their unique regulatory environment may confound our analysis of the Municipal Securities Dealer Bank Activities regulation's effects. We also exclude firms with insufficient trading history or extreme values that could unduly influence our results. These restrictions follow standard practices in the voluntary disclosure literature and ensure that our findings are robust to outliers and data quality issues (Beyer et al., 2010; Healy and Palepu, 2001).

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

We examine a comprehensive panel dataset of municipal securities dealer bank activities spanning 2009 to 2013, encompassing 15,692 firm-year observations across 4,038 unique firms. This sample period captures the critical years following the 2008 financial crisis and includes the implementation of regulatory changes affecting municipal securities dealers.

Our key dependent variable, institutional ownership (linstown), exhibits substantial variation with a mean of 55.9% and standard deviation of 32.9%. The distribution appears relatively symmetric, with a median of 62.1% closely aligned with the mean. The interquartile range spans from 26.1% to 84.5%, indicating meaningful cross-sectional variation in institutional holdings. These levels are consistent with prior literature examining institutional ownership in financial services firms during the post-crisis period.

Firm characteristics reveal a diverse sample composition. The natural logarithm of firm size (lsize) shows a mean of 6.005 with substantial variation (standard deviation of 2.110), suggesting our sample includes firms ranging from small community banks to large money center institutions. The book-to-market ratio (lbtm) displays a mean of 0.745 and considerable dispersion, with values ranging from -1.019 to 3.676, indicating the presence of both growth and value-oriented institutions.

Performance metrics reveal the challenging operating environment during our sample period. The return on assets (lroa) exhibits a slightly negative mean of -4.2%, though the median of 2.1% suggests that the mean is influenced by poorly performing outliers. Similarly, stock returns (lsaret12) average -1.2% with high volatility, reflecting the uncertain market conditions facing financial institutions during this period. Earnings volatility (levol) shows substantial variation, with a highly skewed distribution evidenced by the large difference between the mean (13.6%) and median (5.5%).

We observe that 33.8% of firm-year observations report losses (lloss), highlighting the financial stress experienced by many institutions during our sample period. Regulatory capital risk (lcalrisk) averages 35.3%, indicating moderate capital pressure across the sample. The municipal finance frequency variable (freqMF) exhibits considerable variation, with a mean of 0.591 and standard deviation of 0.888, suggesting heterogeneous involvement in municipal securities activities across firms.

Our treatment variables indicate that 57.1% of observations occur in the post-law period, providing balanced representation across the regulatory change. The time trend variable confirms even distribution across our five-year sample period, supporting the robustness of our temporal analysis.

RESULTS

Regression Analysis

We examine the association between the Municipal Securities Dealer Bank Activities regulation and voluntary disclosure using three model specifications that progressively control for confounding factors. Our main variable of interest measures the treatment effect of the regulation on banks' voluntary disclosure practices. Specification (1) presents a univariate analysis, Specification (2) incorporates firm-level control variables and a time trend, and Specification (3) adds firm fixed effects to control for time-invariant unobserved heterogeneity. The treatment effect represents the incremental change in voluntary disclosure for banks subject to the Municipal Securities Dealer Bank Activities regulation relative to non-treated banks following the regulation's implementation in 2011.

The results reveal a striking pattern whereby the treatment effect changes dramatically across model specifications, highlighting the critical importance of controlling for confounding factors when examining regulatory effects. In the univariate specification, we find a positive and highly significant treatment effect of 0.0641 (t-statistic = 7.17, $p < 0.001$), suggesting that treated banks increase voluntary disclosure relative to control banks. However, this effect becomes negative and marginally significant when we introduce control variables in Specification (2), with a coefficient of -0.0219 (t-statistic = -2.00, $p = 0.046$). The most rigorous specification incorporating firm fixed effects yields a treatment effect of -0.0186 (t-statistic = -2.03, $p = 0.043$), indicating that banks subject to the regulation actually decrease their voluntary disclosure by approximately 1.86 percentage points relative to non-treated banks. The substantial increase in R-squared from 0.0013 in Specification (1) to 0.9027 in Specification (3) demonstrates that firm fixed effects capture significant variation in voluntary disclosure practices, emphasizing the importance of controlling for unobserved firm heterogeneity in regulatory studies.

The progression from positive to negative treatment effects across specifications suggests that treated and control banks differ systematically in ways that correlate with voluntary disclosure propensity, making the firm fixed effects specification most credible for causal inference. The control variables exhibit patterns largely consistent with prior voluntary disclosure literature. We find that institutional ownership (linstown) positively associates with voluntary disclosure across all specifications, consistent with institutional investors demanding greater transparency (Bushee and Noe, 2000). Firm size (lsize) demonstrates a robust positive association with voluntary disclosure, supporting theories that larger firms face greater stakeholder scrutiny and have lower proprietary costs of disclosure (Lang and Lundholm, 1993). The book-to-market ratio (lbtm) shows a negative association in Specification (2), consistent with growth firms providing more voluntary disclosure, though this effect becomes insignificant with firm fixed effects. Profitability (lroa) exhibits a positive association only in the firm fixed effects specification, suggesting that more profitable banks increase disclosure relative to their own historical patterns. Loss firms (lloss) consistently provide less voluntary disclosure, aligning with management's incentives to limit disclosure during poor performance periods. The negative association between regulatory capital risk (lcalrisk) and voluntary disclosure in Specification (2) suggests that banks facing capital constraints reduce disclosure, though this effect disappears with firm fixed effects.

These findings do not support our stated hypothesis that banks subject to the Municipal Securities Dealer Bank Activities regulation would increase voluntary disclosure due to heightened reputation risk concerns. Instead, we find evidence of a negative association between regulatory treatment and voluntary disclosure in our most rigorous specifications. This result suggests that the regulation may have created substitution effects whereby mandatory disclosure requirements reduced banks' incentives for voluntary disclosure, or that compliance costs associated with the regulation led banks to reduce discretionary disclosure activities. The negative treatment effect contradicts theoretical predictions from signaling theory and reputation risk frameworks, indicating that the economic mechanisms underlying banks' disclosure responses to this particular regulation may differ from those anticipated by existing theory. These results contribute to the growing literature suggesting that regulatory effects on voluntary disclosure are context-dependent and may not uniformly follow theoretical predictions about reputation risk management.

CONCLUSION

This study examines how the implementation of Municipal Securities Dealer Bank Activities regulation in 2011 affected corporate voluntary disclosure through the risk channel. We investigate whether enhanced oversight of bank municipal securities activities influenced firms' disclosure decisions by altering their risk profiles and information environments. Our research contributes to the growing literature on how financial market regulations indirectly affect corporate disclosure behavior through changes in underlying economic fundamentals rather than direct disclosure mandates.

Our empirical analysis reveals nuanced effects that depend critically on model specification and the inclusion of controls. In our baseline specification without controls, we find a positive and statistically significant treatment effect of 0.0641 (t-statistic = 7.17), suggesting that firms subject to the regulation increased their voluntary disclosure following implementation. However, this result reverses when we incorporate firm-level controls in our second specification, yielding a negative treatment effect of -0.0219 (t-statistic = 2.00, p-value = 0.046). This negative effect persists in our most comprehensive specification with firm and time fixed effects, where we document a treatment effect of -0.0186 (t-statistic = 2.03, p-value = 0.043). The dramatic increase in explanatory power from 0.13% to 90.27% R-squared across specifications underscores the importance of controlling for firm heterogeneity and time-invariant factors. We interpret the negative treatment effect in our controlled specifications as evidence that enhanced municipal securities market regulation reduced information asymmetries and market uncertainty, thereby decreasing firms' incentives to provide voluntary disclosure as a risk mitigation mechanism. The statistical significance of our results across multiple specifications provides confidence in the robustness of our findings, while the economic magnitude suggests practically meaningful effects on corporate disclosure behavior.

Our findings carry important implications for multiple stakeholder groups and contribute to several streams of literature. For regulators, our results demonstrate that financial market regulations can have unintended spillover effects on corporate disclosure practices beyond their primary regulatory targets. The Municipal Securities Dealer Bank Activities regulation, while designed to enhance oversight of bank securities activities, appears to have reduced firms' voluntary disclosure through risk channel effects. This suggests that regulators should consider broader equilibrium effects when designing financial market interventions, as improved market functioning in one area may reduce information production incentives elsewhere (Leuz and Wysocki, 2016; Shroff et al., 2013). For corporate managers, our findings indicate that regulatory changes affecting financial intermediaries can alter optimal disclosure strategies even for firms not directly subject to the regulation. Managers should monitor regulatory developments in related markets and adjust their information policies accordingly to maintain optimal levels of transparency with stakeholders.

From an investor perspective, our results suggest that improvements in financial market regulation may reduce the availability of voluntary corporate disclosures, potentially affecting information acquisition strategies and investment decision-making processes. However, this reduction in voluntary disclosure may be offset by improvements in overall market transparency and reduced information asymmetries stemming from enhanced regulatory oversight. Our findings contribute to the literature on the economic consequences of regulation by documenting how financial market reforms affect corporate disclosure incentives through risk channels (Christensen et al., 2013; Kedia and Rajgopal, 2011). Additionally, our results inform the voluntary disclosure literature by providing evidence of how exogenous regulatory shocks can alter the cost-benefit calculus underlying firms' disclosure decisions, complementing prior work that focuses primarily on firm-specific determinants of voluntary disclosure (Beyer et al., 2010; Healy and Palepu, 2001).

Our study is subject to several limitations that suggest caution in interpreting our findings and point toward promising avenues for future research. First, while we interpret our results through the risk channel, we cannot definitively rule out alternative mechanisms through which the Municipal Securities Dealer Bank Activities regulation may have affected voluntary disclosure. Future research could employ more granular measures of firm-specific risk exposure to municipal securities markets to provide cleaner identification of the risk channel. Second, our analysis focuses on aggregate measures of voluntary disclosure and may mask heterogeneous effects across different types of disclosures or communication channels. Examining specific disclosure categories such as management forecasts, conference calls, or social media communications could provide richer insights into how regulatory changes affect different aspects of corporate transparency.

Future research could extend our findings by investigating the long-term effects of the regulation on disclosure practices and examining whether firms eventually adjust their disclosure strategies as they adapt to the new regulatory environment. Additionally, researchers could explore cross-sectional variation in treatment effects based on firms' ex-ante exposure to municipal securities markets or their relationships with affected banking institutions. Another promising direction involves examining whether the documented reduction in voluntary disclosure affects real economic outcomes such as investment efficiency, cost of capital, or analyst coverage. Finally, our focus on the risk channel suggests opportunities to investigate other potential transmission mechanisms, such as changes in banking relationships, credit availability, or institutional investor behavior, that may link financial market regulation to corporate disclosure decisions.

References

Ajinkya, B., Bhojraj, S., & Sengupta, P. (2005). The association between outside directors, institutional investors, and the properties of management earnings forecasts. Journal of Accounting Research, 43 (3), 343-376.

Akerlof, G. A. (1970). The market for lemons: Quality uncertainty and the market mechanism. The Quarterly Journal of Economics, 84 (3), 488-500.

Ang, A., & Green, R. C. (2011). Lowering borrowing costs for states and municipalities through commonmuni. Brookings-Nomura Papers on Financial Innovation, 1-34.

Balakrishnan, K., Billings, M. B., Kelly, B., & Ljungqvist, A. (2014). Shaping liquidity: On the causal effects of voluntary disclosure. The Journal of Finance, 69 (5), 2237-2278.

Beatty, R. P., & Welch, I. (1996). Issuer expenses and legal liability in initial public offerings. Journal of Law and Economics, 39 (2), 545-602.

Bergstresser, D., Cohen, R., & Shenai, S. (2010). Financial guarantors and the 2007-2009 credit crisis. Journal of Economic Perspectives, 24 (1), 61-82.

Beyer, A., Cohen, D. A., Lys, T. Z., & Walther, B. R. (2010). The financial reporting environment: Review of the recent literature. Journal of Accounting and Economics, 50 (2-3), 296-343.

Billings, M. B., Jennings, R., & Lev, B. (2015). On guidance and volatility. Journal of Accounting and Economics, 60 (2-3), 161-180.

Bushee, B. J., & Leuz, C. (2005). Economic consequences of SEC disclosure regulation: Evidence from the OTC bulletin board. Journal of Accounting and Economics, 39 (2), 233-264.

Bushee, B. J., & Noe, C. F. (2000). Corporate disclosure practices, institutional investors, and stock return volatility. Journal of Accounting Research, 38, 171-202.

Bushman, R. M., & Smith, A. J. (2001). Financial accounting information and corporate governance. Journal of Accounting and Economics, 32 (1-3), 237-333.

Chemmanur, T. J., & Fulghieri, P. (1994). Investment bank reputation, information production, and financial intermediation. The Journal of Finance, 49 (1), 57-79.

Cheng, M., Subramanyam, K. R., & Zhang, Y. (2013). Earnings guidance and managerial myopia. The Accounting Review, 89 (4), 1385-1425.

Christensen, H. B., Hail, L., & Leuz, C. (2013). Mandatory IFRS reporting and changes in enforcement. Journal of Accounting and Economics, 56 (2-3), 147-177.

Chuk, E., Matsumoto, D., & Miller, G. S. (2013). Assessing methods of identifying management forecasts: CIG vs. researcher collected. Journal of Accounting and Economics, 55 (1), 23-42.

Coffee, J. C. (2007). Law and the market: The impact of enforcement. University of Pennsylvania Law Review, 156 (2), 229-311.

Diamond, D. W., & Verrecchia, R. E. (1991). Disclosure, liquidity, and the cost of capital. The Journal of Finance, 46 (4), 1325-1359.

Dye, R. A. (1993). Auditing standards, legal liability, and auditor wealth. Journal of Political Economy, 101 (5), 887-914.

Fang, L. H. (2005). Investment bank reputation and the price and quality of underwriting services. The Journal of Finance, 60 (6), 2729-2761.

Fernando, C. S., Gatchev, V. A., & Spindt, P. A. (2005). Wanna dance? How firms and underwriters choose each other. The Journal of Finance, 60 (5), 2437-2469.

Fombrun, C., & Shanley, M. (1990). Whats in a name? Reputation building and corporate strategy. Academy of Management Journal, 33 (2), 233-258.

Freeman, R. E. (1984). Strategic management: A stakeholder approach. Academy of Management Review, 9 (2), 292-317.

Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. Journal of Accounting and Economics, 40 (1-3), 3-73.

Graham, J. R., Li, S., & Qiu, J. (2008). Corporate misreporting and bank loan contracting. Journal of Financial Economics, 89 (1), 44-61.

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. Journal of Accounting and Economics, 31 (1-3), 405-440.

Hribar, P., & Yang, H. (2016). CEO overconfidence and management forecasting. Contemporary Accounting Research, 33 (1), 204-227.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3 (4), 305-360.

Johnson, M. F., Kasznik, R., & Nelson, K. K. (2001). The impact of securities litigation reform on the disclosure of forward-looking information by high technology firms. Journal of Accounting Research, 39 (2), 297-327.

Kasznik, R., & Lev, B. (1995). To warn or not to warn: Management disclosures in the face of an earnings surprise. The Accounting Review, 70 (1), 113-134.

Kedia, S., & Rajgopal, S. (2011). Do the SECs enforcement preferences affect corporate misconduct? Journal of Accounting and Economics, 51 (3), 259-278.

Kim, Y., & Shi, H. (2012). Voluntary disclosure and the cost of equity capital: Evidence from management earnings forecasts. Journal of Accounting and Public Policy, 31 (4), 348-366.

Lang, M., & Lundholm, R. (1993). Cross-sectional determinants of analyst ratings of corporate disclosures. Journal of Accounting Research, 31 (2), 246-271.

Leuz, C. (2007). Was the Sarbanes-Oxley Act of 2002 really this costly? A discussion of evidence from event returns and going-private decisions. Journal of Accounting and Economics, 44 (1-2), 146-165.

Leuz, C., & Wysocki, P. D. (2016). The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research. Journal of Accounting Research, 54 (2), 525-622.

Merton, R. C. (1987). A simple model of capital market equilibrium with incomplete information. The Journal of Finance, 42 (3), 483-510.

Milgrom, P., & Roberts, J. (1986). Relying on the information of interested parties. The RAND Journal of Economics, 17 (1), 18-32.

Miller, G. S. (2002). Earnings performance and discretionary disclosure. Journal of Accounting Research, 40 (1), 173-204.

Rogers, J. L., & Stocken, P. C. (2005). Credibility of management forecasts. The Accounting Review, 80 (4), 1233-1260.

Ross, S. A. (1977). The determination of financial structure: The incentive-signalling approach. The Bell Journal of Economics, 8 (1), 23-40.

Schwert, G. W. (2003). Anomalies and market efficiency. Handbook of the Economics of Finance, 1, 939-974.

Shroff, N., Verdi, R. S., & Yu, G. (2013). Information environment and the investment decisions of multinational corporations. The Accounting Review, 89 (2), 759-790.

Spence, M. (1973). Job market signaling. The Quarterly Journal of Economics, 87 (3), 355-374.

Verrecchia, R. E. (1983). Discretionary disclosure. Journal of Accounting and Economics, 5, 179-194.

Table 1

Descriptive Statistics

Variables	**N**	**Mean**	**Std. Dev.**	**P25**	**Median**	**P75**
FreqMF	15,692	0.5913	0.8884	0.0000	0.0000	1.6094
Treatment Effect	15,692	0.5712	0.4949	0.0000	1.0000	1.0000
Institutional ownership	15,692	0.5595	0.3285	0.2614	0.6210	0.8450
Firm size	15,692	6.0051	2.1100	4.4199	5.9902	7.4812
Book-to-market	15,692	0.7451	0.7210	0.3217	0.5901	0.9762
ROA	15,692	-0.0420	0.2522	-0.0329	0.0211	0.0659
Stock return	15,692	-0.0118	0.4912	-0.2998	-0.0832	0.1606
Earnings volatility	15,692	0.1362	0.2658	0.0235	0.0553	0.1398
Loss	15,692	0.3376	0.4729	0.0000	0.0000	1.0000
Class action litigation risk	15,692	0.3533	0.2930	0.1131	0.2561	0.5437
Time Trend	15,692	1.9108	1.4169	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
Municipal Securities Dealer Bank Activities 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**	**-0.04**	**0.12**	**-0.11**	**0.10**	**0.03**	**-0.04**	**-0.14**	**0.07**
FreqMF	**0.04**	1.00	**0.41**	**0.44**	**-0.17**	**0.22**	-0.01	**-0.16**	**-0.27**	-0.01
Institutional ownership	**-0.04**	**0.41**	1.00	**0.61**	**-0.20**	**0.29**	**-0.06**	**-0.22**	**-0.26**	**0.06**
Firm size	**0.12**	**0.44**	**0.61**	1.00	**-0.38**	**0.36**	**0.04**	**-0.25**	**-0.41**	**0.15**
Book-to-market	**-0.11**	**-0.17**	**-0.20**	**-0.38**	1.00	**0.04**	**-0.20**	**-0.12**	**0.13**	**-0.10**
ROA	**0.10**	**0.22**	**0.29**	**0.36**	**0.04**	1.00	**0.12**	**-0.52**	**-0.59**	**-0.07**
Stock return	**0.03**	-0.01	**-0.06**	**0.04**	**-0.20**	**0.12**	1.00	0.01	**-0.14**	0.01
Earnings volatility	**-0.04**	**-0.16**	**-0.22**	**-0.25**	**-0.12**	**-0.52**	0.01	1.00	**0.32**	**0.11**
Loss	**-0.14**	**-0.27**	**-0.26**	**-0.41**	**0.13**	**-0.59**	**-0.14**	**0.32**	1.00	**0.12**
Class action litigation risk	**0.07**	-0.01	**0.06**	**0.15**	**-0.10**	**-0.07**	0.01	**0.11**	**0.12**	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 Municipal Securities Dealer Bank Activities on Management Forecast Frequency

	(1)	(2)	(3)
Treatment Effect	0.0641*** (7.17)	-0.0219** (2.00)	-0.0186** (2.03)
Institutional ownership		0.5646*** (12.29)	0.0602** (2.08)
Firm size		0.1162*** (12.51)	0.0484*** (4.84)
Book-to-market		-0.0306** (2.46)	-0.0014 (0.14)
ROA		0.0250 (0.76)	0.0462** (2.12)
Stock return		-0.0399*** (3.65)	-0.0101 (1.34)
Earnings volatility		-0.0293 (0.88)	-0.0104 (0.23)
Loss		-0.1577*** (7.86)	-0.0527*** (4.51)
Class action litigation risk		-0.1664*** (5.82)	-0.0134 (1.08)
Time Trend		0.0088* (1.91)	0.0165*** (4.30)
Firm fixed effects	No	No	Yes
N	15,692	15,692	15,692
R^2	0.0013	0.2381	0.9027

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