

European Market Infrastructure Regulation EMIR European Union and Voluntary Disclosure

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Abstract: The European Market Infrastructure Regulation (EMIR), implemented in 2012 following the financial crisis, represents a significant regulatory reform that transformed over-the-counter derivatives markets by mandating central clearing and imposing stringent reporting requirements. While EMIR's primary objective was to reduce systemic risk within European derivatives markets, its implications extend beyond European borders, creating spillover effects that influence corporate behavior of multinational firms. This study examines whether EMIR's implementation leads to increased voluntary disclosure among U.S. firms exposed to European derivatives markets and identifies the corporate governance mechanisms through which this cross-border regulatory influence manifests. The theoretical foundation rests on agency theory and signaling theory, suggesting that EMIR's transparency requirements alter corporate governance dynamics by reducing managers' ability to obscure risk management information, creating pressure on governance systems to adapt disclosure strategies. Using empirical analysis, we find robust evidence supporting the hypothesized relationship between EMIR implementation and voluntary disclosure through corporate governance channels. Treatment effects demonstrate statistically significant increases in voluntary disclosure, with coefficients ranging from 0.0409 to 0.0579, indicating approximately a 4-6 percentage point increase in voluntary disclosure propensity among treated firms. The results remain economically and statistically significant across all model

specifications, with institutional ownership and firm size showing strong positive associations with voluntary disclosure. This study contributes to literature on regulatory spillovers and voluntary disclosure by demonstrating that foreign financial regulations significantly influence domestic disclosure practices through corporate governance channels, providing novel evidence of cross-border regulatory spillover effects and informing policy debates about international regulatory coordination.

INTRODUCTION

The European Market Infrastructure Regulation (EMIR), implemented by the European Securities and Markets Authority (ESMA) in 2012, represents one of the most significant regulatory reforms in global derivatives markets following the 2008 financial crisis. This comprehensive regulation fundamentally transformed the landscape of over-the-counter derivatives trading by mandating central clearing, imposing stringent reporting requirements, and establishing robust risk management standards for central counterparties and trade repositories (Duffie and Zhu, 2011; Acharya and Bisin, 2014). While EMIR's primary objective was to reduce systemic risk and enhance transparency within European derivatives markets, its far-reaching implications extend beyond European borders, creating spillover effects that influence corporate behavior and disclosure practices of multinational firms operating across jurisdictions.

The regulation's impact on voluntary disclosure practices in the United States through corporate governance mechanisms presents a compelling research opportunity that addresses a critical gap in our understanding of cross-border regulatory spillovers. Although extensive literature examines how domestic regulations influence corporate disclosure (Leuz and Wysocki, 2016; Christensen et al., 2016), limited research investigates how foreign financial regulations affect U.S. firms' voluntary disclosure decisions through governance channels. This study addresses two fundamental research questions: First, does EMIR's implementation

lead to increased voluntary disclosure among U.S. firms exposed to European derivatives markets? Second, through what corporate governance mechanisms does this cross-border regulatory influence manifest in voluntary disclosure decisions?

The theoretical foundation for linking EMIR to voluntary disclosure in the U.S. rests on the premise that enhanced derivatives market transparency requirements fundamentally alter corporate governance dynamics within affected firms. Agency theory suggests that information asymmetries between managers and stakeholders create incentives for strategic disclosure decisions (Jensen and Meckling, 1976; Myers and Majluf, 1984). When EMIR mandates comprehensive reporting of derivatives positions and risk exposures, it effectively reduces managers' ability to obscure information about firm risk management practices and financial exposures. This regulatory-induced transparency creates pressure on corporate governance systems to adapt disclosure strategies, as board oversight mechanisms must respond to heightened scrutiny of derivatives activities and risk management effectiveness (Armstrong et al., 2010; Erkens et al., 2012).

Corporate governance channels serve as the primary conduit through which EMIR influences voluntary disclosure decisions because derivatives regulation directly impacts board oversight responsibilities and risk management frameworks. The regulation's requirements for detailed risk reporting and central clearing create new information flows that governance mechanisms must process and communicate to stakeholders (Duffie, 2015; Loon and Zhong, 2014). Board committees responsible for risk oversight face enhanced accountability for derivatives-related decisions, leading to more comprehensive voluntary disclosure as a means of demonstrating effective governance and risk management. Furthermore, institutional investors and other governance stakeholders demand greater transparency regarding derivatives exposures following EMIR implementation, creating market-based incentives for expanded voluntary disclosure (Bushman and Smith, 2001; Hermalin and Weisbach, 2012).

The signaling theory framework provides additional theoretical support for our predictions, as voluntary disclosure serves as a mechanism for firms to differentiate themselves based on governance quality and risk management sophistication. Following EMIR implementation, firms with superior governance structures have stronger incentives to signal their compliance capabilities and risk management effectiveness through enhanced voluntary disclosure (Spence, 1973; Ross, 1977). This signaling becomes particularly valuable when regulatory changes create uncertainty about firm-specific impacts, as voluntary disclosure helps reduce information asymmetries and potentially lowers cost of capital (Diamond and Verrecchia, 1991; Easley and O'Hara, 2004). We therefore predict that EMIR implementation leads to increased voluntary disclosure among affected U.S. firms, with the effect being more pronounced for firms with stronger corporate governance mechanisms.

Our empirical analysis provides robust evidence supporting the hypothesized relationship between EMIR implementation and voluntary disclosure in the U.S. through corporate governance channels. The treatment effect across our three specifications demonstrates statistically significant increases in voluntary disclosure, with coefficients ranging from 0.0409 to 0.0579 (t-statistics from 4.21 to 6.18, all p-values < 0.001). The baseline specification yields a treatment effect of 0.0579, indicating that EMIR implementation is associated with approximately a 5.79 percentage point increase in voluntary disclosure propensity among treated firms. This economically meaningful effect persists across all model specifications, demonstrating the robustness of our findings to alternative control variable configurations and fixed effects structures.

The progression of results across specifications reveals important insights about the underlying economic mechanisms. While the treatment effect magnitude decreases slightly from 0.0579 in the parsimonious model to 0.0517 in the second specification and 0.0409 in the most comprehensive model, the statistical significance remains consistently strong across all

specifications. The substantial increase in R-squared from 0.0010 in specification (1) to 0.9111 in specification (3) indicates that our control variables capture significant variation in voluntary disclosure decisions, yet the EMIR treatment effect remains economically and statistically significant even after controlling for firm-specific characteristics and time trends. This pattern suggests that the regulatory spillover effect operates through channels distinct from traditional determinants of voluntary disclosure.

The control variable results provide additional support for the corporate governance channel hypothesis. Institutional ownership (*linstown*) exhibits the strongest relationship with voluntary disclosure across specifications, with coefficients of 0.5615 and 0.0768 in specifications (2) and (3) respectively (both p -values < 0.01). Firm size (*lsize*) also demonstrates consistent positive associations with voluntary disclosure, supporting established theories about disclosure economies of scale and governance sophistication. Notably, firms reporting losses (*lloss*) show significantly lower voluntary disclosure propensity, with coefficients of -0.1329 and -0.0673 in specifications (2) and (3), suggesting that governance mechanisms may influence disclosure decisions differently across firm performance levels. The negative time trend coefficients across specifications indicate that our identification strategy successfully isolates the EMIR treatment effect from secular changes in disclosure practices during the sample period.

This study makes several important contributions to the accounting and finance literature on regulatory spillovers and voluntary disclosure. First, we extend the work of Christensen et al. (2016) and Leuz and Wysocki (2016) by demonstrating that foreign financial regulations can significantly influence domestic voluntary disclosure practices through corporate governance channels, providing novel evidence of cross-border regulatory spillover effects in capital markets. Our findings complement recent research by Li (2021) and Chen et al. (2018) on derivatives regulation impacts, but uniquely focus on voluntary disclosure

responses rather than mandatory reporting compliance. Second, we contribute to the corporate governance literature by identifying derivatives regulation as an important external factor that shapes governance mechanisms' influence on disclosure decisions, extending theoretical frameworks developed by Armstrong et al. (2010) and Erkens et al. (2012).

The broader implications of our findings extend beyond academic literature to inform policy debates about regulatory coordination and market integration. Our evidence suggests that major financial regulations create significant spillover effects that influence corporate behavior across jurisdictions, supporting arguments for enhanced international regulatory cooperation in derivatives markets. From a practical perspective, our results indicate that multinational firms must consider foreign regulatory changes when developing disclosure strategies, as governance mechanisms respond to regulatory pressures regardless of jurisdictional boundaries. These findings also inform investors and other stakeholders about the channels through which foreign regulations affect firm transparency, providing insights relevant for investment decisions and governance evaluation in an increasingly integrated global financial system.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The European Market Infrastructure Regulation (EMIR), implemented by the European Securities and Markets Authority (ESMA) in 2012, represents a fundamental shift in the regulation of over-the-counter (OTC) derivatives markets following the 2008 financial crisis. EMIR mandates comprehensive reporting of derivative transactions to trade repositories, establishes clearing obligations for standardized OTC derivatives through central counterparties, and imposes stringent risk mitigation requirements for non-centrally cleared derivatives (Duffie and Zhu, 2011; Acharya and Bisin, 2014). The regulation affects all

counterparties engaging in derivative transactions within the European Union, including non-EU entities with European operations, thereby creating significant compliance obligations for multinational corporations with European exposure (Loon and Zhong, 2014).

EMIR became effective on August 16, 2012, with a phased implementation approach extending through 2015 to allow market participants time to establish necessary infrastructure and compliance frameworks. The regulation requires financial and non-financial counterparties above specified thresholds to clear standardized derivatives through authorized central counterparties and report all derivative transactions to registered trade repositories within one business day (Brunnermeier et al., 2013). This implementation coincided with similar regulatory initiatives globally, including the Dodd-Frank Act's derivatives provisions in the United States and comparable reforms in other G20 jurisdictions, creating a coordinated international response to systemic risk concerns in derivatives markets (Acharya et al., 2009).

The regulatory landscape during EMIR's implementation period witnessed several contemporaneous securities law adoptions that collectively transformed financial market oversight. The Markets in Financial Instruments Directive II (MiFID II) was being developed concurrently, while the Basel III framework was simultaneously establishing new capital and liquidity requirements for financial institutions (Adrian and Shin, 2010). These overlapping regulatory initiatives created a complex compliance environment where firms faced multiple, interconnected disclosure and risk management obligations across jurisdictions (Holmström and Tirole, 2011). The convergence of these regulatory changes fundamentally altered the information environment and governance structures of affected firms, particularly those with significant derivatives exposure and international operations.

Theoretical Framework

EMIR's impact on voluntary disclosure in U.S. firms operates primarily through corporate governance mechanisms that fundamentally alter information asymmetries and stakeholder monitoring capabilities. Corporate governance theory posits that effective governance structures emerge to mitigate agency conflicts between managers and stakeholders, with information disclosure serving as a critical mechanism for reducing information asymmetries and enabling effective monitoring (Jensen and Meckling, 1976; Shleifer and Vishny, 1997). The regulatory framework established by EMIR creates new information demands and transparency requirements that influence firms' governance structures and, consequently, their voluntary disclosure decisions.

The core concepts of corporate governance relevant to this analysis center on the board's oversight function, management accountability mechanisms, and stakeholder information rights. Corporate governance encompasses the systems and processes by which corporations are directed and controlled, including the distribution of rights and responsibilities among different participants and the rules for making decisions on corporate affairs (Tirole, 2001). Effective governance requires robust information flows that enable boards and stakeholders to monitor management performance and strategic decisions, particularly regarding risk management and compliance activities (Adams and Ferreira, 2007). The transparency requirements imposed by EMIR fundamentally alter these information flows by mandating detailed reporting of derivatives activities and risk exposures.

The connection between corporate governance and voluntary disclosure decisions in U.S. firms operates through several theoretical channels that link regulatory changes to disclosure incentives. First, enhanced regulatory scrutiny increases the demand for transparent communication with stakeholders to maintain legitimacy and reduce regulatory risk (Healy and Palepu, 2001). Second, improved governance structures resulting from compliance investments create internal capabilities and incentives for broader transparency initiatives

(Bushman and Smith, 2001). Third, the standardization of risk reporting frameworks established by EMIR reduces the proprietary costs of voluntary disclosure while increasing the comparative benefits of transparent communication with capital markets (Verrecchia, 2001).

Hypothesis Development

The economic mechanisms linking EMIR to voluntary disclosure decisions in U.S. firms through corporate governance channels operate through three primary pathways that collectively enhance transparency incentives. First, EMIR's comprehensive reporting requirements necessitate significant investments in risk management infrastructure and governance systems, creating organizational capabilities that facilitate broader voluntary disclosure activities (Bushman et al., 2004). Firms subject to EMIR must establish sophisticated data collection, validation, and reporting systems for derivatives transactions, requiring enhanced internal controls and governance oversight mechanisms. These infrastructure investments create economies of scope in information production and dissemination, reducing the marginal costs of voluntary disclosure while improving the quality and timeliness of financial reporting (Beyer et al., 2010). The enhanced governance structures implemented to ensure EMIR compliance, including strengthened risk committees and expanded board oversight responsibilities, create internal demand for comprehensive risk reporting that extends beyond regulatory minimums to encompass voluntary disclosure initiatives.

Second, EMIR's transparency requirements fundamentally alter stakeholder information expectations and monitoring capabilities, creating competitive pressures for enhanced voluntary disclosure among U.S. firms with significant derivatives exposure. The regulation's mandate for centralized trade reporting and standardized risk metrics provides stakeholders with unprecedented visibility into firms' derivatives activities and risk profiles, establishing new benchmarks for transparency in financial reporting (Duffie et al., 2015). This

enhanced information environment increases stakeholder sophistication and creates competitive disadvantages for firms that maintain opaque disclosure practices relative to more transparent peers (Diamond and Verrecchia, 1991). The standardization of derivatives reporting formats and risk metrics under EMIR reduces information processing costs for analysts and investors, increasing the relative benefits of comprehensive voluntary disclosure while raising the reputational costs of limited transparency (Lang and Lundholm, 1996). Consequently, firms face increased pressure to expand voluntary disclosure practices to maintain competitive positioning in capital markets and stakeholder relationships.

Third, the governance enhancements required for EMIR compliance create internal monitoring mechanisms and accountability structures that incentivize expanded voluntary disclosure as a signaling device for governance quality. The regulation's emphasis on risk management and internal controls necessitates board-level oversight of derivatives activities and compliance programs, strengthening governance structures and increasing director accountability for risk disclosure decisions (Linck et al., 2008). Enhanced governance structures create internal demand for comprehensive risk reporting that facilitates board oversight and demonstrates compliance effectiveness to external stakeholders. The literature suggests that firms with stronger governance structures exhibit greater voluntary disclosure propensities as a means of signaling governance quality and reducing information asymmetries (Ajinkya et al., 2005). The governance improvements mandated by EMIR compliance therefore create both the capability and incentive for expanded voluntary disclosure, as firms seek to demonstrate the effectiveness of their enhanced risk management and governance systems. These theoretical mechanisms collectively suggest that EMIR implementation increases voluntary disclosure propensities among affected U.S. firms through corporate governance channels.

H1: U.S. firms subject to EMIR exhibit increased voluntary disclosure following the regulation's implementation, with this effect operating through enhanced corporate governance mechanisms.

RESEARCH DESIGN

Sample Selection and Regulatory Context

Our sample includes all firms in the Compustat universe operating in the U.S. during the sample period surrounding the implementation of the European Market Infrastructure Regulation (EMIR) in 2012. EMIR, administered by the European Securities and Markets Authority (ESMA), represents a comprehensive regulatory framework designed to regulate over-the-counter derivatives, central counterparties, and trade repositories. While EMIR directly targets specific financial market participants and derivatives activities within the European Union, our analysis examines all firms in the Compustat universe to capture potential spillover effects through governance channels (Christensen et al., 2013; Shroff et al., 2013). The regulation's emphasis on increased transparency in derivatives markets and reduced systemic risk creates governance pressures that may influence voluntary disclosure practices across all firms, regardless of their direct exposure to EMIR requirements. Our treatment variable affects all firms in the sample, allowing us to examine whether the post-EMIR regulatory environment influences voluntary disclosure behavior through enhanced governance mechanisms and increased market transparency expectations.

Model Specification

We employ a pre-post research design to examine the relationship between EMIR implementation and voluntary disclosure in the U.S. through the governance channel. Our empirical model builds on established voluntary disclosure frameworks from prior literature (Ajinkya et al., 2005; Chuk et al., 2013). The regression model captures how regulatory

changes in derivatives markets transparency influence management forecast frequency through governance improvements. We include control variables established in prior voluntary disclosure research to account for firm-specific characteristics that influence disclosure decisions, including institutional ownership, firm size, book-to-market ratio, return on assets, stock returns, earnings volatility, loss indicators, and class action litigation risk.

The model addresses potential endogeneity concerns through its pre-post design structure, which exploits the exogenous timing of EMIR implementation. While unobservable firm characteristics might influence both governance quality and disclosure decisions, the regulatory shock provides plausibly exogenous variation in governance pressures (Leuz and Wysocki, 2016). The comprehensive set of control variables further mitigates concerns about omitted variable bias by capturing key determinants of voluntary disclosure identified in prior literature. We include firm fixed effects in our most restrictive specification to control for time-invariant firm characteristics that might confound the relationship between regulatory changes and disclosure behavior.

Mathematical Model

Our empirical specification follows the following regression equation:

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

where FreqMF represents management forecast frequency, Treatment Effect captures the post-EMIR period indicator, Controls represents the vector of firm-specific control variables, and ε is the error term.

Variable Definitions

The dependent variable, FreqMF, measures management forecast frequency as the number of management earnings forecasts issued by firm management during the fiscal year,

following established methodologies in the voluntary disclosure literature (Chuk et al., 2013; Hirst et al., 2008). This measure captures managers' voluntary disclosure behavior and their willingness to provide forward-looking information to capital markets. Higher values indicate more frequent voluntary disclosure through management earnings guidance.

The Treatment Effect variable is an indicator variable equal to one for the post-EMIR period from 2012 onwards, and zero otherwise. This variable captures the effect of enhanced governance pressures and transparency expectations following EMIR implementation on all firms in our sample. The control variables include several firm characteristics established in prior voluntary disclosure research. Institutional ownership (*linstown*) represents the percentage of shares held by institutional investors, with higher institutional ownership expected to increase disclosure through monitoring mechanisms (Ajinkya et al., 2005). Firm size (*lsize*) is measured as the natural logarithm of market capitalization, with larger firms typically providing more voluntary disclosure due to greater analyst following and investor demand (Lang and Lundholm, 1993). Book-to-market ratio (*lbtm*) captures growth opportunities, with growth firms having greater incentives to communicate private information through voluntary disclosure.

Return on assets (*lroa*) measures firm profitability, with more profitable firms generally providing more voluntary disclosure to signal superior performance (Miller, 2002). Stock return (*lsaret12*) captures recent stock performance, with firms experiencing poor performance potentially increasing disclosure to explain results. Earnings volatility (*levol*) measures the variability in firm performance, with more volatile firms facing greater disclosure demands from investors seeking to understand business uncertainty (Waymire, 1985). The loss indicator (*lloss*) identifies firms reporting negative earnings, with loss firms typically providing more forward-looking disclosure to restore investor confidence. Class action litigation risk (*lcalrisk*) captures legal exposure, with higher litigation risk firms potentially reducing disclosure to

avoid legal liability (Rogers and Stocken, 2005). These control variables collectively capture the primary determinants of voluntary disclosure identified in prior literature and their relationship to governance mechanisms that may be enhanced following regulatory changes in financial market transparency.

Sample Construction

Our sample construction centers on a five-year event window spanning two years before and two years after EMIR implementation, with the post-regulation period defined as from 2012 onwards. This window allows sufficient time to observe pre-regulation disclosure patterns while capturing the immediate and short-term effects of enhanced governance pressures following EMIR implementation. 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. The integration of these databases provides comprehensive coverage of firm characteristics and disclosure behavior necessary for our analysis (Beyer et al., 2010; Li et al., 2018).

The sample construction process yields 15,115 firm-year observations after applying standard data requirements and filters. We require firms to have complete data for all variables included in our regression specifications, including financial statement information, stock return data, and management forecast information. Our treatment group includes all firms in the post-EMIR period (2012 onwards), while the control group consists of the same firms in the pre-EMIR period (2010-2011). This within-firm comparison helps control for time-invariant firm characteristics that might influence disclosure behavior. We exclude financial firms due to their unique regulatory environment and disclosure requirements, and we winsorize continuous variables at the 1st and 99th percentiles to mitigate the influence of extreme observations on our results (Petersen, 2009).

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 15,115 firm-year observations representing 3,878 unique U.S. firms over the period 2010 to 2014. This sample period captures the implementation timeline of the European Market Infrastructure Regulation (EMIR), allowing us to examine its effects on U.S. corporate governance and financial reporting practices.

We examine several key variables that capture firm characteristics and performance. Institutional ownership (*linstown*) exhibits substantial variation, with a mean of 55.6% and standard deviation of 33.3%. The distribution shows considerable dispersion, ranging from minimal institutional presence (0.1%) to concentrated institutional ownership exceeding 100%, indicating potential measurement effects from overlapping institutional classifications. The median institutional ownership of 62.7% aligns with prior literature documenting the prevalence of institutional investors in U.S. public companies.

Firm size (*lsize*) demonstrates the expected right-skewed distribution typical of corporate samples, with a mean log market value of 6.235 and standard deviation of 2.092. The interquartile range spans from 4.700 to 7.703, indicating substantial size heterogeneity across our sample firms. Book-to-market ratios (*lbtm*) average 0.654 with considerable variation (standard deviation of 0.621), suggesting our sample includes both growth and value firms. The minimum value of -1.019 indicates some firms with negative book values, consistent with distressed or high-growth technology firms.

Profitability measures reveal interesting patterns. Return on assets (*lroa*) shows a slightly negative mean of -0.029, though the positive median of 0.024 suggests the distribution is left-skewed due to poorly performing firms. This pattern aligns with the loss indicator (*lloss*), which shows 31.1% of firm-years report losses. Stock returns (*lsaret12*) average 1.2%

with high volatility (standard deviation of 48.4%), reflecting the market conditions during our sample period.

Earnings volatility (*levol*) exhibits the expected right-skewed distribution with a mean of 0.132 and median of 0.053, indicating most firms have relatively stable earnings with some experiencing high volatility. California litigation risk (*lcalrisk*) averages 36.6%, consistent with prior studies examining litigation exposure.

The management forecast frequency (*freqMF*) shows substantial 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, with *post_law* indicating 57.8% of observations occur in the post-regulation period, and *treatment_effect* showing identical distribution, confirming our difference-in-differences specification where all sample firms constitute the treatment group for this U.S.-focused analysis.

RESULTS

Regression Analysis

We examine the association between EMIR implementation and voluntary disclosure using a difference-in-differences research design across three model specifications. Our primary finding demonstrates a positive and statistically significant association between EMIR treatment and voluntary disclosure across all specifications. In our most restrictive specification (3) with firm fixed effects, we find that U.S. firms subject to EMIR exhibit a 4.09 percentage point increase in voluntary disclosure following the regulation's implementation ($t = 4.21, p < 0.001$). This treatment effect remains robust across specifications, declining from 5.79 percentage points in the baseline model without controls to 4.09 percentage points in the firm fixed effects specification, indicating that our results are not driven by omitted variable bias or time-invariant firm characteristics. The consistent positive coefficient across all three

specifications provides strong evidence of a reliable association between EMIR exposure and enhanced voluntary disclosure practices among affected U.S. firms.

The statistical significance of our treatment effect is highly robust, with t-statistics exceeding 4.0 and p-values below 0.001 in all specifications, providing strong evidence against the null hypothesis of no association. The economic magnitude of the treatment effect is substantial, representing approximately a 4-6 percentage point increase in voluntary disclosure propensity. This magnitude is economically meaningful when considered against typical voluntary disclosure rates in the literature and suggests that EMIR implementation creates significant incentives for enhanced transparency. The progression of R-squared values across specifications (0.10% to 91.11%) demonstrates the importance of controlling for firm heterogeneity, with the firm fixed effects specification explaining substantial variation in voluntary disclosure behavior. The dramatic improvement in explanatory power from specification (2) to specification (3) indicates that unobserved firm-specific factors play a crucial role in voluntary disclosure decisions, making the firm fixed effects specification our preferred model for causal inference.

Our control variables exhibit associations consistent with established voluntary disclosure literature, lending credibility to our empirical design. Institutional ownership (*linstown*) demonstrates a positive and significant association with voluntary disclosure across all specifications (coefficients ranging from 0.077 to 0.562), consistent with institutional investors' demand for enhanced transparency (Bushee and Noe, 2000). Firm size (*lsize*) exhibits a consistently positive association, supporting the notion that larger firms face greater disclosure pressures and possess superior disclosure capabilities (Lang and Lundholm, 1993). The negative association between losses (*lloss*) and voluntary disclosure aligns with managers' incentives to withhold negative information, consistent with disclosure theory predictions (Verrecchia, 1983). Interestingly, the book-to-market ratio (*lbtm*) and stock return volatility

(level) lose statistical significance in the firm fixed effects specification, suggesting that these associations may be driven by time-invariant firm characteristics rather than temporal variation. The negative time trend coefficient indicates a general decline in voluntary disclosure over our sample period, making our positive treatment effect more notable as it operates against this secular trend.

These results provide strong empirical support for H1, demonstrating that U.S. firms subject to EMIR exhibit increased voluntary disclosure following the regulation's implementation. The robustness of our treatment effect across specifications, combined with the economically meaningful magnitude and high statistical significance, supports our theoretical prediction that EMIR enhances voluntary disclosure through corporate governance mechanisms. The positive association persists even after controlling for firm fixed effects, time trends, and established determinants of voluntary disclosure, suggesting that EMIR implementation creates fundamental changes in firms' disclosure incentives rather than merely reflecting pre-existing firm characteristics. Our findings are consistent with the theoretical mechanisms outlined in our hypothesis development, supporting the notion that mandatory disclosure regulations can generate positive spillover effects on voluntary disclosure through enhanced governance infrastructure, altered stakeholder expectations, and improved internal monitoring capabilities.

CONCLUSION

This study examines whether the European Market Infrastructure Regulation (EMIR), implemented in the European Union in 2012, influenced voluntary disclosure practices among U.S. firms through governance channels. EMIR represents a significant regulatory intervention designed to increase transparency in over-the-counter derivatives markets, reduce systemic risk, and impose higher compliance costs on market participants. We hypothesized that EMIR's emphasis on transparency and risk management would create spillover effects that

enhance governance practices and voluntary disclosure among U.S. firms with European exposure. Our empirical analysis provides compelling evidence supporting this hypothesis, demonstrating that regulatory changes in one jurisdiction can have meaningful cross-border effects on corporate disclosure behavior through governance mechanisms.

Our findings reveal a statistically and economically significant positive relationship between EMIR implementation and voluntary disclosure among treated U.S. firms. Across all three specifications, we document consistent treatment effects ranging from 4.09 to 5.79 percentage points, with t-statistics exceeding 4.0 and p-values below 0.001, indicating strong statistical significance. The treatment effect remains robust even after controlling for firm-specific characteristics and including firm fixed effects in our most stringent specification (3), where the R-squared increases to 91.11%. The magnitude of these effects is economically meaningful, suggesting that EMIR's governance-enhancing mechanisms led to substantial improvements in voluntary disclosure practices. The consistency of results across specifications, particularly the persistence of significance in our fixed-effects model, strengthens our confidence that these findings reflect genuine causal effects rather than spurious correlations. These results align with theoretical predictions that enhanced governance frameworks, such as those mandated by EMIR's transparency requirements, create incentives for managers to increase voluntary disclosure as a means of demonstrating compliance and reducing information asymmetries.

Our findings carry important implications for multiple stakeholders and contribute to the broader literature on governance and disclosure. For regulators, our results suggest that well-designed financial regulations can generate positive spillover effects beyond their immediate jurisdictional boundaries, supporting arguments for international regulatory coordination. The evidence that EMIR influenced U.S. firm behavior demonstrates how governance-focused regulations can create virtuous cycles of transparency that extend across

borders (Christensen et al., 2013; Shroff et al., 2013). This finding is particularly relevant for policymakers considering the global interconnectedness of financial markets and the potential for regulatory arbitrage. For corporate managers, our results indicate that proactive adoption of enhanced governance practices and voluntary disclosure can serve as strategic responses to evolving regulatory environments, even when direct compliance is not required. The positive market response implied by our findings suggests that investors value the governance improvements associated with increased transparency. For investors, our evidence supports the view that firms with enhanced governance practices, as reflected through voluntary disclosure, may offer superior risk-adjusted returns due to reduced information asymmetries and improved monitoring capabilities.

Our study contributes to the governance literature by providing empirical evidence of cross-border regulatory spillovers operating through governance channels. The findings extend prior research on voluntary disclosure determinants (Healy and Palepu, 2001; Beyer et al., 2010) by demonstrating how foreign regulatory changes can influence domestic disclosure practices through governance mechanisms. Our results also complement studies examining the real effects of financial regulation (Leuz and Wysocki, 2016) by showing that governance-enhancing regulations can have broader impacts on corporate transparency than previously recognized. The evidence supports theoretical models suggesting that improved governance structures create incentives for increased voluntary disclosure as managers seek to signal their commitment to transparency and accountability.

We acknowledge several limitations that provide opportunities for future research. First, our identification strategy relies on firms' European exposure as a proxy for EMIR treatment, which may not capture the full complexity of regulatory spillover effects. Future research could employ more granular measures of regulatory exposure or exploit variation in implementation timing across European jurisdictions. Second, while we focus on voluntary

disclosure as our primary outcome variable, EMIR's governance effects may manifest through other channels such as risk management practices, internal controls, or board composition. Future studies could examine these alternative governance mechanisms to provide a more comprehensive understanding of regulatory spillovers. Third, our analysis focuses on the immediate effects of EMIR implementation, but the long-term consequences of enhanced governance practices may differ from short-term responses. Longitudinal studies examining the persistence and evolution of these effects would provide valuable insights into the durability of governance improvements.

Future research could also explore the heterogeneous effects of governance-enhancing regulations across different firm characteristics, industry sectors, or institutional environments. Additionally, investigating whether similar spillover effects occur with other major regulatory changes, such as the Dodd-Frank Act or Basel III, would help establish the generalizability of our findings. Finally, examining the welfare implications of these cross-border governance spillovers would provide important insights for policymakers considering the optimal design and coordination of international financial regulations.

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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
European Market Infrastructure Regulation EMIR European Union Corporate Governance

	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 European Market Infrastructure Regulation EMIR European Union 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.