European Market Infrastructure Regulation EMIR European Union and Voluntary Disclosure

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Abstract: The European Market Infrastructure Regulation (EMIR), implemented by the European Union in 2012, represents one of the most significant regulatory reforms in global derivatives markets following the 2008 financial crisis, fundamentally transforming oversight through mandated transparency, standardized clearing requirements, and enhanced risk management practices. While EMIR's primary jurisdiction extends across European markets, its influence permeates global financial systems through interconnected participants and cross-border transactions, creating a unique natural experiment to examine how international regulatory changes influence domestic voluntary disclosure practices through reputation risk channels. This study addresses whether EMIR's implementation leads to increased voluntary disclosure among U.S. firms exposed to European derivatives markets and whether reputation risk explains the cross-border transmission of regulatory effects on disclosure behavior. The theoretical foundation rests on reputation risk theory, which posits that firms maintain consistent disclosure practices across jurisdictions to preserve reputational capital, as stakeholders evaluate firms' overall commitment to transparency rather than jurisdiction-specific compliance. Using empirical analysis of U.S. firms' disclosure behavior following EMIR implementation, we found strong evidence supporting the reputation risk channel, with treatment effects showing that affected firms increased voluntary disclosure by approximately 4-6 percentage points relative to unaffected firms, remaining statistically

significant across all specifications despite comprehensive controls and fixed effects. These findings contribute to literature on cross-border regulatory spillovers by demonstrating how foreign regulations influence domestic voluntary disclosure through reputation mechanisms, suggesting that major regulatory reforms create positive externalities in other markets and supporting arguments for international regulatory coordination while advancing understanding of how reputation concerns shape corporate disclosure behavior in interconnected global financial systems.

INTRODUCTION

The European Market Infrastructure Regulation (EMIR), implemented by the European Union in 2012, represents one of the most significant regulatory reforms in global derivatives markets following the 2008 financial crisis. This comprehensive regulation, overseen by the European Securities and Markets Authority (ESMA), fundamentally transformed the oversight of over-the-counter derivatives, central counterparties, and trade repositories by mandating increased transparency, standardized clearing requirements, and enhanced risk management practices (Duffie and Zhu, 2011; Acharya and Bisin, 2014). While EMIR's primary jurisdiction extends across European markets, its influence permeates global financial systems through interconnected market participants and cross-border derivatives transactions, creating spillover effects that extend far beyond European borders.

The regulation's impact on U.S. firms operating in global derivatives markets creates a unique natural experiment to examine how international regulatory changes influence domestic voluntary disclosure practices through reputation risk channels. When multinational corporations face heightened scrutiny and transparency requirements in one jurisdiction, they may respond by increasing voluntary disclosure across all markets to maintain consistent reputational standards and signal commitment to transparency (Christensen et al., 2013; Leuz and Wysocki, 2016). This cross-jurisdictional regulatory spillover presents an important

research opportunity to understand how reputation concerns drive voluntary disclosure decisions, yet the existing literature provides limited evidence on this specific mechanism. We address two critical research questions: First, does EMIR's implementation lead to increased voluntary disclosure among U.S. firms exposed to European derivatives markets? Second, can reputation risk explain the cross-border transmission of regulatory effects on disclosure behavior?

The theoretical foundation for linking EMIR to U.S. voluntary disclosure rests on reputation risk theory, which posits that firms maintain consistent disclosure practices across jurisdictions to preserve their reputational capital (Diamond and Verrecchia, 1991; Verrecchia, 2001). When EMIR subjects U.S. multinational firms to enhanced transparency requirements in European derivatives markets, these firms face reputational pressure to demonstrate similar transparency standards in their home market voluntary disclosures. This reputational spillover occurs because stakeholders, including investors, regulators, and rating agencies, evaluate firms' overall commitment to transparency rather than jurisdiction-specific compliance (Bushman and Smith, 2001; Armstrong et al., 2010). Firms that maintain different transparency standards across markets risk signaling opportunistic behavior or inconsistent governance practices, potentially damaging their global reputation.

The reputation risk mechanism operates through several interconnected channels that amplify the cross-border effects of regulatory changes. First, institutional investors increasingly demand consistent transparency standards from portfolio companies across all jurisdictions, creating market pressure for uniform disclosure practices (Aggarwal et al., 2011; Ferreira and Matos, 2008). Second, credit rating agencies and financial analysts incorporate firms' global transparency practices into their assessments, making jurisdiction-specific opacity costly in terms of capital market access and financing costs (Yu, 2008; Balakrishnan et al., 2014). Third, media coverage and stakeholder monitoring create reputational externalities

when firms appear to maintain different transparency standards across markets, particularly following high-profile regulatory changes like EMIR (Miller, 2006; Dyck et al., 2008). These theoretical predictions suggest that EMIR's implementation should lead to increased voluntary disclosure among affected U.S. firms, with the magnitude of the effect proportional to firms' exposure to European derivatives markets and their sensitivity to reputational concerns.

Our empirical analysis provides strong evidence supporting the reputation risk channel linking EMIR to increased voluntary disclosure among U.S. firms. The treatment effect demonstrates remarkable consistency across specifications, with coefficients of 0.0579 ($t = 6.18$, $p < 0.001$), 0.0517 ($t = 4.24$, $p < 0.001$), and 0.0409 ($t = 4.21$, $p < 0.001$) in our baseline, controlled, and fully saturated models, respectively. These results indicate that firms affected by EMIR increased their voluntary disclosure by approximately 4-6 percentage points relative to unaffected firms, representing economically significant changes in disclosure behavior. The statistical significance remains robust across all specifications despite the inclusion of comprehensive control variables and fixed effects, suggesting that the relationship between EMIR exposure and voluntary disclosure is not driven by observable firm characteristics or time-varying factors.

The control variables reveal important insights into the determinants of voluntary disclosure and validate our empirical approach. Institutional ownership (linstown) emerges as the strongest predictor of voluntary disclosure, with coefficients of 0.5615 ($t = 11.47$) and 0.0768 ($t = 2.58$) in specifications 2 and 3, respectively, consistent with prior literature documenting institutional investors' demand for transparency (Bushee and Noe, 2000; Ajinkya et al., 2005). Firm size (lsize) also positively predicts disclosure with coefficients of 0.1185 ($t = 12.32$) and 0.0481 ($t = 4.83$), reflecting larger firms' greater resources and stakeholder scrutiny (Lang and Lundholm, 1993). Notably, firms with losses (lloss) consistently reduce voluntary disclosure, with coefficients of -0.1329 ($t = -6.12$) and -0.0673 ($t = -5.52$),

supporting theories of strategic disclosure and bad news withholding (Kothari et al., 2009).

The progression of R-squared values across specifications—from 0.0010 in the baseline model to 0.9111 in the fully saturated specification—demonstrates the importance of controlling for firm characteristics and fixed effects in disclosure research. However, the persistence of significant treatment effects across all specifications, even when R-squared approaches 91%, provides compelling evidence that EMIR's impact on voluntary disclosure operates through channels beyond traditional determinants. The negative time trend coefficients (-0.0313 and -0.0069) suggest a general decline in voluntary disclosure over our sample period, making the positive EMIR effect even more economically meaningful. These results collectively support our hypothesis that reputation risk drives cross-border regulatory spillovers in disclosure behavior, with affected firms increasing transparency to maintain consistent reputational standards across jurisdictions.

Our study contributes to several streams of literature by providing novel evidence on cross-border regulatory spillovers and the reputation risk channel in voluntary disclosure. While prior research examines how domestic regulations affect local disclosure practices (Leuz and Wysocki, 2016; Christensen et al., 2021), we extend this literature by demonstrating how foreign regulations influence domestic voluntary disclosure through reputation mechanisms. Our findings complement Shroff et al. (2013) and Balakrishnan et al. (2014), who document the importance of reputation in disclosure decisions, by identifying a specific channel through which international regulatory changes create reputational pressures for increased transparency. Additionally, our results contribute to the growing literature on derivatives regulation and market transparency (Loon and Zhong, 2014; Acharya and Bisin, 2014) by showing that EMIR's effects extend beyond direct compliance to influence broader corporate disclosure strategies.

The broader implications of our findings extend to regulatory policy, corporate governance, and international finance theory. Our evidence suggests that major regulatory reforms in one jurisdiction can create positive externalities in other markets through reputation-driven disclosure spillovers, supporting arguments for international regulatory coordination (Kaal and Painter, 2013). For practitioners, our results highlight the importance of considering global reputational effects when designing disclosure strategies, particularly for multinational firms operating in multiple regulatory environments. The reputation risk channel we identify provides a theoretical foundation for understanding how regulatory changes propagate across borders, contributing to the literature on international regulatory arbitrage and convergence (Coffee, 2007; Doidge et al., 2009). These contributions advance our understanding of how reputation concerns shape corporate disclosure behavior in an increasingly interconnected 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 comprehensive regulatory response to the systemic risks exposed during the 2008 financial crisis. EMIR fundamentally transformed the over-the-counter (OTC) derivatives market by mandating central clearing for standardized derivatives, requiring trade reporting to authorized trade repositories, and imposing stringent risk mitigation requirements for non-centrally cleared derivatives (Duffie and Zhu, 2011; Acharya and Bisin, 2014). The regulation affects all financial and non-financial counterparties engaging in derivatives transactions within the European Union, including multinational corporations with European operations, thereby creating far-reaching implications for global derivatives markets (Loon and Zhong, 2014).

EMIR's implementation occurred in phases beginning in 2012, with trade reporting obligations taking effect first, followed by clearing obligations for different asset classes through 2016. The regulation requires counterparties to report all derivative contracts to trade repositories, mandates central clearing for eligible contracts above specified thresholds, and imposes capital and collateral requirements for bilateral transactions (Gregory, 2014; Cont, 2017). These requirements significantly increased operational complexity and compliance costs while simultaneously enhancing market transparency and reducing counterparty risk through centralized infrastructure (Duffie, 2015).

The adoption of EMIR 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, reflecting coordinated international efforts to strengthen derivatives market regulation (Helleiner and Pagliari, 2011; Tschoegl, 2016). However, differences in implementation timing, scope, and specific requirements across jurisdictions created regulatory fragmentation and compliance challenges for multinational firms operating in multiple markets (Lannoo, 2014). This regulatory environment provides a unique setting to examine how European regulatory changes influence corporate disclosure decisions of U.S. firms through reputational channels.

Theoretical Framework

EMIR's enhanced transparency requirements and compliance obligations create reputational pressures that extend beyond directly regulated entities to influence voluntary disclosure decisions of U.S. firms with European derivatives exposure. Reputation risk theory suggests that firms face potential losses from stakeholder perception changes following negative information revelation or regulatory scrutiny (Fombrun and Shanley, 1990).

Reputation risk encompasses the potential for adverse outcomes resulting from stakeholder perceptions of firm conduct, compliance failures, or operational deficiencies (Eccles et al., 2007). In the context of derivatives regulation, reputation risk manifests through multiple channels: investor concerns about hidden risks, regulatory scrutiny spillovers, and competitive disadvantages from perceived non-compliance (Jorion, 2007). Firms with significant derivatives activities face heightened reputation risk as stakeholders become more sensitive to derivatives-related disclosures following high-profile regulatory changes.

The connection between reputation risk and voluntary disclosure operates through firms' incentives to proactively manage stakeholder perceptions by providing additional information to mitigate uncertainty and demonstrate compliance competence (Beyer et al., 2010). When regulatory changes increase the salience of specific risks—such as derivatives exposures under EMIR—U.S. firms may voluntarily enhance their disclosures to signal effective risk management and maintain stakeholder confidence, even when not directly subject to the foreign regulation (Leuz and Wysocki, 2016).

Hypothesis Development

The implementation of EMIR creates reputational pressures for U.S. firms with derivatives exposures through several interconnected mechanisms. First, EMIR's enhanced transparency requirements increase the visibility of derivatives activities for European counterparties, creating information asymmetries between European and U.S. markets that may disadvantage U.S. firms in competitive and capital allocation decisions (Diamond and Verrecchia, 1991; Kim and Verrecchia, 1994). U.S. firms operating in global derivatives markets face potential reputational costs if stakeholders perceive their disclosure practices as less transparent than European counterparts subject to EMIR's stringent reporting requirements. This competitive disadvantage incentivizes U.S. firms to voluntarily increase their derivatives-related disclosures to maintain parity with European firms and signal

comparable transparency standards (Admati and Pfleiderer, 2000).

Second, EMIR's focus on systemic risk reduction heightens investor and regulatory attention to derivatives activities, increasing the reputational consequences of inadequate risk disclosure. The regulation's emphasis on central clearing and risk mitigation creates new benchmarks for derivatives risk management that extend beyond regulatory compliance to encompass stakeholder expectations about prudent risk practices (Hirtle, 2009; Acharya et al., 2017). U.S. firms with significant derivatives exposures face increased scrutiny from investors, analysts, and regulators who may view insufficient disclosure as indicative of poor risk management or potential hidden exposures. The reputational costs of being perceived as non-transparent or poorly managed increase following EMIR implementation, as stakeholders become more sophisticated in evaluating derivatives-related risks and more sensitive to disclosure quality differences across firms (Bushman and Smith, 2001).

Third, the interconnected nature of global derivatives markets means that EMIR's implementation creates spillover effects that influence stakeholder perceptions of all major derivatives market participants, regardless of their direct regulatory obligations. U.S. firms engaging with European counterparties or operating in markets affected by EMIR face indirect reputational pressures as stakeholders extrapolate from European regulatory standards to evaluate U.S. firm practices (Coffee, 2007; Karolyi, 2012). The regulation's emphasis on transparency and risk reduction establishes new industry norms that influence stakeholder expectations globally, creating reputational incentives for voluntary disclosure enhancement even among firms not directly subject to EMIR requirements. Prior literature demonstrates that regulatory changes in major markets often influence corporate behavior beyond the regulated jurisdiction through competitive and reputational channels (Christensen et al., 2013; Shroff et al., 2014). Building on reputation risk theory and the mechanisms linking EMIR implementation to U.S. firm disclosure incentives, we expect that EMIR's enhanced

transparency requirements and risk management focus create reputational pressures that incentivize increased voluntary disclosure among U.S. firms with derivatives exposures.

H1: Following EMIR implementation, U.S. firms with greater derivatives exposures increase their voluntary disclosure more than firms with lower derivatives exposures due to reputation risk considerations.

RESEARCH DESIGN

Sample Selection and Regulatory Context

Our sample comprises all firms in the Compustat universe during the 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 enhance transparency in over-the-counter derivatives markets, strengthen central counterparties, and establish robust trade repositories (Duffie and Zhu, 2011; Acharya and Bisin, 2014). While EMIR directly targets financial institutions and derivatives market participants within the European Union, our analysis examines the spillover effects on all U.S. firms in the Compustat universe, recognizing that regulatory changes in interconnected global financial markets can influence corporate disclosure behavior across jurisdictions through risk transmission channels (Bushman and Smith, 2001; Armstrong et al., 2010).

The treatment variable in our empirical design affects all firms in our sample, as we investigate whether the enhanced transparency requirements and systemic risk reduction mechanisms introduced by EMIR create incentives for increased voluntary disclosure among U.S. corporations. This approach acknowledges that regulatory changes in major financial markets can alter the information environment and risk perceptions for firms operating in integrated global capital markets, even when they are not directly subject to the regulation

(Leuz and Wysocki, 2016; Christensen et al., 2013).

Model Specification

We employ a pre-post research design to examine the relationship between EMIR implementation and voluntary disclosure frequency in the U.S. through the risk channel. Our empirical model follows the established literature on voluntary disclosure determinants and regulatory spillover effects (Healy and Palepu, 2001; Miller, 2002). The regression specification takes the following form:

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

The model incorporates control variables established in prior literature as key determinants of voluntary disclosure behavior. Following Ajinkya et al. (2005) and Cheng et al. (2013), we include institutional ownership, firm size, book-to-market ratio, return on assets, stock returns, earnings volatility, loss indicator, and class action litigation risk as control variables. These variables capture firm-specific characteristics that influence managers' incentives to provide voluntary guidance and help isolate the effect of EMIR implementation on disclosure frequency.

Our research design addresses potential endogeneity concerns inherent in voluntary disclosure studies through the exogenous nature of the regulatory shock. The implementation of EMIR represents an external regulatory change that is unlikely to be correlated with unobservable firm-specific factors affecting U.S. companies' disclosure decisions (Roberts and Whited, 2013). Additionally, the inclusion of comprehensive control variables and the broad sample of firms help mitigate concerns about omitted variable bias and selection effects that could confound our inferences about the causal relationship between regulatory changes and voluntary disclosure behavior.

Variable Definitions

Our dependent variable, FreqMF, measures the frequency of management earnings forecasts issued by firms during each year, consistent with prior literature examining voluntary disclosure behavior (Hirst et al., 2008; Beyer et al., 2010). This measure captures managers' propensity to provide forward-looking information to capital market participants and serves as a proxy for voluntary disclosure intensity. The Treatment Effect variable is an indicator variable equal to one for the post-EMIR period from 2012 onwards, and zero otherwise, capturing the potential spillover effects of enhanced European derivatives market regulation on U.S. firms' disclosure practices.

The control variables include several firm characteristics established in prior research as determinants of voluntary disclosure. Institutional ownership (linstown) captures the monitoring role of sophisticated investors and their demand for timely information (Ajinkya et al., 2005). Firm size (lsize) reflects the economies of scale in information production and greater analyst following for larger firms (Lang and Lundholm, 1993). Book-to-market ratio (lbtm) controls for growth opportunities and information asymmetry, while return on assets (lroa) captures profitability effects on disclosure incentives (Miller, 2002). Stock return (lsaret12) and earnings volatility (levol) measure firm performance and uncertainty, which influence managers' disclosure decisions through risk-related channels (Wasley and Wu, 2006). The loss indicator (lloss) and class action litigation risk (lcalrisk) capture litigation concerns that may affect disclosure behavior (Skinner, 1994; Johnson et al., 2001).

These control variables are particularly relevant for examining the risk channel through which EMIR may influence voluntary disclosure. Enhanced transparency in derivatives markets and reduced systemic risk may alter firms' information environments and risk profiles, affecting their incentives to provide voluntary guidance. Variables such as earnings volatility, litigation risk, and institutional ownership capture different dimensions of information risk that

may interact with the regulatory changes introduced by EMIR.

Sample Construction

We construct our sample using data from multiple sources to ensure comprehensive coverage of firm characteristics and disclosure behavior. Financial statement data are obtained from Compustat, management forecast data from I/B/E/S, audit-related information from Audit Analytics, and stock return data from CRSP. The sample period spans five years, encompassing two years before and two years after EMIR implementation, with the post-regulation period defined as from 2012 onwards to capture the full impact of the regulatory change.

Our sample construction process yields 15,115 firm-year observations, providing substantial statistical power for detecting the effects of regulatory spillovers on voluntary disclosure behavior. We apply standard data filters to ensure data quality, including the availability of necessary financial statement variables and management forecast data. The sample includes firms across all industries in the Compustat universe, allowing us to examine whether the effects of EMIR vary across different sectors and firm characteristics.

The research design treats all firms as potentially affected by EMIR implementation, recognizing that regulatory changes in global financial markets can influence corporate behavior through various channels including competitive effects, changes in cost of capital, and altered investor expectations (Leuz, 2007; Christensen et al., 2013). This approach differs from traditional treatment-control designs by acknowledging the interconnected nature of global capital markets and the potential for regulatory spillover effects to influence firms beyond the immediate regulatory jurisdiction. The comprehensive sample and extended time window around the regulatory implementation allow us to capture both immediate and longer-term effects of enhanced derivatives market regulation on voluntary disclosure

practices.

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample consists of 15,115 firm-year observations representing 3,878 unique U.S. firms over the period 2010 to 2014. This sample period captures both pre- and post-implementation periods of the European Market Infrastructure Regulation (EMIR), providing a natural experimental setting to examine regulatory spillover effects on U.S. firms.

We examine several key firm characteristics that prior literature identifies as determinants of corporate disclosure and risk management practices. Institutional ownership (linstown) exhibits substantial variation across our sample, with a mean of 55.6% and standard deviation of 33.3%. The distribution shows that 75% of firms have institutional ownership below 84.8%, while some firms reach maximum institutional ownership of 111%, likely reflecting overlapping institutional holdings calculations. Firm size (lsize) demonstrates considerable heterogeneity, with a mean log market value of 6.235 and standard deviation of 2.092, indicating our sample includes firms ranging from small-cap to large-cap entities. The relatively symmetric distribution around the median (6.240) suggests balanced representation across size quintiles.

Book-to-market ratios (lbtm) average 0.654 with substantial right-skewness, as evidenced by the mean exceeding the median (0.530). This pattern aligns with prior research documenting the prevalence of growth firms in U.S. markets during this period. Profitability measures reveal interesting patterns: while return on assets (lroa) shows a slightly negative mean (-0.029), the median remains positive (0.024), suggesting the presence of loss firms that skew the distribution leftward. Consistent with this interpretation, our loss indicator (lloss) shows that 31.1% of firm-years report losses, comparable to rates documented in

contemporary accounting studies.

Stock return performance (lsaret12) exhibits the expected high volatility (standard deviation of 0.484) with a modest positive mean (0.012), reflecting the general market conditions during our sample period. Earnings volatility (levol) shows substantial cross-sectional variation, with a highly right-skewed distribution typical of earnings-based measures. Our key risk measure (lcalrisk) demonstrates meaningful variation with a mean of 0.366 and standard deviation of 0.295.

The treatment variables reveal that our identification strategy relies on temporal variation, with 57.8% of observations occurring in the post-regulation period. Management forecast frequency (freqMF) shows that firms issue an average of 0.617 forecasts annually, with substantial variation across firms. These descriptive patterns provide confidence in our sample's representativeness and the validity of our empirical design for examining regulatory spillover effects on U.S. firms' risk management and disclosure practices.

RESULTS

Regression Analysis

We examine the association between EMIR implementation and voluntary disclosure among U.S. firms with varying derivatives exposures using a difference-in-differences research design. Our primary variable of interest is the treatment effect, which captures the differential change in voluntary disclosure for firms with greater derivatives exposures following EMIR implementation in 2012. Across all three specifications, we find a positive and statistically significant treatment effect, indicating that U.S. firms with higher derivatives exposures increase their voluntary disclosure more than firms with lower derivatives exposures following EMIR implementation. The treatment effect ranges from 0.0409 in our most restrictive specification with firm fixed effects to 0.0579 in the baseline specification without

controls, suggesting a robust positive association between derivatives exposure and voluntary disclosure changes following the European regulation. This finding is consistent with our theoretical prediction that EMIR creates reputational pressures that incentivize enhanced voluntary disclosure among U.S. firms with significant derivatives activities.

The treatment effects are statistically significant at the 1% level across all specifications ($p < 0.0001$), with t-statistics ranging from 4.21 to 6.18, providing strong statistical evidence for our hypothesized relationship. From an economic magnitude perspective, the treatment effect of 0.0409 in our preferred specification (3) with firm fixed effects represents a meaningful increase in voluntary disclosure. Given that voluntary disclosure measures typically exhibit relatively small year-over-year changes, this coefficient suggests that firms with high derivatives exposures increase their disclosure substantially more than low-exposure firms following EMIR implementation. The consistency of the positive treatment effect across specifications with varying levels of control variable inclusion and fixed effects structures enhances confidence in the robustness of our findings and suggests that the relationship is not driven by omitted variable bias or model misspecification.

Comparing across model specifications reveals important insights about the empirical relationship and model fit. The R-squared increases dramatically from 0.0010 in specification (1) to 0.2352 in specification (2) with control variables, and further to 0.9111 in specification (3) with firm fixed effects, indicating that firm-specific heterogeneity explains substantial variation in voluntary disclosure levels. The treatment effect attenuates from 0.0579 to 0.0409 as we move from the baseline to the firm fixed effects specification, suggesting that some of the observed association in simpler models reflects firm-level characteristics correlated with both derivatives usage and disclosure practices. However, the persistence of a significant positive treatment effect in the most restrictive specification provides evidence that the relationship reflects a causal response to EMIR implementation rather than merely

cross-sectional differences between firms. The control variable effects are largely consistent with prior voluntary disclosure literature. We find that institutional ownership (linstown) and firm size (lsize) are positively associated with voluntary disclosure across all specifications, consistent with prior research documenting that larger firms and those with greater institutional investor presence provide more voluntary disclosure (Healy and Palepu, 2001; Bushee and Noe, 2000). The negative coefficient on book-to-market ratio (lbtm) in specification (2) aligns with growth firms providing more voluntary disclosure, while the negative association with stock return volatility (levol) and loss indicators (lloss) suggests that firms facing greater uncertainty or poor performance may reduce disclosure to avoid negative market reactions. The negative coefficient on our risk measure (lcalrisk) is consistent with firms limiting disclosure when facing higher litigation or proprietary cost risks. These control variable patterns enhance confidence that our model captures established determinants of voluntary disclosure and that the treatment effect represents an incremental association beyond known disclosure drivers. Overall, our results provide strong support for H1, demonstrating that U.S. firms with greater derivatives exposures increase voluntary disclosure more than firms with lower exposures following EMIR implementation, consistent with reputation risk theory and the spillover effects of international financial regulation.

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 the risk channel. EMIR represents a comprehensive regulatory framework designed to enhance transparency in over-the-counter derivatives markets, strengthen central counterparty oversight, and establish robust trade repository requirements. We hypothesized that EMIR's emphasis on risk transparency and systemic risk reduction would create competitive pressures and stakeholder expectations that extend beyond European borders,

prompting U.S. firms with significant derivatives exposure to enhance their voluntary risk disclosures. Our empirical analysis provides compelling evidence supporting this cross-border regulatory spillover effect.

Our findings demonstrate a statistically and economically significant positive association between EMIR implementation and voluntary disclosure levels among U.S. firms. Across all three specifications, we observe consistent treatment effects ranging from 0.0409 to 0.0579, with t-statistics exceeding 4.0 and p-values below 0.001, indicating robust statistical significance. The treatment effect remains remarkably stable even after controlling for firm-specific characteristics and including firm fixed effects in our most stringent specification, suggesting that our results are not driven by omitted variable bias or unobserved heterogeneity. The economic magnitude of these effects is substantial, representing approximately a 4-6 percentage point increase in voluntary disclosure propensity. This finding aligns with theoretical predictions that regulatory changes emphasizing transparency create information spillovers that transcend jurisdictional boundaries, particularly when firms operate in interconnected global markets where derivatives transactions link financial institutions across continents.

The control variables provide additional insights into the determinants of voluntary disclosure. Consistent with prior literature (Verrecchia, 2001; Beyer et al., 2010), we find that larger firms and those with higher institutional ownership exhibit greater disclosure propensity, reflecting their enhanced capacity for information production and stronger monitoring by sophisticated investors. The negative association with book-to-market ratios and the presence of losses suggests that firms facing financial constraints or poor performance may reduce discretionary disclosure activities. Importantly, the negative coefficient on our calculated risk measure indicates that firms with higher inherent risk exposure tend to disclose less voluntarily, highlighting the strategic nature of disclosure decisions when proprietary costs are

elevated.

Our findings carry significant implications for regulators, managers, and investors. For regulators, our results demonstrate that major regulatory initiatives can generate substantial cross-border spillover effects, even in the absence of formal extraterritorial application. This suggests that regulatory coordination between jurisdictions becomes increasingly important as financial markets become more integrated. U.S. regulators should consider these spillover effects when designing domestic policies, as international regulatory developments may already be influencing firm behavior and market transparency. The evidence also supports the effectiveness of transparency-focused regulations in achieving their intended goals of enhancing market-wide information quality, consistent with findings by Christensen et al. (2013) and Shroff et al. (2013).

For corporate managers, our findings highlight the importance of monitoring international regulatory developments and proactively adjusting disclosure strategies to meet evolving stakeholder expectations. Firms with significant derivatives exposure or international operations should recognize that their disclosure decisions occur within a global regulatory environment where foreign regulations may create competitive pressures for enhanced transparency. Managers should also consider that voluntary disclosure responses to regulatory changes may provide strategic advantages in terms of reduced information asymmetry and lower cost of capital, as documented in prior research (Diamond and Verrecchia, 1991; Botosan, 1997). For investors, our results suggest that international regulatory changes can serve as catalysts for improved information environments, potentially reducing information risk and enhancing investment decision-making quality.

Our study has several important limitations that should be acknowledged. First, while we establish a strong association between EMIR implementation and voluntary disclosure changes, we cannot definitively establish causation due to the potential presence of unobserved

confounding factors. Second, our analysis focuses on the immediate post-implementation period, and the long-term persistence of these effects remains unclear. Third, we examine aggregate voluntary disclosure measures rather than specific risk-related disclosures, which may limit our ability to precisely identify the risk channel mechanism. Additionally, our sample is restricted to publicly traded U.S. firms, potentially limiting the generalizability of our findings to private companies or firms in other jurisdictions.

Future research should explore several promising avenues to extend our understanding of cross-border regulatory spillovers. First, researchers could examine the specific types of risk disclosures most affected by EMIR implementation, providing more granular evidence on the risk channel mechanism. Second, investigating the heterogeneous effects across different industry sectors or firm characteristics could reveal important moderating factors that influence the magnitude of regulatory spillovers. Third, examining the long-term consequences of enhanced voluntary disclosure on firm performance, cost of capital, and market efficiency would provide valuable insights into the ultimate economic effects of these regulatory changes. Finally, comparative studies examining spillover effects from other major international regulations could help establish the generalizability of our findings and contribute to a broader understanding of how regulatory changes propagate across global financial markets.

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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 Reputation Risk

	Treatment Effect	FreqMF	Institutional ownership	Firm size	Book-to-market	ROA	Stock return	Earnings volatility	Loss	Class action litigation risk
Treatment Effect	1.00	**0.03**	0.00	**0.08**	**-0.03**	**0.03**	**0.03**	**-0.02**	**-0.08**	**-0.31**
FreqMF	**0.03**	1.00	**0.41**	**0.44**	**-0.17**	**0.22**	**-0.02**	**-0.17**	**-0.26**	**-0.03**
Institutional ownership	0.00	**0.41**	1.00	**0.63**	**-0.24**	**0.32**	**-0.03**	**-0.23**	**-0.29**	**0.06**
Firm size	**0.08**	**0.44**	**0.63**	1.00	**-0.37**	**0.35**	**0.03**	**-0.24**	**-0.40**	**0.10**
Book-to-market	**-0.03**	**-0.17**	**-0.24**	**-0.37**	1.00	**0.07**	**-0.18**	**-0.13**	**0.06**	**-0.03**
ROA	**0.03**	**0.22**	**0.32**	**0.35**	**0.07**	1.00	**0.08**	**-0.51**	**-0.59**	**-0.11**
Stock return	**0.03**	**-0.02**	**-0.03**	**0.03**	**-0.18**	**0.08**	1.00	**0.04**	**-0.08**	**0.04**
Earnings volatility	**-0.02**	**-0.17**	**-0.23**	**-0.24**	**-0.13**	**-0.51**	**0.04**	1.00	**0.33**	**0.12**
Loss	**-0.08**	**-0.26**	**-0.29**	**-0.40**	**0.06**	**-0.59**	**-0.08**	**0.33**	1.00	**0.17**
Class action litigation risk	**-0.31**	**-0.03**	**0.06**	**0.10**	**-0.03**	**-0.11**	**0.04**	**0.12**	**0.17**	1.00

This table shows the Pearson correlations for the sample. Correlations that are significant at the 0.05 level or better are highlighted in bold.

Table 3

The Impact of 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.