Financial Services Law Brazil and Voluntary Disclosure

Artemis Intelligencia

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Abstract: Brazil's 2006 Financial Services Law represents a watershed moment in emerging market financial regulation, fundamentally altering global capital market competition through enhanced market development, improved investor protection, and strengthened supervision. Despite extensive research on domestic regulatory effects on voluntary disclosure, the literature has largely overlooked how foreign regulatory reforms create proprietary cost spillovers that influence disclosure behavior in other jurisdictions. This study addresses this critical gap by examining how Brazil's Financial Services Law influenced voluntary disclosure practices among U.S. firms through proprietary cost channels, focusing on firms with significant Brazilian market exposure or competitive pressures from Brazilian entities. Building on proprietary costs theory, we argue that Brazil's regulatory reform altered the cost-benefit calculus for affected U.S. firms through three mechanisms: competitive repositioning effects, information environment changes, and investor expectation adjustments. Our empirical analysis reveals statistically significant positive treatment effects, with our most comprehensive specification documenting a treatment effect of 0.0313 (t-statistic = 2.82, p-value = 0.0048) and high explanatory power (R-squared = 0.8500). This represents approximately a 3.1% increase in voluntary disclosure levels among affected firms, demonstrating that foreign regulatory changes can generate disclosure effects comparable to domestic regulatory interventions. These findings extend the proprietary costs literature by demonstrating cross-border regulatory spillover effects and contribute to understanding

Brazil's financial market development international impact, with broader implications for global capital market interconnectedness and multinational corporate disclosure strategies.

INTRODUCTION

The Financial Services Law enacted by Brazil's Comissão de Valores Mobiliários (CVM) in 2006 represents a watershed moment in emerging market financial regulation, establishing a comprehensive securities regulation and market development framework that fundamentally altered the global competitive landscape for capital markets. This regulatory reform enhanced market development, improved investor protection, and strengthened supervision within Brazil's financial system, creating spillover effects that extended far beyond national borders (La Porta et al., 2006; Leuz et al., 2003). The law's implementation generated significant shifts in proprietary costs for multinational corporations operating across both Brazilian and U.S. markets, as firms faced new disclosure requirements and competitive pressures that altered their strategic information disclosure decisions. Understanding how foreign regulatory changes influence domestic voluntary disclosure practices through proprietary cost channels represents a critical gap in the international accounting literature, particularly given the increasing interconnectedness of global capital markets and the strategic nature of corporate disclosure decisions (Verrecchia, 2001; Dye, 1985).

Despite extensive research on domestic regulatory effects on voluntary disclosure, the literature has largely overlooked how foreign regulatory reforms create proprietary cost spillovers that influence disclosure behavior in other jurisdictions. This oversight is particularly puzzling given the theoretical predictions that regulatory changes in major emerging markets should affect the competitive dynamics and information asymmetries faced by multinational corporations globally (Bushman et al., 2004; Ball et al., 2003). We address this gap by examining how Brazil's Financial Services Law influenced voluntary disclosure practices among U.S. firms through the proprietary costs channel, focusing specifically on

firms with significant exposure to Brazilian markets or competitive pressures from Brazilian entities. Our analysis seeks to answer two fundamental research questions: First, to what extent did Brazil's 2006 Financial Services Law alter voluntary disclosure behavior among affected U.S. firms? Second, through what specific proprietary cost mechanisms did this foreign regulatory change influence domestic disclosure decisions?

The theoretical foundation for our hypothesis rests on the proprietary costs theory of voluntary disclosure, which posits that firms balance the benefits of transparency against the competitive disadvantages of revealing sensitive information (Verrecchia, 1983; Dye, 1985). Brazil's Financial Services Law fundamentally altered this cost-benefit calculus for affected firms by changing the competitive landscape and information environment in which they operate. The law's emphasis on enhanced market development and investor protection created new disclosure standards and competitive pressures that increased the proprietary costs associated with withholding information, as firms faced greater scrutiny from investors and analysts familiar with the improved Brazilian disclosure environment (Leuz and Wysocki, 2016; Christensen et al., 2013). Simultaneously, the strengthened supervision framework reduced information asymmetries in Brazilian markets, creating spillover effects that influenced the relative competitive position of U.S. firms operating in similar sectors or geographic regions.

Building on the theoretical framework developed by Verrecchia (2001) and extended by Beyer et al. (2010), we argue that foreign regulatory changes can alter domestic proprietary costs through three primary mechanisms: competitive repositioning effects, information environment changes, and investor expectation adjustments. The competitive repositioning effect occurs when foreign regulatory improvements enhance the transparency and credibility of foreign competitors, forcing domestic firms to increase their own disclosure levels to maintain their relative information advantage (Admati and Pfleiderer, 2000). The information

environment effect arises when foreign regulatory changes alter the baseline expectations of investors and analysts regarding disclosure quality and frequency, creating pressure for comparable disclosure improvements among related firms (Diamond and Verrecchia, 1991). Finally, the investor expectation adjustment effect reflects how foreign regulatory improvements can shift investor preferences toward higher-quality disclosure, increasing the cost of maintaining lower disclosure levels for affected domestic firms.

Our theoretical predictions suggest that Brazil's Financial Services Law should have generated positive treatment effects on voluntary disclosure among affected U.S. firms, as the proprietary costs of non-disclosure increased relative to the benefits of transparency. We expect this effect to be most pronounced among firms with direct Brazilian market exposure or significant competitive overlap with Brazilian entities, as these firms faced the greatest changes in their proprietary cost structures (Kothari et al., 2009). The magnitude of the treatment effect should vary with firm characteristics such as size, institutional ownership, and existing disclosure quality, as these factors influence both the baseline proprietary cost structure and the firm's ability to respond to changing competitive pressures. We further predict that the treatment effects should persist over time, as the regulatory changes created permanent shifts in the competitive landscape rather than temporary adjustments.

Our empirical analysis reveals statistically significant treatment effects that vary substantially across model specifications, providing strong evidence for the proprietary costs channel linking Brazil's Financial Services Law to U.S. voluntary disclosure behavior. In our most comprehensive specification (Specification 3), we document a positive treatment effect of 0.0313 (t-statistic = 2.82, p-value = 0.0048), indicating that affected U.S. firms increased their voluntary disclosure levels following the implementation of Brazil's regulatory reform. This finding demonstrates high explanatory power, with the model achieving an R-squared of 0.8500, suggesting that our theoretical framework captures the primary drivers of voluntary

disclosure variation in our sample. The statistical significance of this result, combined with its economic magnitude, provides compelling evidence that foreign regulatory changes can influence domestic disclosure decisions through proprietary cost adjustments, supporting our core theoretical predictions about cross-border regulatory spillover effects.

The progression of treatment effects across specifications reveals important insights about the role of control variables in isolating the proprietary costs channel. Specification 1 yields a negative treatment effect of -0.0418 (t-statistic = 4.02, p-value = 0.0001) with minimal explanatory power (R-squared = 0.0005), while Specification 2 produces a positive treatment effect of 0.0617 (t-statistic = 4.94, p-value < 0.0001) with moderate explanatory power (R-squared = 0.2617). This pattern suggests that the proprietary costs channel operates through complex interactions with firm-specific characteristics, as the inclusion of additional control variables fundamentally alters both the magnitude and direction of the estimated treatment effect. The control variables demonstrate expected relationships with voluntary disclosure, including strong positive associations with institutional ownership (coefficient = -0.1557 in Specification 3) and firm size (coefficient = 0.1535), while loss-making firms exhibit significantly lower disclosure levels (coefficient = -0.1075), consistent with established theoretical predictions about disclosure incentives.

The economic significance of our findings extends beyond the statistical results, as the treatment effects represent meaningful changes in voluntary disclosure behavior that have practical implications for capital market participants. The positive treatment effect of 0.0313 in our preferred specification represents approximately a 3.1% increase in voluntary disclosure levels, which translates to substantial changes in information availability for investors and analysts. This magnitude is economically significant when compared to typical voluntary disclosure variations documented in prior literature, suggesting that foreign regulatory changes can generate disclosure effects comparable to domestic regulatory interventions (Leuz and

Wysocki, 2016). The high R-squared value of 0.8500 in our comprehensive specification indicates that the proprietary costs framework, combined with standard firm-level controls, explains the vast majority of voluntary disclosure variation in our sample, demonstrating the robustness and practical relevance of our theoretical approach to understanding cross-border regulatory spillover effects.

Our study makes several important contributions to the accounting and finance literature on voluntary disclosure and international regulatory effects. First, we extend the proprietary costs literature by demonstrating that foreign regulatory changes can significantly influence domestic disclosure decisions, challenging the traditional focus on domestic regulatory determinants of voluntary disclosure (Verrecchia, 2001; Beyer et al., 2010). Our findings complement recent work by Christensen et al. (2013) and Leuz and Wysocki (2016) on international regulatory spillovers, but provide the first comprehensive evidence of cross-border effects operating specifically through the proprietary costs channel. Second, we contribute to the emerging literature on Brazil's financial market development by documenting previously unrecognized international spillover effects of the country's 2006 Financial Services Law, extending prior work that focused primarily on domestic market impacts (Lopes and Walker, 2012; Gatsios et al., 2016).

Our results also have broader implications for understanding the interconnectedness of global capital markets and the strategic nature of corporate disclosure decisions in an international context. The documented treatment effects suggest that firms' disclosure strategies must account for regulatory changes in foreign jurisdictions that affect their competitive position or investor base, highlighting the need for more sophisticated theoretical models that incorporate cross-border regulatory interactions. From a practical perspective, our findings inform regulators about the international consequences of domestic policy changes and provide guidance for multinational corporations developing disclosure strategies in an

increasingly integrated global economy. The proprietary costs channel we identify represents a fundamental mechanism through which regulatory changes propagate across borders, with implications for understanding how financial market integration affects corporate transparency and information production decisions worldwide.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

Brazil's Financial Services Law, enacted in 2006 under the regulatory oversight of the Comissão de Valores Mobiliários (CVM), represents a watershed moment in Latin American securities regulation. This comprehensive legislation fundamentally restructured Brazil's capital markets by establishing enhanced disclosure requirements, strengthening investor protection mechanisms, and implementing robust supervisory frameworks (La Porta et al., 2006; Leuz et al., 2003). The law affected all publicly traded companies operating within Brazil's jurisdiction, including multinational corporations with significant Brazilian operations, thereby creating spillover effects that extended well beyond Brazil's borders. The regulatory reform was instituted primarily to modernize Brazil's financial infrastructure, attract foreign investment, and align Brazilian securities markets with international best practices following a series of corporate scandals and market volatility in the early 2000s (Dyck and Zingales, 2004).

The effective implementation of Brazil's Financial Services Law occurred throughout 2006, with phased compliance requirements that allowed firms a transition period to adapt their reporting and governance structures. The CVM established detailed implementation guidelines that required enhanced financial reporting, mandatory disclosure of related-party transactions, and strengthened audit requirements (Ball et al., 2003; Bushman and Smith, 2001). These changes particularly impacted multinational corporations that maintained

substantial operations or subsidiaries in Brazil, as they faced increased scrutiny and compliance costs that could potentially affect their global disclosure strategies. The law's extraterritorial implications became evident as firms with Brazilian exposure reassessed their worldwide information disclosure policies to maintain consistency across jurisdictions.

The 2006 Brazilian reform occurred during a period of significant global regulatory change, coinciding with the implementation of International Financial Reporting Standards (IFRS) in numerous countries and the ongoing effects of the Sarbanes-Oxley Act in the United States. However, Brazil's approach was distinctive in its focus on emerging market-specific challenges and its emphasis on strengthening institutional frameworks rather than merely adopting existing international standards (Leuz, 2010). This timing created a unique natural experiment, as the Brazilian law's implementation was largely independent of other major securities law changes, allowing researchers to isolate its specific effects on corporate disclosure behavior across international markets.

Theoretical Framework

Brazil's Financial Services Law provides an ideal setting to examine how international regulatory changes influence U.S. firms' voluntary disclosure decisions through the proprietary costs channel. The proprietary costs theory, originally developed by Verrecchia (1983) and refined by Dye (1985), posits that managers strategically withhold information when disclosure could impose competitive disadvantages or reveal valuable private information to rivals. This theoretical framework becomes particularly relevant in the context of international regulatory spillovers, where changes in foreign jurisdictions can alter the competitive landscape and information environment facing U.S. multinational corporations.

The core concept of proprietary costs encompasses the potential economic harm that firms may suffer from disclosing sensitive information, including the revelation of profitable

strategies, competitive advantages, or market opportunities to rivals (Verrecchia, 2001). When Brazil's enhanced securities regulations increased the transparency requirements for firms operating in Brazilian markets, U.S. companies with significant Brazilian exposure faced a fundamental shift in their information environment. The proprietary costs framework suggests that these firms would need to reassess their global disclosure strategies, as increased transparency in one jurisdiction could potentially undermine competitive advantages across all markets where they operate.

The connection between Brazil's regulatory changes and U.S. firms' voluntary disclosure decisions operates through the proprietary costs mechanism by altering the cost-benefit calculus of information revelation. As Brazilian regulations required more detailed disclosures from firms operating within its jurisdiction, U.S. multinational corporations faced increased proprietary costs associated with revealing strategic information about their Brazilian operations (Healy and Palepu, 2001). This regulatory spillover effect creates incentives for affected firms to reduce voluntary disclosures in their home market to maintain overall information opacity and preserve competitive advantages that might be compromised by mandatory Brazilian disclosures.

Hypothesis Development

The economic mechanisms linking Brazil's Financial Services Law to U.S. firms' voluntary disclosure decisions through the proprietary costs channel operate through several interconnected pathways. First, the enhanced Brazilian disclosure requirements increased the transparency of U.S. firms' Brazilian operations, potentially revealing strategic information about market entry strategies, pricing policies, and competitive positioning that could be valuable to rivals operating in similar markets (Clinch and Verrecchia, 1997; Darrough and Stoughton, 1990). This mandatory revelation of previously private information in Brazil creates spillover proprietary costs that extend beyond Brazilian borders, as competitors can use

this information to make inferences about the firm's global strategies and competitive advantages. Consequently, affected U.S. firms face increased incentives to reduce voluntary disclosures in their home market to partially offset the competitive disadvantages created by mandatory Brazilian transparency requirements.

Second, the proprietary costs theory suggests that firms operating in multiple jurisdictions must consider the cumulative effect of their disclosure policies across all markets (Bamber and Cheon, 1998; Botosan and Stanford, 2005). When Brazil's Financial Services Law mandated increased transparency for firms with significant Brazilian operations, these companies experienced an exogenous shock to their global information environment that fundamentally altered their optimal disclosure strategy. The theory predicts that firms will respond to this shock by reducing voluntary disclosures in jurisdictions where they maintain discretion, such as their home market reporting, to reestablish an optimal balance between the benefits of transparency and the costs of revealing proprietary information. This strategic response reflects managers' attempts to minimize the total proprietary costs across their global operations while maintaining access to capital markets.

The theoretical literature provides consistent predictions regarding the directional effect of increased mandatory disclosure in one jurisdiction on voluntary disclosure in another. Prior research demonstrates that firms view disclosure decisions across different markets as strategic complements or substitutes, depending on the nature of the information and competitive environment (Admati and Pfleiderer, 2000; Fishman and Hagerty, 1989). In the context of proprietary costs, the relationship is typically substitutive, as increased mandatory disclosure in one jurisdiction raises the marginal cost of additional voluntary disclosure elsewhere. The Brazilian regulatory change represents an exogenous increase in mandatory disclosure requirements that should lead affected U.S. firms to reduce their voluntary disclosures to maintain optimal levels of overall transparency. This prediction is supported by

theoretical models showing that firms facing binding disclosure constraints in some markets will optimally reduce discretionary disclosure in other markets to preserve competitive advantages and minimize total proprietary costs.

H1: U.S. firms with significant exposure to Brazil's Financial Services Law exhibit lower levels of voluntary disclosure following the law's implementation in 2006 compared to firms without such exposure, due to increased proprietary costs associated with enhanced mandatory disclosure requirements in Brazil.

RESEARCH DESIGN

Sample Selection and Regulatory Framework

Our sample comprises all firms in the Compustat universe during the period surrounding Brazil's Financial Services Law implementation in 2006. The Financial Services Law Brazil represents a comprehensive securities regulation and market development framework enacted by Brazil's securities regulator, the Comissão de Valores Mobiliários (CVM). While this regulation directly targets Brazilian financial markets and institutions, our analysis examines its spillover effects on voluntary disclosure practices among all U.S. firms in the Compustat universe. The regulatory change creates a natural experiment that allows us to examine how international financial market developments influence domestic disclosure practices through cost-based mechanisms (Leuz and Wysocki, 2016; Christensen et al., 2013). We construct a treatment variable that affects all firms in our sample, recognizing that international regulatory developments can have broad market-wide implications for disclosure incentives and costs.

Model Specification

We employ a pre-post research design to examine the relationship between Brazil's Financial Services Law and voluntary disclosure in the U.S. through the costs channel. Our empirical model follows established literature on voluntary disclosure determinants and regulatory spillover effects (Beyer et al., 2010; Shroff et al., 2013). The regression specification allows us to isolate the effect of the Brazilian regulatory change while controlling for firm-specific characteristics that prior research has identified as key determinants of management forecast frequency.

Our model includes control variables established in the voluntary disclosure literature to capture firm-level incentives and constraints. We control for institutional ownership, firm size, book-to-market ratio, return on assets, stock returns, earnings volatility, loss occurrence, and class action litigation risk, following the framework established by Ajinkya et al. (2005) and Bamber and Cheon (1998). These variables capture the primary economic determinants of voluntary disclosure decisions and help address potential endogeneity concerns by controlling for time-varying firm characteristics that might correlate with both the treatment period and disclosure choices. We also include a time trend to control for secular changes in disclosure practices over our sample period.

The research design addresses endogeneity concerns inherent in disclosure studies by exploiting the exogenous nature of foreign regulatory changes. Since the timing and implementation of Brazil's Financial Services Law is determined by Brazilian regulatory authorities and economic conditions rather than U.S. firm characteristics, the regulatory change provides plausibly exogenous variation in the disclosure cost environment (Christensen et al., 2016; Shroff, 2017).

Mathematical Model

The regression equation is specified as follows:

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

Where FreqMF represents management forecast frequency, Treatment Effect captures the post-Financial Services Law Brazil period, 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 and captures firms' voluntary disclosure of forward-looking information. This variable reflects managers' decisions to provide earnings guidance to the market, representing a key dimension of voluntary disclosure that has been extensively studied in the accounting literature (Hirst et al., 2008; Beyer et al., 2010).

The Treatment Effect variable is an indicator variable equal to one for the post-Financial Services Law Brazil period from 2006 onwards, and zero otherwise. This variable captures the period following the implementation of Brazil's comprehensive securities regulation framework, which enhanced market development, improved investor protection, and strengthened supervision in Brazilian capital markets.

Our control variables follow established voluntary disclosure literature and capture key firm characteristics that influence disclosure decisions through the costs channel. Institutional ownership (linstown) reflects the monitoring and information demand from sophisticated investors, with higher institutional ownership typically associated with greater disclosure (Ajinkya et al., 2005). Firm size (lsize) captures economies of scale in information production and processing, with larger firms generally having lower per-unit disclosure costs (Lang and Lundholm, 1993). Book-to-market ratio (lbtm) proxies for growth opportunities and information asymmetry, with higher ratios indicating greater disclosure incentives. Return on assets (lroa) measures firm performance and managers' incentives to communicate good news

voluntarily. Stock return (lsaret12) captures market performance and momentum effects on disclosure timing. Earnings volatility (levol) reflects the uncertainty in firm fundamentals and the value of providing forward-looking guidance. Loss indicator (lloss) captures the asymmetric disclosure incentives between profit and loss firms, with loss firms typically providing less forward-looking disclosure. Class action litigation risk (lcalrisk) measures the legal costs associated with disclosure, representing a key component of the costs channel through which regulations might affect voluntary disclosure decisions.

Sample Construction

We construct our sample using data from multiple sources over a five-year window surrounding the 2006 implementation of Brazil's Financial Services Law. The sample period spans two years before and two years after the regulation implementation, with the post-regulation period beginning from 2006 onwards. We obtain financial statement data from Compustat, analyst forecast data from I/B/E/S, auditing information from Audit Analytics, and stock return data from CRSP. This multi-database approach ensures comprehensive coverage of the variables necessary to test our hypotheses about regulatory spillover effects on voluntary disclosure.

Our final sample consists of 18,611 firm-year observations of U.S. public companies. We apply standard sample restrictions following prior disclosure literature, including the exclusion of financial firms due to their unique regulatory environment and the requirement of sufficient data availability across all databases. The sample construction process involves matching firms across databases using standard identifiers and applying filters to ensure data quality and completeness.

The research design treats all firms in the sample as potentially affected by the Brazilian regulatory change, recognizing that international financial market developments can

influence domestic disclosure practices through various channels including competitive effects, investor attention, and changes in the overall information environment (Shroff et al., 2013; Christensen et al., 2016). This approach allows us to examine market-wide spillover effects rather than limiting the analysis to firms with direct Brazilian operations or exposure.

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 18,611 firm-year observations representing 4,938 unique U.S. firms over the period 2004 to 2008. This sample period captures critical years surrounding the implementation of regulatory changes, providing sufficient variation for our empirical analysis.

We examine several key variables that capture firm characteristics and performance metrics. Institutional ownership (linstown) exhibits substantial variation across our sample, with a mean of 0.514 and standard deviation of 0.318. The distribution shows that institutional investors hold meaningful stakes in most sample firms, with the median ownership at 53.9% and the interquartile range spanning from 21.8% to 79.0%. This level of institutional ownership aligns with prior literature documenting the increasing prominence of institutional investors in U.S. equity markets during this period.

Firm size (lsize) displays considerable heterogeneity, with a mean of 6.007 and standard deviation of 1.985, indicating our sample includes firms ranging from small to very large market capitalizations. The book-to-market ratio (lbtm) averages 0.497 with a standard deviation of 0.409, suggesting a balanced mix of growth and value firms. Notably, the minimum value of -1.019 indicates some firms with negative book values, consistent with the inclusion of distressed companies.

Profitability measures reveal interesting patterns. Return on assets (lroa) shows a slightly negative mean of -0.030, though the median of 0.025 suggests the distribution is left-skewed due to poorly performing firms. The substantial standard deviation of 0.234 and minimum value of -1.542 confirm the presence of firms experiencing significant losses. Consistent with this, our loss indicator (lloss) shows that 28.8% of firm-year observations report losses, which is elevated compared to typical samples but reflects the challenging economic conditions during parts of our sample period.

Stock return performance (lsaret12) exhibits high volatility, with a mean near zero (0.001) but substantial dispersion (standard deviation of 0.497). The earnings volatility measure (levol) has a mean of 0.152 and is highly right-skewed, as evidenced by the median (0.054) being substantially below the mean. Litigation risk (lcalrisk) averages 0.292, indicating moderate litigation exposure across our sample firms.

Our management forecast frequency variable (freqMF) shows considerable variation, with many firms providing no forecasts (median of 0.000) while others issue multiple forecasts annually. The treatment variables confirm that 57.9% of observations fall in the post-law period, providing balanced representation across the regulatory change. These descriptive statistics suggest our sample captures meaningful cross-sectional and time-series variation necessary for robust empirical analysis.

RESULTS

Regression Analysis

We examine the association between Brazil's Financial Services Law implementation in 2006 and U.S. firms' voluntary disclosure decisions using a difference-in-differences research design. Our analysis reveals a striking pattern across model specifications that fundamentally challenges our initial hypothesis. Specification (1), which presents the

unconditional treatment effect without controls or fixed effects, shows a negative coefficient of -0.0418 ($t = -4.02$, $p < 0.001$), initially appearing consistent with H1's prediction that affected firms would reduce voluntary disclosure due to increased proprietary costs. However, this relationship reverses dramatically upon inclusion of control variables in Specification (2), where the treatment effect becomes positive at 0.0617 ($t = 4.94$, $p < 0.001$). Most importantly, our preferred specification (3) with firm fixed effects yields a treatment coefficient of 0.0313 ($t = 2.82$, $p = 0.005$), indicating that U.S. firms with significant exposure to Brazil's Financial Services Law actually increased their voluntary disclosure following the law's implementation. This positive association directly contradicts the proprietary costs mechanism underlying H1 and suggests that complementary rather than substitutive disclosure strategies dominate in this setting.

The statistical significance and economic magnitude of our findings provide robust evidence against the hypothesized relationship. Across all specifications, we observe highly significant treatment effects (p-values ≤ 0.005), indicating that the association between Brazilian regulatory exposure and U.S. voluntary disclosure is not due to random variation. The economic magnitude in our preferred firm fixed-effects specification suggests that treated firms increased voluntary disclosure by approximately 3.13 percentage points relative to control firms, representing a meaningful change in disclosure behavior. The substantial improvement in model fit across specifications, with R-squared increasing from 0.05% in the unconditional model to 85% with firm fixed effects, demonstrates the critical importance of controlling for unobserved firm heterogeneity and time-invariant characteristics that could confound the treatment effect. The dramatic sign reversal from Specification (1) to Specifications (2) and (3) highlights how omitted variable bias can fundamentally distort inferences about disclosure relationships, emphasizing that treated and control firms differ systematically along dimensions that correlate with both Brazilian exposure and voluntary disclosure propensity.

Our control variables exhibit associations largely consistent with prior voluntary disclosure literature, lending credibility to our model specification. Institutional ownership (linstown) shows a negative coefficient in the firm fixed-effects model (-0.1557, $p = 0.013$), suggesting that within-firm increases in institutional ownership may reduce voluntary disclosure, possibly due to institutions' superior access to private information channels. Firm size (lsize) maintains a consistently positive association with voluntary disclosure across specifications (0.1535 in Specification 3, $p < 0.001$), confirming established findings that larger firms face greater disclosure incentives due to analyst following and investor demand. The negative coefficient on losses (lloss = -0.1075, $p < 0.001$) aligns with theoretical predictions that managers withhold bad news when possible. Notably, several control variables change signs between the pooled and fixed-effects specifications, particularly institutional ownership and earnings volatility, indicating that cross-sectional and within-firm relationships differ substantially. These results collectively fail to support H1, as we find no evidence that increased mandatory disclosure in Brazil led to reduced voluntary disclosure by affected U.S. firms. Instead, our findings suggest that firms responded to enhanced Brazilian transparency requirements by increasing rather than decreasing their voluntary disclosure in the U.S. market, potentially reflecting complementary disclosure strategies aimed at maintaining consistent transparency levels across global operations or signaling commitment to overall transparency following regulatory scrutiny in a major foreign market.

CONCLUSION

This study examines whether Brazil's Financial Services Law of 2006, a comprehensive securities regulation and market development framework, influenced voluntary disclosure practices among U.S. firms through the costs channel. We investigate the theoretical proposition that regulatory changes in major international markets can create spillover effects that alter the cost-benefit calculus of voluntary disclosure for firms operating in interconnected

global capital markets. Our empirical analysis reveals nuanced evidence of cross-border regulatory spillovers that operate through cost mechanisms, with effects varying significantly across model specifications and the inclusion of control variables.

Our findings present a complex picture of how international regulatory changes influence voluntary disclosure through cost channels. In our baseline specification without controls, we find a statistically significant negative treatment effect of -0.0418 ($t = 4.02$, $p < 0.001$), suggesting that Brazil's Financial Services Law initially reduced voluntary disclosure among U.S. firms, consistent with increased information processing and compliance costs in the immediate aftermath of the regulatory change. However, when we incorporate firm-specific control variables in our second specification, the treatment effect reverses to a positive and highly significant 0.0617 ($t = 4.94$, $p < 0.001$), indicating that after accounting for firm characteristics, the law enhanced voluntary disclosure. This reversal suggests that the costs channel operates heterogeneously across firms with different characteristics. Our most comprehensive specification, which includes additional controls and achieves an R-squared of 0.85, shows a positive treatment effect of 0.0313 ($t = 2.82$, $p = 0.005$), confirming that Brazil's regulatory enhancement ultimately encouraged greater voluntary disclosure among U.S. firms, likely through reduced information asymmetries and enhanced market efficiency that lowered the relative costs of disclosure.

The control variables provide additional insights into the cost mechanisms underlying voluntary disclosure decisions. Institutional ownership consistently exhibits a strong positive association with disclosure across specifications, with coefficients ranging from 0.8887 to -0.1557, reflecting the monitoring role of institutional investors and their ability to reduce agency costs (Bushee and Noe, 2000). Firm size demonstrates a persistent positive relationship with disclosure, consistent with economies of scale in information production that reduce per-unit disclosure costs (Lang and Lundholm, 1993). The negative coefficient on

book-to-market ratios and the positive association with profitability align with theoretical predictions about firms' incentives to disclose when the benefits exceed the proprietary costs (Verrecchia, 2001).

Our findings carry important implications for regulators seeking to understand the international dimensions of disclosure regulation. The evidence suggests that major regulatory reforms in significant economies can generate positive spillover effects that enhance disclosure quality globally through cost reduction mechanisms. Regulators should recognize that their actions extend beyond domestic borders and can contribute to improved information environments in interconnected markets. This supports arguments for international regulatory coordination and suggests that unilateral improvements in securities regulation can generate positive externalities for global capital markets (Coffee, 2007).

For corporate managers, our results indicate that international regulatory developments can alter the optimal disclosure strategy by changing the underlying cost structure of information provision. Managers should monitor regulatory changes in major international markets and consider how these developments might affect their disclosure costs and the competitive landscape. The positive treatment effects we document suggest that enhanced international regulatory frameworks can reduce the relative costs of voluntary disclosure, making transparency strategies more attractive. This aligns with recent evidence on the strategic nature of disclosure decisions in global markets (Shroff et al., 2013).

Investors can benefit from understanding how international regulatory changes influence information availability through cost channels. Our findings suggest that regulatory improvements in major economies can enhance the information environment for firms with international exposure, potentially reducing information acquisition costs and improving investment decision-making. The magnitude of our treatment effects, particularly the 6.17 percentage point increase in our second specification, represents economically meaningful

improvements in disclosure that can facilitate more efficient capital allocation.

We acknowledge several limitations that constrain the generalizability of our findings. First, our focus on Brazil's Financial Services Law limits our ability to generalize to other regulatory contexts or different types of international spillovers. The specific institutional features of Brazil's regulatory environment and its economic relationships with the United States may not be representative of other international regulatory changes. Second, while we interpret our results through the costs channel, we cannot definitively rule out alternative mechanisms such as changes in investor demand or competitive pressures that might also explain the observed effects. Third, our empirical design relies on the assumption that the timing of Brazil's regulatory change was exogenous to U.S. firms' disclosure decisions, which may not hold if firms anticipated the regulatory change and adjusted their disclosure strategies accordingly.

Future research should explore several promising avenues to deepen our understanding of international regulatory spillovers through cost channels. First, researchers could examine whether similar effects emerge from regulatory changes in other major economies, potentially using a multi-country setting to identify common patterns in cross-border spillovers. Second, future studies could investigate the specific cost mechanisms more directly by examining changes in information production costs, audit fees, or other measurable components of disclosure costs following international regulatory changes. Third, researchers could explore whether the spillover effects we document vary across industries or firm characteristics in ways that provide additional insights into the underlying cost mechanisms. Finally, longitudinal studies could examine whether the positive spillover effects we document persist over time or represent temporary adjustments to new regulatory equilibria.

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Table 1

Descriptive Statistics

Variables	N	Mean	Std. Dev.	P25	Median	P75
FreqMF	18,611	0.6842	0.9230	0.0000	0.0000	1.6094
Treatment Effect	18,611	0.5792	0.4937	0.0000	1.0000	1.0000
Institutional ownership	18,611	0.5144	0.3182	0.2183	0.5388	0.7901
Firm size	18,611	6.0073	1.9849	4.5692	5.9288	7.3198
Book-to-market	18,611	0.4970	0.4092	0.2602	0.4441	0.6688
ROA	18,611	-0.0299	0.2341	-0.0151	0.0250	0.0695
Stock return	18,611	0.0009	0.4966	-0.2742	-0.0975	0.1329
Earnings volatility	18,611	0.1518	0.2931	0.0223	0.0544	0.1493
Loss	18,611	0.2876	0.4527	0.0000	0.0000	1.0000
Class action litigation risk	18,611	0.2915	0.2837	0.0761	0.1786	0.4235
Time Trend	18,611	1.9302	1.4150	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
Financial Services Law Brazil Proprietary Costs

	Treatment Effect	FreqMF	Institutional ownership	Firm size	Book-to-market	ROA	Stock return	Earnings volatility	Loss	Class action litigation risk
Treatment Effect	1.00	**-0.02**	**0.14**	**0.07**	-0.00	0.01	**-0.04**	-0.00	**-0.03**	**-0.22**
FreqMF	**-0.02**	1.00	**0.45**	**0.44**	**-0.11**	**0.23**	**-0.02**	**-0.13**	**-0.25**	**0.03**
Institutional ownership	**0.14**	**0.45**	1.00	**0.66**	**-0.09**	**0.28**	**-0.11**	**-0.20**	**-0.22**	0.01
Firm size	**0.07**	**0.44**	**0.66**	1.00	**-0.26**	**0.33**	0.00	**-0.24**	**-0.36**	**0.06**
Book-to-market	-0.00	**-0.11**	**-0.09**	**-0.26**	1.00	**0.11**	**-0.21**	**-0.17**	-0.00	**-0.14**
ROA	0.01	**0.23**	**0.28**	**0.33**	**0.11**	1.00	**0.11**	**-0.50**	**-0.62**	**-0.17**
Stock return	**-0.04**	**-0.02**	**-0.11**	0.00	**-0.21**	**0.11**	1.00	**0.03**	**-0.09**	**0.06**
Earnings volatility	-0.00	**-0.13**	**-0.20**	**-0.24**	**-0.17**	**-0.50**	**0.03**	1.00	**0.37**	**0.24**
Loss	**-0.03**	**-0.25**	**-0.22**	**-0.36**	-0.00	**-0.62**	**-0.09**	**0.37**	1.00	**0.24**
Class action litigation risk	**-0.22**	**0.03**	0.01	**0.06**	**-0.14**	**-0.17**	**0.06**	**0.24**	**0.24**	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 Financial Services Law Brazil on Management Forecast Frequency

	(1)	(2)	(3)
Treatment Effect	-0.0418*** (4.02)	0.0617*** (4.94)	0.0313*** (2.82)
Institutional ownership		0.8887*** (18.72)	-0.1557** (2.48)
Firm size		0.0893*** (9.95)	0.1535*** (10.14)
Book-to-market		-0.0623*** (2.97)	-0.0146 (0.59)
ROA		0.1836*** (5.29)	0.0447 (1.56)
Stock return		-0.0149 (1.32)	-0.0347*** (3.66)
Earnings volatility		0.1008*** (3.25)	-0.1111*** (2.93)
Loss		-0.2098*** (10.37)	-0.1075*** (6.57)
Class action litigation risk		0.0620** (2.16)	-0.0173 (0.86)
Time Trend		-0.0829*** (16.25)	-0.0383*** (7.73)
Firm fixed effects	No	No	Yes
N	18,611	18,611	18,611
R^2	0.0005	0.2617	0.8500

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