

Crowdfunding Rules and Voluntary Disclosure

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Abstract: This study examines how the implementation of Crowdfunding Rules under the JOBS Act of 2013 affects firms' voluntary disclosure decisions through changes in proprietary costs. While the rules expand capital raising opportunities for small businesses via online platforms, they also create tension between attracting investors and protecting competitive information. Using a differences-in-differences design, we investigate how increased visibility from crowdfunding campaigns influences firms' disclosure behavior, particularly regarding competitively sensitive information. Our analysis reveals that while firms initially increase disclosure following the rules' implementation (treatment effect = 0.0313), they ultimately reduce voluntary disclosure when facing higher proprietary costs (treatment effect = -0.0573). This relationship is stronger for firms in competitive industries and those with high R&D; intensity. Institutional ownership and firm size emerge as significant determinants of disclosure behavior, while business risk measures are negatively associated with disclosure levels. The findings demonstrate how new financing channels affect firms' information environment through the proprietary costs channel, contributing to our understanding of disclosure regulation's real effects. This research has important implications for regulators and practitioners by highlighting the unintended consequences of disclosure requirements on competitive behavior in crowdfunding markets.

INTRODUCTION

The implementation of Crowdfunding Rules under the JOBS Act of 2013 represents a significant shift in how small businesses can raise capital through online platforms. This regulatory change, which enables firms to solicit investments from a broader pool of retail investors, has fundamentally altered the information environment and disclosure incentives for participating firms (Dambra et al., 2015; Lowry et al., 2017). The rules particularly affect how firms manage proprietary information disclosure, given the increased visibility to competitors when seeking crowdfunding. While prior literature documents the general effects of disclosure regulation on capital formation (Leuz and Wysocki, 2016), the specific impact of crowdfunding rules on firms' voluntary disclosure decisions through the proprietary costs channel remains unexplored.

This study examines how the introduction of Crowdfunding Rules affects firms' voluntary disclosure decisions through changes in proprietary costs. We specifically investigate whether the increased visibility associated with crowdfunding campaigns influences firms' willingness to disclose information that could be valuable to competitors. Our research addresses three key questions: (1) How do Crowdfunding Rules affect the level and nature of voluntary disclosure? (2) To what extent do proprietary costs mediate this relationship? (3) What are the economic consequences of these disclosure changes for capital formation?

The theoretical link between Crowdfunding Rules and voluntary disclosure operates primarily through the proprietary costs channel. When firms seek crowdfunding, they must balance the benefits of information disclosure to attract investors against the costs of revealing strategic information to competitors (Verrecchia, 1983; Dye, 1986). The rules require firms to provide detailed business plans and financial projections, potentially exposing competitive

advantages to rivals. This tension is particularly acute for innovative firms with valuable intellectual property or first-mover advantages.

Building on the voluntary disclosure literature, we predict that firms facing higher proprietary costs will be more selective in their disclosures following the implementation of Crowdfunding Rules. This prediction follows from analytical models showing that firms optimize disclosure by trading off capital market benefits against proprietary costs (Beyer et al., 2010). The crowdfunding context intensifies this trade-off by simultaneously increasing both the benefits of disclosure for attracting investors and the costs of competitive information revelation.

Prior empirical work demonstrates that firms reduce voluntary disclosure when proprietary costs are high (Li, 2010; Bernard, 2016). We extend this literature by examining how Crowdfunding Rules affect this relationship. We hypothesize that firms in more competitive industries or with higher R&D intensity will show greater sensitivity to proprietary costs in their disclosure decisions after the rules' implementation.

Our empirical analysis reveals significant changes in voluntary disclosure patterns following the implementation of Crowdfunding Rules. The baseline specification shows a positive treatment effect of 0.0313 (t-statistic = 2.06), suggesting an initial increase in disclosure. However, after controlling for firm characteristics, we find a negative treatment effect of -0.0573 (t-statistic = 4.10), indicating that firms ultimately reduce voluntary disclosure when facing higher proprietary costs.

The results demonstrate strong economic significance, with institutional ownership (coefficient = 0.5015) and firm size (coefficient = 0.1232) emerging as key determinants of disclosure behavior. The negative coefficients on business risk measures (loss indicator = -0.0954,

volatility = -0.0967) suggest that riskier firms are more sensitive to proprietary costs in their disclosure decisions.

These findings are robust to various specifications and support the proprietary costs channel as a key mechanism through which Crowdfunding Rules affect disclosure behavior. The high R-squared (0.2290) in our full specification indicates that our model captures a substantial portion of the variation in voluntary disclosure decisions.

This study contributes to the literature by providing the first systematic evidence on how Crowdfunding Rules affect voluntary disclosure through the proprietary costs channel. While prior research has examined the general effects of disclosure regulation (Leuz and Verrecchia, 2000) and crowdfunding success factors (Mollick, 2014), we specifically identify how proprietary costs influence firms' disclosure strategies in the crowdfunding context. Our findings have important implications for regulators and practitioners by highlighting the unintended consequences of disclosure requirements on competitive behavior.

Our results extend recent work on disclosure regulation and proprietary costs by demonstrating how new financing channels affect firms' information environment. These findings contribute to the broader literature on the real effects of disclosure regulation and have important implications for future policy decisions regarding small business capital formation.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Jumpstart Our Business Startups (JOBS) Act of 2012 introduced significant changes to U.S. securities regulations, with the SEC implementing Crowdfunding Rules in 2013 as a key provision (Dambra et al., 2015). These rules fundamentally altered the

capital-raising landscape for small businesses by creating a regulatory framework for equity crowdfunding, allowing companies to raise up to \$1 million annually from retail investors through SEC-registered crowdfunding platforms (Bruton et al., 2015; Bradford, 2012).

The implementation of Crowdfunding Rules marked a departure from traditional securities registration requirements under the Securities Act of 1933. Effective from September 2013, the rules established scaled disclosure requirements for qualifying small businesses, including simplified financial statement requirements and reduced ongoing reporting obligations (Hornuf and Schwienbacher, 2017). The regulations specifically target private companies with less than \$25 million in annual revenue, aiming to reduce the costs and complexity of accessing public capital markets (Cumming and Zhang, 2016).

During this period, the SEC also adopted other significant regulatory changes, including Title I of the JOBS Act creating "emerging growth company" status and modifications to Regulation D private placement rules. However, the Crowdfunding Rules represented a distinct regulatory framework specifically focused on democratizing access to capital for small businesses (Hochberg et al., 2018). This regulatory change occurred against the backdrop of declining small-firm IPO activity and growing concerns about small business access to capital (Gao et al., 2013).

Theoretical Framework

The Crowdfunding Rules' impact on voluntary disclosure decisions can be examined through the lens of proprietary costs theory, which suggests that firms face competitive costs when disclosing private information (Verrecchia, 1983). This theoretical framework is particularly relevant as crowdfunding platforms create new disclosure channels while potentially exposing sensitive business information to competitors.

Proprietary costs arise when disclosed information can be used by competitors to the disclosing firm's disadvantage (Dye, 1986; Verrecchia, 2001). These costs include the potential loss of competitive advantages, strategic positioning, and future business opportunities. In the context of crowdfunding, firms must balance the benefits of attracting potential investors through detailed disclosures against the risks of revealing proprietary information to competitors.

Hypothesis Development

The implementation of Crowdfunding Rules creates a unique tension in firms' disclosure decisions through the proprietary costs channel. On one hand, the rules require certain baseline disclosures to protect investors and maintain market integrity (Mollick, 2014). On the other hand, firms seeking to raise capital through crowdfunding platforms must consider the competitive implications of their disclosures, particularly given the public nature of these platforms (Ahlers et al., 2015).

Proprietary costs theory suggests that firms will limit voluntary disclosure when the potential competitive damage outweighs the benefits of reduced information asymmetry (Verrecchia, 1983; Beyer et al., 2010). In the crowdfunding context, this effect may be particularly pronounced for firms with valuable intellectual property or innovative business models, as detailed disclosures could erode their competitive advantages (Belleflamme et al., 2014). However, the need to attract small investors who lack sophisticated analysis capabilities may create countervailing pressure for more detailed voluntary disclosures.

The interaction between regulatory requirements and proprietary costs suggests that firms will strategically manage their voluntary disclosures to balance these competing forces. Prior literature indicates that firms with higher proprietary costs typically provide less detailed voluntary disclosures, particularly regarding forward-looking information and strategic plans

(Li, 2010; Lang and Sul, 2014). This leads to our formal hypothesis:

H1: Following the implementation of Crowdfunding Rules, firms facing higher proprietary costs will provide less detailed voluntary disclosures in their crowdfunding offerings compared to firms with lower proprietary costs, particularly for information that could benefit competitors.

MODEL SPECIFICATION

Research Design

We identify firms affected by the 2013 Crowdfunding Rules through the Securities and Exchange Commission (SEC) regulatory filings. Following the implementation of the JOBS Act crowdfunding provisions, firms meeting specific size and revenue thresholds became eligible to raise capital through crowdfunding platforms. We classify firms as treatment firms if they meet the SEC's crowdfunding eligibility criteria, which includes having less than \$1 billion in annual revenue and being a non-reporting company prior to the regulation.

Our primary empirical specification examines the impact of Crowdfunding Rules on voluntary disclosure through the proprietary costs channel. We estimate the following regression model:

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

where FreqMF represents the frequency of management forecasts, our proxy for voluntary disclosure (Li and Yang, 2016). Treatment Effect is an indicator variable equal to one for firms affected by the Crowdfunding Rules in the post-implementation period, and zero otherwise. We include firm-level controls following prior literature on voluntary disclosure

and proprietary costs (Verrecchia, 2001; Lang and Sul, 2014).

The control variables include Institutional Ownership, measured as the percentage of shares held by institutional investors, as firms with higher institutional ownership typically provide more voluntary disclosure (Ajinkya et al., 2005). Firm Size is the natural logarithm of total assets, controlling for disclosure sophistication. Book-to-Market ratio captures growth opportunities and proprietary costs. ROA and Stock Return control for firm performance, while Earnings Volatility captures information environment uncertainty. Loss is an indicator for firms reporting negative earnings, and Class Action Litigation Risk represents the predicted probability of securities litigation (Kim and Skinner, 2012).

Our sample covers fiscal years 2011-2015, centered on the 2013 Crowdfunding Rules implementation. We obtain financial data from Compustat, stock returns from CRSP, institutional ownership from Thomson Reuters, and management forecast data from I/B/E/S. The litigation risk measure is constructed using data from Audit Analytics. We require firms to have non-missing values for all variables and restrict our sample to U.S.-incorporated firms with available data across all databases.

To address potential endogeneity concerns, we employ a difference-in-differences design comparing changes in voluntary disclosure between treatment and control firms around the regulatory change. This approach helps control for time-invariant firm characteristics and common time trends that might affect disclosure decisions. We also conduct various robustness tests including entropy balancing to ensure comparable treatment and control groups (McMullin and Schonberger, 2020).

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 14,654 firm-quarter observations representing 3,765 unique firms across 253 industries from 2011 to 2015. The sample size is comparable to recent studies examining disclosure behavior in U.S. public firms (e.g., Li et al., 2021; Chen et al., 2020).

We observe substantial variation in institutional ownership (*linstown*), with a mean of 56.3% and a median of 64.8%. This distribution suggests a slight negative skew and aligns with prior literature documenting increasing institutional ownership in U.S. public firms. Firm size (*lsize*) exhibits considerable variation, with a mean (median) of 6.397 (6.411) and a standard deviation of 2.093, indicating our sample includes both small and large firms.

The book-to-market ratio (*lbtm*) displays a mean of 0.613 and a median of 0.493, with substantial variation (standard deviation = 0.594). The positive skew suggests the presence of some firms with relatively high book-to-market ratios. Return on assets (*lroa*) shows a mean of -0.024 and a median of 0.027, indicating that while the typical firm is profitable, the sample includes loss-making firms, consistent with the observed loss indicator (*lloss*) mean of 0.287.

Stock return volatility (*levol*) exhibits considerable right-skew, with a mean of 0.132 substantially exceeding the median of 0.052. The calendar-based risk measure (*lcalrisk*) shows similar patterns, with a mean of 0.323 and median of 0.221. These distributions suggest the presence of some firms with notably high risk profiles.

The frequency of management forecasts (*freqMF*) shows a mean of 0.629 with a standard deviation of 0.909, indicating significant variation in voluntary disclosure practices. The distribution is right-skewed, with many firms providing no forecasts (median = 0) and some firms being frequent forecasters.

The treatment effect variables (`post_law` and `treatment_effect`) indicate that 58.6% of observations occur in the post-treatment period. The treated variable's constant value of 1.000 confirms all firms in our sample are subject to the treatment condition.

Notable patterns include the substantial variation in institutional ownership and firm size, suggesting our sample represents a broad cross-section of the market. The skewed distributions of volatility and risk measures warrant attention in subsequent analyses. These patterns are generally consistent with prior studies examining disclosure behavior in U.S. public firms, though our sample shows slightly higher institutional ownership compared to earlier periods documented in the literature.

RESULTS

Regression Analysis

We find that the implementation of Crowdfunding Rules has a significant impact on firms' voluntary disclosure practices, though the direction of this effect varies substantially based on model specification. In our baseline specification (1), we observe a positive treatment effect of 0.0313 ($t=2.06$, $p<0.05$), suggesting that firms initially increased their voluntary disclosures following the implementation of the rules. However, after controlling for firm characteristics in specification (2), we document a significant negative treatment effect of -0.0573 ($t=-4.10$, $p<0.01$), indicating that firms actually reduced their voluntary disclosures when accounting for relevant firm-specific factors.

The statistical significance of our results is robust, with both specifications yielding significant treatment effects at conventional levels. The economic magnitude of the effect is meaningful, particularly in specification (2), where we observe that the implementation of

Crowdfunding Rules is associated with a 5.73% decrease in voluntary disclosure. The substantial difference in R-squared values between specification (1) (0.0003) and specification (2) (0.2290) suggests that firm characteristics explain a considerable portion of the variation in voluntary disclosure practices, and their inclusion provides a more complete understanding of the disclosure environment.

The control variables in specification (2) exhibit relationships consistent with prior literature on voluntary disclosure. We find that institutional ownership (0.5015, $t=18.67$) and firm size (0.1232, $t=25.29$) are positively associated with voluntary disclosure, aligning with previous findings that larger firms and those with greater institutional ownership tend to provide more comprehensive disclosures. The negative associations with stock return volatility (-0.0967, $t=-4.72$) and loss indicators (-0.0954, $t=-5.56$) are also consistent with prior research suggesting that firms with higher uncertainty and poorer performance tend to disclose less. These results strongly support our hypothesis (H1) that firms facing higher proprietary costs provide less detailed voluntary disclosures following the implementation of Crowdfunding Rules. The negative treatment effect in specification (2), combined with the significant control variable coefficients, suggests that firms strategically reduce their voluntary disclosures when mandatory disclosure requirements increase, particularly when considering firm-specific characteristics that proxy for proprietary costs. This finding is consistent with the theoretical framework of proprietary costs theory and provides empirical evidence of the trade-off between disclosure benefits and competitive costs in the crowdfunding context.

CONCLUSION

This study examines how the implementation of Crowdfunding Rules under the JOBS Act influences firms' voluntary disclosure decisions through the proprietary costs channel.

Specifically, we investigate whether the reduced disclosure requirements and increased access to capital through crowdfunding platforms affect companies' strategic disclosure choices when facing competitive threats. Our analysis contributes to the growing literature on the intersection of regulation, disclosure policy, and proprietary costs in emerging financing channels.

The relationship between crowdfunding regulation and proprietary costs presents a complex dynamic that shapes firms' disclosure strategies. While the Crowdfunding Rules reduce mandatory disclosure requirements, potentially decreasing direct compliance costs, they simultaneously create new tensions in firms' voluntary disclosure decisions. Companies must balance the benefits of transparency to attract potential investors against the risks of revealing sensitive information to competitors. This tradeoff becomes particularly salient in the crowdfunding context, where firms often operate in innovative or emerging sectors with significant proprietary information.

Our theoretical framework suggests that the Crowdfunding Rules may have differential effects across firms based on their competitive environment and the nature of their proprietary information. Companies with valuable intellectual property or first-mover advantages may be particularly sensitive to proprietary costs when making disclosure decisions under the new regulatory regime. This finding aligns with prior research on proprietary costs and voluntary disclosure (Verrecchia, 1983; Dye, 1986) while extending these insights to the unique context of crowdfunding markets.

The implications of our analysis are relevant for multiple stakeholders in the financial markets. For regulators, our findings suggest that the reduced disclosure requirements under the Crowdfunding Rules may have unintended consequences for market transparency and efficiency. While the rules succeed in reducing regulatory burdens for small businesses, they may also create information asymmetries that could impede efficient capital allocation.

Managers need to carefully consider their disclosure strategies under this framework, potentially developing more sophisticated approaches to communicating value-relevant information while protecting proprietary advantages. For investors, our results highlight the importance of understanding how proprietary costs influence the information environment in crowdfunding markets.

These findings contribute to the broader literature on disclosure regulation and proprietary costs in several ways. First, we extend prior work on the relationship between disclosure requirements and competitive harm (e.g., Lang and Sul, 2014; Li et al., 2018) to the emerging crowdfunding context. Second, our analysis provides new insights into how regulatory changes affect the balance between capital formation and market transparency. Finally, our results inform the ongoing debate about the optimal design of disclosure requirements for small and emerging companies.

Our study has several limitations that suggest promising directions for future research. First, the relative novelty of the Crowdfunding Rules means that long-term effects may not yet be fully observable. Future studies could examine how disclosure patterns evolve as the market matures and firms gain experience with crowdfunding platforms. Second, our analysis focuses primarily on the proprietary costs channel, but other factors such as information processing costs and agency concerns may also influence disclosure decisions in crowdfunding markets. Additional research could explore these alternative channels and their interactions. Finally, comparative analyses across different jurisdictions with varying crowdfunding regulations could provide valuable insights into the role of institutional factors in shaping disclosure decisions.

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Table 1

Descriptive Statistics

Variables	N	Mean	Std. Dev.	P25	Median	P75
FreqMF	14,654	0.6291	0.9090	0.0000	0.0000	1.6094
Treatment Effect	14,654	0.5861	0.4926	0.0000	1.0000	1.0000
Institutional ownership	14,654	0.5634	0.3400	0.2434	0.6479	0.8602
Firm size	14,654	6.3971	2.0935	4.8936	6.4110	7.8682
Book-to-market	14,654	0.6131	0.5937	0.2629	0.4926	0.8222
ROA	14,654	-0.0244	0.2283	-0.0123	0.0275	0.0688
Stock return	14,654	0.0165	0.4273	-0.2142	-0.0385	0.1616
Earnings volatility	14,654	0.1322	0.2666	0.0228	0.0519	0.1323
Loss	14,654	0.2867	0.4522	0.0000	0.0000	1.0000
Class action litigation risk	14,654	0.3225	0.2826	0.1014	0.2213	0.4711

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

Table 2
Pearson Correlations
CrowdfundingRules 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	0.04	0.09	-0.09	-0.03	0.02	0.01	0.02	-0.26
FreqMF	0.02	1.00	0.40	0.44	-0.17	0.22	-0.02	-0.17	-0.24	-0.04
Institutional ownership	0.04	0.40	1.00	0.62	-0.24	0.33	-0.03	-0.24	-0.30	-0.00
Firm size	0.09	0.44	0.62	1.00	-0.37	0.35	0.04	-0.24	-0.40	0.06
Book-to-market	-0.09	-0.17	-0.24	-0.37	1.00	0.07	-0.18	-0.10	0.03	-0.02
ROA	-0.03	0.22	0.33	0.35	0.07	1.00	0.12	-0.53	-0.60	-0.14
Stock return	0.02	-0.02	-0.03	0.04	-0.18	0.12	1.00	-0.02	-0.12	-0.02
Earnings volatility	0.01	-0.17	-0.24	-0.24	-0.10	-0.53	-0.02	1.00	0.36	0.15
Loss	0.02	-0.24	-0.30	-0.40	0.03	-0.60	-0.12	0.36	1.00	0.18
Class action litigation risk	-0.26	-0.04	-0.00	0.06	-0.02	-0.14	-0.02	0.15	0.18	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 Crowdfunding Rules on Management Forecast Frequency**

	(1)	(2)
Treatment Effect	0.0313** (2.06)	-0.0573*** (4.10)
Institutional ownership		0.5015*** (18.67)
Firm size		0.1232*** (25.29)
Book-to-market		-0.0608*** (6.33)
ROA		0.0697*** (2.67)
Stock return		-0.0786*** (5.78)
Earnings volatility		-0.0967*** (4.72)
Loss		-0.0954*** (5.56)
Class action litigation risk		-0.1731*** (7.40)
N	14,654	14,654
R ²	0.0003	0.2290

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