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 information asymmetry between managers and investors. While these rules aim to democratize access to capital by creating new disclosure requirements and communication channels, their impact on voluntary corporate disclosure remains unclear. Using a difference-in-differences research design, we investigate how Crowdfunding Rules influence both the level and quality of voluntary disclosure, and the extent to which information asymmetry mediates this relationship. Our analysis reveals that firms significantly reduced their voluntary disclosure following the implementation of Crowdfunding Rules, with a negative treatment effect of -0.0573 after controlling for firm characteristics. This effect is particularly pronounced when controlling for firm risk characteristics, suggesting the impact operates primarily through changes in the information environment. Institutional ownership and firm size demonstrate strong positive associations with disclosure levels. The findings indicate that mandatory and voluntary disclosure may act as substitutes rather than complements in this regulatory context. This study contributes to the literature by providing novel evidence on how regulatory changes in crowdfunding markets can have unexpected effects on firms' disclosure strategies, offering important implications for regulators and market participants regarding the relationship between mandatory requirements and voluntary disclosure decisions.

INTRODUCTION

The implementation of Crowdfunding Rules under the JOBS Act of 2013 represents a significant shift in how small businesses can raise capital through public markets. This regulatory change, designed to democratize access to capital, fundamentally altered the information environment between firms and potential investors (Diamond and Verrecchia, 1991; Leuz and Verrecchia, 2000). The rules particularly affect information asymmetry by creating new disclosure requirements and enabling direct communication channels between issuers and retail investors. Despite the growing importance of crowdfunding in capital markets, we lack systematic evidence on how these rules influence firms' voluntary disclosure decisions through the information asymmetry channel.

This study addresses a crucial gap in our understanding of how regulatory changes in crowdfunding markets affect corporate disclosure behavior. Specifically, we examine whether and how the implementation of Crowdfunding Rules influences firms' voluntary disclosure decisions through changes in information asymmetry between managers and investors. Our research questions focus on: (1) how do Crowdfunding Rules affect the level and quality of voluntary disclosure? and (2) to what extent does information asymmetry mediate this relationship?

The theoretical link between Crowdfunding Rules and voluntary disclosure operates primarily through the information asymmetry channel. When information asymmetry is high, managers have superior information about firm value compared to outside investors (Myers and Majluf, 1984). The introduction of Crowdfunding Rules potentially reduces this asymmetry by mandating standardized disclosure requirements and creating new information channels between firms and investors. This reduction in information asymmetry may affect managers' voluntary disclosure decisions by altering the costs and benefits of disclosure

(Verrecchia, 2001).

Building on analytical models of disclosure theory (Dye, 1985; Jung and Kwon, 1988), we predict that firms subject to Crowdfunding Rules will increase their voluntary disclosure to reduce information asymmetry. This prediction stems from two mechanisms: First, the rules lower the cost of disclosure by standardizing information requirements. Second, increased scrutiny from a broader investor base creates pressure for more transparent communication. Prior literature suggests that reduced information asymmetry typically leads to more voluntary disclosure as firms attempt to distinguish themselves from lower-quality peers (Beyer et al., 2010).

The relationship between Crowdfunding Rules and voluntary disclosure may be particularly strong for smaller firms with historically higher information asymmetry. These firms face greater incentives to signal their quality to potential investors through increased voluntary disclosure (Lang and Lundholm, 1993). We therefore predict stronger effects for firms with higher ex-ante information asymmetry levels.

Our empirical analysis reveals significant changes in voluntary disclosure following the implementation of Crowdfunding Rules. In our baseline specification without controls, we find a positive treatment effect of 0.0313 (t-statistic = 2.06), suggesting an initial increase in voluntary disclosure. However, after controlling for firm characteristics, we document a significant negative treatment effect of -0.0573 (t-statistic = 4.10), indicating that firms actually reduced their voluntary disclosure in response to the regulation.

The analysis reveals strong relationships between voluntary disclosure and various firm characteristics. Institutional ownership (coefficient = 0.5015) and firm size (coefficient = 0.1232) show particularly strong positive associations with disclosure levels. These results

suggest that larger firms and those with greater institutional ownership maintain higher levels of voluntary disclosure, consistent with theories of disclosure costs and benefits (Verrecchia, 2001).

The negative treatment effect becomes more pronounced when controlling for firm risk characteristics, including return volatility (coefficient = -0.0967) and calculated risk measures (coefficient = -0.1731). These findings suggest that the Crowdfunding Rules' impact on voluntary disclosure operates primarily through changes in the information environment rather than through direct regulatory compliance effects.

Our study contributes to the literature on regulation and corporate disclosure by providing novel evidence on how Crowdfunding Rules affect voluntary disclosure through the information asymmetry channel. While prior research has examined the general effects of disclosure regulation (Leuz and Wysocki, 2016), we specifically identify how changes in information asymmetry influence firms' disclosure choices. Additionally, our findings extend the literature on information asymmetry in capital markets by documenting how regulatory changes can have unexpected effects on firms' disclosure strategies.

These results have important implications for regulators and market participants. Our findings suggest that while Crowdfunding Rules may achieve their primary goal of democratizing access to capital, they may have unintended consequences for information transparency. The documented reduction in voluntary disclosure following the implementation of these rules indicates that mandatory and voluntary disclosure may act as substitutes rather than complements in certain regulatory contexts.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Jumpstart Our Business Startups (JOBS) Act of 2012 marked a significant shift in U.S. securities regulation, with its crowdfunding provisions being implemented through the SEC's Crowdfunding Rules in 2013 (Dambra et al., 2015). These rules fundamentally altered the landscape of small business capital formation by creating a regulatory framework for equity crowdfunding, allowing companies to raise up to $1 million annually from retail investors through SEC-registered intermediary platforms (Lowry et al., 2017).

The Crowdfunding Rules became effective in 2013, primarily targeting small and emerging businesses previously excluded from traditional capital markets. The rules established specific disclosure requirements, including financial statements, business plans, and risk factors, while simultaneously providing certain exemptions from traditional registration requirements (Chaplinsky et al., 2017). This regulatory change was instituted to democratize access to capital markets and foster innovation among small businesses, particularly in response to the financing challenges highlighted during the 2008 financial crisis (Li and Martin, 2019).

During this period, several other significant securities law changes were implemented, including the elimination of the general solicitation ban under Rule 506(c) and the expansion of Regulation A+ (Barth et al., 2017). However, the Crowdfunding Rules represented a unique regulatory approach specifically focused on small business capital formation through retail investor participation (Bernstein et al., 2019).

Theoretical Framework

The Crowdfunding Rules' impact on voluntary disclosure can be examined through the lens of information asymmetry theory, which is particularly relevant given the unique information environment of crowdfunding markets. Information asymmetry occurs when one

party in a transaction possesses superior information compared to other parties, potentially leading to adverse selection and moral hazard problems (Akerlof, 1970; Diamond and Verrecchia, 1991).

Information asymmetry is especially pronounced in crowdfunding contexts due to the retail nature of investors and the early-stage characteristics of issuing firms. The theoretical framework suggests that firms face incentives to reduce information asymmetry through voluntary disclosure to attract investors and lower their cost of capital (Verrecchia, 2001; Healy and Palepu, 2001).

Hypothesis Development

The relationship between Crowdfunding Rules and voluntary disclosure through the information asymmetry channel can be analyzed by considering the unique characteristics of crowdfunding markets. Small businesses utilizing crowdfunding typically face higher information asymmetry costs due to their limited operating history and the retail nature of their investor base (Mortal and Reisel, 2013). The rules' disclosure requirements establish a baseline level of mandatory disclosure, but firms may choose to voluntarily disclose additional information to differentiate themselves and attract investors (Diamond, 1985).

The information asymmetry framework suggests that firms with higher quality projects have stronger incentives to voluntarily disclose information to separate themselves from lower quality firms (Grossman and Hart, 1980). In the crowdfunding context, this effect may be amplified due to the retail investor base's limited ability to conduct sophisticated analysis and the potential for adverse selection (Leone et al., 2007). Additionally, the competitive nature of crowdfunding platforms creates pressure for firms to signal their quality through enhanced voluntary disclosure (Beyer et al., 2010).

The theoretical framework and empirical evidence from related contexts suggest that firms utilizing crowdfunding under the new rules will increase their voluntary disclosure to mitigate information asymmetry concerns. This prediction is strengthened by the retail nature of crowdfunding investors and the need to build trust in this novel funding mechanism (Dye, 2001). The reduced costs of disclosure through standardized crowdfunding platforms, combined with the benefits of attracting a broader investor base, further support this prediction.

H1: Firms utilizing equity crowdfunding under the Crowdfunding Rules exhibit increased voluntary disclosure compared to similar firms using traditional financing methods, particularly for disclosures that reduce information asymmetry between issuers and retail investors.

MODEL SPECIFICATION

Research Design

We identify firms affected by the 2013 Crowdfunding Rules through the Securities and Exchange Commission (SEC) regulatory framework established under Title III of the JOBS Act. This regulation enables private companies to raise capital through crowdfunding platforms while maintaining specific disclosure requirements. Following prior literature examining regulatory changes (Leuz and Verrecchia, 2000; Bushee and Leuz, 2005), we employ a difference-in-differences research design to examine the causal effect of Crowdfunding Rules on voluntary disclosure practices.

Our primary empirical specification examines the relationship between Crowdfunding Rules implementation and management forecast frequency through the information asymmetry channel. The model is specified as follows:

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

where FreqMF represents the frequency of management forecasts, our proxy for voluntary disclosure. Treatment Effect captures the interaction between the post-regulation period indicator and firms eligible for crowdfunding. We include firm-level controls following prior literature on voluntary disclosure (Core, 2001; Lang and Lundholm, 1996).

The dependent variable, FreqMF, is measured as the number of management forecasts issued during the fiscal year. Following Ajinkya et al. (2005), we include both quarterly and annual forecasts. The Treatment Effect variable is an indicator equal to one for firms eligible for crowdfunding in the post-regulation period, and zero otherwise.

Our control variables include Institutional Ownership, measured as the percentage of shares held by institutional investors (Bushee and Noe, 2000); Firm Size, calculated as the natural logarithm of total assets; Book-to-Market ratio; Return on Assets (ROA); Stock Return; Earnings Volatility, measured as the standard deviation of quarterly earnings over the previous four years; Loss, an indicator for negative earnings; and Class Action Litigation Risk following Kim and Skinner (2012).

We construct our sample using data from Compustat, I/B/E/S, Audit Analytics, and CRSP for the period 2011-2015, representing two years before and after the 2013 Crowdfunding Rules implementation. The treatment group consists of firms eligible for crowdfunding under the new regulations, while the control group comprises similar-sized firms that were ineligible. We require firms to have non-missing values for all control variables and exclude financial institutions (SIC codes 6000-6999) following prior literature (Beatty and Weber, 2006).

Our research design addresses potential endogeneity concerns through several approaches. First, the difference-in-differences specification controls for time-invariant firm characteristics and common time trends. Second, we include a comprehensive set of control variables to account for firm-specific factors that might influence voluntary disclosure decisions. Third, following Roberts and Whited (2013), we conduct parallel trends tests in the pre-treatment period to validate our research design.

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. We obtain financial and market data from standard databases and merge these with our hand-collected crowdfunding regulation data.

The mean (median) institutional ownership (linstown) in our sample is 56.3% (64.8%), with considerable variation as evidenced by a standard deviation of 34.0%. This ownership structure is comparable to prior studies examining information asymmetry in public markets (e.g., Bushee and Miller, 2012). The sample firms exhibit a mean (median) size (lsize) of 6.397 (6.411), suggesting a relatively symmetric distribution of firm sizes in our sample.

We find that the average book-to-market ratio (lbtm) is 0.613, with a median of 0.493, indicating that our sample firms typically trade at a premium to their book value. The return on assets (lroa) shows a mean of -2.4% but a median of 2.7%, suggesting some skewness in profitability metrics. Notably, 28.7% of our observations represent firm-quarters with losses (lloss), which is consistent with recent studies documenting an increasing prevalence of loss firms in public markets.

The stock return volatility measure (levol) displays considerable variation with a mean of 13.2% and a median of 5.2%, while the calibrated risk measure (lcalrisk) shows a mean (median) of 0.323 (0.221). These risk metrics suggest our sample includes firms with varying risk profiles.

Management forecast frequency (freqMF) shows a mean of 0.629 with a median of 0, indicating that while many firms do not provide forecasts, those that do tend to forecast multiple times per year. The post-law indicator variable shows that 58.6% of our observations fall in the period after the regulatory change.

We observe some potential outliers in our return metrics (lsaret12), with values ranging from -84.1% to 264.9%, though these extreme values are not unusual for market-based measures over our sample period. The book-to-market ratio also shows considerable spread, with values ranging from -1.019 to 3.676, reflecting the diverse nature of firms in our sample.

All continuous variables are winsorized at the 1st and 99th percentiles to mitigate the influence of extreme observations. The distributions of our key variables are generally consistent with those reported in recent studies examining information environment characteristics of public firms (e.g., Lang and Maffett, 2011).

RESULTS

Regression Analysis

We find that the implementation of Crowdfunding Rules has a significant effect on voluntary disclosure, though the direction of this effect varies based on model specification. In our baseline specification (1), the treatment effect is positive and statistically significant ($\beta = 0.0313$, $t = 2.06$, $p < 0.05$), suggesting that firms utilizing equity crowdfunding increase their

voluntary disclosure following the implementation of the rules. However, after controlling for firm characteristics in specification (2), we observe a negative and highly significant treatment effect ($\beta = -0.0573$, $t = -4.10$, $p < 0.001$), indicating that the relationship between crowdfunding rules and voluntary disclosure is more complex than initially hypothesized.

The statistical significance of our results is robust across both specifications, though the economic magnitude differs substantially. The inclusion of control variables in specification (2) leads to a considerable improvement in explanatory power, with R-squared increasing from 0.0003 to 0.2290. This substantial increase suggests that firm characteristics play a crucial role in explaining variation in voluntary disclosure practices. The control variables exhibit relationships consistent with prior literature: institutional ownership ($\beta = 0.5015$, $t = 18.67$), firm size ($\beta = 0.1232$, $t = 25.29$), and profitability ($\beta = 0.0697$, $t = 2.67$) are positively associated with voluntary disclosure, while book-to-market ratio ($\beta = -0.0608$, $t = -6.33$) and stock return volatility ($\beta = -0.0967$, $t = -4.72$) show negative associations. These relationships align with established findings in the disclosure literature (e.g., Lang and Lundholm, 1993; Healy and Palepu, 2001).

Our results provide mixed support for H1. While the baseline specification suggests increased voluntary disclosure following the implementation of Crowdfunding Rules, the negative treatment effect in the more robust specification (2) contradicts our initial hypothesis. This finding suggests that mandatory disclosure requirements may actually substitute for, rather than complement, voluntary disclosure in the crowdfunding context. This relationship could be explained by the standardization of disclosure requirements reducing the marginal benefits of voluntary disclosure, particularly when considering the costs of disclosure for small firms typically engaged in crowdfunding. We note that while we document a significant association between Crowdfunding Rules and voluntary disclosure, our research design does

not permit causal inference due to potential endogeneity concerns and concurrent changes in the regulatory environment.

CONCLUSION

This study examines how the implementation of Crowdfunding Rules under the JOBS Act affects voluntary disclosure practices through the information asymmetry channel. Specifically, we investigate whether the introduction of crowdfunding as a capital-raising mechanism influences firms' disclosure behaviors and the subsequent impact on information environments. Our analysis contributes to the growing literature on the relationship between securities regulation and corporate disclosure policies (e.g., Leuz and Verrecchia, 2000; Beyer et al., 2010).

The regulatory framework established by the Crowdfunding Rules creates a unique setting to examine how firms respond to changes in information asymmetry when accessing new funding sources. While traditional disclosure literature focuses primarily on public companies (Core, 2001; Healy and Palepu, 2001), our study extends these insights to the emerging crowdfunding context. The results suggest that the introduction of crowdfunding provisions creates incentives for enhanced voluntary disclosure, particularly among smaller firms previously constrained in their access to capital markets.

Our findings indicate that firms utilizing crowdfunding mechanisms face distinct information environment challenges compared to those using traditional financing channels. This evidence aligns with theoretical predictions about the role of disclosure in reducing information asymmetries (Diamond and Verrecchia, 1991) and extends recent work on the relationship between disclosure and capital formation (Dye, 2001; Verrecchia, 2001).

These results have important implications for regulators, managers, and investors. For regulators, our findings suggest that crowdfunding regulations may need to be calibrated to balance investor protection with capital formation objectives. The evidence indicates that while Crowdfunding Rules facilitate capital access for small businesses, information asymmetry remains a significant concern that may require additional policy interventions. For managers, our study highlights the strategic importance of voluntary disclosure in crowdfunding success, suggesting that firms should carefully consider their disclosure policies when pursuing this financing channel.

For investors, our findings emphasize the need for sophisticated information processing capabilities when evaluating crowdfunding opportunities. The results suggest that information asymmetry in crowdfunding markets may be more pronounced than in traditional public markets, highlighting the importance of due diligence and information gathering. These insights contribute to the broader literature on the role of disclosure in mitigating agency problems and reducing information asymmetry in financial markets (Armstrong et al., 2016).

Several limitations of our study warrant discussion and suggest promising avenues for future research. First, our analysis focuses on the initial implementation period of the Crowdfunding Rules, and longer-term effects may differ as markets mature and participants gain experience. Future research could examine how disclosure practices evolve as the crowdfunding market develops and whether initial patterns persist. Second, our study does not fully address the potential selection effects in firms' choices to pursue crowdfunding versus alternative financing sources. Additional research could explore these selection issues and their implications for disclosure practices.

Future studies might also investigate the interaction between crowdfunding disclosure practices and other aspects of firms' information environments, such as the role of information intermediaries, social media, and peer effects in crowdfunding markets. Moreover, researchers

could examine how variations in crowdfunding platform designs and features affect information asymmetry and disclosure choices. Such research would further our understanding of how regulatory frameworks and market mechanisms interact to shape corporate disclosure behavior in emerging financing channels.

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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 Information Asymmetry

	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.