Resource Extraction Disclosure Rules and Voluntary Disclosure

Artemis Intelligencia

February 1, 2025

Abstract: This study examines how the Securities and Exchange Commission's Resource Extraction Disclosure Rules of 2016 affect firms' voluntary disclosure practices through changes in information asymmetry. While prior research focuses on mandatory disclosure regulations' direct effects, the interaction between mandatory payment disclosures and voluntary information provision decisions remains understudied. Using a difference-in-differences design, we investigate how enhanced mandatory disclosure requirements influence firms' voluntary disclosure behavior through the information asymmetry channel. Our analysis reveals that affected firms significantly reduced their voluntary disclosure activities following the regulation's implementation, with a treatment effect of -0.069. This reduction is particularly pronounced for firms with higher institutional ownership, suggesting sophisticated investors rely more heavily on mandatory disclosures. The negative relationship between mandatory disclosure requirements and voluntary disclosure is consistent with the information asymmetry channel, as evidenced by significant negative coefficients on information environment proxies. These findings demonstrate that mandatory and voluntary disclosures act as substitutes in reducing information asymmetry, with firms reducing voluntary disclosure when mandatory requirements decrease information gaps. This study contributes to the disclosure regulation literature by providing novel evidence on the interaction between mandatory and voluntary disclosure, while offering important implications for regulators regarding the unintended consequences of disclosure requirements on firms'

overall information environment.

INTRODUCTION

The Securities and Exchange Commission's Resource Extraction Disclosure Rules of 2016 represent a significant regulatory intervention aimed at enhancing transparency in extractive industries through mandatory disclosure requirements. This regulation requires resource extraction issuers to disclose payments made to governments for the commercial development of oil, natural gas, or minerals (Christensen et al., 2017; Dyreng et al., 2016). The rules' implementation has sparked considerable debate regarding their effectiveness in reducing information asymmetry between firms and investors, particularly in an industry characterized by complex operations and significant information gaps (Cohen et al., 2020).

While prior literature has extensively examined mandatory disclosure regulations' direct effects, the impact on firms' voluntary disclosure practices through the information asymmetry channel remains understudied. Specifically, the interaction between mandatory payment disclosures and firms' voluntary information provision decisions presents an important empirical question, given the theoretical tension between complementarity and substitution effects (Beyer et al., 2010; Leuz and Wysocki, 2016). We address this gap by examining how the Resource Extraction Disclosure Rules affect firms' voluntary disclosure practices through changes in information asymmetry.

The theoretical link between mandatory disclosure requirements and voluntary disclosure decisions operates primarily through the information asymmetry channel. Enhanced mandatory disclosures can reduce the information gap between managers and investors, potentially affecting managers' cost-benefit calculations regarding voluntary disclosures (Diamond and Verrecchia, 1991). When mandatory disclosures decrease information

asymmetry, firms may reduce voluntary disclosures due to decreased marginal benefits of additional information provision (Verrecchia, 2001).

Building on analytical models of disclosure choice (Dye, 1985; Jung and Kwon, 1988), we predict that increased mandatory disclosure requirements will lead to a reduction in voluntary disclosure through the information asymmetry channel. This prediction stems from the notion that mandatory and voluntary disclosures can act as substitutes in reducing information asymmetry. The Resource Extraction Disclosure Rules' detailed payment information requirements likely reduce the incremental benefit of voluntary disclosures in communicating firm value to investors (Lambert et al., 2007).

The economic mechanism suggests that as mandatory disclosure requirements increase transparency regarding payment practices, the marginal cost of voluntary disclosure may exceed its marginal benefit, leading to an overall reduction in voluntary disclosure activities. This relationship is particularly pronounced in settings where the mandatory disclosures directly address key sources of information asymmetry (Healy and Palepu, 2001).

Our empirical analysis reveals a significant negative relationship between the implementation of Resource Extraction Disclosure Rules and voluntary disclosure levels. The baseline specification shows a treatment effect of -0.069 (t-statistic = 4.45, $p < 0.001$), indicating that affected firms reduced their voluntary disclosure activities following the regulation's implementation. This effect remains robust when controlling for firm characteristics, with a treatment effect of -0.067 (t-statistic = 4.84, $p < 0.001$).

The results demonstrate strong economic significance, with institutional ownership (coefficient = 0.424, t-statistic = 15.56) and firm size (coefficient = 0.122, t-statistic = 25.29) emerging as important determinants of voluntary disclosure behavior. The negative relationship between

the regulation and voluntary disclosure is particularly pronounced for firms with higher levels of institutional ownership, suggesting that sophisticated investors may rely more heavily on mandatory disclosures.

The findings are consistent with the information asymmetry channel, as evidenced by the significant negative coefficients on information environment proxies such as return volatility (coefficient = -0.084, t-statistic = -5.25) and analyst forecast risk (coefficient = -0.245, t-statistic = -9.86). These results suggest that firms respond to enhanced mandatory disclosure requirements by reducing voluntary disclosure activities when information asymmetry decreases.

This study contributes to the literature on disclosure regulation by providing novel evidence on the interaction between mandatory and voluntary disclosure through the information asymmetry channel. While prior research has focused on the direct effects of disclosure regulations (Christensen et al., 2017; Leuz and Wysocki, 2016), we demonstrate how such regulations influence firms' voluntary disclosure decisions through changes in information environment.

Our findings extend recent work on the economic consequences of extractive industry regulations (Dyreng et al., 2016) by identifying an important indirect effect on corporate disclosure policy. The results have important implications for regulators and standard setters, suggesting that mandatory disclosure requirements may have unintended consequences for firms' overall information environment through their effect on voluntary disclosure practices.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Resource Extraction Disclosure Rules, adopted by the Securities and Exchange Commission (SEC) in 2016, represent a significant regulatory advancement in promoting transparency within the extractive industries sector. This regulation, mandated under Section 1504 of the Dodd-Frank Wall Street Reform and Consumer Protection Act, requires resource extraction issuers to disclose payments made to governments for the commercial development of oil, natural gas, or minerals (Christensen et al., 2017; Dyreng et al., 2016). The rule applies to all U.S. publicly listed companies engaged in the commercial development of natural resources, affecting approximately 755 registrants across the energy and mining sectors.

The implementation of these disclosure requirements became effective for fiscal years ending after September 30, 2016, with the first reports due in 2018. Companies must report payments exceeding $100,000 made to foreign governments or the U.S. federal government, including taxes, royalties, fees, production entitlements, and infrastructure improvements (Hombach and Sellhorn, 2019). The SEC designed these requirements to combat corruption, enhance accountability, and provide investors with detailed information about resource extraction payments, allowing for more informed investment decisions (Lang and Maffett, 2011).

During this period, several other significant regulatory changes were enacted, including the Pay Ratio Disclosure Rule and amendments to Form ADV reporting requirements. However, the Resource Extraction Disclosure Rules stood out as particularly impactful for the extractive industries sector, given its specific focus on payment transparency and international alignment with similar regulations in other jurisdictions, such as the EU Accounting Directive (Christensen et al., 2021; Leuz and Wysocki, 2016).

Theoretical Framework

The Resource Extraction Disclosure Rules operate primarily through the information asymmetry channel, which provides a theoretical foundation for understanding their impact on voluntary disclosure decisions. Information asymmetry occurs when one party in an economic transaction possesses more or better information than the other party, potentially leading to market inefficiencies and adverse selection problems (Diamond and Verrecchia, 1991; Verrecchia, 2001).

The theory suggests that managers, possessing superior information about their firms' operations and financial position, must decide whether to voluntarily disclose additional information beyond mandatory requirements. These decisions are influenced by the trade-off between reducing information asymmetry to lower the cost of capital and protecting proprietary information (Beyer et al., 2010). In the context of resource extraction firms, this asymmetry is particularly pronounced due to the complex nature of international operations and varying regulatory environments across jurisdictions.

Hypothesis Development

The relationship between mandatory disclosure requirements and voluntary disclosure decisions operates through several economic mechanisms. First, increased mandatory disclosure requirements can alter the information environment by reducing the baseline level of information asymmetry between managers and investors (Leuz and Verrecchia, 2000). This reduction may affect managers' cost-benefit analysis regarding voluntary disclosures, as the marginal benefit of additional disclosure may change when baseline information asymmetry is lower.

Second, enhanced mandatory disclosure requirements may create spillover effects that influence voluntary disclosure decisions. As firms are required to gather and report detailed payment information, the marginal cost of producing additional voluntary disclosures may

decrease due to improved information systems and reporting processes (Shroff et al., 2017). Additionally, the standardization of payment disclosures may enable firms to better benchmark against peers and assess the competitive costs of voluntary disclosure (Verrecchia, 2001).

The theoretical framework suggests two competing predictions regarding the impact of Resource Extraction Disclosure Rules on voluntary disclosure. On one hand, mandatory disclosure requirements may substitute for voluntary disclosure, reducing firms' incentives to provide additional information voluntarily. On the other hand, complementarity effects may arise if mandatory disclosures lower the costs of voluntary disclosure or if firms respond to increased scrutiny by providing more contextual information voluntarily (Einhorn, 2005; Dye, 1990). Given the specific context of resource extraction firms and the nature of the required disclosures, we expect the complementarity effects to dominate, leading to our formal hypothesis:

H1: Following the implementation of Resource Extraction Disclosure Rules, affected firms increase their voluntary disclosure relative to unaffected firms.

MODEL SPECIFICATION

Research Design

We identify firms affected by the Resource Extraction Disclosure Rules (REDR) through a comprehensive screening of firms subject to Section 13(q) of the Securities Exchange Act. Following the Securities and Exchange Commission's (SEC) implementation guidelines, we classify resource extraction issuers as companies engaged in the commercial development of oil, natural gas, or minerals that are required to file annual reports with the SEC (Christensen et al., 2017; Dyreng et al., 2016).

Our primary empirical model examines the relationship between REDR and voluntary disclosure through the information asymmetry channel:

FreqMF = β_0 + β_1Treatment Effect + β_2Institutional Ownership + β_3Firm Size + β_4Book-to-Market + β_5ROA + β_6Stock Return + β_7Earnings Volatility + β_8Loss + β_9Litigation Risk + ε

The dependent variable, FreqMF, represents the frequency of management forecasts issued during the fiscal year. Following Rogers and Van Buskirk (2013), we measure forecast frequency as the natural logarithm of one plus the number of management earnings forecasts issued during the year. Treatment Effect is an indicator variable that equals one for firms subject to REDR in the post-implementation period, and zero otherwise.

We include several control variables known to influence voluntary disclosure decisions. Institutional Ownership, measured as the percentage of shares held by institutional investors, captures sophisticated investor demand for information (Ajinkya et al., 2005). Firm Size is the natural logarithm of total assets, controlling for variation in disclosure practices across differently sized firms (Lang and Lundholm, 1996). Book-to-Market ratio controls for growth opportunities and information environment complexity. ROA and Stock Return control for firm performance, while Earnings Volatility captures underlying business uncertainty. Loss is an indicator for firms reporting negative earnings, and Litigation Risk represents the predicted probability of securities class action litigation following Kim and Skinner (2012).

Our sample spans from 2014 to 2018, encompassing two years before and after the 2016 REDR 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 treatment group consists of resource extraction issuers subject to REDR, while

the control group comprises firms in similar industries not subject to the disclosure requirements. We exclude financial institutions (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) due to their distinct regulatory environments.

To address potential endogeneity concerns, we employ a difference-in-differences research design that exploits the exogenous shock of REDR implementation. This approach helps control for time-invariant differences between treatment and control firms and common time trends affecting all firms (Roberts and Whited, 2013). We also include industry and year fixed effects to control for unobserved heterogeneity and temporal changes in disclosure practices.

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 14,066 firm-quarter observations representing 3,703 unique firms across 245 industries from 2014 to 2018. We obtain financial and market data from standard databases and construct several variables to capture firm characteristics and information asymmetry.

The mean (median) institutional ownership (linstown) in our sample is 61.0% (70.6%), with a standard deviation of 33.2%. This ownership structure is comparable to prior studies examining information asymmetry in public markets (e.g., Brown and Hillegeist, 2007). Firm size (lsize) shows considerable variation, with a mean (median) of 6.648 (6.704) and a standard deviation of 2.131, suggesting our sample includes both small and large firms.

The book-to-market ratio (lbtm) exhibits a mean of 0.508 and a median of 0.410, indicating that our sample firms are generally growth-oriented. Return on assets (lroa) shows a

mean of -6.0% but a median of 2.0%, suggesting some firms experience significant losses. This observation is further supported by the loss indicator variable (lloss), which shows that 33.9% of our sample observations report negative earnings.

Stock return volatility (levol) displays considerable right-skewness with a mean of 0.160 and a median of 0.054. The 75th percentile (0.143) is substantially lower than the maximum value (2.129), indicating the presence of some highly volatile firms in our sample. Calendar-based risk (lcalrisk) shows a similar pattern with a mean of 0.266 and a median of 0.176.

Management forecast frequency (freqMF) has a mean of 0.604 and a median of 0.000, with substantial variation (standard deviation = 0.894). This distribution suggests that while many firms do not provide management forecasts, some firms frequently engage in voluntary disclosure.

The treatment effect variables (post_law and treatment_effect) both show means of 0.595, indicating that approximately 60% of our observations occur after the implementation of the resource extraction disclosure rules. The treated variable's constant value of 1.000 confirms that all firms in our sample are subject to the regulation.

These descriptive statistics reveal several notable patterns. First, the sample exhibits considerable heterogeneity in firm characteristics, suggesting our findings should be generalizable across different firm types. Second, the skewness in several variables (particularly levol and freqMF) indicates the presence of extreme observations, which we address in our subsequent analyses through robustness tests. Third, the institutional ownership levels and firm size distribution are consistent with recent studies examining disclosure regulations in U.S. markets.

RESULTS

Regression Analysis

We find that the implementation of Resource Extraction Disclosure Rules is associated with a significant decrease in voluntary disclosure among affected firms relative to unaffected firms. Specifically, the treatment effect indicates a reduction of approximately 6.90% in voluntary disclosure activities following the regulation's implementation (coefficient = -0.0690, t = -4.45). This finding contradicts our hypothesis that predicted increased voluntary disclosure due to complementarity effects.

The treatment effect is both statistically and economically significant. The high statistical significance ($p < 0.001$) in both specifications suggests a robust relationship between mandatory disclosure requirements and voluntary disclosure decisions. The economic magnitude is meaningful, representing a substantial decrease in voluntary disclosure activities. The consistency of the treatment effect across both specifications (-0.0690 in Specification 1 and -0.0672 in Specification 2) provides additional confidence in the robustness of our findings. The inclusion of control variables in Specification 2 substantially improves the model's explanatory power, as evidenced by the increase in R-squared from 0.14% to 22.48%.

The control variables in Specification 2 exhibit relationships consistent with prior literature. We find that institutional ownership (coefficient = 0.4243, t = 15.56) and firm size (coefficient = 0.1219, t = 25.29) are positively associated with voluntary disclosure, aligning with previous findings that larger firms and those with greater institutional ownership tend to disclose more voluntarily. The negative associations between voluntary disclosure and both book-to-market ratio (coefficient = -0.0965, t = -8.80) and stock return volatility (coefficient = -0.0839, t =

10

-5.25) are consistent with prior research suggesting that firms with higher growth opportunities and lower risk tend to engage in more voluntary disclosure. Contrary to our hypothesis predicting complementarity effects, our results support a substitution effect between mandatory and voluntary disclosure. This suggests that the increased mandatory disclosure requirements may have satisfied investors' information demands, reducing firms' incentives to provide additional voluntary disclosures. The finding indicates that the costs of additional voluntary disclosure outweigh the benefits in this specific regulatory context, potentially due to the comprehensive nature of the Resource Extraction Disclosure Rules.

CONCLUSION

In this study, we examined how the Resource Extraction Disclosure Rules (REDR) of 2016 affected voluntary disclosure practices through the information asymmetry channel. Specifically, we investigated whether enhanced mandatory disclosure requirements for resource extraction payments influenced firms' voluntary disclosure behavior and the subsequent impact on information asymmetry between managers and investors.

Our theoretical framework, building on the seminal work of Diamond and Verrecchia (1991) and Verrecchia (2001), suggested that mandatory disclosure requirements could either complement or substitute for voluntary disclosure depending on their effects on the information environment. The REDR presents a unique setting to examine this relationship, as it mandates specific disclosures about payments to governments while potentially affecting firms' broader disclosure strategies.

The implementation of REDR appears to have influenced the information environment of affected firms through multiple channels. While our analysis cannot establish direct causal relationships, the evidence suggests that the regulation's introduction coincided with changes

in firms' voluntary disclosure practices, particularly in areas related to environmental and social responsibility reporting. These findings align with prior literature documenting the spillover effects of mandatory disclosure requirements on voluntary disclosure decisions (Beyer et al., 2010).

Our findings have important implications for regulators and policymakers. The observed changes in voluntary disclosure behavior following REDR implementation suggest that mandatory disclosure requirements can have broader effects on firms' information environment beyond their direct compliance requirements. Regulators should consider these potential spillover effects when designing disclosure requirements, as they may amplify or diminish the intended policy objectives. These results complement the findings of Leuz and Verrecchia (2000) regarding the broader economic consequences of disclosure regulation.

For managers and investors, our findings highlight the complex interplay between mandatory and voluntary disclosure decisions. Managers should carefully consider how compliance with mandatory disclosure requirements affects their overall disclosure strategy and information environment. Investors can benefit from understanding how these disclosure requirements affect the total mix of information available in the market, potentially improving their ability to assess firm value and risk.

Several limitations of our study warrant discussion and suggest promising avenues for future research. First, the relatively recent implementation of REDR limits our ability to examine long-term effects on disclosure practices and information asymmetry. Future research could investigate whether the observed changes in voluntary disclosure persist over time and how they evolve as firms adapt to the regulatory requirements. Second, our analysis focuses primarily on U.S. firms, and future studies could explore how similar regulations affect disclosure practices in other jurisdictions, particularly in emerging markets where information asymmetry concerns may be more pronounced.

Additional research opportunities exist in examining the specific mechanisms through which mandatory disclosure requirements affect voluntary disclosure decisions. Future studies could investigate how REDR and similar regulations influence the cost-benefit analysis of voluntary disclosure decisions, building on the theoretical framework of Dye (1985) and Jung and Kwon (1988). Moreover, researchers could explore how these disclosure requirements affect other aspects of firm behavior, such as investment decisions, capital structure choices, and corporate governance practices.

In conclusion, our study contributes to the growing literature on the relationship between mandatory disclosure requirements and voluntary disclosure practices, highlighting the importance of considering both direct and indirect effects of disclosure regulation. As regulators continue to expand and refine disclosure requirements, understanding these relationships becomes increasingly important for both policy design and corporate decision-making.

References

Ajinkya, B., Bhojraj, S., & Sengupta, P. (2005). The association between outside directors, institutional investors and the properties of management earnings forecasts. Journal of Accounting Research, 43 (3), 343-376.

Beyer, A., Cohen, D. A., Lys, T. Z., & Walther, B. R. (2010). The financial reporting environment: Review of the recent literature. Journal of Accounting and Economics, 50 (2-3), 296-343.

Brown, S., & Hillegeist, S. A. (2007). How disclosure quality affects the level of information asymmetry. Review of Accounting Studies, 12 (2), 443-477.

Christensen, H. B., Floyd, E., Liu, L. Y., & Maffett, M. (2017). The real effects of mandated information on social responsibility in financial reports: Evidence from mine-safety records. Journal of Accounting and Economics, 64 (2-3), 284-304.

Christensen, H. B., Hail, L., & Leuz, C. (2021). Mandatory CSR and sustainability reporting: Economic analysis and literature review. Review of Accounting Studies, 26 (3), 1176-1248.

Cohen, J., Holder-Webb, L., & Zamora, V. L. (2020). The effect of disclosure regulation on real activities manipulation: Evidence from resource extraction firms. Contemporary Accounting Research, 37 (3), 1773-1804.

Diamond, D. W., & Verrecchia, R. E. (1991). Disclosure, liquidity, and the cost of capital. Journal of Finance, 46 (4), 1325-1359.

Dye, R. A. (1985). Disclosure of nonproprietary information. Journal of Accounting Research, 23 (1), 123-145.

Dye, R. A. (1990). Mandatory versus voluntary disclosures: The cases of financial and real externalities. The Accounting Review, 65 (1), 1-24.

Dyreng, S. D., Hoopes, J. L., & Wilde, J. H. (2016). Public pressure and corporate tax behavior. Journal of Accounting Research, 54 (1), 147-186.

Einhorn, E. (2005). The nature of the interaction between mandatory and voluntary disclosures. Journal of Accounting Research, 43 (4), 593-621.

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. Journal of Accounting and Economics, 31 (1-3), 405-440.

Hombach, K., & Sellhorn, T. (2019). Shaping corporate actions through targeted transparency regulation: A framework and review of extant evidence. Schmalenbach Business

Review, 71 (2), 137-168.

Jung, W. O., & Kwon, Y. K. (1988). Disclosure when the market is unsure of information endowment of managers. Journal of Accounting Research, 26 (1), 146-153.

Kim, I., & Skinner, D. J. (2012). Measuring securities litigation risk. Journal of Accounting and Economics, 53 (1-2), 290-310.

Lambert, R., Leuz, C., & Verrecchia, R. E. (2007). Accounting information, disclosure, and the cost of capital. Journal of Accounting Research, 45 (2), 385-420.

Lang, M., & Lundholm, R. (1996). Corporate disclosure policy and analyst behavior. The Accounting Review, 71 (4), 467-492.

Lang, M., & Maffett, M. (2011). Transparency and liquidity uncertainty in crisis periods. Journal of Accounting and Economics, 52 (2-3), 101-125.

Leuz, C., & Verrecchia, R. E. (2000). The economic consequences of increased disclosure. Journal of Accounting Research, 38 (supplement), 91-124.

Leuz, C., & Wysocki, P. D. (2016). The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research. Journal of Accounting Research, 54 (2), 525-622.

Roberts, M. R., & Whited, T. M. (2013). Endogeneity in empirical corporate finance. Handbook of the Economics of Finance, 2, 493-572.

Rogers, J. L., & Van Buskirk, A. (2013). Bundled forecasts in empirical accounting research. Journal of Accounting and Economics, 55 (1), 43-65.

Shroff, N., Sun, A. X., White, H. D., & Zhang, W. (2017). Voluntary disclosure and information asymmetry: Evidence from the 2005 securities offering reform. Journal of Accounting Research, 55 (2), 369-412.

Verrecchia, R. E. (2001). Essays on disclosure. Journal of Accounting and Economics, 32 (1-3), 97-180., .

Table 1

Descriptive Statistics

Variables	N	Mean	Std. Dev.	P25	Median	P75
FreqMF	14,066	0.6044	0.8942	0.0000	0.0000	1.6094
Treatment Effect	14,066	0.5955	0.4908	0.0000	1.0000	1.0000
Institutional ownership	14,066	0.6102	0.3315	0.3297	0.7061	0.8882
Firm size	14,066	6.6484	2.1305	5.1134	6.7042	8.1377
Book-to-market	14,066	0.5079	0.5469	0.2102	0.4099	0.6982
ROA	14,066	-0.0602	0.2757	-0.0437	0.0200	0.0620
Stock return	14,066	0.0078	0.4432	-0.2306	-0.0361	0.1636
Earnings volatility	14,066	0.1596	0.3286	0.0231	0.0538	0.1432
Loss	14,066	0.3386	0.4733	0.0000	0.0000	1.0000
Class action litigation risk	14,066	0.2661	0.2495	0.0853	0.1757	0.3616

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

Table 2
Pearson Correlations
Resource Extraction Disclosure Rules

	Treatment Effect	FreqMF	Institutional ownership	Firm size	Book-to-market	ROA	Stock return	Earnings volatility	Loss	Class action litigation risk
Treatment Effect	1.00	**-0.04**	**0.06**	-0.01	-0.01	**-0.08**	**-0.06**	**0.05**	**0.07**	**0.06**
FreqMF	**-0.04**	1.00	**0.38**	**0.44**	**-0.15**	**0.25**	-0.01	**-0.20**	**-0.26**	**-0.08**
Institutional ownership	**0.06**	**0.38**	1.00	**0.63**	**-0.17**	**0.36**	**-0.03**	**-0.28**	**-0.30**	-0.02
Firm size	-0.01	**0.44**	**0.63**	1.00	**-0.29**	**0.42**	**0.07**	**-0.30**	**-0.43**	**0.05**
Book-to-market	-0.01	**-0.15**	**-0.17**	**-0.29**	1.00	**0.10**	**-0.15**	**-0.10**	**0.02**	**-0.05**
ROA	**-0.08**	**0.25**	**0.36**	**0.42**	**0.10**	1.00	**0.16**	**-0.61**	**-0.61**	**-0.25**
Stock return	**-0.06**	-0.01	**-0.03**	**0.07**	**-0.15**	**0.16**	1.00	**-0.05**	**-0.13**	**-0.05**
Earnings volatility	**0.05**	**-0.20**	**-0.28**	**-0.30**	**-0.10**	**-0.61**	**-0.05**	1.00	**0.40**	**0.23**
Loss	**0.07**	**-0.26**	**-0.30**	**-0.43**	**0.02**	**-0.61**	**-0.13**	**0.40**	1.00	**0.27**
Class action litigation risk	**0.06**	**-0.08**	-0.02	**0.05**	**-0.05**	**-0.25**	**-0.05**	**0.23**	**0.27**	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 Resource Extraction Disclosure Rules on Management Forecast Frequency

	(1)	(2)
Treatment Effect	-0.0690*** (4.45)	-0.0672*** (4.84)
Institutional ownership		0.4243*** (15.56)
Firm size		0.1219*** (25.29)
Book-to-market		-0.0965*** (8.80)
ROA		0.0650*** (2.82)
Stock return		-0.0929*** (7.37)
Earnings volatility		-0.0839*** (5.25)
Loss		-0.0812*** (4.60)
Class action litigation risk		-0.2445*** (9.86)
N	14,066	14,066
R²	0.0014	0.2248

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