Financial Disclosure Regulation to Achieve Public Policy Objectives: Evidence from Extractive Issuers

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This version: April 2017

Abstract: This study examines the effect on stock price of the SEC's 'extraction payments disclosure rule'. Intended to empower citizen groups to hold governments and firms accountable, the rule requires extractive issuers to disclose by project their payments to governments. Stock price reactions around twelve regulatory events suggest that investors, on average, expect net costs from a strict implementation of the rule. In the cross-section, abnormal returns around these events are negatively associated with firms' exposure to public scrutiny. Our findings are consistent with investors expecting costly changes in extractive issuers' 'real' business activities due to mandatory extraction payments disclosures, consistent with the rule's public policy objective.

Key terms: Disclosure regulation, event study, extractive industry, Dodd-Frank Act, extraction payments disclosure, real effects

Acknowledgments: We thank Martin Jacob, Harm H. Schütt, Christian Stier, as well as seminar participants at LMU Munich School of Management, WHU—Otto Beisheim School of Management, and Boston University for helpful comments and suggestions.

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1 Introduction

Capital markets regulators increasingly use disclosure requirements to pursue public policy objectives. By fostering transparency, policy-makers intend to empower "nontraditional monitors" (Dyreng *et al.* 2014: 153) such as activist groups, NGOs, and civil society, to pressure firms into stopping actions perceived as illegitimate (e.g., due to social, environmental, or ethical concerns).[1] Such explicit targeting of firm behavior is a rather novel approach for capital market regulators who, traditionally, are more concerned with providing a level playing field to facilitate capital allocation by market participants.[2] Hence, research evidence on the costs and benefits of financial disclosure regulation designed to achieve public policy objectives is scarce. Our study addresses this gap by providing evidence on the costs such regulation as perceived by a prime constituency of capital markets: equity investors. While equity investors may benefit from reduced information asymmetries and positive information externalities, they may also anticipate costs from 'real effects' increased public pressure on firms to change undesirable actions or internalize negative externalities (Leuz and Wysocki 2016).

Specifically, we examine the effect on stock price of an SEC rule implementing mandatory project-level disclosures of payments made by extractive issuers to governments for access to

[1] Besides the regulation of extraction payments disclosure in various countries, two recent instances of EU policy-making stand example for public policy objectives driving capital markets regulation. First, Directive 2013/34/EU sets forth enhanced disclosure of non-financial and diversity information for certain large firms in the EU based on such disclosures being "vital for managing change towards a sustainable global economy by combining long-term profitability with social justice and environmental protection" and helping "the measuring, monitoring and managing of undertakings' performance and their impact on society" (Directive 2013/34/EU, rec. (3)). Second, in April 2016, the European Commission adopted a proposal of a Directive that would require country-by-country tax reporting on grounds that "[p]ublic scrutiny can reinforce public trust and strengthen companies' corporate social responsibility by contributing to the welfare through paying taxes in the country where they are active" (European Commission 2016).

[2] The SEC, for example, states its mandate as follows: "The mission of the U.S. Securities and Exchange Commission is to protect investors, maintain fair, orderly, and efficient markets, and facilitate capital formation." (https://www.sec.gov/about/whatwedo.shtml, accessed 18 October, 2016)

natural resources (the 'extraction payments disclosure rule', or Cardin-Lugar Amendment).[3] Rooted in the 2010 Dodd-Frank Act, the rule was strongly motivated by public policy objectives, as stated by Senator Lugar, one of its sponsors: "Transparency empowers citizens, investors, regulators, and other watchdogs and is a necessary ingredient of good governance for countries and companies alike" (156 CONG. REC. S3816). In the same vein, the SEC clarified in its final rule that "the legislation reflects U.S. foreign policy interests in supporting global efforts to improve transparency in the extractive industries. The goal of such transparency is to help combat global corruption and empower citizens of resource-rich countries to hold their governments accountable for the wealth generated by those resources" (SEC 2012: 6–7). While the regulation met fierce opposition by affected oil and gas firms, it was welcomed and supported by nontraditional monitors, in particular NGOs and activist groups.[4] Against this background, this study addresses two questions: First, how did investors perceive the rule, on average, to affect firm value? Second, did that perception vary, in the cross-section, with respect to the intended use of the proposed disclosures by nontraditional monitors?

To address these questions, we exploit uncertainty in the legislative process surrounding the implementation of the extraction payments disclosure rule by the SEC. While the statutory mandate left little uncertainty as to *whether* the SEC would issue an extraction payments disclosure rule, the legislative process was marked by considerable uncertainty and debate about *how* the SEC would implement the disclosure requirements. In particular, the SEC had considerable discretion with respect to the strictness of the disclosure requirements, e.g., regarding possible exemptions of certain issuers or payments. The SEC initially followed a strict implementation

[3] We focus on stock price reactions as they capture changes in firm value as perceived by investors.
[4] More recently, the rule was rolled back, amidst Republicans accusing the SEC of overreach.

approach which triggered considerable debate, so that an originally adopted version of the extraction payments disclosure rule was vacated by court, and the SEC was forced to revise the rule. This process gave rise to several events covered in the business press and likely to make investors update their beliefs about the likelihood of a strict implementation of the extraction payments disclosure rule. We use stock returns on these event dates to infer how investors expect mandatory extraction payments disclosures to affect the values of oil and gas firms.

We hypothesize that investors, on average, perceive a negative net effect on firm value of the extraction payments disclosure rule due to its potential negative cash flow consequences. Specifically, disclosure of payments to governments could result in a competitive disadvantage vis-à-vis unregulated competitors, increased enforcement of payments collection by governmental authorities, and more intense challenging of individual projects by nontraditional monitors such as the media, NGOs, and local communities. For example, nontraditional monitors could use the disclosures to question firms' contribution to local communities, their payments to employees, or protest against specific projects for environmental reasons. Such usage likely results in costs for firms who need to take corrective actions to protect their reputation (e.g., increase payments to communities or employees) or suffer business costs (e.g., from project delays) (Franks *et al.* 2014).

In the cross-section, we expect these costs arising from nontraditional monitors' use of the extraction payments information to be larger for firms subject to more intense public scrutiny, consistent with the objective of the regulation to empower stakeholders. This second hypothesis is based on the notion that nontraditional monitors are more likely to make successful use of the extraction payments disclosures when firms are more likely to engage in illegitimate behavior and are prone to a negative spin in the public opinion.

We test these hypotheses using price reactions of US oil and gas stocks during three-day windows surrounding twelve legislative events between 2010 and 2015 that likely induced investors to change their beliefs about the likelihood of strict disclosure requirements. If investors on average anticipate net costs from the extraction payments disclosure rule, we expect negative (positive) market reactions to likelihood-increasing (likelihood-decreasing) events. To measure abnormal returns, we apply a multivariate regression model in which abnormal returns are represented by mean shifts in the return-generating process during event windows (Schipper and Thompson 1983; Thompson 1985). This approach has two advantages. First, it allows us to control for a firm's own returns on non-event dates as well as contemporaneous market returns and other changes in common industry fundamentals (i.e., oil prices) during the sample period. Second, the different expected sign of the market reaction (positive/negative) across likelihood-decreasing and likelihood-increasing events further mitigates concerns about confounding influences on firms' abnormal returns.

In cross-sectional analyses, we further examine the association between a firm's abnormal return and its exposure to public scrutiny while controlling for several firm-specific characteristics such as size, corporate governance, and business model. To measure firms' exposure to public scrutiny, we use a third-party rating provided by RepRisk AG which is based on negative stakeholder sentiment measured across a comprehensive set of sources (including news outlets and communication with NGOs).

Our results suggest that, on average, investors perceive affected firms to incur net costs from a strict implementation of the extraction payments disclosure rule. The anticipated effect as reflected in stock prices is both statistically significant and of plausible economic magnitude. Specifically, firms on average experience cumulative abnormal returns of -1.17% during an

average three-day event window. In the cross-section, firms' abnormal returns are negatively associated with their exposure to public scrutiny, consistent with investors anticipating relatively larger costs for these firms due to the use of the disclosed information by nontraditional monitors. These results are robust to several research design choices (including variable measurement and event selection) and differ significantly from outcomes of tests using random placebo event dates.

One could be concerned that the negative association between firms' abnormal returns and their exposure to public scrutiny is predominantly driven by aspects of the rule that are unrelated to its stakeholder empowerment objective. Costs alluded to by industry participants during the regulatory process include competitive disadvantages (vis-à-vis unaffected firms) and increased litigation risk where host country regulation prohibits such disclosure. Therefore, firms' exposure to foreign operations could constitute an omitted correlated variable as firms with more extensive foreign operations are likely to also be subject to more intense public scrutiny.

To shed light on this concern, we assess the association between firms' abnormal returns and their exposure to public scrutiny for a subsample of 35 firms whose oil and gas properties are entirely located in the US. These firms are arguably not exposed to the expropriation or litigation concerns above. We continue to find a significantly negative association for this subsample of firms. Consistent with reduced power of the test due to lower sample size, the significance level of the association however drops to the 10% level. This result refutes the notion that the association between firms' abnormal returns and their exposure to public scrutiny merely reflects expropriation and litigation risks which are unrelated to the rule's public policy objective.

By documenting investors' perception of the extraction payments disclosure rule, our study adds to a recent stream of literature on mandatory disclosure in financial markets regulation geared towards public policy objectives (Christensen *et al.* 2016; Dyreng *et al.* 2014; Grewal *et al.* 2015).

While much of this research has focused on non-financial disclosures, we assess investors' ex-ante perception of *financial* disclosures which could arguably be more closely related to traditional objectives of capital markets regulation geared towards investors' (rather than other stakeholders') information needs. However, our findings suggest that at least the specific financial disclosures examined in this study are of significant interest to non-investor stakeholders, and that these stakeholders' (anticipated) use of the disclosures is costly for affected firms. To this end, our findings also relate to studies on firms' social capital by pointing to disclosure as a moderator which reinforces the consideration of social norms in corporate decision-making and related outcomes (Hasan *et al.* 2016; Hasan *et al.* 2017; Hong and Kacperczyk 2009; for a review: Servaes and Tamayo 2017).

Our study also complements recent research examining the costs and benefits of granular disclosures in the extractive industry. In a contemporaneous study, Serafeim and Healy (2015) analyze voluntary, mandatory, and self-regulated disclosure of payments to governments. Using data from Transparency International on 26 large, international firms, they find that investors expect net costs from the mandatory disclosure of extraction payments. Johannesen and Larsen (2016) document a negative market response to similar European legislation (without examining cross-sectional differences in the market-response). Our study provides support for the negative average reaction using a more comprehensive set of events and (US) firms and controlling for changes in common economic fundamentals (i.e., oil price). In the cross-section, Serafeim and Healy (2015) find that the market response is stronger for firms operating in host countries with high expropriation risk and/or in host countries presumably prohibiting the disclosure of payments to governments. In a similar vein, Cannizzaro and Weiner (2015) find that oil and gas firms are less likely to voluntarily disclose information about their individual investment projects when

political risks are higher. At the same time, they find that voluntary investment-level disclosure is positively associated with social expectations of corporate transparency. Our cross-sectional analyses complement these findings by pointing to perceived costs arising from the use of mandatory corporate disclosures by nontraditional monitors. These costs are different from expropriation concerns (which arises from the use by foreign governments) and contrast with the positive association between voluntary disclosure and social expectations in Cannizzaro and Weiner (2015). While their study suggests that firms can increase their legitimacy by voluntary disclosures, our results caution against transferring this notion to mandatory disclosures.

Section 2 provides details on the disclosure requirements under section 1504 of the Dodd-Frank Act as well as the pertaining SEC rule-making process. Section 3 reviews prior literature and develops hypotheses for the average market reaction and the cross-sectional association between firms' abnormal returns and their exposure to public scrutiny. Section 4 describes the research design, while Section 5 presents the sample and descriptive statistics. Section 6 provides the results, accompanied by robustness checks in section 7. Section 8 concludes.

2 Institutional Background

2.1 Disclosure requirements under Section 1504 Dodd-Frank Act

The SEC's mandate for the extraction payments disclosure rule derives from the Dodd-Frank Wall Street Reform and Consumer Protection Act 2010 ("Dodd-Frank Act"). Specifically, s. 1504 of the Act adds Section 13(q) to the Securities Exchange Act of 1934, mandating the SEC to issue rules "that require each resource extraction issuer to include in an annual report (…) information relating to any payment made by the resource extraction issuer (…) to a foreign government or the Federal Government for the purpose of the commercial development of oil,

natural gas, or minerals, including– (i) the type and total amount of such payments made for each project of the resource extraction issuer relating to the commercial development of oil, natural gas, or minerals; and (ii) the type and total amount of such payments made to each government." (s. 13(q) (2) (A) of the Securities Exchange Act 1934).

While this statutory mandate left little uncertainty as to whether the SEC would issue a rule, the SEC had considerable discretion in terms of numerous aspects of its implementation: the Commission could limit the scope of its rules with respect to certain kinds of payments and/or issuers, reduce the granularity of the required disclosures by adopting a broad definition of the term "project", and reduce the publicity of the extraction payments by allowing confidential filing of the data. Therefore, the statutory mandate left room for uncertainty whether the SEC would opt for a strict implementation (with no exemptions, high levels of granularity, and no compilation of the publicly available data) or set forth less stringent requirements (with broad exemptions and allowing for aggregation of public payments disclosures). Tables A1 and A2 of Appendix A present details as to how the SEC exercised its discretion during the rulemaking process. Overall, the Commission followed a rather strict interpretation throughout its rulemaking with only limited exemptions and high levels of granularity required for firms' public disclosures.

The requirements of the extraction payments disclosure rule differ from other disclosures in important aspects. First, they are distinct from other frameworks which require disclosure of payments to governments as an aggregated number. In particular, some extractive firms voluntarily provide information on payments to governments made in specific countries following the recommendations of the Extractive Industries Transparency Initiative (EITI).[5] The extraction

[5] The US as a country joined the EITI by December 2015, i.e., at the end of our sample period, with 31 companies reporting under the EITI framework (US EITI 2015). Importantly, the US EITI does not mandate disclosures at the project level and only pertains to payments made to US authorities.

payments disclosure rule requires a substantially more granular level of disclosure (i.e., at the project level). Second, the extraction payments disclosure rule requires the disclosures to be compiled in one document attached to a firm's annual report. Having all payments reported in one document (rather than spread out across several country platforms, as in case of the EITI) facilitates access and reduces search costs for interested groups.

2.2 Description of events

Table 1 gives an overview of the process surrounding the implementation of the extraction payments disclosure rule. Following the statutory mandate of the Dodd-Frank Act to draft such rules, the SEC released an initial proposal for the extraction payments disclosure rule in December 2010 (event #1). The proposed rule indicated the SEC's intention to follow a rather strict implementation, refraining from making any general exemptions (e.g., with respect to certain types of payments or issuers) (see Table A1 for further details).

The proposed rule triggered much controversy among various constituents. Table C1 of Appendix C presents examples of the different positions as expressed in comment letters. While industry participants and their interest groups suggested limiting the scope of the rule (e.g., with respect to commercially harmful or otherwise sensitive information[6]), NGOs strongly opposed granting any exemptions, arguing that this would undermine the regulatory intent of the rule and would allow foreign governments to prevent disclosure by issuing legislation prohibiting it. In addition, they argued that only granular public disclosures, e.g., at the contract level, would be apt to empower citizens to hold extractive issuers and governments accountable.

[6] A letter to the editors of the Wall Street Journal entitled "The Dodd-Frank Threat to U.S. Energy" by API president Jack Gerard echoes these concerns, emphasizing potential disadvantages vis-à-vis foreign (in particular, Russian) state-owned companies in times of "a fragile recovery with 8.3% unemployment" (Gerard 2012).

Given the considerable controversy about the specific implementation of the rule, the SEC had not issued a final rule until more than a year after the release of the proposal, resulting in the NGO Oxfam announcing (event #2) and filing (event #3) a lawsuit in April and May 2012, respectively. As Oxfam pressured for strict and timely implementation of the extraction payment disclosure rule, we consider both events to be likelihood increasing. In August 2012, the SEC adopted a final rule with a close vote (2-1) (event #4; see Table A2 for details on the content of the final rule). In this final rule, the SEC continued to follow a strict implementation of the rule (e.g., by not granting exemptions to certain types of payments or issuers).

The final rule was challenged in October 2012 when the American Petroleum Institute (API), together with other business groups, filed lawsuits with both an appeals and district court against the SEC (event #5). These legal actions aimed at influencing the SEC to relax the rule (in particular, to limit public disclosure of the information), and thus decreased the likelihood of a strict implementation. The SEC, however, adhered to its final rule of 2012 and issued an order denying a motion to stay the rule (event #6), and one of the courts, the US Court of Appeals in Washington, rejected API's lawsuit (event #7).

In July 2013, the extraction payments disclosure rule was vacated by the US District Court of Columbia (event #8), followed by a similar vacation of the conflict minerals rule (event #9). In the memorandum opinion accompanying the court ruling, the US District Court of Columbia stated that the withdrawal of the extraction payments disclosure rule was due to two substantial errors: the SEC's claim that s. 1504 of the Dodd-Frank Act left no discretion to the SEC to require *public* disclosure of the reports, and the SEC's explanation on its decision to deny any exemption, e.g.,

where payment disclosure is prohibited by host countries.[7] Weakening the SEC's position vis-à-vis industry opponents, we regard the court decisions to decrease the likelihood of a strict implementation of the extraction payments disclosure rule as perceived by investors.

Following the withdrawal of the rule, the SEC went into rather lengthy reconsiderations. In September 2014, Oxfam filed a lawsuit with the US District Court of Massachusetts to speed up the SEC's rulemaking process (event #10).[8] In September 2015, the US District Court of Massachusetts responded to Oxfam's lawsuit and ordered the SEC to file an expedited schedule for promulgating the final rule, putting additional pressure on the regulator (event #11).

Finally, in December 2015, the SEC re-proposed a revised rule (event #12). Notably, the new rule continued to include public disclosure requirements for payments to governments at the project level (see Table A2 for details). It however allowed for exemptions on a case-by-case basis and upon application where payment disclosures are prohibited by law or subject to contract confidentiality, and granted relief to firms meeting "substantially similar" disclosure requirements in other jurisdictions. At the same time, the SEC adopted a granular formal definition of the term "project" without any materiality constraint. Given the only limited exemptions and the granular definition of the disclosure requirements, we regard this last event to increase the likelihood of a strict implementation of the extraction payments disclosure rule as perceived by investors. However, we acknowledge that, given the relaxations in the final rule as of 2015 and the concurrent

[7] See Memorandum Opinion, American Petroleum Institute, et al. v. Securities Exchange Commission and Oxfam America, Inc, Civil Action No. 12-1668 (JDB) (2 July, 2013).

[8] However, against the background of similar regulatory developments in the UK, EU, and Norway, Oxfam's second lawsuit was more positively perceived by industry participants in need for legal certainty and pushing for international convergence. As stated in an article published by the Financial Times: "In the meantime, the EU and Norway have adopted disclosure laws while the UK has issued draft regulations. Because oil companies will have to follow those measures, companies such as Exxon changed their stance on the SEC efforts and recently urged the agency to quickly formulate its proposal so there can be consistency across geographies and to ensure a level playing field." (Financial Times, 19 September 2014, p. 19).

legislative developments in other jurisdictions, investors might anticipate relatively lower costs from the re-proposed rule compared to the originally proposed rule. Nonetheless, we include these events in our sample period, noting that such downward revision of disclosure costs would bias against finding a significant negative market reaction.

3 Prior Literature and Hypotheses

3.1 Average market reaction to SEC rulemaking on extraction payments disclosures (H1)

It is *a priori* unclear whether investors perceive a strict implementation of the extraction payments disclosure rule to be, on average, value increasing or value decreasing. The lack of voluntary disclosure by affected firms is consistent with managers perceiving net disclosure costs (Serafeim and Healy 2015). In particular, firms could incur negative cash flow effects because of proprietary costs arising from the use of the extraction payments disclosures by third parties. In particular, the granular disclosures could reveal commercially sensitive information about firms' investment strategies to competitors (e.g., in terms of the price and location of newly acquired exploration licenses) (Badia *et al.* 2015; Hayes and Lundholm 1996; Peter 2015). Moreover, disclosing information about individual projects could increase the risk of expropriation by predatory governments (Cannizzaro and Weiner 2015; Serafeim and Healy 2015) and weaken firms' bargaining position vis-à-vis governmental agencies (e.g., when negotiating prices for new exploration licenses). Finally, firms could incur costs resulting from stricter enforcement of payment collection (Frischmann *et al.* 2008).[9]

[9] For example, the Office of Natural Resources Revenue (ONRR), being responsible for the collection of revenues from federal mineral leases, stated in a comment letter that the proposed disclosure would be helpful in its mandate to "ensure that energy companies are reporting correctly and paying every dollar due to the American taxpayer" (Comment Letter submitted by the ONRR, 4 August 2011).

Furthermore, firms are likely to incur costs from the use of the extraction payments disclosures by nontraditional monitors such as NGOs, activist groups, and civil society. Aiming to change corporate practices that are perceived to be socially unaccepted[10], nontraditional monitors engage in public campaigns, legal actions (e.g., lawsuits or objections to governmental approvals), government lobbying, and physical protests (Franks *et al.* 2014). Mandatory corporate disclosures can support such activism by revealing sensitive information, such as subsidiaries in tax havens (Dyreng *et al.* 2014), mine safety violations (Christensen *et al.* 2016), and environmental, social, and governance-related issues (Grewal *et al.* 2015).[11] Firms, in turn, incur costs from nontraditional monitors' activism because of an adverse effect on business operations (e.g., due to project delays or binding of staff resources; see Franks *et al.* 2014), or because of costly changes in firm behavior in response to the public pressure exercised by nontraditional monitors.[12] In this vein, prior literature finds that firms respond to activism by reducing tax avoidance (Dyreng *et al.* 2014), making donations (Gan 2006), or improving safety policies (Christensen *et al.* 2016). Since these measure lead to a redistribution of wealth from shareholders to other stakeholders (e.g., the government in case of taxes or employees in terms of safety policies), they can reduce firm value.

In the specific case of the extraction payments disclosure rule, NGOs and activist groups indicated that these granular disclosures would help their activities in a variety of contexts, including the improvement of government and corporate accountability, but also promoting labor

[10] For example, Baron and Diermeier (2007) describe nontraditional monitors' objectives as follows: "The goal of activism typically is to influence firm and industry practices, often motivated by social or ethical concerns" (Baron and Diermeier 2007: 599).

[11] The use of firms' corporate disclosures by nontraditional monitors is also largely consistent with the political cost hypothesis of Positive Accounting Theory, suggesting that the costs attached to the political process (e.g., wealth redistribution concerns) incentivize firms to report low earnings (e.g., Watts and Zimmerman 1986). Nontraditional monitors pressuring for the internalization of externalities can be considered a form of political costs.

[12] Reasons for taking such corrective actions are that managers want to protect their reputation (e.g., Dyck et al. 2008), avoid customer backlash (Hanlon and Slemrod 2009), or preempt stricter legislation and enforcement (Dyreng *et al.* 2014; e.g., Dyck *et al.* 2008).

safety and human rights standards (see Table C2 in Appendix C for specific examples of comment letter quotes). As a consequence, firms could experience cash outflows due to stronger enforcement of payments collection (e.g., comment letters by ONRR, Tax Justice Network), and pressure to increase their payments to local communities and social programs (e.g., comment letters by EarthRights International, World Resources Institute) as well as employees (e.g., comment letter by United Steelworkers). Similarly, information about the existence of individual projects could be used to challenge projects from an environmental perspective (e.g., comment letter by Greenpeace).[13]

Next to the costs, one could argue that investors also perceive some benefits from the extraction payments disclosure rule, despite the lack of voluntary disclosure by managers. Specifically, the disclosures could yield positive information externalities as they provide information not only about the disclosing firm, but also about other firms in the market (e.g., Admati and Pfleiderer 2000; Bushee and Leuz 2005; Dye 1990; Lambert *et al.* 2007). Moreover, investors could perceive the disclosures to be value increasing if they address agency problems (Beyer *et al.* 2010: 316; Greenstone *et al.* 2006). In particular, granular disclosures could improve monitoring and, thus, reduce empire building and overinvestment in exploration licenses (Bertrand and Mullainathan 2005; Hope and Thomas 2008).

On balance, we expect the costs of the extraction payments disclosure rule (as perceived by investors) to outweigh the benefits. This is also consistent with the strong industry opposition

[13] Anecdotal evidence further supports the notion that project-level disclosures could be helpful for nontraditional monitors' activities. In 2016, the "Keep it in the Ground" movement pressured the Interior Department to withdraw a planned oil and gas lease sale. Similar campaigns could use project-level information on exploration licenses to pressure firms and regulators to increase payments to local communities, resulting in additional costs to be borne by firms. Similarly, activists have taken local actions against oil drilling and exploration operations for social, safety, or environmental concerns, pressuring for stricter regulation (e.g., Carlton 2016). Information at the project-level likely provides a useful reference point for local activities (e.g., to pressure for increased contribution to local communities or payments to compensate for negative environmental impact).

to a strict implementation of the rule (see Table C1), suggesting that the lack of voluntary disclosure is due to net disclosure costs rather than a "prisoners' dilemma" where all firms would benefit from increased regulation, e.g., due to net positive externalities or a reduction of the market risk premium (Lo 2003). Accordingly, we state our first hypothesis, pertaining to the average market reaction, as follows:

H1: Events that increase (decrease) the likelihood of a strict implementation of the extraction payments disclosure rule are associated with significant negative (positive) abnormal stock returns among affected firms.

3.2 Abnormal returns and exposure to public scrutiny (H2)

While **H1** predicts that investors perceive the extraction payments disclosure rule to be costly due to, among other things, nontraditional monitors' activism, we further expect these costs to vary in the cross-section. Specifically, we expect firms to incur relatively larger costs when they are exposed to high public scrutiny for at least two reasons. First, the severity of misconduct that can be detected and combatted is likely higher for firms that have already attracted negative attention and can thus be suspected of behavior that is perceived to be illegitimate. Therefore, nontraditional monitors are more likely to invest resources in accessing and processing the extraction payments disclosures of these firms, and use them more intensively in their actions against firms. Second, nontraditional monitors are likely to be more successful in spinning the public opinion against firms that already exhibit negative stakeholder sentiment (Baron and Diermeier 2007; Christensen 2015; Dyck *et al.* 2008). Therefore, nontraditional monitors' activism using extraction payments disclosures is more likely to be successful when firms which face more intense public scrutiny, causing relatively higher costs for the targeted firms.

One might argue that investors perceive relatively lower costs of extraction payments disclosures for firms subject to more intense public scrutiny for two reasons. First, legitimacy theory suggests that the act of disclosing can improve a firm's relation with its constituents, and make it more likely that the firm's actions are perceived as socially acceptable (Cannizzaro and Weiner 2015; Cho and Patten 2007). However, this argument is harder to apply in the case of mandatory disclosures leading to pooling of legitimate and illegitimate firms (i.e., a firm cannot signal legitimacy through the act of disclosing).

Second, the incremental costs of extraction payments disclosures may be lower for firms already exposed to intense public scrutiny as these firms have "less to lose" from additional public pressure exerted by nontraditional monitors (King and Soule 2007). While this argument ultimately adds tension to our hypothesis, we regard it more likely that the extraction payments disclosures will complement NGOs' existing information sources rather than attract additional attention *per se*. In particular, NGOs emphasized the usefulness of extraction payment disclosures where they already suspect socially undesirable behavior, e.g., in terms of human rights violations (Table C2). In addition, NGOs made explicit reference in their comment letters to large and scrutinized firms[14], bringing the potential costs for these firms to investors' attention.

In conclusion, nontraditional monitors are both more likely to access the extraction payments disclosures due to higher expected net benefits, and to initiate more successful actions when firms are subject to more intense public scrutiny. Given that these actions yield costs for affected firms, we expect investors to anticipate relatively larger costs resulting from the extraction

[14] For example, EarthRights International presents detailed case studies of Chevron's and Total's activities in Burma (EarthRights International, Comment Letter of 26 January 2011).

payments disclosure rule for firms under more intense public scrutiny. Thus, we state our cross-sectional hypothesis as follows:

H2: Firms which are exposed to more intense public scrutiny experience relatively more negative (positive) abnormal returns to events increasing (decreasing) the likelihood of a strict implementation of the extraction payments disclosure rule.

4 Research Design

4.1 Selection of events

We exploit the uncertainty attached to the rulemaking process surrounding the extraction payments disclosure rule in our research design by examining stock price reactions to events likely to affect investors' beliefs about the likelihood of a strict implementation of the rule. To identify such events, we search the SEC website and perform a keyword search on ABI/Inform and LexisNexis.[15] Table 1 summarizes the events relating to the implementation of the extraction payments disclosure rule. selected events. Most of the events receive media coverage. Not unusual for a regulatory event study, most events are considered to be likelihood increasing.

Our event period ranges from the first proposal of the rule by the SEC in December 2010 to a re-proposal of the rule in December 2015 (Table 1). We exclude events predating this period (i.e., events relating to the Dodd-Frank Act in general) because other aspects of the reform, such as new derivative trading rules, likely had a negative impact on extractive firms. Therefore,

[15] The keyword search contains different combinations of "oil", "extractive", "Dodd-Frank", and "payment disclosure rule". To assess whether an event is likely to affect investors' beliefs about the implementation of the extraction payment disclosure rule, we assume that announcements of tangible legal actions (such as lawsuits) generally have the potential to affect how the SEC will exercise its discretion, and therefore lead to investors' updating their beliefs. By contrast, we do not expect the publication of opinion pieces in newspapers by different constituent groups (such as NGOs or oil firm CEOs) to materially affect the SEC's decision process and hence updating of investors' expectations.

negative stock price reactions to the Dodd-Frank Act would be difficult to attribute to the perception of the extraction payment disclosure rule. We further also exclude the issuance of the final rule in 2016, which postdates our event period, as there was comparatively little dispute about the 2015 proposal and it was mostly adopted as proposed.[16] Thus, we do not expect much uncertainty to be resolved by the event.

We do not exclude events during which the SEC made simultaneous announcements regarding a closely related rule mandating the disclosure of conflict minerals (s. 1502 Dodd-Frank Act) given that the latter rule is not specific to oil and gas firms (i.e., much of investors' reaction to it should be absorbed by market returns). It is also similar in spirit to the extraction payments disclosure rule as it requires mandatory disclosures by listed firms to enforce public policy objectives.[17]

To gauge the existence of potential confounding events, we follow Larcker *et al.* (2011) and review the "Business and Finance" section of the Wall Street Journal. Table B1 of Appendix B summarizes excerpts from the "Business and Finance" section that indicate potential confounding events relating to the extractive industry or the macroeconomy. Neither market nor oil news seem to systematically coincide with the event dates. There are some firm-specific news events concurring with the event dates, but not all are likely to trigger stock price reactions in the same direction as the legislative event and none relates specifically to any one of the sample firms. Accordingly, we do not exclude any event due to confounding developments.

[16] The reduced dispute about the 2015 proposed rule is, e.g., reflected in constituents' participation in the rulemaking process. The SEC published on its website 364 comment letters on the rule proposed in 2010, but only 64 comment letters on the rule proposed in 2015 To the extent that the adoption of the final rule in 2016 did affect investors' beliefs, excluding the event will reduce the power of our tests.

[17] In robustness tests, we exclude events that potentially also relate to the conflict minerals rule in robustness tests. While significance levels drop, inferences remain qualitatively unchanged.

4.2 Average market reaction (H1)

H1 predicts that, on average, investors perceive the regulation to be net costly for firms. To test **H1**, we apply event study methodology. If investors update their beliefs about firm value in response to the legislative events, we expect statistically significant negative (positive) abnormal returns during event windows increasing (decreasing) the likelihood of a strict implementation of the extraction payment disclosure rule. As with all event studies, this is a test of a joint hypothesis about both the information content of the event and market efficiency (e.g., Fama 1998).

To measure firms' abnormal returns, we use a multivariate regression model in the spirit of Schipper and Thompson (1983). In doing so, we assume a certain return-generating process and condition it on the occurrence or non-occurrence of an event, as expressed in Equation (1):

$$R_{it} = \alpha + \beta MKT_t + \varphi OIL_t + \gamma EVENT_t + \varepsilon_{it} \quad (1)$$

R_{it} denotes firm i's daily return on date t, MKT_t is the CRSP equally weighted market return on date t[18], OIL_t is the return on Brent oil prices on date t, and $EVENT_t$ is a signed dummy variable equal to one (minus one) if date t falls into the three-day window surrounding any event increasing (decreasing) the likelihood of a strict implementation of the extraction payments disclosure rule, and zero otherwise. While the market return captures contemporaneous macro-economic shocks, changes in oil prices reflect common fundamental movements of the sample firms (Bertrand and Mullainathan 2001; Jung 2012).

β and φ reflect the average comovement of stock returns with the market portfolio and oil price changes, respectively, on non-event days. The intercept, α, presents sample firms'

[18] We use an equally (rather than value-weighted) market return in order to capture price movements pertaining to the average firm (in the market). Inferences remain unchanged when we use the value-weighted market return.

expected average excess stock return on non-event days (after partialing out common movements with market returns and oil prices). The coefficient of interest, γ, reflects the mean shift in returns (conditional on concurrent market returns and oil price changes) during event windows.[19] Note that γ reflects an effect that is averaged across both firms and events. In particular, we focus on a pooled event dummy across all events because the legislative process extended over a period of five years, making it difficult to pinpoint the exact points in time during which market participants materially revised their beliefs. While the reactions to individual events therefore might be rather weak, slight variation in abnormal returns could occur with sufficient consistency across all events so that it is picked up by the pooled event dummy (Armstrong *et al.* 2010; Larcker *et al.* 2011).

The identification of abnormal returns is likely plagued by cross-sectional correlation due to common economic fundamentals and identical event dates for all sample firms (Bernard 1987; Moulton 1990; Schipper and Thompson 1983). To account for cross-sectional correlation, we cluster standard errors by date. This approach has been applied in recent research facing similar issues of cross-correlation in a single industry setting (Bowen and Khan 2014; Chircop and Novotny-Farkas 2016) and allows for arbitrary correlation of residuals across firms on any given date in the sample period.[20] Clustering by date, we merely assume that returns are not autocorrelated, consistent with the idea that stock prices follow a random walk.[21]

[19] See Thompson (1985: 158–9) for a detailed discussion on how the parameters in the multivariate regression model with event dummies are akin to estimates obtained from a conditional market model.

[20] Alternatively, extant studies have addressed the problem of cross-sectional correlation by time-series regressions of portfolio returns (Jaffe 1974; Mandelker 1974; Frischmann *et al.* 2008; Greenstone *et al.* 2006). Clustering standard errors by date, however, allows us to make use of all observations in the multivariate regression. Inferences remain unchanged when we estimate Equation (1) using an equally-weighted portfolio of sample firms and robust standard errors.

[21] Consistent with stock prices following a random walk, standard errors remain very similar when we cluster by both firm and date.

4.3 Cross-sectional determinants (H2)

H2 predicts that investors perceive the extraction payment disclosure rule to be relatively more costly for firms exposed to more intense public scrutiny. To test **H2**, we estimate the following cross-sectional model of firms' abnormal returns as a function of their exposure to public scrutiny and other firm-level determinants:

$$\gamma_i = \delta_1 + \delta_2 SCRUTINY_i + \delta' X + \varepsilon_i \quad (2)$$

where γ_i is firm i's average abnormal return over all event windows[22], $SCRUTINY_i$ is firm i's average exposure to public scrutiny during the sample period, and X is a vector of firm-specific control variables (see Table 2 for variable descriptions and sources).

To measure the cross-sectional variable of interest, $SCRUTINY_i$, we use rating data provided by RepRisk (see Appendix D for a more detailed description of these data). RepRisk rates firms in terms of their exposure to public scrutiny as reflected in negative stakeholder sentiment measured across various sources (including, e.g., different media sources, NGOs, and governmental bodies). Specifically, RepRisk offers two metrics: a categorical rating (ranging from AAA to D, with AAA indicating low public scrutiny) and a continuous index (ranging from 0 to 100, with higher values indicating more intense public scrutiny). In our main tests, we measure $SCRUTINY_i$ as a dummy variable that is one if the firm fails to achieve a high rating on RepRisk (i.e., AA or better), and zero otherwise. Given the overall distribution of ratings across sample firms, this roughly corresponds to a median split (Table D1 of Appendix D).

[22] Specifically, γ_i presents firm i's average abnormal return over all event windows obtained from a firm-specific version of Equation (1): $R_{it} = \alpha_i + \beta_i MKT_t + \varphi_i OIL_t + \gamma_i EVENT_t + \varepsilon_{it}$.

The control vector, X, includes a set of firm characteristics that could be associated with firms' costs and benefits of the extraction payments disclosures or their information processing. First, we control for size, measured by the logarithm of market value of equity. On the one hand, smaller firms commonly face disproportionally higher costs from additional regulation. On the other hand, large and diversified firms could have more possibilities to hide operations through aggregation, and could thus experience larger costs from revealing granular disclosures. Additionally, larger firms could have more attentive investors who more accurately process the information revealed in the event window. Thus, we do not make a prediction on the sign of the size coefficient.

Second, we control for the richness of firms' information environment by including the logarithm of the number of analysts following the firm as recorded on I/B/E/S. On the one hand, firms operating in an information environment that is already rich could incur lower proprietary costs from additionally disclosing more disaggregated information. On the other hand, investors of firms in a richer information environment are more likely to correctly and timely process the information released during the event window, suggesting a negative association with abnormal returns. Thus, we do not make a prediction with respect to the coefficient on analysts following.

Third, we control for differences in firms' corporate governance structure by including a dummy variable indicating whether the firm has a staggered board. By shielding managers from removal, staggered boards can foster agency conflicts, e.g., by encouraging empire building (Bebchuk *et al.* 2009; Bebchuk and Cohen 2005). Since granular disclosures can help mitigate such agency problems, we expect a positive sign on the staggered board dummy.

Fourth, we control for the geography of firms' business operations. To that end, we include a dummy variable indicating whether a firm's oil and gas properties are entirely based in the US,

or whether it has any oil and gas properties abroad. We obtain this variable from the description of firms' business model in its 10K at the beginning of the sample period, and double-check the non-existence of foreign properties by examining its reserves and acreage disclosures.[23] Given that foreign firms likely face higher risks of losing business in corrupt countries and expropriation following the disclosure of payments to governments, we expect a negative sign.

Finally, we control for institutional ownership. We expect a negative sign on the respective coefficient because of both enhanced information processing by institutional investors and their concerns about their portfolio firms' exposure to public pressure by nontraditional monitors (Christensen *et al.* 2016).

In robustness checks, we further include the ratio of firms developed reserves over total (i.e., developed and undeveloped) reserves to control firm differences in firms' business models and investment risk. Specifically, we expect firms with a higher share of developed reserves to be less risky as no future capital investments are needed to generate cash flows from their properties. Since these firms with a high share of developed reserves should incur relatively lower proprietary costs from disclosing information on, e.g., recently obtained exploration licenses, we expect a positive sign.

To account for cross-sectional correlation due to single-industry setting and the identical event dates experienced by all sample firms, we follow the approach proposed in Sefcik and Thompson (1986). This approach has been widely applied in similar event studies where cross-sectional correlation is a concern (e.g., Chircop and Novotny-Farkas 2016; Espahbodi *et al.* 2002;

[23] The advantage of this dichotomous measure over continuous measures (e.g., the percentage of foreign sales disclosures) is that it can be constructed independently of firms' aggregation choices, e.g., with respect to their geographic segments, and is not confounded by differential valuations of domestic and foreign properties, e.g., due to their risk profile.

Frischmann *et al.* 2008).[24] It forms separate portfolios for each cross-sectional determinant with weighted portfolio returns based on the full covariance matrix of residual and the cross-sectional variable of interest. Next, equation (1) is estimated as a time-series regression for each individual portfolio:

$$R_{kt} = \alpha_k + \beta_k MKT_t + \varphi_k OIL_t + \gamma_k EVENT_t + \varepsilon_{pt} \quad (3)$$

for $k = (1, 2, ..., K)$ and with $K = 7$ (i.e., one portfolio is formed for each of six cross-sectional determinants and the constant). Note that the coefficient γ_k obtained from the portfolio regression for the k th determinant is identical to the coefficient δ_k in equation (2). That is, it reflects the association between the k th cross-sectional determinant and firms' abnormal returns. Importantly, the standard errors relating to γ_k are robust to heteroscedasticity and account for cross-sectional dependence.

5 Sample Selection and Descriptive Statistics

5.1 Sample selection

Table 3 presents the sample selection. We start our sample selection with all firms on CRSP with SIC codes 1300-1399 ("Oil and Gas Extraction"), 2911 ("Petroleum Refining"), or 5172 ("Petroleum and Petroleum Products Wholesales") between June 2010 and December 2015. While the SEC rule also affects mining companies, we focus on oil and gas firms as this allows us to hold industry characteristics largely constant and control for observable common fundamentals (i.e., oil prices). From this starting point, we drop firms that have a business model outside the scope of the rule and/or because they file forms 20-F/40-F. The former ensures that firms are actually affected

[24] For a detailed description of an application of the Sefcik and Thompson (1986) approach, see, e.g., Espahbodi *et al.* (2002).

by the rule, while the latter mitigates concerns about direct confounding effects unfolding from similar legislation in other jurisdictions, e.g., in Canada and the EU (Johannesen and Larsen 2016). We assess firms' business models based on the business model description in their 10-K filings, and specifically exclude firms only conducting transportation, marketing, or other ancillary services, as well as refineries without own production and exploration activities.[25]

For testing the average market reaction, we further require firms to have returns available on CRSP for all twelve event windows to avoid confounding of our results by differences in sample composition across events. This procedure yields 95 firms for estimating the average market reaction, and 133,512 daily return observations (Panel A of Table 3). For the cross-sectional analyses, we further drop 23 firms without a RepRisk rating and two firms with missing information on control variables and/or a broken time-series of returns (2). These requirements leave us with 67 firms to estimate the cross-sectional model (Panel B of Table 3).

5.2 Descriptive statistics

Panel A of Table 4 presents descriptive statistics on the variables used to assess the average market reaction. Sample firms' mean and median returns throughout the sample period are close to zero. With respect to the cross-sectional determinants (Panel B of Table 4), 45% of firms are subject to intense public scrutiny as indicated by their RepRisk rating. Similarly, sample firms have, on average, a RepRisk Indicator (RRI) of 0.34 (normalized to range from 0 to 1, with higher values indicating exposure to more intense public scrutiny). With respect to the covariates, sample firms have an average market value of equity of $17,461 million (median: $3,699 million) and are,

[25] The extraction payments disclosure rule only affects firms meeting the definition of a "resource extraction issuer", i.e., firms filing with the SEC and engaging in "the commercial development of oil, natural gas, or minerals". This includes "exploration, extraction, processing, export, and other significant actions relating to oil, natural gas, or minerals, or the acquisition of a license for any such activity" (Securities Exchange Act of 1934, 13(q)(1)(A)) as amended by Dodd-Frank Act sec. 1504). Refinery, marketing, transportation, or smelting activities are not included in this definition (SEC 2012: 46).

on average, followed 17 analysts. 48% of the sample firms have oil and gas properties outside the US, and 42% have a staggered board. Institutional ownership in the sample firms is comparatively high (mean: 77%, median: 84%). On average, 56% of sample firms' total proved reserves are developed, but there is little variation in terms of the ratio of developed over total proved reserves (interquartile range: 50% to 64%).

As expected, sample firms' returns are highly positively correlated with both the contemporaneous market return and contemporaneous changes in oil prices (Panel A of Table 5). With respect to the cross-sectional determinants, firms' RepRisk Index is highly positively correlated with firm size and the existence of foreign properties, indicating that larger firms and firms operating abroad obtain lower ratings. Also, firm size is highly correlated with analyst following, as is institutional ownership (Panel B of Table 5).

To assess the implications of the sample selection requirement of RepRisk rating, Panel A of Table 6 compares abnormal returns and control covariates of the full sample of 95 firms used to assess the average market reaction ("full sample") to the subset of 67 firms with an available RepRisk rating that are used in the cross-sectional analyses ("RepRisk sample"). While the difference in abnormal returns across the two samples is both small in magnitude and statistically insignificant, firms in the RepRisk sample are significantly larger in terms of both average market value of equity and number of analysts. Consistent with institutional investors being key users of the RepRisk business intelligence, firms in the RepRisk sample have a significantly higher share of institutional ownership. Apart from these differences, firms in the full sample and the RepRisk sample do not differ in terms of location of their operations, staggering of their board, and the development stage of their reserves. We conclude from this comparison that while the results of

the cross-sectional analyses might not generalize to smaller firms, they are unlikely to be confounded by other firm characteristics such as firms' corporate governance or business model.

Panel B of Table 6 compares the covariates of firms with high ($SCRUTINY = 0$) and low RepRisk Rating ($SCRUTINY = 1$). Firms with a high rating are significantly smaller, less likely to have international operations, and have a lower business risk as indicated in the share of developed acreage in total acreage. This comparison emphasizes the need to control for firms' size and business model in the cross-sectional analysis to isolate the effect of firms' exposure to public scrutiny.

6 Results

6.1 Average market reaction (H1)

Column (1) of Table 7 presents results on sample firms' average market reaction. The $EVENT$ coefficient is negative and significant at the 5% level (*t*-stat: -2.50). It reflects the mean shift in sample firms' excess returns (i.e., after partialing out contemporaneous market returns and changes in oil prices) during event windows. In terms of economic magnitude, sample firms experience negative returns of -1.17% over an average three-day event window. Supporting **H1**, the negative average market reaction suggests that investors anticipate, on average, net costs from a strict implementation of the extraction payments disclosure rule. The other coefficients behave as expected. In particular, sample firms' returns are positively associated with both contemporaneous market returns and changes in oil prices. The constant is close to zero, reflecting that sample firms do not, on average, earn excess returns on non-event dates.

While we focus on the average market reaction pooled across all events, Column (2) of Table 7 decomposes the $EVENT$ variable into signed dummy variables for

individual event windows. Of the twelve events, five show significant coefficients in the expected direction. One coefficient (relating to event #8) is significant at the 5% level, but not in the expected direction.[26] Overall, results from individual events support the conclusion from the pooled event analysis.

6.2 Cross-sectional determinants (H2)

Table 8 presents results of the cross-sectional analyses. Column (1) presents the main specification. Supporting **H2**, firms' exposure to public scrutiny is significantly negatively associated at the 5% level with their abnormal returns. This is consistent with extraction payments disclosures unfolding particularly detrimental effects for firms when they are subject to increased public scrutiny. Holding other covariates constant, firms subject to intense public scrutiny ($SCRUTINY = 1$) exhibit, on average, 0.27 percentage points lower (i.e., more negative) abnormal returns on event dates compared to firms not subject to intense public scrutiny ($SCRUTINY = 0$). Thus, the association between exposure to public scrutiny and the costs of extraction payments disclosure as perceived by investors is both statistically significant and of plausible economic magnitude.

With respect to the control variables, the coefficient on firm size is positive and statistically significant, consistent with smaller firms facing disproportionally higher costs of implementing

[26] Studies employing a similar methodology also commonly show some lack of significance with respect to individual events (e.g., Bowen and Khan 2014; Chircop and Novotny-Farkas 2016), or individual event date portfolio returns with other than the predicted signs (Armstrong *et al.* 2010). One potential explanation for the unexpected sign of the coefficient on event #8 could be an unusual behavior in oil prices during the event window. In particular, prices jumped following an announcement of a drop in domestic inventories (Mufson and Sokou 2013; see also the news on event #8 in Table B1). Such highly positive, unusual changes in oil prices could reduce sample firms' abnormal returns. Consistent with this notion, the coefficient on event #8 becomes positive, but insignificant (t-stat: 1.26) when we do not control for oil price changes in the regression.

the regulation. The other control variables do not exhibit significant associations with firms' abnormal returns.

Inferences are the same when we use an alternative metric provided by RepRisk as a proxy for firms' exposure to public scrutiny. Column (2) of Table 8 reports results using the continuous RepRisk Indicator (rather than the rating; see Appendix D for details on the two metrics). Following RepRisk's recommendation to use firms' peak RRIs over the time period of interest as the main measure of reputational risk (RepRisk 2016), we use the maximum value of firms' RRI during the sample period. The coefficient on the RepRisk Indicator is negatively associated with firms' abnormal returns and statistically significant at the 5% level.

7 Robustness Tests

7.1 Confounding effects resulting from foreign operations

During the rulemaking process, extractive issuers raised concerns that the required disclosures could impede their businesses operations in foreign jurisdictions. Potential costs could arise from increased risk of expropriation by foreign governments and/or litigation due to foreign regulation prohibiting disclosure of payments (e.g., comment letter by API, submitted 12 December 2010). At the same time, firms operating in opaque and expropriation-prone foreign jurisdictions might be exposed to more intense public scrutiny, e.g., because of increased exposure to corruption or lower levels of protection of human rights. Therefore, the negative association between exposure to public scrutiny and abnormal returns (as predicted by **H2**) might reflect increased costs relating to firms' foreign operations due to the use of the information by foreign governments, rather than by nontraditional monitors.

To examine whether expropriation and litigation concerns relating to foreign operations have a major impact on the association between firms' abnormal returns and their exposure to public scrutiny, we repeat our cross-sectional analysis for a subsample of firms with oil and gas properties only in the US (Column (3) of Table 8). Given the lack of foreign operations, these firms should not be exposed to the concerns above. However, their disclosures should still reveal useful information to nontraditional monitors.[27]

While this subsample only comprises 35 firms, inferences remain unchanged. In particular, the average market reaction is of similar magnitude and strength as for the full sample of firms (coeff.: -0.0047; *t*-stat: -2.46). In the cross-section, exposure to public scrutiny continues to be statistically significantly and negatively related to firms' abnormal returns. While the coefficient remains of similar magnitude as in the main result, statistical significance drops to the 10% level, likely reflecting the stark reduction of the sample size. In conclusion, these findings mitigate concerns that the relation between firms' exposure to public scrutiny and abnormal returns is confounded by firms' exposure to foreign operations.

7.2 Research design choices

We assess the robustness of our results with respect to several research design choices. First, we exclude four events that could potentially also relate to conflict minerals (untabulated). With respect to the average market reaction (**H1**), this reduces the statistical significance of the $EVENT$ coefficient to the 10% level (*t*-stat: -1.90), while the coefficient remains similar in terms of magnitude (coeff.: -0.0040). With respect to the cross-sectional analyses (**H2**), inferences

[27] While some issues (such as human rights violations or corruption) might arguably be less severe for US operations, these firms are still exposed to conflicts with local communities and environmental disputes. For example, the "Keep it in the Ground" movement recently pressured the Interior Department to withdraw a planned oil and gas natural lease sale (Anonymous 2016).

remain unchanged. In particular, the coefficient on *SCRUTINY* remains of very similar magnitude and statistical significance (coeff.: -0.0028; *t*-stat: -2.07). These results are consistent with a loss of precision with which the average market reaction can be estimated due to the exclusion of (potentially important) events. However, the notion that investors perceive relative larger costs from the extraction payments disclosure rule does not seem to hinge on events that could also be related to the disclosure of conflict minerals.

Second, we assess the robustness of our results to alternative model specifications to test the average market reaction (**H1**). Inferences remain unchanged when we estimate Equation (1) using the value-weighted CRSP market return or the value-weighted CRSP market return excluding extractive issuers. In particular, the coefficient on the pooled event dummy remains significant at the 5% level (untabulated). Moreover, inferences remain unchanged when we use two-way clustered standard errors by date and firm, consistent with the idea that there is little autocorrelation in daily returns (untabulated). Finally, inferences remain unchanged when we estimate Equation (1) as a portfolio time-series with robust standard errors to account for cross-sectional correlation (e.g., Frischmann *et al.* 2008) (untabulated).

Third, we assess the robustness of our cross-sectional findings to alternative model specifications (**H2**). Inferences with respect to the negative association between firms' abnormal returns and their exposure to public scrutiny remain unchanged when we extend our main model by additionally controlling for firms' share of developed reserves. While the additional data requirements slightly reduce the sample size, the coefficient on public scrutiny increases in magnitude (coeff.: -0.0039), and becomes significant at the 1% level (Colum (4) of Table 8). Further, inferences with respect to the association between firms' exposure to public scrutiny and abnormal returns remain unchanged when we drop analysts following from the control vector in

Equation (2) given its high correlation with size (untabulated). In particular, the coefficient is of similar magnitude and remains significant at the 5%-level (coeff.: -0.0027, *t*-stat: -2.41).

7.3 Placebo analyses

A general concern in event studies relates to confounding events. Several aspects of our main tests mitigate this concern. In particular, we do not find specific confounding news on the event dates (Table B1 of Appendix B), make differential predictions for events decreasing and increasing the likelihood of the regulation, and control for market and oil price movements in the multivariate regression model. Yet, some concerns remain, e.g., because of the rapid decline in both oil prices and oil stocks especially during the latter part of our sample period, coupled with most events designated to increase the likelihood of the regulation (i.e., predicting a negative market reaction). To the extent that such general market trend is not adequately captured by the controls in the multivariate model, the negative average market reaction could be overstated.

To assess the sensitivity of our findings to concerns about confounding market trends, we compare our results to the outcomes of placebo tests using non-event dates falsely assigned as event dates. If some general market trend chiefly affects our results, we expect the outcomes of these placebo tests to closely mirror the results of our main tests.

To assess the average market reaction, we randomly draw twelve non-event dates mirroring the signing and year-over-year distribution of the true event dates[28] and use them as placebo event dates (Armstrong *et al.* 2010; Larcker *et al.* 2011). We then use these placebo events to construct a signed pooled event dummy and estimate Equation (1) using the placebo event dummy and non-event dates. We repeat this procedure 500 times (i.e., drawing twelve events each time), obtaining

[28] That is, we draw one event from 2010, five events from 2012, two events from 2013, two events from 2014, and two events from 2015. We further sign the fourth event of 2012, the second event of 2013, and the first event of 2014 as likelihood-increasing.

500 coefficients on the placebo event dummy. The mean of these 500 coefficients ($E[\gamma]$) is statistically different from the coefficient obtained using the true event dates (mean of 500 placebo coefficients: -0.0007, true coefficient: -0.0039, *t*-stat of $\gamma = E[\gamma]$: 9.48). In 8 of the 500 placebo regressions, the *t*-statistics relating to the placebo EVENT coefficient is more negative than in the original regression (mean of placebo *t*-stats: -0.26, original *t*-stat: -2.50).

Similarly, we perform a placebo analysis to mitigate concerns that the public scrutiny variable captures some underlying firm characteristic that is associated with firms' stock performance in general, rather than their specific reactions to the regulatory announcements.[29] Similar to the placebo tests of the average market reaction, we estimate the portfolio-specific regression of each cross-sectional determinant as in Equation (2) using twelve randomly selected placebo event dates. Table 9 compares the coefficients on the cross-sectional determinants of our main tests (using the true event dates; δ) with the mean of the distribution of coefficients obtained using placebo event dates ($E[\delta]$. The average coefficients obtained from the placebo tests are both small in magnitude and significantly different from the originally obtained coefficients.

In conclusion, firms' average abnormal returns on event dates and the association between these abnormal returns and public scrutiny on event dates are significantly different from placebo outcomes obtained on non-event dates. This mitigates concerns that our main results pick up some underlying market trend not adequately captured in the multivariate regression model.

[29] This concern is already mitigated in the multivariate regression model as the pooled event dummy only captures mean shifts in excess returns, i.e., after partialling out firms' returns on non-event dates (through the constant).

8 Conclusion

This study investigates the net effects on firm value that investors anticipate from the SEC's extraction payments disclosure rule. Understanding how investors perceive the extraction payments disclosure rule to affect firm value is important because investors are the prime focus group of capital markets regulation. We document a negative average market reaction to legislative events that make a strict implementation of the extraction payments disclosure rule more likely (**H1**). While this finding does not directly speak to the question whether disclosure regulation is desirable from investors' point of view (Kurlat and Veldkamp 2015), it points towards a potential unintended consequence experienced by *current* investors (i.e., a loss in firm value of affected firms).

In the cross-section, we document that investors perceive the disclosures to be relatively more costly for firms exposed to more intense public scrutiny (**H2**). This finding is consistent with investors expecting nontraditional monitors, such as the media and NGOs, to use extraction payment disclosures to force extractive issuers to internalize negative externalities, e.g., with respect to relations with local communities or environmental activities. It further reflects the objective of the regulation to empower nontraditional monitors to hold firms accountable for their extractive projects. However, this result needs to be interpreted with caution as it speaks to investors' expectations about the consequences of the mandatory disclosures on firm value, which might differ from the actual consequences incurred *ex post*.

The results of our study are subject to some limitations. Given that RepRisk data are not comprehensively available for all firms, we caution that our cross-sectional findings do not necessarily generalize especially to smaller firms for whom public scrutiny might, overall, be a less important issue. A similar caveat applies to the generalization of our results to other industries,

given that the extractive industry attracts particularly high attention by regulators and the general public.

Finally, our findings do not shed light on the different channels through which public scrutiny can relate to firm value. For example, the relation might be due to higher detection risk of socially unaccepted behavior or highly scrutinized firms being more vulnerable to public pressure (e.g., due to nontraditional monitors being able to use negative stakeholder sentiment for media slant). Future research could shed light on these issues by examining the consequences of the disclosures *ex post*. In particular, investigating how nontraditional monitors actually make use of the new extraction payment disclosures and how firms respond to such usage could provide important insights in evaluating the usefulness of disclosure regulation in pursuing public policy objectives unrelated to capital markets.

Appendix A: Institutional Details on the Extraction Payments Disclosure Rule

Table A1 Exercise of Discretion in SEC Rulemaking 2010/2012

	Section 13(q) Securities Exchange Act of 1934	**Proposed Rule 2010: Proposal (P) and Requests for Comments (R)**	**Final Rule 2012**
Information to be included in annual report filed with SEC	"type and total amount of such payments made for each project of the resource extraction issuer relating to the commercial development of oil, natural gas, or minerals; and the type and total amount of such payments made to each government." (para. 2(A)) Tags required on total amounts of payments by category, currency used to make the payments, financial period, business segment, government that received the payment and its country, project, and other information as required by Commission (para. 2(D)(ii)(VII))	P: Type and total amount of payments made for each project; type and total amount of payments made to each government; total amounts of the payments, by category; currency used to make the payments; financial period in which they payments were made; business segment; government receiving the payments and its country; project to which payments relate (§229.105 (a))	Adopted as proposed (Item 2.01(a), Form SD)
Definition of "resource extraction issuer"	"an issuer that (i) is required to file an annual report with the Commission; and (ii) engages in the commercial development of oil, gas, or minerals" (para. 1(D))	P: As in 13(q), but clarification that definition does include entities controlled by governments and does not include manufacturers of a product used in the commercial development of a resource or transportation service providers (II. C.) R: Exemptions (see below)	Adopted as proposed (§240.13q-1(b)) (no exemptions)

Cont'd			
	Section 13(q) Securities Exchange Act of 1934	**Proposed Rule 2010: Proposal (P) and Requests for Comments (R)**	**Final Rule 2012**
Definition of "payments"	"any payment (…) to a foreign government or the Federal Government for the purpose of the commercial development of oil, natural gas, or minerals" (para. 2(A)) where "payment" includes "taxes, royalties, fees (including license fees), production entitlements, bonuses, and other material benefits" (para. 1(C)(ii))	P: List of payments as in section 13(q) R: Specification of "material benefits", inclusion of dividends in the list of payments and infrastructure improvements, explicit requirement to disclose "social and community payments", inclusion of payments in kind (II. D. 1.)	Adopted largely as proposed, dividends and payments for infrastructure improvements added to list of payments (Item 2.01(c)(6), Form SD); no inclusion of "other material benefits" in list; restriction to disclosure requirements to payments explicitly listed; no disclosure of "social and community payments"
Definition of "project"	None	None R: Definition of "project", aggregation by country rather than project, restriction to material projects (II. D. 3.)	No definition; release makes general reference to contracts as basis and clarifies that project-level is more granular than country-level reporting; no materiality threshold
Exemptions	De minimis payments (amount to be defined)	P: De minimis thresholds to be defined, no further exemptions R: Exemption of certain categories of issuers (e.g., smaller reporting companies, foreign private issuers, government-owned firms) (II. B.) R: Definition of de minimis payments (II. D. 2.) R: Exemption in case of disclosure under similar regimes (e.g., EITI)	De minimis threshold of $100,000 per single payment or series of related payments (Item 2.01(c)(7), Form SD) No further exemptions

Cont'd

	Section 13(q) Securities Exchange Act of 1934	Proposed Rule 2010: Proposal (P) and Requests for Comments (R)	Final Rule 2012
Disclosure format	Submission to the Commission using an interactive data format (para. 2(C)) with electronic tags (para. 2(D)) "To the extent practicable, the Commission shall make available online, to the public, a compilation of the information" (para. (3)(A))	P: Disclosure of information in two exhibits to firms' 10-K (one in ASCII/HTML, one in XBRL), with reference in the 10-K; tags R: form and content of compilation	Introduction of new Form SD, with reference in 10-K, to be filed no later than 150 days after fiscal year-end; no confidential disclosure to SEC

This table provides an overview of selected aspects of SEC rulemaking on the extraction payments disclosure rule between 2010 and 2012. The first column summarizes the statutory requirements that have been added to the Securities Exchange Act 1934 by the Dodd-Frank Act. The second and third column show how the SEC exercised the discretion left by the statutory mandate in its rulemaking. In particular. the second column presents the implementation of these aspects in the proposed rule released by the SEC in December 2010. "P" refers to the actual proposal, and "R" refers to examples of aspects the SEC specifically invited constituents to comment on ("Request for Comment"). The third column presents the implementation as in the final rule issued by the SEC in August 2012.

Table A2 Exercise of Discretion in SEC Rulemaking 2015/2015

	Proposed Rule 2015: Proposal (P) and Requests for Comments (R)	**Final Rule 2016**
Information to be included in annual report filed with SEC	P: As in final rule 2012, but additional information on the particular resource that is the subject of commercial development and the subnational geographic location of the project (Item 2.01(a) Form SD)	Adopted as proposed (Item 2.01(a) Form SD)
Definition of "resource extraction issuer"	P: As in final rule 2012, but restriction to issuers filing Forms 10-K, 20-F, or 40-F (Item 2.01(c)(11) Form SD) R: Exemptions (smaller issuers, foreign private issuers)	Adopted as proposed (Item 2.01(d)(10) Form SD)
Definition of "payments"	P: As in final rule 2012 (Item 2.01(c)(9) Form SD) R: Inclusion of "social and community payments"; need for additional guidance	Adopted as proposed, with community and social responsibility payments that are required by law or contract added to the list of payments (Item 2.01(d)(8) Form SD)
Definition of "project"	P: "Project means operational activities that are governed by a single contract, license, lease, concession, or similar legal agreement, which form the basis for payment liabilities with a government. Agreements that are both operationally and geographically interconnected may be treated by the resource extraction issuer as a single project." (Item 2.01(c)(10) Form SD) R: Different definition (in particular, alternative to contract-based definition); interconnectedness of agreements; comparability with definition in EU Directives	Adopted as proposed (Item 2.01(d)(9) Form SD), additional guidance on interconnectedness of agreements (Instructions to Item 2.01 (12) Form SD)

Cont'd

	Proposed Rule 2015: Proposal (P) and Requests for Comments (R)	**Final Rule 2016**
Exemptions	P: de minimis threshold of 100,000$ as in 2012 final rule R: Appropriateness of threshold, need for additional guidance P: Disclosure requirement can be satisfied by reference to an alternative reporting regime deemed by the Commission to be substantially similar ((Item 2.01(b)); exemptive relief can further be provided by the Commission on a case-by-case basis upon application) R: appropriateness of case-by-case assessment; information on foreign laws prohibiting disclosures; experience with treatment under EU Directives not granting such exemptions; criteria to determine "substantially similar" reporting regimes and alignment of these criteria with EU Directives; treatment of USEITI reports	De minimis threshold adopted as proposed (Item 2.01(d)(7) Form SD) Exemptive relief under alternative reporting regime largely adopted as proposed, with some clarification on the reporting format and language of the alternative report (Item 2.01(c) Form SD). EU and Canadian regimes are determined as substantially similar; USEITI disclosures are determined substantially similar with respect to payments to the US Federal Government (but need to be supplemented) Exemptive relief can be granted by Commission on a case-by-case basis (17 CFR 240.0-12)
Disclosure format	P: XBRL exhibit to annual report using electronic tags using Form SD; no additional compilation made by the Commission to the public; no confidential filing with the Commission as in 2012 final rule R: tagging (e.g., on geography of project, additional information), (necessity for) compilation by Commission, confidential filings, exemptions from public disclosure	Adopted as proposed

This table provides an overview of selected aspects of SEC rulemaking on the extraction payments disclosure rule in 2015 and 2016. The first column presents the implementation of selected aspects in the proposed rule released by the SEC as of December 2015. "P" refers to the actual proposal, and "R" refers to examples of aspects the SEC specifically invited constituents to comment on ("Request for Comment"). The second column presents the implementation as in the final rule issued by the SEC in September 2016 (after the end of the sample period).

Appendix B: Confounding Events

Table B1 Potential Confounding Events

Event	Likelihood	Wall Street Journal "Business and Finance"-Section
1	Increasing	The Dow industrials fell 19.07 points to 11457.47 on concerns about euro-zone finances. European and Asian stock markets closed mostly lower and the euro sank. U.S. inflation remained low in November despite signs of a strengthening recovery. Industrial production saw its largest gain in four months.
2	Increasing	The Dow industrials rose 71.82 points, or 0.6%, to 12921.41, while Apple's decline pulled other major benchmarks into the red. Chesapeake Energy's oil-field services unit plans to go public as a separate firm as its parent continues to shed assets to raise cash and cut debt.
3	Increasing	The Dow industrials fell for a fourth straight day amid confusion over Greece's political future, losing 33.45 points, or 0.3%, to 12598.55. Federal Reserve officials were worried about risks to the economic recovery when they decided in April to stick to their easy-money policies.
4	Increasing	Stocks pared losses amid hopes for action by the Fed, but the Dow industrials ended the session 30.82 points lower at 13172.76. BHP will postpone or scale back projects valued at more than $50 billion, the clearest sign yet that the global mining boom has run its course. Workers clamored for wage boosts at two more platinum companies in South Africa's mining heartland, as a strike continued at a Lonmin mine.
5	Decreasing	The Dow industrials slid 128.56 points, or 1%, to close at 13344.97 as a disappointing start to the earnings season weighed on investors. BP and the U.S. are close to a deal that would resolve both the firm's civil and criminal liabilities arising from the Deepwater Horizon disaster.
6	Increasing	The Dow industrials fell for a second day amid worries about the "fiscal cliff," losing 121.41 points to 12811.32. Treasury prices rose.

Cont'd

Event	Likelihood	Wall Street Journal "Business and Finance"-Section
7	Increasing	The S&P 500 registered its fifth advance in a row, adding 6.37 points. The Dow industrials and the Nasdaq also recorded gains. Exxon Mobil reported a slight rise in profit for the first quarter, but the energy giant's production of oil and natural gas declined.
8	Decreasing	Stock markets in the U.S. ended a volatile but low-volume session with losses. The Dow industrials dropped 42.55 points to 14932.41. U.S. oil futures registered a 14-month high, nearing $100 a barrel as prices for domestic crude reconnect with the world market.
9	Decreasing	Stocks rebounded, snapping a two-day losing streak. The Dow rose 0.9% and the Nasdaq posted a 0.6% gain.
10	Increasing	Bond-market crosscurrents intensified as the gap between long- and short-term Treasury yields narrowed. The Dow rose 109.14 to a record 17265.99.
11	Increasing	Stocks rebounded, but traders remained glum as concerns about global growth persisted. The Dow gained 293.03 points, or 1.8%, to 16351.38. Oil firms and traders are storing crude on tankers, seeking to profit on a gap between spot and futures prices.
12	Increasing	U.S. junk bonds posted their steepest drop since 2011, stoking fears a bull market in stocks and other risky assets is nearing an end. The Dow fell 309.54 points.

This table presents information on potential confounding events concurring with the event dates. Following Larcker *et al.* (2011), potential confounding events are identified from the "Business and Finance"-section of the Wall Street Journal on the date after the event date. The table presents excerpts of this section that relate to general market activity, monetary policy, the extractive industry, or events that could relate to firms' exposure to public scrutiny (such as work strikes).

Appendix C: Constituents' Positions on the Extraction Payments Disclosure Rule

Table C1 Preferences for Selected Aspects of SEC Rulemaking in Comment Letters (2010-2012)

Exemptions	
Exemptions	*No exemptions*
API (10/12/2010), Chevron (01/28/011), Exxon (01/312011), Nexen (03/02/2011), Shell (01/28/2011), OGP (01/27/2011): exemption of disclosures that are prohibited by host countries or commercially sensitive BP (07/08/2011), Chevron (01/28/2011), Petrobras (02/21/2011): exemptions for foreign issuers Exxon (03/15/2011): exemption of disclosures that are prohibited by host countries	PWYP (11/22/2010), EarthRights International (12/02/2010), RWI (12/06/2010), Bill and Melinda Gates Foundation (02/09/2012), World Resource Institute (03/01/2011), Oxfam (02/21/2011, 02/06/2012), Calvert (03/01/2011): no exemptions
Project definition	
Broad	*Narrow*
API (10/12/2010), Chevron (01/28/2011), Shell (01/28/2011), OGP (01/27/2011): activities that are material at the individual level or country level Exxon (10/25/2011): opposition of granular project definition Exxon (01/31/2011): definition at the level of a geological basin or province, materiality constraint Petrobras (02/21/2011): definition at the country level	PWYP (11/22/2010): definition at the level of a lease, license, or concession EarthRights International (12/02/2010), Calvert (03/01/2011): definition at the contract level RWI (12/02/2010): no aggregation to "material projects" Bill and Melinda Gates Foundation (02/09/2012): no definition restricting projects to the country level or the level of a geological basin Oxfam (02/21/2011, 02/06/2012): lease, license or other concession-level contractual arrangement CalPers (02/28/2011): opposition of definition at the country level

Cont'd

Aggregation of public disclosures	
Public disclosure only of aggregated information	*Public disclosure of disaggregated information*
API (10/12/2010), Andarko Petrolum (03/02/2011), BP (07/08/2011), Chevron (01/28/2011), Nexen (03/02/2011), Shell (01/28/2011), OGP (01/27/2011): limiting public disclosure to the country level through public compilation by SEC Exxon (01/31/2011): aggregation of disclosures at the country level	PWYP (11/22/2010): compilation (summary report) only in addition to firms' public disclosures

This table illustrates the disagreement among different constituents on key aspects of SEC rulemaking relating to final rule 2012. It presents positions brought forward in various comment letters with respect to possible exemptions from the disclosure requirements, the granularity of the definition of "project", and the aggregation of public disclosures. Comment letters are available from the SEC website: https://www.sec.gov/comments/s7-42-10/s74210.shtml. Submission dates in parentheses.

Table C2 Use of Extraction Payments Disclosures by Nontraditional Monitors

Comment Letter	Indicated Use of Extraction Payments Disclosures
Improvement of government accountability and allocation of public resources	
Publish What You Pay 25 February 2010	"PWYP works to help citizens in these [resource-rich] countries hold their governments accountable for channeling these revenues through legitimate budget processes and for effectively managing these resources in the interest of national development. To do this, PWYP advocates for revenue transparency as a necessary ingredient for accountability. Specifically, PWYP advocates for mandatory disclosure of the payments made by companies to governments, and disclosure of government receipts. PWYP advocates for the inclusion of these disclosure requirements in national laws, stock market listing regulations, accounting standards, and in the lending policies of financial institutions."
EarthRights International 2 December 2010	"Robust revenue transparency that requires disclosure of payments by both operators and non-operating partners of gas projects in Burma, including the U.S. issuer Chevron Corporation, the French issuer Total, S.A., and other U.S.-listed issuers operating in Burma, would enable civil society to understand and investigate if, and how much, money is being expatriated." "A more detailed understanding of the state's revenues from resource extraction – the regime's main source of foreign income – would enable civil society groups to advocate for increased expenditures that better promote the public interest."
Monitoring of firms' social and environmental impact (including human rights and labor safety issues)	
World Resources Institute 1 March 2011	"The comments that follow reflect our interest in promoting the development of extractive resources in ways that are environmentally sustainable and that benefit all citizens, including those directly affected by extractive industry operations. We believe that transparency helps to achieve these results. (…) Section 1504 is in line with other U.S. government initiatives to promote access to information, especially in the case of environmental matters."
EarthRights International 2 December 2010	"Civil society could use information about the payments companies make to the government in the form of social programs to assess those efforts and work with companies to improve their impact."
United Steelworkers 29 March 2011	"Revenue transparency mitigates against an investment environment where benefits accrue to the few while conditions for the many suffer. It is in such closed, opaque environments where the health and safety conditions of workers are poor."

Cont'd	
Greenpeace 8 March 2012	"[I]ncreasing industry transparency and accountability will significantly lower government and civil society resources needed to oversee and mitigate the social and environmental impacts of the extractive industry. (…) Decisions about project development are too often made without the best economics or the interests of affected communities in mind, providing short shrift to land-use planning, environmental impact assessments, and public consultation processes. Increasing industry transparency through effective implementation of Section 1504 would reduce the impacts of inadequate local governance practices."
EarthRights International 26 January 2011	"An ever-increasing number of lawsuits – mostly in the U.S., but also in the courts of several other states – accuse multinational extractive companies of paying security forces for or otherwise being complicit in the commission of gross human rights abuses, including crimes against humanity, war crimes, torture, extrajudicial killing, enforced disappearance, and forced labor. (…) Therefore, the payments companies make to states for security should be reported and explicitly designated to better allow investors to assess the material risk to their investments [from human rights violations]."
Monitoring of the collection of revenues and corporate financial accountability	
Office of Natural Resources Revenue 4 August 2011	"How the SEC incorporates provisions of that Act and requires energy companies to report their data, could be very useful to ONRR as it seeks to ensure that energy companies are reporting correctly and paying every dollar due to the American taxpayer."
Tax Justice Network USA 1 March 2011	"Tax Justice Network USA supports transparency and opposes secrecy in international finance. We want companies to be made more open about their financial affairs and to publish data on every country where they operate. Markets work better, and companies are more accountable, in an environment of transparency. Increasing the transparency of payments made by companies in the extractive industries to governments aligns with our greater mission."
United Steelworkers 29 March 2011	"As a labor union that represents workers at specific sites, we understand the importance of specific project level disclosure. For example, if a company knows what benefits it derives from an operation but won't disclose that to the union, it promotes adversarial relations and increases the likelihood of a labor dispute."

This table illustrates the potential use of extraction payments disclosures by nontraditional monitors as indicated in their comment letters.

Appendix D: Description of RepRisk Rating Data

Founded as a due diligence tool for institutional investors, RepRisk collects data on firms' environmental, social, and governance-related (ESG) issues from a broad set of sources including the media, NGOs, and other third-party references. RepRisk data are employed by banks and equity analysts to assess their customers' exposure to reputational risks (Luo *et al.* 2015) and form an important input for firms' assessment to be included in sustainability indices such as the Dow Jones Sustainability Indices (RepRisk 2014). The use of these data in accounting and finance research has, however, been limited (for a recent exception, see Cui *et al.* 2016).

RepRisk screens 80,000 sources (including different types of media, NGOs, government bodies, and other online sources) for a broad set of environmental, social, and governance (ESG) issues. Using a proprietary algorithm and expert analysts, RepRisk quantifies the information collected from these sources into metrics reflecting firms' exposure to stakeholder criticism (RepRisk 2016). Specifically, RepRisk offers two metrics: The RepRisk Indicator (RRI) is constructed from news about negative ESG-related issues, taking the severity of the risk incident and its visibility into account. The RepRisk Rating (RRR) builds upon the RRI and is further adjusted for a firm's country-sector ESG risk exposure to facilitate benchmarking.

For the purpose of our study, these metrics exhibit two desirable features. First, they are asymmetric in that they capture negative stakeholder sentiment, but neglect positive news. Thus, they focus on firms' downside risk from controversial relations with their stakeholders. Second, RepRisk emphasizes that these measures capture firms' exposure to reputational risks, rather than their actual level of reputation (e.g., in terms of the weighting of risk incidences) (RepRisk 2016: 7). While the actual level of a firm's reputation and its exposure to reputational risk will be inherently difficult to separate, focusing on reputational risk exposure is consistent with the basic

notion of **H2** that investors perceive relatively larger costs for firms where the public pressure exercised by nontraditional monitors can have a larger impact (including due to larger reputational risks that can materialize).

Table D1 shows the distribution of RepRisk Rating for the sample firms (Panel A) as well as for all US firms (Panel B) during the sample period (2010-2015). None of the sample firms obtains a rating worse than B, which mirrors the overall distribution of ratings for US firms where less than 1% of firms obtain a rating of worse than B. Consistent with the notion that the extractive industry is exposed to comparatively high public scrutiny compared to other industries, 55% of the sample firms (compared to 66% of all US firms) obtain a rating of AA or better.

Table D1 Distribution of RepRisk Ratings

Panel A: Sample Firms			
	Frequency	Percent	Cumulative
AAA	36	9%	9%
AA	186	46%	55%
A	90	22%	78%
BBB	48	12%	90%
BB	24	6%	96%
B	18	4%	100%
Total	402	100%	

Panel B: All US Firms			
	Frequency	Percent	Cumulative
AAA	2,052	12%	12%
AA	9,174	54%	66%
A	3,714	22%	88%
BBB	1,170	7%	95%
BB	492	3%	98%
B	276	2%	99%
CCC	84	0%	100%
CC	18	0%	100%
Total	16,980	100%	

This table shows the distribution of year RepRisk Ratings from 2010 to 2015. Panel A shows the distribution for 67 sample firms used the cross-sectional analyses (402 observations, corresponding to observations for 67 firms over 6 years). Panel B shows the corresponding distribution of ratings obtained by all US firms.

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Table 1 Overview of Events

Event	Date	Included	Description	Likelihood	Media
-	30 June 2010	No[a]	The House passes the bill relating to the Dodd-Frank Act.		
-	15 July 2010	No[a]	The Senate passes the bill relating to the Dodd-Frank Act.		
-	21 July 2010	No[a]	President Obama signs the bill into law.		
1	15 December 2010	Yes[c]	SEC proposes the extraction payments disclosure rule.	Increasing	Yes
2	16 April 2012	Yes	Oxfam announces to sue SEC for unlawfully delaying the final rule.	Increasing	No
3	16 May 2012	Yes	Oxfam files a lawsuit against the SEC for unlawfully delaying the final rule.	Increasing	Yes
4	22 August 2012	Yes[c]	SEC adopts the final rule.	Increasing	Yes
5	10 October 2012	Yes	API, together with other business groups, files a lawsuit against the SEC over the final rule with the US Court of Appeals in Washington and the US District Court of Columbia.	Decreasing	Yes
6	08 November 2012	Yes	SEC issues an order denying a motion filed by API in connection with the lawsuit to stay the final rule.	Increasing	No
7	26 April 2013	Yes	The US Court of Appeals rejects the lawsuit filed by API and other business groups for jurisdictional reasons.	Increasing	Yes
8	02 July 2013	Yes[c]	The District Court of Columbia vacates the final rule.	Decreasing	Yes
9	14 April 2014	Yes[c]	US Court of Appeals vacates a similar rule on conflict minerals.	Decreasing	Yes
10	18 September 2014	Yes	Oxfam files a lawsuit with the US District Court of Massachusetts to compel the SEC to promulgate a revised final rule.	Increasing	Yes
11	02 September 2015	Yes	US District Court of Massachusetts orders the SEC to file an expedited schedule for promulgating the final rule.	Increasing	Yes
12	11 December 2015	Yes	SEC re-proposes the extraction payments disclosure rule.	Increasing	Yes
-	27 June 2016	No[b]	SEC adopts final rule.		

This table summarizes events marking the legislative process surrounding SEC rulemaking relating to the extraction payment disclosure rule. The first column indicates the event number of the events included in the sample period, and the second column their respective date. The third column indicates whether the event is included in the sample period. [a] denotes that the event is excluded because it relates to the Dodd-Frank Act in general. [b] denotes that the event is excluded because it occurs after the end of the sample period. [c] denotes that the event can also have implications for conflict minerals disclosures. The fourth column provides a short description of the event. The fifth column indicates the direction into which the event is supposed to affect investors' beliefs about the likelihood of strict implementation of the extraction payments disclosure rule. The last column indicates whether the event has been covered by any of the following sources: Wall Street Journal, Financial Times, or Washington Post.

Table 2 Variable Definitions

Name	Description	Source
	Average Market Reaction (H1)	
R	A firm's daily return	CRSP
MKT	CRSP equally-weighted daily market return	CRP
OIL	Daily change in Brent oil prices	EPA
D	Pooled, signed event dummy variable, taking the value of 1 (-1) during the three-day event window surrounding events increasing (decreasing) the likelihood of the regulation	Own calculations
ABN_RET	A firm's abnormal return as measured by γ in a firm-specific regression of equation (2), multiplied by 100	Own calculations
	Cross-Sectional Determinants (H2)	
SCRUTINY	A firm's exposure to public scrutiny as reflected in its RepRisk rating of reputation risk. Defined as dummy variable becoming 1 if the firm fails to achieve a high rating (AA or better), and 0 otherwise	RepRisk
RRI	A firm's Reputational Risk Index as computed by RepRisk, scaled to range from 0 to 1. High values indicate higher exposure to public scrutiny	RepRisk
SIZE	A firm's size, measured as the log of its market value of equity	CRSP/Compustat merged
ANALYSTS	A firm's analyst following, measured as the log of the number of analysts on I/B/E/S	I/B/E/S
CBOARD	Dummy variable becoming 1 if the firm has a classified board, and 0 otherwise	ISS, proxy statements
FOREIGN	Dummy variable becoming 1 if the firm reports any foreign properties at the beginning of the sample period, and 0 otherwise	10-K
DEV_RES	A firm's share of developed reserves, measured as the ratio of developed acreage to total proved (i.e., developed and undeveloped) acreage	Compustat (industry-specific)
INST_OWN	A firm's institutional ownership, measured as the ratio of shareholdings by 13F-filers to total shareholdings	Factset (13F)

This table provides variable definitions and sources. Unless stated otherwise, all cross-sectional determinants are measured at their average values across the sample period.

Table 3 Sample Selection

	Less	Remaining
Panel A: Sample for average market reactions		
Firms with SIC code 1300-1399, 2911, or 5172 with common stocks on CRSP between 01 June, 2010, and 31 December, 2015		346
Less: firms with a business model outside the scope of the regulation or with a foreign listing in the EU or Canada	158	188
Less: firms without returns on all thirteen event windows	93	95
Potential observations (95 firms times 1,407 trading days)		133,665
Less: missing trading days	153	133,512
Panel B: Sample for cross-sectional analyses		
Firms included in sample for average market reaction		95
Less: firms not rated by RepRisk	23	72
Less: firms with missing information on controls and trading days	5	67

This table describes the sample selection process. Panel A describes the sample selection for the analysis of the average market reaction. Starting point of the sample selection are all firms with oil and gas-related SIC codes on CRSP in the period ranging from 01 June, 2010, to 31 December, 2015. While we require firms to have return data during all event windows, we do not require an unbroken time series for tests of the average market reaction. We require a balanced panel to apply the approach proposed by Sefcik and Thompson (1986) to our cross-sectional tests. The sample for the average market reaction is comprised on 133,512 daily observations. The sample for the cross-sectional regression comprises 67 firms.

Table 4 Descriptive Statistics

Panel A: Average Market Reaction						
	N	Mean	SD	p25	p50	p75
R (in %)	133,512	-0.01	3.81	-1.60	0.00	1.47
MKT (in %)	133,512	0.04	0.92	-0.42	0.09	0.53
OIL (in %)	133,512	-0.05	1.97	-1.08	0.01	0.98

Panel B: Cross-Sectional Determinants						
	N	Mean	SD	p25	p50	p75
SCRUTINY	67	0.45	0.50	0.00	0.00	1.00
RRI	67	0.34	0.13	0.25	0.32	0.42
SIZE	67	8.05	1.84	6.73	8.18	9.32
ANALYSTS	67	2.68	0.68	2.25	2.89	3.25
FOREIGN	67	0.48	0.50	0.00	0.00	1.00
CBOARD	67	0.42	0.46	0.00	0.00	1.00
INST_OWN	67	0.77	0.25	0.64	0.84	0.95
DEV_RES	53	0.56	0.13	0.50	0.58	0.64

This table provides descriptive statistics. Panel A shows descriptive statistics of variables used to assess the average market reaction, relating to 133,512 observations by 95 firms and 1,407 trading days. Panel B shows descriptive statistics for the cross-sectional determinants for 67 firms.

Table 5 Correlation Table

Panel A: Average Market Reaction (N=133,512)

	R	MKT	OIL
R	1		
MKT	**0.408**	1	
OIL	**0.354**	**0.426**	1

Panel B: Cross-Sectional Determinants (N=67)

	RRI	SIZE	ANALYSTS	FOREIGN	CBOARD	INST_OWN	DEV_RES
RRI	1						
SIZE	**0.614**	1					
ANALYSTS	**0.442**	**0.737**	1				
FOREIGN	**0.337**	**0.351**	0.115	1			
CBOARD	**-0.242**	**-0.327**	**-0.204**	-0.195	1		
INST_OWN	0.111	**0.279**	**0.581**	-0.002	-0.151	1	
DEV_RES	**-0.236**	-0.049	0.087	**-0.561**	0.112	0.045	1

This table provides Pearson correlations for the variables used to assess the average market reactions (Panel A) and the cross-sectional determinants (Panel B). Significant correlations at the 10% level are indicated in bold.

Table 6 Sample Comparisons

Panel A: Comparison of Full Sample and RepRisk Sample							
	Full Sample		RepRisk Sample		Diff	t-stat	p-value
	Mean	N	Mean	N			
ABN_RET	0.00	95	0.00	67	0.00	0.08	0.940
SIZE	7.23	95	8.05	67	-0.82	-2.46	**0.015**
ANALYSTS	2.26	95	2.68	67	-0.43	-3.00	**0.003**
FOREIGN	0.42	95	0.48	67	-0.06	-0.71	0.479
CBOARD	0.39	93	0.42	67	-0.03	-0.35	0.728
INST_OWN	0.64	95	0.77	67	-0.13	-2.62	**0.010**
DEV_RES	0.39	78	0.35	54	0.04	1.01	0.317

Panel B: Comparison of Firms under High and Low Public Scrutiny							
	SCRUTINY = 0		SCRUTINY = 1		Diff	t-stat	p-value
	Mean	N	Mean	N			
ABN_RET	0.00	37	0.00	30	0.00	0.49	0.629
SIZE	7.40	37	8.85	30	-1.45	-3.45	**0.001**
ANALYSTS	2.52	37	2.88	30	-0.36	-2.22	**0.030**
FOREIGN	0.32	37	0.67	30	-0.34	-2.92	**0.005**
CBOARD	0.47	37	0.35	30	0.12	1.03	0.305
INST_OWN	0.75	37	0.79	30	-0.04	-0.71	0.478
DEV_RES	0.40	29	0.29	25	0.11	1.75	**0.086**

This table presents differences in the main variables across (sub-)samples. Panel A compares firms' abnormal returns and control variables between the full sample of firms used to test the average market reaction ("Full Sample") to the subset of firms used for the cross-sectional analyses with a rating available on RepRisk ("RepRisk Sample").
Panel B compares firms' abnormal returns and control variables across samples split on the main independent variable (SCRUTINY). Bold numbers indicate significant differences at the 10% level.

Table 7 Average Market Reaction

	Expected Sign	Pooled Events (1)	Individual Events (2)
MKT_RET	+	1.2991***	1.2994***
		(0.0400)	(0.0402)
OIL_RET	+	0.4251***	0.4266***
		(0.0243)	(0.0243)
EVENT	-	-0.0039**	
		(0.0015)	
Increasing: SEC proposes rule	-		-0.0036***
			(0.0007)
Increasing: Oxfam announces to sue SEC	-		-0.0080**
			(0.0033)
Increasing: Oxfam sues SEC	-		-0.0023
			(0.0048)
Increasing: SEC adopts final rule	-		-0.0024
			(0.0019)
Decreasing: API sues SEC	+		0.0011
			(0.0018)
Increasing: SEC issues order denying stay	-		-0.0027
			(0.0060)
Increasing: API's lawsuit rejected	-		-0.0079**
			(0.0032)
Decreasing: Court vacates disclosure rule	+		-0.0041**
			(0.0020)
Decreasing: Court vacates conflict minerals rule	+		0.0126***
			(0.0027)
Increasing: Oxfam sues SEC	-		-0.0034**
			(0.0015)
Increasing: Court orders SEC to re-propose rule	+		0.0005
			(0.0080)
Increasing: SEC re-proposes rule	-		-0.0070
			(0.0103)
Constant	?	-0.0003	-0.0003
		(0.0003)	(0.0003)
Observations		133,512	133,512
Adjusted R-squared		0.21	0.21
# of Clusters (Dates)		1,407	1,407

This table presents the estimates of the average market reaction as coefficients from a multivariate regression model. The dependent variable is a firm's return on a given trading day. Column (1) presents the results for the signed event dummy pooled across all event windows. Column (2) presents separate coefficient estimates for each individual event window. Standard errors clustered by trading date in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 8 Cross-Sectional Determinants

		Main model (1)		RepRisk Index (2)		US Properties Only (3)		Reserves Control (4)	
	Exp. Sign	Coeff. (S.E.)	R^2	Coeff. (S.E.)	R^2	Coeff. (S.E.)	R^2	Coeff. (S.E.)	R^2
SCRUTINY	-	-0.0027**	0.02			-0.0029*	0.03	-0.0039***	0.01
		(0.0011)				(0.0017)		(0.0015)	
RRI	-			-0.0095**	0.01				
				(0.0047)					
SIZE	+/-	0.0016**	0.21	0.0017**	0.20	0.0030**	0.23	0.0015**	0.17
		(0.0006)		(0.0007)		(0.0012)		(0.0007)	
ANALYST	+/-	-0.0026	0.02	-0.0025	0.01	-0.0080***	0.09	-0.0037*	0.05
		(0.0017)		(0.0017)		(0.0027)		(0.0019)	
FOREIGN	-	0.0027	0.06	0.0024	0.07			0.0038*	0.06
		(0.0018)		(0.0017)				(0.0022)	
CBOARD	+	0.0004	0.01	0.0002	0.01	-0.0003	0.02	-0.0001	0.00
		(0.0013)		(0.0013)		(0.0016)		(0.0014)	
INST_OWN	+/-	-0.0025	0.05	-0.0030	0.05	0.0022	0.00	0.0001	0.03
		(0.0034)		(0.0034)		(0.0038)		(0.0034)	
DEV_RES	+							0.0074	0.03
								(0.0051)	
Constant	?	-0.0079	0.40	-0.0065	0.39	-0.0074	0.40	-0.0100	0.37
		(0.0057)		(0.0057)		(0.0078)		(0.0063)	
Observations		1,407		1,407		1,407		1,407	
# of Firms		67		67		35		53	

This table presents estimates of the cross-sectional determinants of the abnormal returns. Column (1) presents the estimation of the main specification. Column (2) presents results using the continuous RepRisk Index as proxy for exposure to public scrutiny Column (3) presents results estimated for a subsample of firms with oil and gas properties exclusively located in the US. Column (4) includes firms' share of developed acreage in total acreage as additional control variable. Following the procedure proposed by Sefcik and Thompson (1986), standard errors in parentheses account for cross-sectional correlation and are robust to heteroscedasticity. This methodology constructs separate portfolios for each cross-sectional determinant and the constant, and then derives the standard errors from a time-series estimation of these portfolios. Therefore, the number of observations equals the number of trading dates. Similarly, the R-squareds relate to the separate portfolio regressions performed for each individual determinant. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 9 Placebo Analysis

	δ_k	$E[\delta_k]$	*t*-stat. of $\delta_k = E[\delta_k]$
	(1)	(2)	(3)
SCRUTINY	-0.0027	0.0001	54.93
SIZE	0.0016	0.0001	-48.64
ANALYSTS	-0.0026	-0.0002	31.77
FOREIGN	0.0027	0.0003	-28.66
CBOARD	0.0004	0.0001	-5.09
INST_OWN	-0.0025	0.0007	20.84
Constant	-0.0079	-0.0017	21.83

This table presents results from a placebo analysis. For each cross-sectional determinant, Column (1) presents the δ_k -coefficient for each of the six cross-sectional determinants and the constant using true event dates as reported in Table 8. Column (2) presents the average value of 500 δ_k -coefficients from placebo regressions using false event dates. Column (3) presents the *t*-statistics of the test that $\delta_k = E[\delta_k]$.