MANDATORY DISCLOSURE FOR ETHICAL SUPPLY CHAINS: A CONFLICT MINERALS CASE STUDY

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ABSTRACT

Mandatory disclosure requirements for corporate supply chains have the potential to leverage consumer and investor sensibilities to incentivize corporations to source more ethically. Despite their growing prevalence, there are few empirical studies of their effects: whether they actually put pressure on companies remains untested. This Article supplies such evidence by examining the consumer and investor responses to corporate supply chain disclosures made pursuant to Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. The act requires publicly traded companies to disclose to the Securities and Exchange Commission whether their supply chain contains "conflict minerals" (minerals important in global supply chains whose sourcing supports the conflict in the Democratic Republic of Congo and surrounding areas). The law aims to give customers and investors information about corporate supply chains, with the hope that they will support companies that source responsibly and punish those that do not. But whether this is actually accomplished is an open question.

This Article provides an empirical study of the market responses to three years of Section 1502 disclosures, whose contents were coded to create a novel dataset. Disclosures implying that a company has a higher risk of contributing to the conflict are associated with higher revenues and stock performances than those implying a lower risk. This implies there is no market discipline of bad actors in response to the disclosures; instead, bad actors are rewarded. This is consistent with the finding that the number of companies reporting a higher risk of contributing to the conflict through their supply chains did not decrease over the three years. One potential explanation is that consumers and investors may read disclosures more for signals of a corporation's honesty or profit-maximization skills than for information about conflict-minerals exposure, and firms disclosing a higher risk of this exposure are more likely to be honest and profit seeking. Because disclosures about supply chains will generally send these signals as well, expecting investors or consumers to discipline the supply chains in response to securities disclosures is unrealistic. But scores for the due diligence procedures and forward-looking commitments in the disclosures generated by an NGO for a subset of the companies are positively correlated with revenues, suggesting how mandatory disclosure regimes might be improved. The NGO's success in disseminating and analyzing the information suggests that the SEC may not be the best actor for implementing supply chain disclosure requirements and the criteria for the scoring suggest that disclosure requirements should focus more on the reporting of processes so that they are less likely to send a signal about honesty.

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INTRODUCTION

Mandatory disclosure regimes are ubiquitous as alternatives to direct regulation for solving social problems.[1] They require the discloser to provide information about their practices to the disclosee, who can use that information to analyze their choices critically and choose optimally. Because disclosees can then make better decisions, this incentivizes the discloser to improve its behavior. For example, by requiring restaurant chains to post the calorie content of items on their menu, federal law expects consumers to choose lower calorie items and restaurants that offer such food, which encourages restaurants to reduce the calories in their offerings.[2] In the human rights context, the idea is that consumers broadly maximize utility, and the human right's footprints of corporations are simply another characteristic of a product that consumers carefully scrutinize.

These regimes often assume that the disclosees will respond in expected, rational ways, [3] but the reality need not match the theory, and it may play out better in some contexts than in others. For example, the Truth in Lending Act requires lenders to disclose interest rates and fees,[4] with the aim that such information will help consumers to shop more sensibly for credit.[5] But the implementation of the Act did not lead to any measurable decrease in interest rates and funding costs.[6] On the other hand, there is some evidence, that the mandatory disclosure regime required by US securities law pressures corporate managers to focus more on maximizing shareholder value.[7] For such pressure to materialize, disclosees must actually read the disclosures, process the information correctly, and care about the content in the way that regulators expect they will.[8] Empirical evaluations of mandatory disclosure regimes are therefore important for determining whether these assumptions actually hold.

While mandatory disclosures often give disclosees information to protect themselves, as in the examples above, there is a growing movement to use mandatory disclosure to provide information about the larger social costs of corporate behavior so that consumers can pressure corporations to be more

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[1] *See* Omri Ben-Shahar and Carl E. Schneider, *The Failure of Mandated Discourse,* 159 U. Pa. L. Rev. 647, 653-65 (2010) (documenting the "pervasiveness of mandated disclosure" by pointing to disclosures required in the context of lending, investing, insurance, rentals, health care, education, food provision, and more).

[2] *See* The Patient Protection and Affordable Care Act, Pub. L. No. 111-148, § 4205, 124 Stat. 119, 573 (2010).

[3] *See* David S. Ludwig and Kelly D. Brownell, *Public Health Action Amid Scientific Uncertainty: The Case of Restaurant Calorie Labeling Regulations* (2009) 302 JAMA 434 at 435 (advocating for the federal calorie-labeling law that requires restaurant chains to disclose the number of calories in each food item and arguing that "[f]or some of the most important public health problems to-day, society does not have the luxury to await scientific certainty.")

[4] 15 U.S.C. §§ 1601-1667 (2006); accord 12 C.F.R pt. 226 (2010).

[5] *See* Ben-Shahar and Schneider, above n 2, at 665.

[6] Sherrill Shaffer, *The Competitive Impact of Disclosure Requirements in the Credit Card Industry*, 15 J. Reg. Econ. 183, 195-96 (1999).

[7] Michael Greenstone, Paul Oyer and Annette Vissing-Jorgensen, *Mandated Disclosure, Stock Returns, and the 1964 Securities Acts Amendments*, 121 Q J Econ 399 (2006).

[8] *See* Part I.C.

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ethical.[9] For these regimes to work, the aforementioned assumptions for mandatory disclosure regimes must hold, and in addition, disclosees need to care about the social costs the disclosures reveal. These regimes have not been adequately examined from an empirical perspective, although their theory makes some sense.

Take, for instance, concerns about supply chains. Many companies already voluntarily make information about their supply chains available, seeking to distinguish themselves on the basis of their ethical supply chains. For example, Fairphone offers a phone crafted from fair materials with environment- and worker-friendly processes,[10] and the "Beyond Conflict Free Diamonds" offered by Brilliant Earth are a similar example.[11] The efforts that these companies take to market their supply chain ethics imply that there is consumer demand for such supply chains that can be harnessed. But for some companies, information about supply chains may be prohibitively costly to access, and even if companies have it, they may have little incentive to provide it.[12] Mandatory disclosures of corporations' footprints aim to address this problem.[13]

Scholars and policymakers in developed countries have utilized domestic mandatory disclosure measures to promote certain norms internationally, particularly when other norm-creation efforts employed on the international level have failed.[14] Unfortunately, there is little research establishing that these mandatory disclosure requirements as implemented through securities law, are any more effective than the international efforts they attempt to supplement, as the mechanism of consumer and investor action is not established.[15] While survey-based research in the context of these disclosure measures has questioned whether consumers respond to mandatory disclosures in the supply chain context as expected,[16] how consumers and

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[9] *See* Stephen M. Bainbridge, *Dodd-Frank: Quack Federal Corporate Governance Round II*, 95 Minn L Rev 1779 (2011) (discussing "therapeutic disclosures"—disclosures that aim to "affect substantive corporate behavior" rather than "inform investors").

[10] *See We Care for People and Planet*, Fairphone, https://www.fairphone.com/en/story/ (last visited June 15, 2020).

[11] *See Our Story,* Brilliant Earth, https://www.brilliantearth.com/about-brilliant-earth/ (last visited June 15, 2020).

[12] One can argue that if consumers and investors were interested in conflict-free products, there would already be a market for them. However, principle-agent problems may explain why managers do not invest in supply chain management even if it is profitable for the corporation. Furthermore, given the inherent difficulties in stating a product's country of origin with certainty, managers may be hesitant to claim conflict-free status because of risk of securities fraud liability.

[13] *See* Adam S. Chilton and Galit A. Sarfaty, *The Limitations of Supply Chain Disclosure Regimes,* 53 Stanford Intl. L. J. 1, 3-4 (2017) (discussing Section 1502 of the Dodd-Frank Act and the California Transparency in Supply Chains Act).

[14] *See generally* Penelope Simon & Audrey Macklin, *The Governance Gap: Extractive Industries, Human Rights, and the Home State Advantage*, (Routledge 2014); Chilton & Sarfaty, *supra* note 13 at 10 (Non-binding international mechanisms have been the traditional strategy for limiting the human rights violations that occur when international corporations extract resources from countries with weak human rights protections.).

[15] *See id.* at 1326.

[16] *See* Chilton & Sarfaty, *supra* note 13, at 1.

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investors react to actual disclosures in a market setting remains an open question. Capturing the response of investors is especially important given that stock market trading is largely driven by institutional investors who are not responding to surveys.[17] This Article focuses on this question and empirically tests one such disclosure requirement known colloquially as the Conflict Minerals Rule.

The Conflict Minerals Rule responds to the role which the trade of tin, tantalum, tungsten, and gold plays in financing the humanitarian crisis in the Democratic Republic of Congo.[18] These "conflict minerals" enter many global supply chains because they are often used in high-technology manufacturing. Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act[19] authorized the Securities and Exchange Commission (SEC) to draft a rule requiring companies subject to financial reporting requirements to also disclose the presence of these conflict minerals in their supply chains. This is part of a growing movement to use SEC regulations to address larger social problems than the protection of investors.[20]

Under the Conflict Minerals Rule, publicly traded companies which use tin, tantalum, tungsten, and gold must determine the country of origin for these inputs, and if they source from the DRC and surrounding regions, take steps to determine whether that sourcing funds the conflict.[21] They must then file a disclosure describing this country-of-origin inquiry and the steps they are taking to "exercise due diligence on the source and chain of custody of its conflict minerals."[22] This provides investors and consumers with information about how their investment and consumption decisions might be supporting the conflict in the DRC. The two most recent international measures that

[17] *See 80% of equity market cap held by institutions,* Pensions and Investments, https://www.pionline.com/article/20170425/INTERACTIVE/170429926/80-of-equity-market-cap-held-by-institutions (last visited June 18, 2020) (institutional investors own 80% of the equity market by some metrics).

[18] *See Mining for Our Minerals*, Global Witness, https://www.globalwitness.org/mining-for-our-minerals/ (last visited June 18, 2020). This conflict between rebel militias and Congolese government has resulted in the death of more than 6 million people since 1998. *See* Dearbhla Glynn, *Congo war: 48 women raped every hour at height of conflict,* The Irish Times (Apr 30, 2016), available at http://www.irishtimes.com/news/world/africa/congo-war-48-women-raped-every-hour-at-height-of-conflict-1.2629444. The mineral resources in the DRC and adjoining countries have played an important role in funding the militia groups. Shannon Raj, Note*, Blood Electronics: Congo's Conflict Minerals and the Legislation That Could Cleanse the Trade*, 84 S. Cal L Rev. 981, 985 (2011).

[19] Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, §1502, 124 Stat. 1376, 2213 (2010) (codified at 15 U.S.C. §§ 78a, 78m).

[20] *See* Part I.C.3. Scholars have noted that this function is outside of the SEC's normal activities and competencies of protecting investors, as the legislative history of the Rule shows that its goal was to "support a conflict-free mining economy that benefits the Congolese people," forcing the SEC to go beyond its conventional mandate of protecting the interests of *investors*. Karen E. Woody, *Conflict Minerals Legislation: The SEC's New Role as Diplomatic and Humanitarian Watchdog,* 81 Fordham L Rev 1315, 1326, 1341-45 (2011) (arguing that the Conflict Minerals Rule requires the SEC to "oversee diplomatic and humanitarian regulations for which it lacks the institutional competence").

[21] *See* Part (c) of Item 1.01 of Specialized Disclosure Report (Form SD), https://www.sec.gov/files/formsd.pdf. *See also* SEC 17 C.F.R. § 240.13p-1 (2020).

[22] *See id.*

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predated Section 1502 and aim to address this and other supply chain problems—the OECD Guidelines for Multinational Enterprises[23] and the UN Global Compact[24]—are generally seen as insufficient due to the lack of enforcement mechanisms, and there has been little progress on a treaty.[25] Disclosure laws such as Section 1502 aim to fill that gap.[26] The question, however, is whether the disclosure requirement is doing the work policymakers think it is.

To begin to address this question, this Article uses three years of disclosures that corporations have made pursuant to the Conflict Minerals Rule to determine the market responses to them. In addition to asking whether the disclosure process changes corporate behavior by looking at the content of the filings over time, the Article examines whether the disclosures have any effects on consumer purchases and stock value. Such effects would imply that consumers and investors see the information as valuable and are willing to discipline or reward companies for the content of the disclosures. Thus, the market responses to the content of the disclosures provide an opportunity to consider whether supply chain disclosures increase the pressure on corporations to have more ethical supply chains, adding to the empirical literature on mandatory disclosure. And its successes or failures shed light on whether the Conflict Minerals Rule should be strengthened or abandoned[27] and on what is likely to help or hurt future mandatory disclosure regimes.

The rest of this Article is organized as follows. Part I provides background information on the Conflict Minerals Rule and the theory behind mandatory disclosures as a solution to the failure of international measures in regulating conflict minerals in corporate supply chains. Part II describes the novel dataset I compiled by scraping disclosures filed pursuant to Section 1502 over three years (2014, 2015, and 2016) and coding their content to measure

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[23] *See OECD Guidelines for Multinational Enterprises*, 1–5 (2011), http://dx.doi.org/10.1787/9789264115415-en. (herinafter *OECD Guidelines*) (offering "recommendations addressed by governments to multinational enterprises operating in or from adhering countries" of "non-binding principles and standards for responsible business conduct in a global context consistent with applicable laws and internationally recognised standards," including human rights protection).

[24] *Who We Are*, United Nations Global Compact, https://www.unglobalcompact.org/what-is-gc/participants (last visited June 15, 2020). The Compact is a partnership involving over 9,500 companies and over 160 governments that provides a list of principles for "sustainable and socially responsible policies." The Compact's commitment to avoiding "complicity in human rights abuses" is at the foundation of its recommendations regarding supply chain management. *See id.*

[25] *See* Chilton & Sarfaty, *supra* note 13 at 10–12 (discussing the 2014 UN Resolution to develop a treaty and the state opposition to it).

[26] *See id.* at 1.

[27] This is a live political and legal question. The Obama administration strengthened the disclosure requirements with sanctions that were not enforced, and the Trump administration had discussed doing away with the Conflict Minerals requirement. The Biden administration has expressed an interest in laws that encourage investors to think more ethically about their investments. *See* Dynda A. Thomas, *Department of Labor's "Do-Good" Investing Rule — Biden Administration Review* (Jan. 21, 2021), https://www.natlawreview.com/article/department-labor-s-do-good-investing-rule-biden-administration-review. The DC Circuit has also limited the SEC's ability to enforce it due to concerns about its effectiveness. For further discussion, see Part I.C.2.

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the degree of risk that the company's supply chain involved conflict minerals sourced from the DRC or surrounding countries. It also describes the empirical strategy. Part III provides and interprets the results.

The data show that disclosures implying a low risk of sourcing from conflict regions ("low conflict-mineral risk disclosures") are associated with negative earnings and lower stock returns. On the other hand, disclosures implying a higher risk of sourcing from conflict regions ("high conflict-mineral risk disclosures") are associated with higher earnings and higher stock returns. These results imply that disclosures conveying a higher risk of supporting the conflict do not face shareholder nor consumer discipline, and, they explain why the categorized disclosures do not show a net effect of companies reducing their support of the conflict through their supply chains.

One potential reason for this counterintuitive result for the larger dataset is that consumers and investors may be reading the disclosures for a signal about a corporation's honesty or commitment to profit-maximization, and firms that disclose a higher risk of conflict mineral exposure are more likely to exhibit those characteristics. Investors (and perhaps consumers who are large purchasers looking to do business with a stable company) may interpret these as positive signals about a company's underlying value and stability and reward those firms despite the potential for human rights problems. Because disclosure about supply chains will generally send these sorts of signals as well, expecting investors to discipline corporations with supply chain abuses in response to securities disclosures is likely unrealistic. This implies that regulators hoping to address international human rights problems by using mandatory disclosure regimes should seriously question whether they will do so.

But further analysis shows that there may be a way to tweak these measures to increase their probability of success and cost effectiveness. The article also replicates this analysis with another, smaller dataset: considering how revenues relate to the scores assigned to a small subset of the disclosures by the Responsible Sourcing Network. There, a higher score means that the corporation had better due diligence procedures and forward-looking commitments to cleaning its supply chain, and consumers rewarded companies showing a greater commitment to ethical sourcing of their minerals. There is a positive relationship between earnings and the score assigned by the Responsible Sourcing Network. These results provide some evidence for ways to improve mandatory disclosure regimes. The fact that revenues are positively correlated with a score indicating good due diligence measures from the Responsible Sourcing Network supports an inference that disclosure information, when dispersed by NGOs, may be more likely to have the effect regulators want. And the more process-based information on which their scoring was based may be something that consumers are willing to reward. This counsels for disclosures of agency information (information about processes) rather than accuracy information (information affecting valuations) in a mandatory disclosure regime and shows the importance of employing NGOs to interpret and disperse disclosures.

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I. THE PROMISE OF SUPPLY CHAIN MANDATORY DISCLOSURE MEASURES AND THE CONFLICT MINERALS RULE

This Section discusses how laws requiring the mandatory disclosure of supply chains respond to the limitations of international measures in this area. It then describes some of the problems mandatory disclosure regimes can face when applied in the supply chain context. The Section concludes by contextualizing the Conflict Minerals Rule in these dynamics, discussing how the Conflict Minerals Rule creates an opportunity to test them. The discussion of mandatory disclosure's aims and theoretical problems establish the relevance of the criteria that will be used to assess the effectiveness of the Conflict Minerals Rule in Part III.

A. The Promise of Supply-Chain Disclosure Laws given the Challenges for International Law and NGOs

This subsection demonstrates how the limitations of international efforts to address supply chain human rights abuses make mandatory disclosure approaches attractive. Mandatory disclosure mechanisms address some of the theoretical problems with international solutions to human rights violations: they respond to the weak enforcement from the international cooperative arrangements (which do not impose legal obligations) and treaties (which would do so, but do not yet exist). They also may incentivize companies to switch to conflict-free smelters and mines without completely pulling out of the conflict-ridden countries, increase the production of information about how to source responsibly, and aid in international norm creation.

1. The historical weakness of international law approaches implies the need for a domestic solution to supply chain human rights abuses

Examples of corporate complicity in human rights abuses are unfortunately easy to find. These include forced labor by foreign companies in extracting gas from Myanmar[28] or minerals from the DRC,[29] child labor in the production of tobacco in Indonesia,[30] and involuntary displacement. These

[28] *See generally* Shwe Gas Movement, *Good Governance and the Extractive Industry in Burma* (July 16, 2013), http://www.shwe.org/goodgovernance-and-the-extractive-industry-in-burma/.

[29] *See* Rights & Accountability in Development, *Chinese Mining Operations in Katanga, Democratic Republic of the Congo 2* (Sept. 2009), http://www.raid-uk.org/sites/default/files/drc-china-report.pdf.

[30] *See* Human Rights Watch, *United States—Tobacco's Hidden Children: Hazardous Child Labor in United States Tobacco Farming*, (May 2014) https://www.hrw.org/report/2014/05/13/tobaccos-hidden-children/hazardous-child-labor-united-states-tobacco-farming; Human Rights Watch, Human Rights Watch, "*The Harvest is in My Blood": Hazardous Child Labor in Tobacco Farming in Indonesia* (May 24, 2016),

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abuses persist in part because of a "governance gap," in which international law is unable and domestic law unwilling to regulate them.[31]

International mechanisms to address supply chain abuses have traditionally been voluntary and had little effect. The OECD Guidelines for Multinational Enterprises, which were developed in 1976, attempt to foster international cooperation for supply chain management. They provide recommendations addressed by governments to multinational enterprises operating in or from adhering countries of "non-binding principles and standards for responsible business conduct in a global context consistent with applicable laws and internationally recognised standards," including human rights protection.[32] This includes specifying extensive due diligence methods for supply chains. The UN Global Compact was founded in 2000 by a group of multinational extractive companies. It is now a partnership involving over 9,000 companies and over 90 governments that provides a list of principles for "sustainable and socially responsible policies."[33] The Compact's commitment to avoiding "complicity in human rights abuses" is at the foundation of its recommendations regarding supply chain management.[34] While these organizations may help companies already concerned about supply chain issues pursue due diligence efforts more effectively and signal to consumers their commitment to these issues,[35] the voluntary nature means that they cannot force companies uninterested in supply chain management to address these problems. Moreover, these organizations are also hampered because they "lack independent monitoring and enforcement mechanisms."[36]

Treaties, in theory, could bind all companies in adopting countries, and they also might have better enforcement mechanisms. However, it has been difficult to foster the consensus that a treaty targeting supply chain management requires. The 2003 UN Norms had a "gloomy fate."[37] While in 2014, the U.N. Human Rights Council voted to establish a working group to draft an international treaty that would touch on supply chain issues, the majority of countries on the Council (including the United States) either voted against or abstained from voting to establish the working group. Thus, a treaty is unlikely to receive wide international support or become more than "an

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https://www.hrw.org/report/2016/05/24/harvest-my-blood/hazardous-child-labor-tobacco-farming-indonesia.

[31] *See* Penelope Simons and Audrey Macklin, *The governance gap* (Routledge, London; New York, 2014) at 6–8.

[32] *See OECD Guidelines*, *supra* note 23, at 1-5.

[33] United Nations Global Compact, *supra* note 24.

[34] *See id*.

[35] *See* Sarah Lezhev and Alex Hellmuth, *Taking Conflict Out of Consumer Gadgets, Company Rankings on Conflict Minerals 2012* at *11 (Enough Project: August 2012) (available at http://www.enoughproject.org/files/CorporateRankings2012.pdf) (using OECD involvement as an indicator for a company's commitment to source clean minerals).

[36] Chilton & Sarfaty, *supra* note 13 at 10.

[37] *See* Shuagge Wen, The Cogs and Wheels of Reflexive Law—Business Disclosure under the Modern Slavery Act, 43 JL & Soc'y 327 at 328 (2016); Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights, UN Doc. E/CN.4/Sub.2/2003/12/Rev.2 (2003); J. Ruggie, *Just Business: Multinational Corporations and Human Rights* (2013) xvi, 68, 76. (a detailed discussion of the defeat of the 2003 Norms).

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instrument that is too vague to provide effective guidance."[38] And even if a strong treaty were signed, it might not translate to more human rights protections implemented by the signing nations: Oona Hathaway has argued that joining treaties is not correlated with improvements in human rights practices among non-democracies and may even predict human rights violations.[39] Countries with strong courts are generally better at implementing the international human rights required by treaties,[40] but the recent limitations of the extraterritorial application of the Alien Tort Claims Act would constrain US courts in disciplining corporations' human rights abuses abroad.[41]

International organizations have increasingly called on member governments to address supply chain management problems on their own. For example, the United Nations Security Council in 2008 asked members to "take measures, as they deem appropriate, to ensure that importers, processing industries and consumers of Congolese mineral products under their jurisdiction exercise due diligence on their suppliers and on the origin of the minerals they purchase."[42] Two of the Senators who would eventually author Section 1502—Senators Richard Durbin and Russ Feingold—visited the DRC and witnessed the violence shortly after this statement, and they returned to the US ready to respond to the Security Council's request.[43] The domestic law they chose to implement to address this problem was a mandatory disclosure regime.[44]

2. Mandatory disclosure regimes as a promising solution

Mandatory disclosure requirements have the potential to leverage the consciences of investors and consumers to put pressure on corporations. Increasingly, investors and consumers are willing to reward corporations that voluntarily disclose a commitment to Corporate Social Responsibility (CSR).[45] Managers' growing commitment to CSR is in part responsive to this pressure,[46]

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[38] *See* Chilton & Sarfaty, *supra* note 13 at 10–12.

[39] *See* Oona A. Hathaway, *Do Human Rights Treaties Make a Difference?* 111 Yale L.J. 1935, 1976-62 (2002).

[40] *See* Joshua Kleinfeld, *Skeptical Internationalism: A Study of Whether International Law Is Law*" 78 Fordham L Rev 2451 at 2508–10 (2009–2010).

[41] *See* Chilton & Sarfaty, *supra* note 13 at 12 (arguing that this plays a role in the passage of mandatory security laws at the domestic level: "[s]ince the U.S. Supreme Court recently limited the exterritorial application of the Alien Tort Claims Act, advocates are pursuing mandatory information disclosure laws as an alternative mechanism to promote corporate accountability").

[42] S.C. Res. 1857, ¶ 15, (Dec. 22, 2008) U.N. Doc. S/RES/1857, http://www.un.org/ga/search/view_doc.asp?symbol=S/RES/1857(2008).

[43] *See* Woody, *supra* note 20.

[44] *See* Part I.C.

[45] *See* Kun Tracy Wang and Dejia Li, *Market Reactions to the First-Time Disclosrue of Corporate Social Responsibility Reports: Evidence From China*, 138 J. Bus. Ethics 661, 661, 670-71 (2016) ("find[ing] that CSR initiators have higher market valuations than matched CSR non-initiators").

[46] *See* Fenghua Wang, Monica Lam and Sanjay Varshney, *Corporate Social Responsibility: Motivation, Pressures, and Barriers*, 9 Journal of International Business Ethics 6 at 10 (2016) (surveying business leaders in China and the US and finding that market pressure explains 13% of the variance in manager's stated commitment to CSR in a survey).

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and the empirical literature has documented corporations' increasing eagerness to signal CSR commitments.[47]

Supply chain mandatory disclosure requirements force all organizations to provide information about their supply chains. To the extent that consumers care about the ethics of corporate supply chains, they will discipline companies who disclose problematic supply chains. And investors will similarly punish the companies, either because they anticipate a lower valuation associated with the decrease in sales or prefer to invest only in ethical companies. The regime therefore puts pressure on corporations to clean up their supply chains.

Moreover, mandatory disclosure requirements may have information benefits compared to a voluntary regime or international treaties. The literature on mandatory disclosure has established that disclosures may increase social welfare by conveying information associated with positive externalities to competitors.[48] Information from ethics-conscious companies about which suppliers they have chosen to source from helps identify ethical suppliers for other companies trying to do the same. A disclosure regime requires all companies to generate and publicize information about their supply chains,[49] and it increases the amount of information produced by requiring more companies to examine their supply chain compared to a voluntary system. By increasing demand for organizations that certify certain extracting suppliers as having ethical practices, mandatory disclosure regimes should translate into more resources being put into the certification process and the returns of certification increasing. This level of production and dissemination need not occur with treaties: if bad actors are the only ones who are examined and prosecuted for their violations of international law, there is no dissemination mechanism for information about the practices of good actors.

Such improvements in information may translate to superior norm creation. Mandatory disclosure laws are part of an approach that addresses human rights problems through reflexive laws, which "suggest[] a mode of legal intervention (often procedural) to underpin and encourage various social subsystems' self-reflection and autonomous adjustment."[50] This self-reflection leads to companies reexamining and improving their practices.[51] The problem with the reflexive approach as a voluntary measure is that companies seem to be able to appease relevant stakeholders simply by virtue signaling without taking meaningful action. As has happened previously in voluntary environmental disclosure regimes, companies may attempt to inflate the

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[47] *See* Lukas Vartiak, *CSR Reporting of Companies on a Global Scale*, 39 Procedia Economics and Finance 176 at 178 (2016) (analyzing KPMG surveys of CSR reporting to show a nearly 500% increase in CSR reporting since 1993).
[48] *See* Michael D Guttentag, *An Argument for Imposing Disclosure Requirements on Public Companies* 32 Fla St U L Rev 123 at 136 (2004) (discussing how disclosure may help the disclosing company's competitors, "who may benefit from the disclosure of proprietary information").
[49] The quality of this information may depend in part on the consumer and investor response: if consumers and investors do not care about the depth of information provided in disclosures, the information investment under mandatory disclosures will be less.
[50] *See* Wen, above n 51, at 329 (describing the mandatory disclosure regime under the Modern Slavery Act in the UK as reflecting the reflexive paradigm).
[51] *Id.* at 344.

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robustness of their practices without taking hard measures.[52] However, mandatory disclosure regimes alone are a robust way to deal with this "puffery" by ensuring that companies have to stick with hard numbers and concrete procedures.[53] This level of accountability inherent in mandatory disclosure regimes is further reinforced by third-party validation, as it requires companies to perform substantive actions to back up symbolic claims.[54] Mandatory disclosure regimes therefore play an important role in positive ethical norm creation by verifying company claims for stakeholders, thereby reifying ethical company practices. And these norms may even persist after the mandatory regimes are no longer in place because of the expectations that they create – a dynamic that some think would occur in the case of conflict mineral disclosures were it to no longer be enforced.[55]

More sophisticated norms in this context may permit more flexible responses to the human rights challenges than a treaty approach would. One weakness associated with the treaty approach stems from the fact that treaties generally would be structured to "provid[e] remedies for the victims of human rights abuses."[56] This could potentially result in penalties that are high and inflexible, and these would be internalized by companies, while the benefits of aiding the economy of a third-world country particularly in need of export markets would not be.[57] This might lead to companies choosing not to do business at all with suppliers from countries where there is a higher risk of supply chain problems, having a negative effect on the people the treaties were designed to protect. This is in contrast to a disclosure regime, where the consequences of inadvertently purchasing tainted inputs depend on how much culpability consumers assign to the company's action and due diligence measures and the social value of sourcing from that particular country given the labor practices. Not only do mandatory disclosures empower consumers and investors to consider these tradeoffs, but its norm development function

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[52] *See* Christopher Marquis, Michael W. Toffel, & Yanhua Zhou, *Scrutiny, Norms, and Selective Disclosure: A Global Study of Greenwashing*, 27-2 Org. Sci. 483, (2016) (describing the global trend towards symbolic Green company practices and describing strategies to determine authenticity); *see also* Stacey Cowan & David Gadenne, *Australian corporate environmental reporting: a comparative analysis of disclosure practices across voluntary and mandatory disclosure systems*, 1-2 J. of Acct. & Org. Change, 165 (2005).

[53] *Id.*

[54] *See* Marquis et al., note 52, at 499.

[55] *See* Todd C. Frankel, *Why Apple and Intel Don't Want to See the Conflict Minerals Rule Rolled Back,* Washington Post (Feb. 23, 2017), https://www.washingtonpost.com/business/economy/why-apple-and-intel-dont-want-to-see-the-conflict-minerals-rule-rolled-back/2017/02/23/b027671e-f565-11e6-8d72-263470bf0401_story.html?noredirect=on&utm_term=.806cccbbbe34 (pointing to several major companies that are supporting the Conflict Minerals Rule, arguing that "Companies say the conflict minerals law has created an expectation both inside their corporate headquarters and among consumers that their products will be "conflict-free.").

[56] *See* Chilton & Sarfaty, *supra* note 13 at 3.

[57] This argument may especially apply to human rights abuses in the DRC in particular given its extreme poverty. The DRC was ranked 176th out of 189 countries in terms of its Human Development Index, as reported in the UN's 2015 Human Development Report. *See* U.N. Dev. Programme, *Human Development Indices and Indicators: 2018 Statistical Update – Ccngo* (2018), http://hdr.undp.org/sites/default/files/Country-Profiles/COD.pdf.

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may help them do so responsibly and insightfully. This may be a better approach for upholding human rights in complex situations, when a one-size-fits all approach may not be flexible enough to accommodate cultural differences.[58]

B. The Limitations of Mandatory Disclosure Requirements

While these international dynamics highlight the promise of mandatory disclosure approaches for encouraging more ethical supply chains, mandatory disclosure regimes also present their own challenges.

1. Difficulty in knowing whether investors or consumers will care

For mandatory disclosure requirements to succeed, consumers and investors must care about the disclosed content—otherwise, they will not react to it. This is a threshold condition which disclosures providing consumers with information that appears to be in their own interest often fail to meet,[59] and one might think it is more difficult to meet when the scheme requires investors and consumers to be altruistic.

One criticism of mandatory disclosure regimes is that if consumers were interested in the information, firms with positive information would all voluntarily disclose the information, allowing customers to infer problematic supply chains from a lack of disclosure and rendering the mandatory regime unnecessary. This idea was developed by Judge Frank Easterbrook and Professor Daniel Fischel, who argue that in the corporate finance context, "[a] firm with a good project, seeking to distinguish itself from a firm with a mediocre project … would disclose the optimal amount of information … as long as the cost of disclosure was worthwhile to investors as a whole." [60] The intuition is that firms want to provide information about a product's qualities if this information raises a willingness to pay for the product or willingness to invest in the company, and thus a "self-induced disclosure" regime for valuable information will arise.[61] Companies choose to disclose precisely because of the high probability that customers would reward them for the positive disclosures with higher profits.[62] Consumers can then infer from a lack of disclosure that the company does not have the characteristics that companies making positive disclosures have. According to Easterbook and Fischel, the only assumptions required for this mechanism to work are minimal transaction costs of

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[58] *See* id. at 347.

[59] *See* Ben-Shahar, Omri, *More Than You Wanted to Know: The Failure of Mandated Disclosure,* 33–54 (Princeton 2014).

[60] Frank H. Easterbrook and Daniel R. Fischel, *Mandatory Disclosure and the Protection of Investors*, 70 VA L. Rev. 669, 682–83 (1984) (arguing that "if disclosure is worthwhile to investors, the firm can profit by providing it" as "the Coase Theorem suggests that firm and investors can strike a mutually beneficial bargain" and "[a] decision by the firm effectively 'coordinates' the acts of many investors who cannot bargain directly").

[61] *Id.* at 684.

[62] Robert E. Verrecchia, *Discretionary Disclosure*, 5 Journal of Accounting and Economics, 179–194 (1983).

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disclosing,[63] antifraud laws,[64] and information pertaining to the company rather than the industry as a whole: when these apply, mandatory disclosure regimes place no additional pressure on corporations.[65]

But not all of these assumptions necessarily apply to information about corporations' supply chains. Take the requirement that disclosed information pertains to the company rather than the industry as a whole. Often, different competitors who both have complex supply chains source from the same supplier. Thus, a company's disclosure about the ethics of its supply chain may support the inference that a competitor who provides a similar product is similarly ethical. Formal modeling shows that when information about individual firms is highly correlated, underreporting is an expected outcome under a voluntary disclosure regime because firms free-ride on the production of information by the disclosing firm.[66]

And there also may be a principal-agent problem that explains a lack of voluntary disclosures. Principal-agent problems occur when managers (the agents) of a firm do not do what is in the best interest of the firm and investors (the principals) because it is impossible for shareholders to adequately monitor them.[67] This means that the managers "have incentives to pursue their own interests at shareholder expense."[68] These occur because of the managers' access to information that investors do not have: because of this asymmetry in access to information, the investor cannot verify that the manager is doing what he or she claims to do.[69]

The asymmetric access to information that can drive principal-agent problems is present in the supply chain management context, and thus an agency problem is plausible. Imagine that a manager of a firm would prefer not to do the work of determining the ethics of his or her corporation's supply chain. This could occur for a variety of reasons. Perhaps the manager may disproportionately bear the cost of any stigma associated with finding ethical problems in a supply chain.[70] And it may be the case – as I later show in the data – that investigating a supply chain is likely to lead to embarrassing results of not being able to confidently say that the supply is ethical. Alternatively, the manager may simply have other profit-making activities that, while less

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[63] *See* S. J. Grossman and O. D. Hart, *Disclosure Law and Takeover Bids* 35 J of Finance 323, 333 (1980).
[64] *Id*.
[65] Easterbrook and Fischel, *supra* n. 60 at 686.
[66] *See* Anat R Admati and Paul Pfleiderer, *Forcing Firms to Talk: Financial Disclosure Regulation and Externalities,* 13 The Review of Financial Studies 479 JSTOR 512 (2002).
[67] *See* Michael C. Jensen and William H. Meckling, *Theory of the firm: Managerial behavior, agency costs and ownership structure*, 3 Journal of Financial Economics 305, 308–10 (1976).
[68] *See* Anup Agrawal and Charles R. Knoeber, *Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders*. 31 Journal of Financial and Quantitative Analysis, 377, 377–78 (1996).
[69] *See* John Armour, Henry Hausmann, and Reiner Kraakman, *Agency Problems and Legal Strategies, in* The Anatomy of Corporate Law: A Comparative and Functional Approach, 29 (Oxford 2009).
[70] For examples of the effectiveness of shaming CEOs and how this influences CEO behavior, *see* David A. Skeel, 149 U. Penn. L. Rev. *Shaming in Corporate Law*, 1811, 1849-50 (2001).

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profitable on the whole, are more pleasant given the difficulties of tracing inputs many links up the supply chain.[71] Under these circumstances, the manager may choose not to investigate the corporate supply chain even if a consumer's willingness to pay for ethical products justifies the work of identifying supply chain practices. With perfect information, this behavior would not be tolerated: shareholders would simply fire a manager who acted in this inefficient manner, but asymmetric information may allow the agency problem to persist. Because the manager has a better sense than the investor of the costliness and possibility of investigating and improving the supply chain, the manager can lie to the shareholder and claim that he or she has not investigated the conflict status of the supply chain because the potential profits from increased consumer willingness to pay would not cover those costs. Alternatively, the manager can argue that it is impossible to determine the human rights status of the supply chain – something that companies have historically asserted.[72] The shareholders do not have sufficient information to know that this is a lie, and the company ends up not investigating its supply chain. The ethics of corporate supply chains therefore present the information deficiencies that set up principal-agent problems.

Under these circumstances, mandatory disclosure laws may help resolve this principal-agent problem by forcing the agent to do what is in the principal's interest and engage in investigation of its supply chain and, ultimately, in responsible supply chain management. Because such disclosure is mandatory, there is not an opportunity for the managers to make a decision that is contrary to what is good for the firm. Assuming sufficiently high penalties for not following the disclosure law, the managers can no longer simply appeal to supposed costs to avoid investigating their supply chains.

Thus, although a lack of voluntary disclosures might generally imply that consumers and investors do not care about corporate supply chains in certain contexts, the assumptions such an inference requires are not obviously applicable in the context of complex supply chains. Disclosures may still provide information that consumers care about and help investors solve an agency problem that explains the lack of disclosures.[73]

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[71] *See* Tatiana Darie, *Tracing Conflict Minerals Proves Too Hard for Most U.S. Firms*, Bloomberg (August 4, 2015) https://www.bloomberg.com/news/articles/2015-08-04/tracing-conflict-minerals-proves-too-hard-for-most-u-s-firms (discussing the "technical obstacles in terms of being able to obtain information and data from suppliers").

[72] *See*, *e.g.,* Danny Zane, Julie Irwin, and Rebecca Walker Reczek, *Why Companies Are Blind to Child Labor*, Harvard Business Review (Jan. 28, 2016), https://hbr.org/2016/01/why-companies-are-blind-to-child-labor. Amnesty International reached out to Apple, Samsung, Microsoft, Volkswagen, and Daimler AG after discovering that their products included cobalt mined with child labor. The companies said they were unable to verify the human rights implications of the cobalt in their products, with Daimler referring to the "high complexity of automotive supply chains" and Samsung and Apple claiming that such a determination is "impossible" to make. *Id.*

[73] *See* Paul G Mahoney, *Mandatory Disclosure As a Solution to Agency Problems,* 62 U Chi L Rev 1047 at 1051 (1995) (discussing agency costs as one of two main purposes of mandatory disclosure requirements by the SEC, along with accuracy enhancement).

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2. Issues with consumers and investors rationally reacting to the disclosure content

Even if it is true that consumers and investors care about the status of supply chains that mandatory disclosures shed light on, the success of mandatory disclosure still relies on several additional assumptions about how consumers and investors react to that information. It is important that investors and consumers pay attention to the information in the first place. There is an extensive literature challenging the effectiveness of mandatory disclosures and their impact on consumer decisions, as consumers often fail to read or understand them.[74] And investors' cognitive biases may cause them to ignore the disclosures as well.[75] For example, negative information can be ignored by investors with "intractable loss aversion," who are committed to maintaining ownership in a company until their previous losses are reversed.[76] Overconfidence bias may lead investors to ignore the disclosed information, choosing not to update their initial assessment of the company.[77] And investors who choose to make investment decisions on "tips or fads" may not properly consider the content of the disclosures.[78]

And once investors and consumer pay attention to the disclosures, cognitive biases or decision-making heuristics may ultimately lead them to process the information improperly. Investors' cognitive biases and employment of simplifying decision strategies have the potential to cause information overload, worsening the problem.[79] SEC commissioners[80] and

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[74] *See* Archon Fung, Mary Graham, & David Wel, *Full Disclosure: The Perils and Promise of Transparency* (2007); Oren Bar-Gill & Franco Ferrari, *Informing Consumers About Themselves*, 3 Erasmus L Rev 93, 98 (2010); Amitai Etzioni, Is Transparency the Best Disinfectant?, 18 J Pol Phil 389 (2010); Robert A. Hillman, *Online Boilerplate: Would Mandatory Website Disclosure of E-Standard Terms Backfire?*, 104 Mich. L. Rev. 837 (2006); Daniel E. Ho, *Fudging the Nudge: Information Disclosure and Restaurant Grading*, 122 Yale L J 574 (2012); Daniel Schwarcz, *Transparently Opaque: Understanding the Lack of Transparency in Insurance Consumer Protection*, 61 UCLA L. Rev. 394 (2014).

[75] *See* Stephen J. Choi & A. C. Pritchard, *Behavioral economics and the SEC*, 56 Stanford L. Rev. 1 at 22 (2003) ("For behavioralists, the single-minded focus of the SEC on disclosure presents a puzzle. We doubt that disclosure is the optimal regulatory strategy if most investors suffer from cognitive biases. Disclosure may be ineffective in educating investors who suffer from biases in decisionmaking.").

[76] *Id.*

[77] *Id.*

[78] *Id (*citing Robert J. Shiller & John Pound, *Survey Evidence on the Diffusion of Interest and Information Among Investors,* 12 J. Econ. Behav. & Org. 46 (1989))

[79] *See* Troy Paredes, *Blinded by the Light: Information Overload and Its Consequences for Securities Regulation*, 81 Wash U L Q 417 at 434–42 (2003) (citing studies showing how information overload can lead to worse decisions and discussing how information overload can cause the decision maker to be distracted by less relevant information).

[80] *See id.* at 446-47. *See also SEC Commissioner Cynthia A. Glassman, Opening Remarks Before the Symposium on Enhancing Financial Transparency, Securities and Exchange Commission Policy Roundtable Symposium on Enhancing Financial Transparency* (June 4, 2002), http://www.sec.gov/news/speech/spch565.htm ("So now we turn to the task of determining how to get more transparency-true transparency and not just more data with the unintended consequence of investor overload."); SEC Commissioner Laura S. Unger, R*emarks at the Internet Securities Regulation American Conference Institute* (June 26, 2000),

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judges[81] have shown concern about the effects of too much information. Adam Chilton and Galit Sarfaty argue that human-rights related supply chain disclosures are "uniquely difficult to interpret,"[82] and they have shown in the experimental setting that consumers have difficulty distinguishing low levels of due diligence from high levels of due diligence in disclosures.[83]

Another potential problem with mandatory disclosure is that corporations may change their underlying behavior in order to avoid disclosure in the first place.[84] Some commentators have predicted that the disclosing entities may choose behavior that is less desirable in response to disclosure requirements. For example, Gregory Manne identifies this dynamic as motivating firms' likely response to the requirement under Section 406 of the Sarbanes-Oxley Act that they disclose waivers of their ethic codes.[85] He argues that instead of deterring inappropriate waivers, the disclosure requirement simply leads firms to modify their ethics codes so that waivers are less necessary.[86] Some empirical evidence supports this claim.[87] In the context of supply chain disclosures, one might be concerned that corporations stop sourcing from certain regions entirely rather than doing the hard work to remain there but with a more ethical supply chain. Whether this will happen depends in part on the sophistication of the consumer and investor responses to the disclosures.

This analysis of the promise of supply chain mandatory disclosure regimes and the challenges they face shows why the question of their effectiveness is empirical, as the theory alone is not dispositive. Looking at the effects of particular regimes is important for understanding how these dynamics play out. The Conflict Minerals Rule presents an opportunity for such a study.

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http://www.sec.gov/news/speech/spch387.htm ("As a Commissioner of a disclosure-based agency, I believe that more information is generally better. But is that always the case? .... [W]hat if the proposals are adopted and result in significantly greater amounts of information coming out in the form of press releases? Do we need to be concerned about potential 'information overload? . . . [W]e have to remember that information can only empower investors if they understand it and can effectively apply it.").

[81] *See TSC Industries, Inc. v. Northway, Inc.*, 426 U.S. 438, 448–49 (1978) ("[I]f the standard of materiality is unnecessarily low, not only may the corporation and its management be subjected to liability for insignificant omissions or misstatements, but also management's fear of exposing itself to substantial liability may cause it simply to bury the shareholders in an avalanche of trivial information a result that is hardly conducive to informed decisionmaking.").

[82] Chilton & Sarfaty, *supra* note 13 at 24.

[83] *See id.* at 37 (finding that a good disclosure was only rated 3 points higher, on average, on a scale of 100, than a bad one).

[84] *See* Geoffrey A. Manne, *The Hydraulic Theory of Disclosure Regulation and Other Costs of Disclosure* 58 Ala L Rev 473 at 485–87 (2006–2007).

[85] *See id.* at 478.

[86] *See id.* at 488.

[87] *See* Usha Rodrigues and Mike Stegemoller, *Placebo Ethics: A Study in Securities Disclosure Arbitrage*, 96 Va. L. Rev. 1 at 8 (2010). (documenting how waivers required by Section 406 were generally not filed, and explaining that this was because over 20% of firms in their sample "avoided violating the Act in the strict sense, but only by watering down their codes to an arguably illegal degree").

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C. The Conflict Minerals Rule as a Test of Supply Chain Mandatory Disclosure Regimes

The Conflict Minerals Rule is a mandatory disclosure regime that addresses the failure of international mechanisms to curb human rights abuses in the DRC and surrounding areas. But it is not clear that customers and investors will be responsive to the contents of the disclosures. The market responses to the disclosures present an opportunity to evaluate the effectiveness of the regime and to consider the appropriateness of the content required and the regulator implementing the scheme.

1. The Conflict Minerals Rule: a domestic solution to an international problem

The Conflict Minerals Rule responds to a particular human rights abuse: the fact that the mineral trade that takes place in some parts of Sub-Saharan Africa, especially the DRC, has historically supported the armed conflict there.[88] Not only do the minerals provide funding for the conflict, but they also directly contribute to it since competing militant groups fight over them.[89] This conflict is responsible for over 3.3 million deaths, making it the most deadly conflict since World War II,[90] and these deaths tend to be concentrated in the most resource rich areas.[91]

Section 1502 of the Dodd-Frank Act was adopted to promote transparency and consumer awareness of the problems created in this region by corporate supply chains[92] by "us[ing] the securities law disclosure requirements."[93] Section 1502 places disclosure requirements on companies publicly traded in the United States: such companies who make products including tin, tantalum,[94] tungsten, and gold "necessary to the functionality or production of products manufactured" must disclose whether they source these inputs from the DRC or its neighboring countries, and if so, whether their sourcing contributed to the conflict.[95] The law also applies to products which a company does not produce itself but which it contracts for manufacture.[96] Congress required the SEC to issue a Final Rule, which it did

[88] *See Mining for Our Minerals*, Global Witness, https://www.globalwitness.org/mining-for-our-minerals/ (last visited June 18, 2020).
[89] *See id.*
[90] *See Conflict in Congo Deadliest Since World War II, Says the IRC*, (Intl Rescu Comm 2015) http://www.rescue.org/news/conflict-congo-deadliest-world-war-ii-says-irc-3730.
[91] *See* BSR, *Conflict minerals and the democratic Republic of Congo,* (2010) http://www.bsr.org/reports/BSR_Conflict_Minerals_and_the_DRC.pdf (noting that the armed groups control 12 of the 13 major mines in the DRC).
[92] *See* Dodd-Frank Wall Street Reform and Consumer Protection Act § 1502, 124 Stat. at 2215 (specifying as an objective of Section 1502 the discouragement of conflict minerals usage by increasing disclosure requirements).
[93] *See* 17 CFR PARTS 240 a and 249b, Release No. 34-67716; File No. S7-40-10, *Final Rule.*
[94] Tantalum is used in anodes in electric capacitors and thus is important in technological products. *See* Gene Slowinski, Darin Latimer & Stewart Mehlman, *Dealing with Shortages of Critical Materials*, 56:5 Res.-Tech. Mgmt 18. (2013).
[95] *See* 17 CFR PARTS 240 a and 249b, Release No. 34-67716; File No. S7-40-10, *Final Rule.*
[96] *Id.*

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on September 12, 2012. The SEC required companies to file a specialized disclosure Form SD by May 31, 2014 that describes the results of a "reasonable country of origin inquiry" for the tin, tantalum, tungsten, and gold in its 2013 products. The rule also required companies to determine whether the sources were "DRC conflict-free," "not DRC conflict-free" or "DRC conflict undeterminable." Forms were required to include how companies determined the sourcing mines, what they were doing to lower the risk that they would support armed conflict through their supply chains, and what they were doing to improve their due diligence processes.[97] These forms are readily available to consumers and investors on the EDGAR website.[98]

The final rule provided for enforcement of these disclosure requirements, making them truly mandatory. Failing to file a Conflict Mineral Disclosure report does not make a company ineligible to file a Form S-3,[99] which is necessary for raising capital in secondary offerings. However, it does expose a company to "the same liability that accompanies section 13a and section 15d disclosures."[100] Moreover, under the Final Rule, the requirement opens companies up to liability under Rule 10b-5, which permits shareholders to sue for misleading statements or omissions.[101]

Supply chain due diligence schemes generally fit into two main groups; ethical mineral certification schemes, and chain of custody schemes. In either case, the process of certification or chain of custody management can be extremely expensive for companies introducing traceability into their supply chains for the first time.[102] Ethical mineral certification schemes generally intend to provide certification status regarding responsible mining practices to artisanal and small mining operations.[103] Chain of custody schemes generally incorporate and work in partnership with ethical mineral certification schemes to allow corporations to meet these regulations.[104] Chain of custody initiatives focus mainly on the transparency and traceability of supply chains.[105]

Because the large quantity and foreign location of its members' metal and component suppliers render conflict mineral auditing by individual companies redundant and prohibitive, the Responsible Business Alliance (formerly the Electronic Industry Citizenship Coalition) established the

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[97] Conflict Minerals, 77 Fed. Reg. 56,274 (Sept. 12, 2012) (codified at 17 C.F.R. pts. 240, 249b).
[98] *See, e.g.,* Cisco Systems, Inc., *Conflict Minerals Report for 2014*, (2014), https://www.sec.gov/Archives/edgar/data/858877/000119312515204160/d930657dex101.htm.
[99] *See* Securities and Exchange Commission, *Dodd-Frank Wall Street Reform and Consumer Protection Act Frequently Asked Questions: Conflict Minerals* (April 7, 2014), https://www.sec.gov/divisions/corpfin/guidance/conflictminerals-faq.htm.
[100] Woody*, supra* note 20, at 1337.
[101] *See id*. at 1338. Woody discusses how the proposed rule did not initially allow for these actions, but the final rule changed the filing requirements to allow them.
[102] *See* Jeff Schwartz & Alexandrea Nelson, *Cost-Benefit Analysis and the Conflict Minerals Rule*, 68-2 Admin. L. Rev. 287, 299 (2016) (stating that the SEC estimated the rule would cost industry more than $3 billion in the first year alone).
[103] Morgane Fritz, James McQuilken, Nina Collins, & Fitsum Weldegiorgis, *Global Trends in Artisanal and Small-Scale Mining (ASM): A Review of Key Numbers and Issues* 45 (2018).
[104] *Id.* at 45-46
[105] *Id.* This source also provides numerous examples of chain of custody initiatives at p. 45, as well as a list of ethical mineral certification organizations in Sub-Saharan Africa on p. 46.

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Conflict-Free Smelter Program (CFSP), which offers "conflict-free" certification to smelters and refineries based on an audit of their sourcing of the four conflict minerals. [106] In their disclosure documents, many companies assert their intention to encourage all their suppliers either to become CFSP certified or, if further down the chain, to source from CFSP-certified smelters. Expanded adoption of this program is expected to be the means by which most large companies will meet the SEC's audit requirement for declaring their products "DRC conflict free."

The Conflict Minerals Rule is not the only example of a corporate disclosure requirement that aims to address supply chain human rights abuses. The 2010 California Transparency in Supply Chains Act requires any company that does business in California and has revenues above one hundred million dollars to disclose "its efforts to eradicate slavery and human trafficking from its direct supply chain for tangible goods offered for sale."[107] The U.K. Modern Slavery Act of 2015 requires British companies to prepare a slavery and human trafficking statement each financial year on efforts they have taken to ensure that their supply chains are free from slavery and human trafficking.[108] The EU Parliament's Regulation 2017/821, which will go into effect in 2021, requires all importers of tin, tantalum, tungsten, and gold above certain thresholds to disclose their "supply chain due diligence policies and practices for responsible sourcing." [109]

2. The effectiveness of the Conflict Minerals Rule as an open question

Like the Conflict Minerals Rule, shareholder and consumer responses to the Modern Slavery Act and the California Transparency in Supply Chains Act have attracted little empirical examination. One exception to this is Adam Chilton and Galit Sarfaty survey of consumer responses to fabricated disclosures designed to meet the disclosure requirements under 2010 California Transparency in Supply Chains Act.[110] Survey respondents were asked "how likely they were to purchase a product from the company in the next year" after seeing a sample disclosure, and there was a larger increase in this likelihood for the disclosure form that was designed to have a higher level

[106] The CFSP program subsequently changed its name to the Responsible Minerals Assurance Project. *See* SGS Office & Labs, *What's New for CFSP* (November 21, 2017) https://www.sgs.com/en/news/2017/11/safeguards-17417-what-is-new-for-cfsp. However, all of the disclosures this Article relies on were using the previous language, so the acronym of CFSP has been retained.
[107] *See* California Transparency in Supply Chains Act, Cal. Civ. Code § 1714.43(a)(1) (West 2012).
[108] *See* Modern Slavery Act 2015, c. 30, § 54 (1)-(5) (UK).
[109] *See* Council Regulation 2017/821 of the European Parliament and of the Council of 17 May 2017 Laying Down Supply Chain Due Diligence Obligations for Union Importers of Tin, Tantalum, and Tungsten, Their Ores, and Gold Originating from Conflict-Affected and High-Risk Areas, 2017 O.J. (L 130) 1, Article 7, 21.
[110] *See generally* Chilton & Sarfaty, *supra* note 13.

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of due diligence.[111] But it is an open question whether this result that holds in the laboratory will persist in the field.[112] Given that there are actual consumer and invest responses to it, the Conflict Minerals Rule presents an opportunity to test some of the benefits of the mandatory disclosure approach in the context of supply chains..

One benefit that this Article does not test is the information benefit associated with the Conflict Minerals Rule. The information it produces is likely to be welfare enhancing. Disclosures involve some companies publicizing smelters or refiners that they have verified to be conflict-free smelters or refiners. This information may facilitate best practices between different companies for sourcing minerals without contributing to conflict. At the minimum, this information dispersion increases demand for organizations that will do this sort of certification, which means more resources will be put into the certification process, potentially making it easier, and the returns for smelters and mines for being certified increase.[113]

But for the benefit of pressure on corporations to materialize, investors and consumers must respond to the content of the disclosures and reward detailed information. The limited empirical evidence that has been gathered in the conflict minerals context prior to mandatory disclosures does not provide optimism that pressure will materialize.[114] And it is not difficult to imagine that an agency problem exists given how difficult it is to figure out supply chain logistics.[115] Thus, it is worth evaluating whether this pressure actually materializes.

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[111] *See id.* at 39 (but noting that "even when shown a disclosure reporting minimal efforts by a company to root out human rights abuses within its supply chain, the respodnents nevertheless had a positive reaction to the statement").

[112] *See* Steven D. Levitt & John A. List, *Homo Economicus Evolves,* 319 Science 909, 909 ("In nearly every instance, the strongest empirical evidence in favor of behavioral anomalies emerges from the lab. Yet, there are many reasons to suspect that these laboratory findings might fail to generalize to real markets.").

[113] Many companies publish the names of the smelters or refiners they source from that are compliant, often while choosing not to publish those that are not compliant. One company explained that the reason for this is to "to hold these smelters and refiners accountable and to give credit for their continued participation in the CFSP" and to "encourage[ ] the remaining smelters and refiners in our supply to accelerate their efforts to become conflict free through the CFSP". Tesla Motors, Conflict Minerals Report for 2014, http://www.sec.gov/Archives/edgar/data/1318605/ 000119312515206829/d933550dex101.htm.

[114] The only study that attempts to link Conflict Minerals reputation (and consumer knowledge of it) to corporate sales is unable to establish such a link, although this is in part due to a very small sample. *See* The Elm Consulting Group International, *Analysis: Impacts of Public Perceptions of Conflict Minerals on Consumer Electronic Sales (2010-2011)* at *3 (2012) (available at http://elmsustainability.com/wp-content/uploads/2014/07/Elm-Analysis-CM-Financial-Risk.pdf) (analyzing the correlation between the tier provided in the Enough Project ranking of supply chain management of conflict minerals and companies' financial performance and finding "no obvious connectivity between perceptions of conflict minerals and financially material consumer sales performance").

[115] *See* Hannes Hoffman, Martin C. Shleper & Contantin Blome, *Conflict Minerals and Supply Chain Due Diligence: An Exploratory Study of Multi-tier Supply Chain*, 147 J. Bus. Ethics 115, 120 (2018).

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Establishing whether the Conflict Minerals Rule, as implemented, creates this sort of pressure also helps address questions about administrative competency and whether the SEC is best situated to address corporate supply chains. Stephen Bainbridge has developed the idea of "therapeutic disclosures," which are disclosures that aim to "affect substantive corporate behavior" rather than "inform investors."[116] Two examples of this are the Dodd-Frank's pay disclosures, Sections 953 and 972.[117] Section 953 requires that the ratio of the median employee's annual total compensation (excluding the CEO) and the CEO's annual total compensation be reported.[118] Section 972 requires the companies to discloses whether the CEO is the same person as the chairman.[119] Section 1502 and the Conflict Minerals Rule is another example of this. Disclosure in the SEC context usually aims at increasing shareholder value, but these do not,[120] and prior to the Conflict-Minerals requirement, the SEC resisted the expansion of its mandate.[121] Other scholars have linked the implementation of the Conflict Minerals disclosure requirement to other instances in which the SEC becomes involved in what would traditionally be considered matters of foreign policy at the expense of a more narrow mandate.[122] Considering the effects of the Conflict Minerals Rule may provide some insight into whether the SEC is the best government actor for implementing these types of disclosures.

Analyzing the pressures created by the Rule may also be helpful for thinking through whether the type of information being disclosed is cost effective. Paul Mahoney argued that the disclosure of "agency information" is more cost effective than the disclosure of "accuracy information."[123] Agency information covers what managers are actually doing, and accuracy information includes information that helps investors valuate the firm. Agency information is less costly to produce because it "is limited in scope and can be described with reasonable precision," and firm managers are well-informed about their own activities.[124] The Conflict Minerals Rule provides an opportunity to consider market responses to the "accuracy" information in the disclosures about where, exactly, companies source from.

In addition to establishing broader principles about when supply chain disclosures are likely to be effective, this empirical study is also helpful for thinking about the cost effectiveness of the Rule. This is important from a policy perspective, as the Act brings with it certain known costs, making uncertainty about the potential value for investors and customers, as well as the humanitarian benefits, problematic. The Securities and Exchange Commission estimated that the cost of complying with the Conflict Minerals

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[116] Stephen M. Bainbridge *Dodd-Frank: Quack Federal Corporate Governance Round II,* 95 Minn. L. Rev. 1779 at 1797 (2011).
[117] *See id.* at 1797-1800.
[118] Dodd-Frank Wall Street Reform and Consumer Protection Act § 953.
[119] *Id.* at § 972.
[120] *See* Manne, *supra* note 77, at 475.
[121] *See* Woody*, supra* note 20, at 311–19.
[122] *See id.*
[123] *See* Mahoney, *supra* note 66.
[124] *Id.* at 1094.

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Rule would be between $3 to $4 billion in the first year alone,[125] and the National Association of Manufacturers estimated compliance costs would fall between $9 and $16 billion during the first year.[126] Analyses of the effectiveness of the Conflict Minerals Rule will help assess whether other supply-chain disclosures acts that are currently in the pipeline are likely to be worth the costs.

Knowing more about the Rule's cost effectiveness is relevant given the political and legal status of Conflict Minerals Rule and enforcement of it. On the one hand, the Obama administration considered strengthening it through an executive order that supplemented the Dodd-Frank Act in July of 2014. The order established the availability of sanctions for any corporations that are found "responsible for or complicit in, or to have engaged in, directly or indirectly … actions or policies that threaten the peace, security, or stability of the Democratic Republic of the Congo."[127] As no downstream companies were sanctioned,[128] despite disclosures where companies admit sourcing from non-certified companies in the DRC,[129] the question of whether sanctions should be applied to companies for their supply chain in a well-publicized way in order to strengthen the disclosure regime is one worth asking. To the extent that investors and consumers are responding in the way that lawmakers hoped, such sanctions are less necessary. On the other hand, the extent to which Conflict Minerals Rule should be enforced at all is currently up for debate. In April 2017, the acting SEC Chairman, Michael Piwowar, issued a statement saying that he had instructed SEC staff to begin to work on a recommendation for future Commission Action, and concluding that in light of "foregoing regulatory uncertainties . . . it is difficult to conceive of a circumstance that would counsel in favor of enforcing" the requirement that companies who have reason to believe that they source minerals from the DRC and surrounding regions perform due diligence on their source and chain of custody.[130] This was followed up with an updated statement that countries only have to determine the country of origin.[131] Moreover, President Trump had

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[125] Conflict Minerals, 77 Fed. Reg. 56,274, 56,334 (Sept. 12, 2012) (codified at 17 C.F.R. pt. 240).
[126] Melvin Ayogu & Zenia Lewis, *Conflict Minerals: An Assessment of the Dodd-Frank Act*, Brookings Brief (October 3, 2011), http://www.brookings.edu/research/opinions/ 2011/10/03-conflict-minerals-ayogu.
[127] E.O. 13672 of Jul 8th, 2014 (79 FR 39947).
[128] This can be verified by looking at all "Detailed Penalties Information" publications describing the Office of Foreign Asset Control's enforcement actions that have been issued since July 2014. *See* US Treasury, *Resource Center: Civil Penalties and Enforcement Information*, https://www.treasury.gov/resource-center/sanctions/CivPen/Pages/ civpen-index2.aspx (last visited June 18, 2020).
[129] *See* Part II.E for discussion of such instances.
[130] Michael Piwowar, "Statement of Acting Chairman Piwowar on the Court of Appeals Decision on the Conflict Minerals Rule," (April 7, 2017), https://www.sec.gov/news/public-statement/piwowar-statement-court-decision-conflict-minerals-rule.
[131] Division of Corporate Finance, Securities and Exchange Commission, "Updated Statement on the Effect of the Court of Appeals Decision on the Conflict Minerals Rule," (April 7, 2017), https://www.sec.gov/news/public-statement/corpfin-updated-statement-court-decision-conflict-minerals-rule.

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signaled an intent to "scale back" the Dodd-Frank Act,[132] and specifically the Conflict Minerals reporting requirement.[133] And the effectiveness of the disclosure regime is relevant for whether it violates the First Amendment.[134]

This Section has shown how thinking through the law and economics of mandatory disclosures and the limitations of more international approaches highlights effects that should be evaluated in scrutinizing mandatory supply chain disclosure requirements. It must be the case that the disclosures pressure a significant number of corporations to change their actions, going beyond the voluntary participation in current international organization solutions. Secondly, for disclosure regimes to improve on treaties, consumers need to be responsive to the conflict mineral disclosures in order to offer flexibility in penalties for irresponsible sourcing, and the markets need to reward increased information so that the information producing benefit of a disclosure regime is realized. These criteria provide a framework for tackling the data associated with the Conflict Minerals Rule.

II. USING THE CONFLICT MINERALS RULE TO ASSESS MARKET RESPONSES TO DISCLOSURE: THE DATA AND EMPIRICAL APPROACH

This Section discusses the disclosure information and how it was coded and presents the empirical specification for measuring an effect on stock performance and earnings.

A. Characterizing the Filings

Companies submitted Form SK disclosures to the SEC, which are available for download on EDGAR. Over the course of the three years studied,[135] the following numbers of disclosures were submitted:

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[132] Michael C. Bender & Damian Paletta, *Trump Moves to Undo Dodd-Frank Law, Fiduciary Rule*, Wall Street J., Feb. 3, 2017, at A1.

[133] *Presidential Memorandum: Suspension of the Conflict Minerals Rule*, http://online.wsj.com/public/resources/documents/SECDraftOrder02-08-2017.pdf.

[134] In finding that the SEC's rule implementing Section 1502 requiring that companies report that any of their products have "not been found to be 'DRC conflict free'" violated the first Amendment, the DC Circuit relied in part on the fact that the effectiveness of the disclosure measure was not established. *See Nat'l Ass'n of Manufacturers v. S.E.C.*, 800 F.3d 518, 524-25 (D.C. Cir. 2015) ("After identifying the governmental interest or objective, we are to evaluate the effectiveness of the measure in achieving it. . . . The idea must be that the forced disclosure regime will decrease the revenue of armed groups in the DRC and their loss of revenue will end or at least diminish the humanitarian crisis there. But there is a major problem with this idea—it is entirely unproven and rests on pure speculation.")

[135] The analysis focuses on three years because of the clarification by the SEC in 2017 that firms need not include due diligence. *See* U.S. Securities and Exchange Commission, *Updated Statement on the Effect of the Court of Appeals Decision on the Conflict Minerals Rule*, (April 7, 2017), https://www.sec.gov/news/public-statement/corpfin-updated-statement-court-decision-conflict-minerals-rule.

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Table 1: **Number of Filings by Year**

Year	Number	% of Total Filings
2014	1,332	34.74
2015	1,282	33.44
2016	1,220	31.82
Total	3,834	100.00

Source: SD Forms and Attachments submitted to the SEC

The number is decreasing over the course of filing years. This is due in part to the large number of companies filing only in 2014 (108, as opposed to 7 in 2015 and 65 in 2016). These companies were not disproportionately companies that report no conflict: only 22 reported no conflict and 5 reported conflict minerals, while the remainder reported uncertain results.

The law, as originally passed, allows for three different disclosure options:

(i) "DRC Conflict Free"—Conflict minerals (defined as tin, tantalum, tungsten, or gold [often "3TG"] have been positively determined either not to originate from the covered countries (listed as the DRC and countries with which it shares a border), or, if they have originated from those countries, have been determined not to have financed or benefitted armed groups. Companies making this claim are required to obtain and present in their filing an independent private sector audit of their Conflict Minerals Report.

(ii) "Not Been Found to be 'DRC Conflict Free"' — The company must specify the products found not to be "DRC conflict free" and provide the facilities used to process the conflict minerals therein, the country of origin of those minerals, and efforts to determine the mine or location of origin with the greatest possible specificity.

(iii) "DRC Conflict Undeterminable" — Companies unable to determine whether the minerals in their products originated in the covered countries or benefited armed groups there must report which of their products are "DRC conflict undeterminable" and provide, if they can, the same information required by (ii), as well as outline steps they have taken or will take to mitigate risk of benefiting armed groups or to improve their due diligence.

But prior to the first filing, the DC Circuit ruled in *National Association of Manufacturers v. Securities and Exchange Commission* that requiring companies to report that products have "not been found to be 'DRC conflict free"' violated the first amendment. [136] As a result, companies,[137] citing SEC staff guidance,

[136] *Nat'l Ass'n of Manufacturers v. S.E.C.*, 800 F.3d 518, 521, 530 (D.C. Cir. 2015).

[137] *See, e.g.,* Cisco Systems, Inc., *Conflict Minerals Report for 2014*, (2014), https://www.sec.gov/Archives/edgar/data/858877/000119312515204160/d930657dex101.htm, Allied Healthcare Products, *Conflict Minerals Report for 2014*, (2014), https://www.sec.gov/Archives/edgar/data/874710/000114420415034260/v411745_ex1-01.htm, and Synopsys, Inc., *Conflict Minerals Report for 2014*, (2014), https://www.sec.gov/Archives/edgar/data/883241/000119312515206994/d933988dex101.htm.

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determined that they were not required to make one of these three determinations, and most companies avoid doing so explicitly. Therefore, the three reporting categories outlined by the SEC could not practically be used without modification as the basis for the present study.

B. Categorization of Responses

Due to the variety in companies' SD disclosures and the fact that the SEC does not require companies to choose particular language for describing a company's conflict mineral status, it was necessary for the purposes of this study to create categories for disclosures that capture how likely it might appear to an investor or consumer that a company's supply chain funded armed groups in and around the DRC. Three designations were used:

(i) "Conflict-free" — Companies claiming to have no reason to believe that any of their conflict minerals came from the covered countries were given this designation,[138] unless they also disclosed missing responses from their survey of suppliers or responses from suppliers indicating uncertainty. This designation was also assigned to companies whose only conflict minerals originating from the covered countries could be traced to sources certified by a recognized trade body or initiative such as the CFSP. Finally, some companies filed disclosures stating that their products did not contain conflict minerals at all, and so were not in fact subject to the rule. These were also designated "no conflict".[139]

(ii) "Undeterminable" — Companies declaring that they were unable to determine the country of origin for the conflict minerals in their products, but disclosing no indication that any (except certified conflict-free) conflict minerals originated from the covered countries, were given this designation. Also included were companies with declared gaps in their information, such as those with incomplete survey response [140], companies that may have had evidence that a supplier sourced from a covered country but refused to count or disclose that evidence because the data was "provided … at a company or divisional level," [141] as well as companies that submitted disclosures that supplied no information whatsoever about the content of the responses they received from their suppliers.[142]

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[138] *See, e.g.,* Activision Blizzard, Inc., *Conflict Minerals Report for 2014*, (2014), https://www.sec.gov/Archives/edgar/data/718877/000110465915042522/a15-13163_1sd.htm.

[139] *See, e.g.,* Intertape Polymer Group, Inc., *Conflict Minerals Report for 2014*, (Dec. 31, 2014) https://www.sec.gov/Archives/edgar/data/880224/000119312515206520/d937376dsd.htm (using a catalyst containing tin).

[140] *See, e.g.,* Cohu, Inc., *Conflict Minerals Report for 2014*, (2014) https://www.sec.gov/Archives/edgar/data/21535/000119312515203741/d934717dex101.htm.

[141] *See, e.g.,* Capstone Turbine Corp., *Conflict Minerals Report for 2013*, (2013), https://www.sec.gov/Archives/edgar/data/1009759/000110465914043344/a14-14437_1ex1d02.htm. The implication of this is that a supplier may source from a covered country, but it has not provided any evidence that those materials were used for products provided to the reporting company.

[142] See for example all Conflict Minerals Report submissions from Sears Holdings Corporation, such as Sears Holdings Corp., *Conflict Minerals Report for 2015*, (2015),

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(iii) "DRC-Conflict": This category includes three different categories of disclosures:

(a) "Undetermined (High Risk)": Companies disclosing that some (not certified conflict free) conflict minerals in their products may have originated in the covered countries, but asserting also that they had no reason to believe their supply chain funded armed groups, were given this designation. [143]

(b) "Uncertified Covered Country Smelters": This includes all companies that list smelters or refiners located in a covered country or smelters or refiners that source from a covered region and are not certified.[144]

(c) "Conflict": Companies disclosing that conflict minerals in their products may have originated in the covered countries, without expressing doubt that they funded armed groups, were given this designation. [145]

The following two tables show the percent of firms in each category each year.[146] Table 2 includes all disclosures that were reported, whereas Table 3 is limited to the 1,095 firms that filed disclosures in all three years.

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https://www.sec.gov/Archives/edgar/data/1310067/000119312516607164/d179242dex101.htm.

[143] *See, e.g.,* Tyco International, PLC, *Conflict Minerals Report for 2014*, (2014) https://www.sec.gov/Archives/edgar/data/833444/000083344415000043/ex-101.htm.

[144] This includes the following uncertified smelters: Phoenix Metal (located in Rwanda), Fidelity, and PT Pelat Timah Nusantara Tbk (located in Indonesia, but sourcing from Congo, Burundi, and Rwanda), and China Nonferrous Metal Mining (located in China, but sourcing from Zambia). *See* Silgan Holdings, Inc., *Conflict Mineral Report for 2015*, https://www.sec.gov/Archives/edgar/data/849869/000084986916000070/conflictmineralsrpt.htm.

[145] *See, e.g.,* Starbucks Corp., *Conflict Minerals Report for 2014*, (2014), https://www.sec.gov/Archives/edgar/data/829224/000082922415000022/sbux-612015xexhibit101.htm.

[146] The first stage of coding involved searching for common phrases associated with each of the different disclosure categories in the individual text files, and an output file was created which showed which filings matched for the common phrases, along with the sixty text characters surrounding the matched phrase on each side. For the undeterminable category, for example, all disclosures with the words "were unable" within five words of "to determine" were flagged, and the surrounding text was pulled from the text file provided. Similarly, disclosures with the phrase "we determined that certain of our products contain" was tentatively flagged as a DRC conflict disclosure.

Afterwards, the phrase generating the flag was manually reviewed, checking to see whether or not it was sufficient to put the company in the given category. After reviewing all potential flags, 2,244 of the disclosures were categorized. The remaining 1590 were manually coded, and the entire disclosure was read to put the disclosure in the right category. As a check, an additional 168 of the disclosures categorized through the first method were reviewed as a whole manually.

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Table 2: **Filing Status by Year (%)**

	2014	2015	2016
Conflict Free	21.77	21.37	20.49
Undetermined	71.25	57.41	42.62
DRC Conflict	6.98	21.22	36.89

Source: SD Forms and Attachments submitted to the SEC

Table 3: **Filing Status by Year (%) For Firms Reporting in All Three Years**

	2014	2015	2016
Conflict Free	21.35	20.50	19.73
Undetermined	72.16	58.15	43.37
DRC Conflict	6.48	21.35	36.89

Source: SD Forms and Attachments submitted to the SEC

Both tables show that the number of firms with a high probability of DRC Conflict goes up over time. As shown later in Table 11 ("Change in Disclosure Status"), this is because firms are moving from the uncertain category to the DRC Conflict category. This is likely driven largely by companies learning more about their supply chains over time and identifying one of the problematic suppliers mentioned in footnote 144144, which means that they are in the DRC Conflict category.[147]

Companies often ran into difficulties in obtaining information from their suppliers about conflict minerals, and as a result, the vast majority of companies have a "DRC conflict undeterminable" status. This highlights the complex relationship that many downstream firms have with upstream suppliers and the difficulty of determining the human rights implications of corporate supply chains.

One factor driving this is the sheer number of suppliers that some companies have. For example, SMART Technologies had to reach out to 303 different suppliers,[148] and it is not surprising that it did not receive results from all of them. Even when companies have a high response rate from their suppliers, the responses are often of low quality, as when a supplier indicates that the conflict mineral source is unknown[149] or only provides company-wide information about its sourcing that is not specific about the conflict status of the particular product supplied to the downstream reporting firm. One problem is that only public US companies are required to provide these

[147] The number of firms that mention one of these suppliers in 2014 was only 1, 197 in 2015, and 391 in 2016.

[148] SMART Technologies, *Conflict Minerals Report for 2013*, (2013), https://www.sec.gov/Archives/edgar/data/1489147/0001193125-14-215298.txt.

[149] *See e.g.*, Globalstar, Inc., *Conflict Minerals Report for 2014*. (2014), https://www.sec.gov/Archives/edgar/data/1366868/000136686815000034/gsatforms-dfy2014ex101.htm, (63 suppliers out of 66 responded, but 32 replied with a response that "Conflict Minerals source is unknown").

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disclosures, so many links along the supply chain introduce uncertainty because those companies themselves are not reporting. This introduces problems where a company can trace the chain up to a supplier, but it has no idea whether that initial supplier provided products to the reporting firm's supplier one level below on the chain. If those intermediary suppliers were required to report, they might be able to answer that question, but they are not. Finally, suppliers often have trouble figuring out their own conflict status as many of them are required to report to the SEC, which means that they too will have trouble helping their downstream firms figure out their own status.

Companies often used the uncertainty to justify a report that simply describes the steps they took and discloses very little about the content of the responses that they received from their suppliers. Many companies simply use the incompleteness of the survey responses as a reason not to describe the information that they do receive.[150] Other companies inexplicably have 100% response rates but refuse to reveal anything about the conflict status of their products.[151] Some companies disregard and do not report their suppliers' responses because a supplier only gave company wide information about its own sourcing and could not be specific about the conflict status of the particular product supplied to the downstream reporting firm.[152]

These difficulties imply that the companies who claim to be confident that their supply chain does not include conflict minerals are asserting something that investors and consumers may find implausible—recall that they are the only group that required a 100% response rate, and all of their suppliers must have detailed information about where they source from. If investors and consumers think that it is unlikely that a firm could track down all their suppliers and be confident in what they are told by their suppliers, they may think that a company with "Conflict Free" status is less trustworthy.

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[150] *See*, *e.g.*, Wesco Aircraft Holdings, Inc., *Conflict Minerals Report for 2013*, (2013), https://www.sec.gov/Archives/edgar/data/1378718/000110465914042959/a14-14377_1ex1d02.htm, (indicating that they "received responses to the supplier survey from approximately 75% of the 425 suppliers surveyed" and that "[o]f the approximately 75% of suppliers that responded, most indicated that they were unable to determine at present whether or not their supplied parts contain conflict minerals sourced from the Covered Countries and were unable to provide information about the smelters and refiners in their supply chains" and failing to summarize the results of responses that were received).

[151] *See e.g.,* Riverbed Technology, Inc., *Conflict Minerals Report for 2013*, (2013), https://www.sec.gov/Archives/edgar/data/1357326/000119312514219826/d735363dex102.htm.

[152] Navistar International Corp., provides such an example in 2014:

> We reviewed the responses from our suppliers and our analysis indicates that many contained inconsistencies or incomplete data. Furthermore, although most suppliers provided responses that listed the known smelter/refiners in their supply chain, they did not specify what smelter/refiners were associated with products shipped to Navistar. Navistar is therefore unable to validate smelters or refiners or determine whether the Conflict Minerals reported were in fact contained in the products Navistar manufactured in the reporting period. Given these data limitations Navistar is not be presenting [sic] any smelter and refiner names in this report.

Navistar Int'l. Corp. *Conflict Minerals Report for 2014*, (2014), https://www.sec.gov/Archives/edgar/data/808450/000119312515202082/d932744dex101.htm.

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C. Empirical Approach

Once the company disclosures are categorized, the next step is to determine whether there are statistically significant market responses to the content of the disclosures. Two criteria are used—stock market returns and earnings changes—to evaluate these responses. This information is helpful for determining whether useful information is being conveyed to investors and consumers through the disclosure statements. An increase in stock price in response to the disclosure status would mean that shareholders think that conflict mineral status influences the value of the firm. A change in earnings would imply that consumers make consumption choices based on the disclosed information.

The first way in which this Article measures the effectiveness of conflict mineral disclosures is through an event-study specification, which empirically tests for "abnormal" stock returns in response to a negative or positive disclosure. An abnormal stock return is the amount of price change in a stock over a given period that differs from the expected rate of return given its past performance and how the general market is doing. This method considers abnormal stock returns before and after the event in question (in this case, a disclosure) to determine whether the event itself corresponds with an abnormal return.

The event-study model starts out by assuming that there is a linear relationship between the stock return for a company and the return of the market portfolio, which is to say that

$$R_{it} = \alpha_i + \beta_i R_{mt} + e_{it} \qquad (1)$$

where R_{it} is the return on the stock for company *i* at time *t*, R_{mt} is the return on the market portfolio at time *t*, and e_{it} is the error associated with the returns of company *i* at time *t*, which are assumed to have an expected value of 0. The coefficients for Equation (1) were estimated using the trading days that were between sixty and ten days prior to the first disclosure conveying information (that is, a "Conflict-Free" or "DRC Conflict" disclosure)[153] as an estimation window. These coefficients were then used to determine the "prediction error" (or the abnormal returns) for stock prices in the three trading days before or after the first informative disclosure:

$$AR_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt} \qquad (2)$$

The "before" days are designed to cover cases where information is leaked prior to the disclosure, and to the extent that such leaking did not exist, they make any estimates of effects of disclosure conservative. The final step is to determine whether the abnormal results associated with either type of disclosure event are significant. This is done by summing the abnormal returns

[153] The idea is that an "Uncertain" disclosure does not convey any new information (investors were uncertain as to the conflict-mineral status of the company before disclosures), and so this is not used as an event.

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across the event window for each negative disclosure event, and then testing for whether the constant in a regression of those results is significant. These results are presented in Part III.A.

The second measurement of market responses to disclosures is the revenues, as reported in 10Q and 10K forms to the Securities and Exchange Commission. Revenues are highly correlated with sales, and thus they measure the extent to which consumers are supporting the company. To measure the effects of the disclosures on revenues, the following regression was performed:

$$Revenues_{it} = \alpha + \beta_1 CF_{it} + \beta_2 C_{it} + \beta_3 X_{it} + e_{it}$$

Where $CF_{it} = 1$ if firm *i* disclosed that it was "Conflict-Free" during a financial quarter before the one corresponding to the reported revenues and there has not been a contrary report since that disclosure, and $C_{it} = 1$ if the firm had a "Conflict" disclosure during a financial quarter before and there has not been a contrary report since that disclosure. The parameters of interest here are β_1 and β_2, which show the relationship between revenues and disclosure content. β_1 measures the effect of a disclosure of minimal risk of supporting the conflict on revenues, and β_1 measures the effect of a disclosure conveying a higher risk of supporting the conflict.[154] This specification also includes firm-level fixed effects, which is to say that the regression considers within-firm variation over time. Another way to think of this is that the regression looks for how deviations from the firm's average revenues over the time period relate to the content of the disclosures. A similar regression is used with the *Mining the Disclosures* data, but instead the scores are included rather than the

Another question of effectiveness is whether the disclosures lead companies to make changes in their supply-chain decisions, since the stated goal of the Conflict Minerals Rule is to encourage companies to refrain from using conflict minerals. Because this Article uses three years of disclosures (the first of which occurred prior to companies' having time to change their supply-chain regimes), the extent to which companies are changing their mineral sources can be assessed. The dataset allows one to quantify how many companies move from conflict mineral or conflict mineral indeterminate status to conflict-free over time and to explore some of the mechanisms by which companies do so.

III. RESULTS: MARKET REPONSES TO CONFLICT MINERAL DISCLOSURES UNDER DODD-FRANK

This section provides the results of the previously discussed empirical approaches. There is a statistically significant relationship between conflict

[154] The regression does not include a variable for "Uncertain" because when using a dummy variable, it is necessary to leave out one of the options, otherwise one of the regressors would be collinear.

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mineral disclosures and stock prices and earnings, although it is not a relationship consistent with the disclosure regime putting pressure on companies to clean up their supply chains. While the disclosures show a movement to a greater probability of conflict mineral exposure over time, this cannot be disentangled from the fact that companies simply gained more information over time.

A. Market Responses to "DRC Conflict" and "Conflict-Free" Disclosures

This subsection presents the market responses to disclosure results. The primary event-study specification results are provided in Tables 5, 6, and 7. "DRC Conflict" disclosures are associated with positive abnormal stock returns, whereas "Conflict-Free" disclosures are associated with negative abnormal stock returns, although in both cases, the magnitudes are relatively small. Uncertain disclosures are not associated with statistically significant abnormal stock returns. The earnings responses are presented in Table 8, and again, there is a positive response to "DRC Conflict" disclosures and a negative response to "Conflict-Free" disclosures. One reason for this is that investors may be reading the disclosures for signals about the company other than its involvement in human rights abuses: they may be more concerned about the company's honesty or its commitment to profit-maximization. A "DRC Conflict" disclosure signals both of these characteristics, and these characteristics are associated with firm value, explaining the effect on stock returns. Also, a "DRC Conflict" disclosure result is associated with more due diligence, which is what consumers may be rewarding with their purchasing decisions.

1. Disclosure and Stock Market Prices

Within the data, the number of event types identified are given in Table 4. In general, there was a range of event dates, as shown in Appendix Table 1 and Table 2, and thus the event-study estimates were unlikely simply to be picking up market effects that occurred on a few days when disclosures were common.

Table 4: **Disclosure Events by Year for Event Study**

year	Conflict Free	DRC Conflict
2014	239	77
2015	48	181
2016	32	211
Total	319	469

Source: SD Forms and Attachments submitted to the SEC

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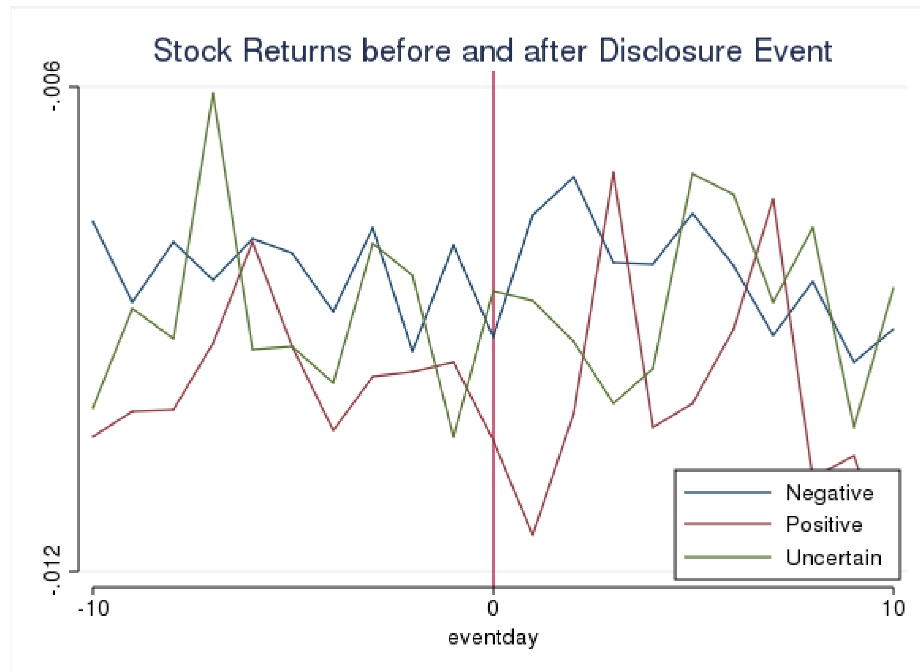
The following graph shows visually the effect of disclosing a high risk of conflict (labeled as "negative") as opposed to a low risk of conflict (labeled as "positive") or conveying little information (uncertain) on stock returns. The graph shows the stock returns for the different disclosure types before and after the event (denoted by the red vertical line), with the values located to the right of the red line representing the returns in the days after the disclosure and the values located to the left of it representing the returns from the days before it.[155]



What is important to note in the above graph is the divergence between the different disclosure events immediately after the disclosure day. This graph shows a large jump for the high-risk disclosures compared to the low-risk disclosures right after the red vertical line. This implies that a disclosure conveying information that there was a higher probability of a supply chain contributing to the conflict was actually rewarded by the market in the day immediately after disclosure. And the fact that the stock returns go down immediately after the red vertical line for the low risk of conflict imply that there is an opposite effect for them: This effect is particularly strong on the first two days of trading after the disclosure, for which there is a large gap between the returns for these two groups.

This effect persists in the formal event-study results, which are presented in Table 5, Table 6, and Table 7. In each case, the first column shows the abnormal returns associated with a "DRC Conflict" disclosure, and the second column shows the abnormal returns associated with a "Conflict-Free"

[155] These returns control for date and stock specific fixed effects, estimated using the stock return values within thirty days of a disclosure event.

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disclosure. There are three tables because of the need to perform robustness checks.

Table 5 shows the results in the standard event-study specification described in Part II.e. Here, a negative stock disclosure is associated with a .006 (positive) abnormal return that is statistically significant at the 99% level. A positive stock disclosure is associated with a -.0086 (negative) abnormal return, which is significant at the 98% level.

Table 5: **Event Study Results: Entire Sample**

	(1) Abnormal Return - Conflict Disclosure	(2) Abnormal Return - Conflict Free Disclosure
Constant	0.00607**	-0.00858*
	(3.21)	(-2.45)
Observations	475	317

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: SD Forms and Attachments submitted to the SEC and CRSP stock pricing data.

A robustness check is performed to correct for the fact that information about a firm's conflict mineral status may have already been publicly available prior to disclosure. One critique of the event-study specification in this context is that data in the disclosures might be redundant with public sources from watchdog groups that already track companies' supply chain management practices, and thus estimates of the effect of disclosure will be biased downward because they are not in fact new information for the market to react to. To respond to this concern, I perform an additional event study on a restricted sample that leaves out fifteen companies for which there was previous reporting on their conflict mineral status.[156] The source for previous reporting is a 2010 scoring of companies by The Enough Project, and these companies are listed (along with their scores) in Table 3 in the Appendix.[157] This source analyzes aspects of supply chain management with respect to conflict minerals that are included in the

[156] It was difficult to find reporting on companies' success at eliminating DRC-conflict minerals from corporate supply chains despite the large number of organizations that exist to help companies do so. For example, Responsible Trade LLC, Source Intelligence, and Elm Sustainability Partners LLC are the main players in the conflict minerals arena other than Enough Project, but none of them have rankings of firms or information about firms' success in supply chain management. *See* Lucas Taylor, *2016 Top 100 Conflict Mineral Influence Lenders*, 4 – 8 (Assent 2016), http://www.assentcompliance.com/wp-content/uploads/Top-100-Conflict-Mineral-Leaders.pdf. (describing the top 15 "Conflict Mineral Influence Leaders" based on legislative impact, social reach, and industry participation, among other factors). Perhaps this is a strategic calculation that ranking corporations may lead to their being less likely to seek help in supply chain management.

[157] *See* The Elm Consulting Group (2011), cited in note 114. This report was the only publicly available ranking of companies on their usage of conflict minerals prior to the disclosure period. The fact that the aforementioned study of the link between conflict mineral responsibility and corporate sales relied only on data from this report, even though there was a small sample problem, provides support for the conclusion that this is the only available data prior to the disclosures that aggregated corporate information.

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disclosures.[158] As shown in Table 6, with this more restricted sample, the results are similar to Table 5 and still are statistically significant.

Table 6: **Event Study Results: Subset of Firms Not Publicly Covered**

	(1) Abnormal Return - Conflict Disclosure	(2) Abnormal Return - Conflict Free Disclosure
Constant	0.00638**	-0.00851*
	(3.28)	(-2.42)
Observations	460	315

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: SD Forms and Attachments submitted to the SEC and CRSP stock pricing data.

A final robustness check ensured that 10Q or 10K filings did not occur too close to the event windows, possibly driving the results. What this means is that an additional requirement was added for the disclosures to be included in the event study: the event window estimation must not include market reactions to 10Q or 10K filings, which means that such disclosures must have been filed at least 10 trading days prior to the disclosure and must not have been filed in the 3 days following disclosure. In this case too, as shown in Table 7, the event study specification results are similar to those in the larger sample and remain statistically significant.

Table 7: **Event Study Results: No Interference from 10Q/10K Filings**

	(1) Abnormal Return - Conflict Disclosure	(2) Abnormal Return - Conflict Free Disclosure
Constant	0.00629**	-0.00787*
	(3.22)	(-2.20)
Observations	459	308

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: SD Forms and Attachments submitted to the SEC and CRSP stock pricing data.

[158] Its criteria are whether or not the company "trace[s] its suppliers" of the conflict minerals by knowing its refiners and smelters and publishing and visiting the smelters it uses; whether the company requests and supports audits of its suppliers "to determine mine of origin and chain of custody", and whether the company has in general supported the process of certification. *See* Sarah Lezhev and Alex Hellmuth, *Taking Conflict Out of Consumer Gadgets, Company Rankings on Conflict Minerals 2012* at *11 – 13 (Enough Project: August 2012) (available at http://www.enoughproject.org/files/CorporateRankings2012.pdf). All three of these criteria are included in companies' disclosures, as they discuss their diligence process and the steps they are taking to ensure that all their suppliers use conflict-free minerals and point to certification of suppliers as evidence that the company does not source conflict minerals that support armed conflict.

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It is worth noting that the abnormal returns are small. Companies that disclosed that there was a low risk of conflict minerals in their supply chains need not be too worried about the decrease in stock prices, nor should the companies with a high risk of conflict minerals be excited, because the abnormal return amounts are so close to 0. But what this does show is that investors are not rewarding companies with a low probability to supporting the conflict, which is what would be needed for the mandatory disclosure regime to incentivize companies to clean up their supply chains. And it also means that these results are not consistent with a principal-agent problem in which the investor wants the manager to find and disclose a conflict-free supply chain. The stock market appears to reward firms that disclose a higher risk of conflict mineral status and punish those that do not, even if it is a small reward.

One potential explanation for this result is that investors do not care about the actual supply chain implications for companies as much as about other characteristics that the disclosures signal. Perhaps they are worried about liability damages for fraud, which can be quite substantial.[159] A company's willingness to disclose a higher risk makes it seem more likely that other disclosures it makes are honest, which lowers the probability of fraud and the riskiness of the company. Both of these should increase its value. If investors interpret this honesty as a signal that the corporation is honest in general, the stock returns should be higher as well.[160] Similarly, a signal that the company is profit-maximizing should also increase the perceived value of the company. But a "conflict-free" disclosure may expose a company to increased fraud exposure, mean that it is less honest, or cares less about profits. All of these characteristics would be associated with a lower valuation.

2. Disclosure and Earnings

Another surprising result is the relationship between disclosure content and earnings, presented in Table 8, where the estimates of interest, the coefficients associated with "Low Conflict Risk" and "High Conflict Risk" represent the effect of these disclosures on reported revenues. Here, both types of disclosure are associated with a statistically significant change in revenues in all specifications, but the change for both is negative, with the decrease in revenue larger for the positive disclosures under all regression specifications. These are both relative to an uncertain disclosure result.

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[159] *See* Urska Velikonja, *The Cost of Securities Fraud,* 54 William & Mary L Rev 1887, 1892 (2013) (discussing the large cost of fraud).

[160] *See* Jonathan M. Karpoff, D. Scott Lee and Gerald S. Martin, *The Cost to Firms of Cooking the Books* 43 The Journal of Financial and Quantitative Analysis 581 JSTOR at 593–95 (2008) (showing that fraud lowers firm value more than the costs associated with a particular fraudulent action and that penalties for financial fraud counted for less than 10% of the loss in share prices associated with the announcement of an enforcement action).

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Table 8: **Relationship between Disclosure Content and Revenues ($'000s)**

	(1)	(2)	(3)	(4)	(5)
Low Conflict Risk	937.4***	-710.4***	-293.4***	-710.7***	-670.8***
	(5.12)	(-14.20)	(-4.23)	(-14.21)	(-15.05)
High Conflict Risk	535.1**	-138.4**	-257.3***	-138.2**	-116.5**
	(2.63)	(-2.74)	(-4.95)	(-2.74)	(-2.63)
Merger and Acquisition (Raw)			-0.0436		
			(-0.25)		
Merger and Acquisition (Adj)				-0.315	-0.300
				(-1.01)	(-0.96)
Constant	819.9	1862.6***	1398.0***	1862.3***	2086.5***
	(0.68)	(7.07)	(5.44)	(7.07)	(100.62)
Observations	24543	24543	6263	24543	24543
Firm-level FE?	No	Yes	Yes	Yes	Yes
Quarter FE?	Yes	Yes	Yes	Yes	No
Quarter-Industry FE?	No	No	No	No	Yes

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Model (1) in Table 8 is the simplest regression: there are not firm-level fixed effects, which is to say that post-disclosure earnings are not adjusted for previous earnings prior to disclosure. The main danger in this model is that firms with more revenues may be more likely to disclose in certain ways, which would mean that the coefficients do not reflect an effect of disclosure on earnings but rather the effect of being the sort of firm which discloses a certain way. If so, there would be a selection effect that would bias the results. To address this, firm-level fixed effects are added in Model (2) in Table 8. By adding fixed effects, the regression is finding variation within earnings for particular firms as the disclosure content changes. The sign on and significance of the results are the same, but the magnitude of the effects is smaller after this adjustment is made.

Models (3) and (4) attempt to address the fact that acquisitions could be correlated with changes in disclosure results (i.e., moving from uncertain to "Conflict-Free" or uncertain to "DRC Conflict") and thus may be biasing the estimates of interest since acquisitions are also correlated with revenues. It would be a problem if some firms moving to a disclosed conflict free status as opposed to an undeterminable one were able to do so due to selling off a line of business, and thus a "Conflict-Free" is likely to be associated with a decrease in earnings. To test for this, the Compustat variable that captures acquisitions and mergers after tax is included.[161] The coefficients on this variable are not significant, and the results are still significant even after controlling for merger characteristics.

[161] This variable is called AQAQ in the Compustat dataset. Because there is only a value associated with less than one quarter of the observations, I have added an AQAQ (adjusted) variable that I assume to be equal to 0 in the case of AQAQ missing so that fewer observations are dropped in the regression.

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Model (5) adds industry-specific quarter fixed effects, controlling for the fact that seasonal effects may vary across industries. This is likely to be the most reliable estimate, and it also is the most conservative. It implies that a "Conflict-free" disclosure is associated with a $670,800 drop in revenues in the following quarter, and a negative disclosure is associated with a $116,100 drop in revenues in the following quarter. Given that the average revenues in the sample for firms with a "Conflict-free" disclosure were $2,613,000 and $2,177,000 for firms with "DRC Conflict" disclosures, the effect associated with the positive disclosure is quite large, and the effect associated with a negative disclosure is still non-trivial.

As with the event study specification, these regressions were repeated with a more limited dataset excluding the companies about which there was public information about their conflict mineral status prior to disclosures, and there was no change in the coefficients. Because there is no significant change, these results are provided in Appendix Table 4.

These earnings results do not provide support for the notion that consumers are flocking to purchase the products supplied by conflict-free companies. In fact, there seems to be a penalty for reporting products as conflict free. One potential explanation of this is related to the potential explanation in the case of the shareholders. Like investors, consumers are likely to care about whether a company is being honest. Consumers may be aware of how difficult it is to be confident that a supply chain is free of conflict minerals, and thus they may judge disclosures claiming a low risk of conflict as being dishonest. While the "DRC Conflict" disclosures are associated with negative earnings, the effect is much less negative, in magnitude, than the effect associated with the positive ones. This is consistent with consumers rewarding a company's honesty.

Another explanation is that the counterintuitive results may simply reflect consumers and investors caring more about a company's willingness to perform its due diligence and to make forward-looking commitments than the risk that companies are sourcing from conflict regions. The disclosure coding focuses on capturing the degree of risk of conflict mineral exposure and does not measure the due diligence and forward-looking commitments firms were making to decrease their usage of conflict minerals. But a company that does more due diligence may be more likely to discover a higher risk of conflict mineral disclosure, and consumers may care about a company's due diligence efforts. Similarly, a company that is willing to admit negative exposure in the DRC may be more likely to make positive forward-looking commitments. Thus, there is a potential for omitted variable bias in the results in Table 8: because a "Conflict-Free" disclosure may be correlated with less adequate due diligence procedures, the coefficient corresponding to "Conflict-Free" disclosures could be negatively associated with earnings when in fact it is not the risk level driving the consumer response but rather the weaker due diligence efforts of the companies that find a low risk.

The *Mining the Disclosures* results from the Responsible Sourcing Network can help test the two assumptions in the above line of reasoning (that "Conflict-Free" disclosures are associated with less due diligence and that consumers care about due diligence) because they provide a measure of a

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company's due diligence efforts and commitment to fixing any supply chain problems. Each year following disclosures, the Responsible Sourcing Network releases reports titled "Mining the Disclosures: An Investor Guide to Conflict Minerals Reporting."[162] These reports analyze a subsample of the conflict mineral disclosures provided to the SEC each year[163] to provide a "measurement tool for conflict minerals risk that is impartial, transparent, and scalable."[164] The subset of companies included were those in the "industries with the highest exposure to conflict minerals," and among those industries, the "largest companies by market cap" were analyzed.[165] Although this sounds similar to the risk metric that is used in the previous results in this Article, the methodology used in the reports emphasizes process more than results. The final score (on a 100 point scale)[166] is determined on the basis of several categories that mainly assess the *efforts* that companies made to identify, adequately describe, and limit their conflict mineral exposure: (1) "Assessing Exposure and Responding to Risk,"[167] (2) "Policies and Management Systems,"[168] (3) "Reporting and Transparency,"[169] and (4) "Promoting a Conflict-Free Minerals Trade."[170] A higher score is better than a lower score.

A high score in the *Mining the Disclosures* report is negatively correlated with a "Conflict-Free" disclosure result and positively correlated with a "DRC Conflict" result in the dataset this Article relies on. The relationship between these metrics is shown in Table 9. The regression of the categories assigned in the disclosure data on the *Mining the Disclosures* scores implies that a "Conflict-Free" disclosure result is associated with a 22-point decrease in a *Mining the Disclosures* score, and "DRC Conflict" disclosure result is associated with an 11-point increase in a *Mining the Disclosures* score. As shown in Table 9, both of these correlations are statistically significant. These are not surprising: given the complexity of corporate supply chains, it is reasonable that companies that

[162] *See* Andrew Arriaga, Patricia Jurewicz, & Kathleen Brophy, *Mining the Disclosures: an Investor Guide to Conflict Minerals Reporting,* (Responsible Sourcing Network, 2014), http://www.sourcingnetwork.org/mining-the-disclosures/; Andrew Arriaga & Patricia Jurewicz, *Mining the Disclosures 2015: An Investor Guide to Conflict Minerals Reporting in Year Two,* (Responsible Sourcing Network, 2015), http://www.sourcingnetwork.org/mining-the-disclosures/; and Andrew Arriaga & Patricia Jurewicz, *Mining the Disclosures 2016: An Investor Guide to Conflict Minerals Reporting in Year Three*, (Responsible Sourcing Network, 2016), http://www.sourcingnetwork.org/mining-the-disclosures/.

[163] The amount of disclosures that each Report covers has increased over the years. In 2014, 51 disclosures were analyzed. Arriaga, Jurewicz, & Brophy (2014), *supra* note 162 at *11. In 2015, 155 were analyzed. Arriaga, Jurewicz, & Brophy (2015), *supra* note 162 at *14. In 2016, 202 were analyzed. Arriaga, Jurewicz, & Brophy (2016), *supra* note 162 at *19.

[164] Arriaga, Jurewicz, & Brophy (2014), *supra* note 162 at *4.

[165] *Id.*

[166] *Id.*

[167] *Id.* at *7 (describing a measure that determines the extent to which a company "assess[es] exposure and respond[s] to that risk exposure appropriately.")

[168] *Id.* (describing a measure that is high when a company "incorporate[s] its response to risk into a company-wide business strategy").

[169] *Id.*

[170] *Id.* (describing a measure that captures whether a company "take[s] a reasonable amount of responsibility for the consequences of its risk mitigation strategy").

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conclude they have no reason to worry about conflict minerals are often simply not looking closely enough.

Table 9: ***Mining the Disclosure Scores*** **and Data Classifications**

	(1) *Mining the Disclosure Scores*
Low Conflict Risk	-22.20***
	(-10.94)
High Conflict Risk	11.16***
	(7.91)
Constant	50.34***
	(71.79)
Observations	572

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

This dynamic provides some degree of explanation for the counterintuitive results in the regressions in Table 8: because of the correlation between a higher risk exposure and due diligence, the results make it appear as if consumers are punishing corporations for having low risk exposure with positive disclosures, but the consumers could actually be punishing them for not doing adequate due diligence.

Further evidence that consumers value due diligence can be seen in a regression of the *Mining the Disclosures* scores on earnings, which is shown in Table 10. This regression is similar to the regressions in Table 8, but the difference is that it relies on a much smaller sample since the *Mining the Disclosures* reports cover only a small fraction of the companies that submit disclosures, whereas Table 8 includes all disclosure results.

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Table 10: **Relationship between *Mining the Disclosure* scores and Revenues ($'000s)**

	(1)	(2)	(3)	(4)	(5)
Disclosure Score	42.48	50.42***	-28.00**	50.46***	41.55***
	(1.42)	(4.30)	(-3.11)	(4.30)	(3.70)
Merger and Acquisition (Raw)			-0.740		
			(-0.53)		
Merger and Acquisition (Adj)				-1.372	-0.320
				(-0.37)	(-0.09)
Constant	54577.9***	-1714.7	5330.3***	-1726.8	6835.3***
	(3.49)	(-0.60)	(8.03)	(-0.60)	(10.14)
Observations	1193	1193	358	1193	1193
Firm-level FE?	No	Yes	Yes	Yes	Yes
Quarter FE?	Yes	Yes	Yes	Yes	No
Quarter-Industry FE?	No	No	No	No	Yes

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The relevant number here is the coefficient on disclosure score in column (5). This column includes Firm-Level fixed effects (denoted as FE), which means that it looks at how earnings for a particular company change when disclosure scores become available. In the case of some of these companies, there were multiple years with disclosure scores. This control is supposed to correct for the fact that firms that were the type to have higher scores were more likely to have higher earnings in the first place before their scores were released. Column (5) also includes Quarter-Industry fixed effects, which include controls for each industry and each quarter of the data, since some industries have highly cyclical revenues that vary by quarter. This is supposed to help control for the possibility that firms in certain industries might be more likely to have certain scores, and those industries may be doing better or worse in the quarters following the disclosures. These results imply that having a one-point higher *Mining the Discosures* score leads to an additional $51,000 in quarterly revenues.

The results in Table 9 and 10 shed light on the results in Table 8.[171] While consumers are not penalizing companies that have a higher risk of sourcing in DRC, they reward those that perform a more thorough due diligence and that express forward commitments to address supply chain problems. These are aspects of the disclosure that focus more on agency information than on accuracy information.

[171] Note that while Table 8 could be updated using the data from the *Mining the Disclosures* scores, it was not possible to do so for the Event Study results because of how small the sample was (only 51 disclosures in 2014). The added scores in the 2015 and 2016 *Mining the Disclosures* reports could not be used as evidence of the disclosure content in 2014 because it was not clear whether the 2014 results were the same, meaning that the 2015 and 2016 information was not necessarily new.

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B. Measuring Corporate Changes between Reporting Categories

This section provides some information about the changes that companies make from year to year as well as some of the supply chain changes they discuss or commit to. While these are not market responses, they do shed some light on whether mandatory disclosure is leading companies to change their actions.

Table 2 compares responses across the three available years of data, contrasting reports filed in 2014, 2015, and 2016. This shows the response among all disclosing companies. The disclosure percentages show that the proportion of firms that have a DRC-Conflict status is increasing across years, going from 7.0% in 2014 to 36.9% in 2016, and the number of Conflict-Free firms decrease from 21.8% to 20.5%, approximately. Because it is possible that firms are entering and exiting and thus the comparison across years is not comparing the same group of firms, Table 3 shows the same statistics for the subset of firms that submitted disclosure reports in all of the three years (accounting for approximately 79% of firms). For this set of firms, the changes are essentially the same but slightly less stark, as the decrease in those reporting Conflict-Free status goes from 21.4% to 19.7%, and the jump in the DRC-Conflict status percentage goes from 6.5% to 36.9%. Table 11 shows the breakdown between all of the possible combinations over the years. Table 12 categorizes the different options in Table 11.

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Table 11: Change in Disclosure Status

Measuring Progress Across Different Disclosure Periods: Percentage in Each Category					
Conflict-Free, only filing	3.09	Uncertain, only filing	8.56	DRC-Conflict, only filing	5.83
Conflict-Free, Conflict-Free, Conflict-Free	10.43	Uncertain, Uncertain, Uncertain	24.89	DRC-Conflict, DRC-Conflict, DRC Conflict	2.59
		Uncertain, Conflict-Free	0.36	DRC-Conflict, Conflict-Free	0.07
		Uncertain, Uncertain	5.68	DRC-Conflict, Uncertain	0.36
		Uncertain, DRC-Conflict	2.3	DRC-Conflict, DRC-Conflict	0.94
Conflict-Free, Conflict-Free, Uncertain	1.22	Uncertain, Conflict-Free, Conflict-Free	1.08	DRC-Conflict, Conflict-Free, Conflict-Free	0.07
Conflict-Free, Conflict-Free, DRC-Conflict	0.86	Uncertain, Conflict-Free, DRC-Conflict	0.07	DRC-Conflict, Conflict-Free, Uncertain	0.07
Conflict-Free, Uncertain, Conflict-Free	0.58	Uncertain, Conflict-Free, Uncertain	0.43	DRC-Conflict, Conflict-Free, DRC-Conflict	0.14
Conflict-Free, Uncertain, Uncertain	1.37	Uncertain, DRC-Conflict, Conflict-Free	0.07	DRC-Conflict, DRC-Conflict, Conflict-Free	0.07
Conflict-Free, Uncertain, DRC Conflict	0.36	Uncertain, DRC-Conflict, DRC Conflict	10.65	DRC-Conflict, DRC-Conflict, Uncertain	0.79
Conflict-Free, DRC-Conflict, Conflict-Free	0.14	Uncertain, DRC-Conflict, Uncertain	1.29	DRC-Conflict, Uncertain, Conflict-Free	0.14
Conflict-Free, DRC-Conflict, DRC Conflict	0.43	Uncertain, Uncertain	0.14	DRC-Conflict, Uncertain, Uncertain	0.86
Conflict-Free, DRC-Conflict, Uncertain	0.22	Uncertain, Uncertain, Conflict-Free	1.51	DRC-Conflict, Uncertain, DRC Conflict	0.22
		Uncertain, Uncertain, DRC Conflict	12.09		

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Table 12: **Summary of Changes Across Disclosure Periods**

year	Number of Instances	Percent
Increase in Conflict-Status	80	5.76
No Change	506	36.4
Not Applicable or Mixed	733	52.73
Decrease in Conflict-Status	71	5.11
Total	1,390	100

Source: SD Forms and Attachments submitted to the SEC

There are two possible interpretations of these results. The first interpretation is that companies are gaining more information about their supply chains over time, and this leads them to move into category of DRC-Conflict Status because they discover smelters which have a higher risk of supporting armed conflict in the covered region. As shown in Table 11, 92.7% of the changes to DRC-Conflict Status were preceded by a report of "Uncertain", while only 7.3% of the changes were preceded by a report of "Conflict-Free." These results imply that companies are slowly moving from the uncertain category to the conflict category: the disclosure is forcing some companies to learn that they do in fact source conflict minerals from covered regions.[172] The second interpretation is that companies are adding conflict suppliers to their supply chains, but I saw no evidence of this occurring in the disclosures that I hand coded.

IV. Normative implications of the results

The results in Part III are consistent with a finding that the Conflict Minerals Rule places inadequate pressure on the average disclosing corporation to clean up its supply chain. This supports a finding that the benefits of the Conflict Minerals Rule are unlikely to be worth its costs as it stands right now, and it implies that there should be a high burden for demonstrating expected cost effectiveness of a mandatory disclosure regime before it is implemented. But there was a more promising result associated with the subset of the disclosing firms covered in the *Mining the Disclosure Reports*: for these disclosures, companies who were doing more to ensure an ethical supply chain were rewarded. This suggests some aspects that are working for a subset of the companies and provides insights into how supply chain mandatory disclosure regimes can be better designed going forward.

A. Mandatory Disclosure Regimes' Problem with Generating Sufficient Pressure Warrants Skepticism

[172] An alternative explanation is that companies are becoming less concerned about conflict mineral status and are in the DRC-Conflict category more often not because they are learning more, but because they are increasing interactions with DRC-Conflict suppliers.

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There are a few striking results of companies simply not caring about providing information that would help establish that their supply chains were in fact conflict free than simply following the required steps. One example is a company that was unable to claim that all of its suppliers who provided information were "Conflict Free" because it determined that one of its suppliers sourced from a smelter it was able to name that sourced directly from Rwanda.[173] However, a report from another company in the period reveals available information which the company failed to report: that the smelter in question has actually been determined to be Conflict Free.[174] Examples[175] such as this one raise the question of how much companies actually care about their particular responses to the disclosure requirement.

The empirical results in Part III.A back up this anecdotal evidence and imply that the Conflict Minerals Rule mandatory disclosure regime is not placing pressure on a significant number of companies in the way that regulators expected it to. A disclosure of a conflict-free supply chain is correlated with a more negative effect on earnings than a disclosure that specifies a higher degree of risk of conflict minerals in the supply chain. Similarly, a high conflict-risk disclosure is associated with positive stock gains, whereas a positive, low conflict-risk disclosure is associated with negative ones. On average, neither investors nor consumers are disciplining firms that have a higher risk of supporting the conflict with their supply chain. Companies have an incentive under the regime to signal "DRC Conflict" status. Thus, it is not surprising that there is not a net effect of firms moving to the "Conflict-Free" category.

With respect to the Conflict Minerals Rule, this supports the claims made by critics of the law that it was not worth the costs associated with it.[176] While in theory the law may generate informational benefits, and the study in Part III admittedly did not measure those, companies have little incentive to

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[173] Tenaris S. A., *Conflict Minerals Report for 2015*, (2015), https://www.sec.gov/Archives/edgar/data/1190723/000119312516607743/d351895dex101.htm, ("Tenaris has determined through its RCOI process that 3TG supplied by a second-tier supplier, Asia Tungsten Products Vietnam Ltd., originate in Rwanda").

[174] Allot Communications Ltd., *Conflict Minerals Report for 2015*, (2015) https://www.sec.gov/Archives/edgar/data/1365767/000117891316005627/exhibit_1-01.htm (listing "Asia Tungsten Products Vietnam Ltd.*" and stating that an asterisk implies that the company is "CFSP-compliant, based on CFSI").

[175] For a similar example of a less than cautious attitude in handling results of disclosures, consider Columbus McKinnon's disclosure, in which the percentages for mutually exclusive events sum to more than 100%. *See* Columbus McKinnon Corp., *Conflict Minerals Report for 2013,* https://www.sec.gov/Archives/edgar/data/1005229/000100522914000037/formsdexhibit102.htm ("Of the 272 suppliers surveyed 93% have responded that their products do not contain conflict minerals, 15% responded that their products do contain conflict minerals but not from the DRC or adjoining countries and 26% responded they were unable to determine whether their products contained conflict minerals or that the product contains conflict minerals but they are unable to determine the country of origin.").

[176] *See Conflict Minerals Final Rule,* 77 Fed. Reg. at 56,286, 56,291 (referencing criticisms of Section 1502 from industry members who were concerned about the cost).

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act on any information that is generated absent pressure from consumers and investors. And given the direction of the pressure, the disclosure regime has the potential to make the situation worse.

This illustrates the necessity of a higher burden for establishing that consumers and investors are likely to respond to supply chain mandatory disclosures in a way that disciplines companies with ethical problems in their supply chains when mixed signals are a possibility. And it supports the insistence of the DC Circuit that effectiveness of the disclosure regime be established rather than presumed in order to protect First Amendment rights.[177] This principle is based on the *Central Hudson Gas & Electric Corporation v. Public Service Commission of New York* requirement that commercial compelled speech must "directly advance the state interest involved; the regulation may not be sustained if it provides only ineffective or remote support for the government's purpose."[178] While such a standard applies to most compelled corporate speech and not simply mandatory disclosures, it is especially fitting in the mandatory disclosure context given the heightened potential for the regime to be counterproductive.

This also stresses the importance of further domestic measures to supplement mandatory disclosures, at least in the context of conflict minerals. Expecting consumer and investor pressure to function as a sanction is not enough, and more forceful mechanisms, such as fines for disclosures showing inadequate steps to ensure a clean supply chain, should be used for serious enough human rights violations.

B. Improving Mandatory Disclosure Regimes

The results from the *Mining the Disclosure* scores provide evidence that rather than scrapping the idea of mandatory disclosures of supply chains, regimes with certain characteristics might be more effective. Mandatory disclosure regimes, including the Conflict Minerals Rule, should be modified to include these characteristics.

The analysis of the *Mining the Disclosure* scores found evidence of consumer pressure on companies with supply chain problems. This pressure materialized for a certain type of information pertaining to a subset of companies when the results were disseminated by an NGO. This suggests three hypotheses for why the results from this subset were different: the information was distilled and disseminated better, the type of information that the scores conveyed was better suited for a mandatory disclosure regime, the subset of the companies chosen are ones whose conflict mineral status may be of more interest to consumers. I consider each of these explanations in turn, as each provides

[177] *See Nat'l Ass'n of Manufacturers v. S.E.C.*, 800 F.3d 518, 527 (D.C. Cir. 2015) ("[W]hether § 1502 will work is not proven to the degree required under the First Amendment to compel speech. All of this presents a serious problem for the SEC because, as we have said, the government may not rest on such speculation or conjecture. . . . Rather the SEC had the burden of demonstrating that the measure it adopted would 'in fact alleviate' the harms it recited 'to a material degree.'")

[178] 447 U.S. 557, 564 (1980).

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support for mandatory disclosure regimes with a different approach than the Conflict Minerals Rule.

1. Alternative agencies or actors

The first explanation for the difference in results from the larger dataset and the *Mining the Disclosure* scores can be explained by the added value the Responsible Sourcing Network provided in analyzing and disseminating these results. The *Mining the Disclosure* report simplified the disclosures, converting complicated disclosures into a single number, and emphasized cogently what was at stake.[179] The difference in consumer response could be due to this added value.

This implies that a mandatory disclosure regime coupled with more resources for analyzing the results and disseminating them to consumers is more likely to succeed. Supply chains are complex, and it is difficult to understand whether companies as a whole are taking reasonable steps to manage them simply from the disclosures alone. As shown in the results from Chilton and Sarfaty in Part I.B.2, consumers are challenged in interpreting these disclosures and often cannot tell a disclosure showing good due diligence measures from bad ones, in terms of their human rights implications.[180] Providing extra analysis in a simple score that can be easily interpreted makes it easier for consumers to react to the content. And disseminating that analysis, thus ensuring that the content of the disclosures reach more people, could be dispositive as well. Finally, the NGO plays a role in *shaming* certain companies, which can help mobilize consumer pressure.[181]

But it is not clear that the SEC is particularly well suited for doing these things. First of all, it usually deals with sophisticated actors who it expects to be able to interpret information and access it.[182] Secondly, it "generally focuses on matters that have affected, or will affect, a company's *profitability and financial* outlook."[183] This counsels for implementing mandatory disclosures through different organizations than the SEC, such as the State Department or working with NGOs. These organization might be better suited for analyzing the content of the disclosures and in making the arguments that would encourage consumers to act on those analyses.[184]

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[179] Arriaga, Jurewicz, & Brophy (2014), *supra* note 162 at *25 (describing in detail the conflict and how deadly it is).

[180] Chilton & Sarfaty, *supra* note 13 at 37.

[181] *See* Jeff Schwartz, *The Conflict Minerals Experiment,* 6 Harv. Bus. L. Rev. at 132 (2016) (discussing the "name and shame" approach to regulating supply chains).

[182] *See* Kenneth B. Firtel, *Plain English: A Reappraisal of the Intended Audience of Disclosure under the Securities Act of 1933* 72 S Cal L Rev 851 at 894 (1999) (arguing that "the SEC is clinging to the traditional view that lay investors can read and understand disclosure documents without assistance").

[183] Note, *Should the SEC Expand Nonfinancial Disclosure Requirements?*, 115 Harv. L. Rev. 1433, 1434 (2002) (emphasis added) (quoting Memorandum from David B.H. Martin, Dir., Div. of Corp. Fin., SEC, to Laura Unger, Acting Chair, SEC (May 8, 2001)).

[184] This is plausible given the role the Department of State had in implementing the Clean Diamond Trade Act. *See* Exec. Order No. 13,312, 68 Fed. Reg. 45,151 (July 29, 2003) (assigning certain regulatory functions).

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It is worth noting that if the problem is one of dissemination, mandatory disclosures coupled with point-of-sale disclosures, such as product labeling, may improve outcomes. "Conflict-Free" and "Not Conflict-Free" labels, for example, might make consumers more likely to discipline firms with problematic supply chains.

2. Type of information

Another explanation for the different effects of the revenues on disclosures is that the content behind the scores generated by the Responsible Sourcing Network (more process information as opposed to accuracy information) do not constitute as much of a mixed signal as the accuracy information coded for in the larger dataset. They do not send as strong of a signal about a company's honesty and profit potential along with the information about the ethics of a company's supply chain. This could mean that the effect captured with the larger dataset is driven by the accuracy information that is supplied. Thus, changing the content of the disclosures to a different type of information that is still relevant for human rights abuses may exert more pressure on corporations.

The current disclosure requirements lead to disclosure of "accuracy information" about the particular risks of sourcing and who a company is sourcing from, which in addition to capturing information about the supply chain, provides information about the honesty of the firm. But the disclosure requirements could emphasize more the processes that firms undertake, which is more similar to "agency information" and has less of a signal about the company's honesty. This is consistent with Paul Mahoney's argument for requiring the disclosure of "agency information" rather than "accuracy information" discussed in Section I.B.

Alternatively, regulators might find ways to decrease the value of the signal of a firm's honesty that may be occurring through the conflict mineral disclosures. One option would be to require more disclosures of other aspects of companies that help capture honesty. If there are signals in other disclosures about firms' honesty, the signal value of the conflict mineral disclosures for honesty goes down, and companies would have less to gain by submitting disclosures that uncover problems with their supply chains.

3. Who has to report

Another difference between the *Mining the Disclosure* analysis and the one performed with the larger dataset is the more limited set of firms that was scored by the Responsible Sourcing Network. The *Mining the Disclosures* report focused on firms whose supply chains had more of a human rights impact because the covered inputs made up a large portion of their products. It may be that mandatory disclosures should only apply to a subset of firms who are the most likely to have ethical issues with their supply chains.

It makes sense that the consumer pressure is more likely to materialize for this subset of companies because a larger percentage of purchasing dollars of their products is likely to go to suppliers with human rights problems. After

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all, consumers are more likely to be interested in information about the human rights associated with an engagement ring in which the diamond is more than half of the value, than to choose not to use a Visa credit card because the chip in it might include conflict minerals. Tailoring mandatory disclosure requirements to only apply to firms whose supply chains have the most serious human rights implications may make them more likely to generate pressure on the average reporting firm, not just for a subset of them. And this may make the information easier to analyze, reducing the previously discussed information overload problems associated with disclosure regimes.

In addition, limiting the disclosure requirement to a subset of companies is more likely to be cost effective. The companies with greater exposure to a supplier are likely to have more bargaining leverage and thus be more equipped to get information out of the supplier or pressure the supplier into going through a certification process. And if enough big purchasers are putting this sort of pressure on suppliers, it may be unnecessary for the smaller purchasers to do so as well. Ultimately, the same information about ethical suppliers may be produced, but at a lower cost.

C. Future Research

These findings raise other questions for research that could help determine the optimal characteristics for mandatory disclosure regimes. Future empirical studies of market responses to mandatory disclosures are needed to answer them.

First of all, the findings raise the question of which of the three explanations for the difference in the results for the *Mining the Disclosure* data and the larger dataset is most plausible. Extending the scoring done by the Responsible Sourcing Network to cover the entire dataset would be helpful. For example, if the differences persisted, that would imply that the source of pressure is not its more limited subset.

Secondly, it is worth looking at whether other mandatory disclosure regimes in other countries are more successful than the Conflict Minerals Rule. For example, market responses to disclosures filed pursuant to the UK Modern Slavery Act might tell a different story. There is likely to be more awareness of slavery as a human rights abuse that occurs in supply chains, and the increased consumer awareness of the issue may translate into pressure that can overcome the mixed signal problem.

Third, given the danger that these measures are not effective, it is worth asking what the best *ex ante* way to predict their effectiveness is. In the case of supply chains, a finding from the lab (the difficulty of interpreting supply chain disclosures) seemed to persist in the field. Designing good experiments that are likely to predict consumer responses to actual disclosures before they are designed and implemented is particularly valuable.

CONCLUSION

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The humanitarian crisis in the DRC is a shameful atrocity, and the complicity of large corporations in it is inexcusable. It is admirable that the United States sought a way to tackle the problem. But it is not clear that the method chosen through the Conflict Minerals Rule was adequate.

This Article assembled a dataset using the disclosures from the first three years of its implementation. The results from this larger dataset do not provide support for the conclusion that the market responses to disclosures incentivize corporations to lower their exposure to conflict minerals in their supply chains. Rather than expecting companies to invest in adequate supply chain management due to disclosure mechanisms like this, governments may need to supplement mandatory disclosure regimes with other measures.

But the success of the *Mining the Disclosure* scores in predicting increased revenues implies that there may be some fixes for supply-chain mandatory disclosure regimes. Changing the agency implementing the process and disseminating the results may improve the outcomes. Disclosure requirements should focus more on the reporting of processes so that they are less likely to send a signal about honesty. And it may be better to limit disclosures to companies who are the largest purchasers of potentially problematic inputs. These fixes may make the next mandatory disclosure regime for supply chains more successful.

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Table 1: **Distribution of Conflict-Free Disclosures**

Item	Frequency	Percent
May 23, 2014	1	0
May 27, 2014	2	1
May 28, 2014	5	1
May 29, 2014	21	6
May 30, 2014	75	21
June 2, 2014	148	42
June 3, 2014	1	0
June 4, 2014	3	1
June 5, 2014	1	0
June 12, 2014	1	0
June 13, 2014	1	0
June 26, 2014	1	0
July 2, 2014	1	0
July 9, 2014	1	0
September 5, 2014	1	0
October 10, 2014	1	0
October 15, 2014	1	0
November 21, 2014	1	0
February 5, 2015	1	0
May 4, 2015	1	0
May 20, 2015	1	0
May 22, 2015	2	1
May 27, 2015	1	0
May 28, 2015	7	2
May 29, 2015	15	4
June 1, 2015	13	4
May 6, 2016	1	0
May 12, 2016	1	0
May 13, 2016	1	0
May 19, 2016	1	0
May 20, 2016	1	0
May 23, 2016	1	0
May 24, 2016	1	0
May 25, 2016	3	1
May 26, 2016	8	2
May 27, 2016	5	1
May 31, 2016	24	7

Source: SD Forms and Attachments submitted to the SEC

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Table 2: **Distribution of Conflict Disclosures**

Day	Frequency	Percent
May 23, 2014	1	0
May 28, 2014	4	1
May 29, 2014	6	1
May 30, 2014	33	7
June 2, 2014	41	8
February 12, 2015	1	0
May 4, 2015	2	0
May 12, 2015	1	0
May 14, 2015	1	0
May 18, 2015	1	0
May 20, 2015	2	0
May 21, 2015	2	0
May 22, 2015	4	1
May 26, 2015	3	1
May 27, 2015	3	1
May 28, 2015	23	5
May 29, 2015	55	11
June 1, 2015	92	18
June 2, 2015	3	1
April 12, 2016	1	0
April 13, 2016	1	0
May 11, 2016	1	0
May 16, 2016	1	0
May 17, 2016	2	0
May 18, 2016	3	1
May 19, 2016	3	1
May 20, 2016	4	1
May 23, 2016	3	1
May 24, 2016	1	0
May 25, 2016	4	1
May 26, 2016	21	4
May 27, 2016	45	9
May 31, 2016	132	26
June 1, 2016	1	0
June 2, 2016	1	0

Source: SD Forms and Attachments submitted to the SEC

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Table 3: Companies Excluded from Sample for Robustness Checks

Companies Mentioned in Taking Conflict Out of Consumer Gadgets, Company Rankings on Conflict Minerals 2012	
Company	**Progress Made on Conflict Mineral Supply Chain Management**
Intel	60%
HP	54%
SanDisk	48%
Phillips	48%
AMD	44%
RIM	42%
Acer	40%
Dell	40%
Apple	38%
Microsoft	38%
Motorola Mobility	35%
Nokia	35%
Panasonic	33%
IBM	27%
Sony	27%
LG	27%
Samsung	27%
Toshiba	21%
Lenovo	17%
Canon	8%
Nikon	8%

Some progress made by Ford:, GE, Boeing, Northrop Grumman,
United Technologies, Lockheed Martin, and Signet Jewelers.

Table 4: **Relationship between Disclosure Content and Revenues ($'000s) - No Previous Info on Conflict Mineral Exposure**

	(1)	(2)	(3)	(4)	(5)
Low Conflict Risk	1005.9***	-719.8***	-304.8***	-720.1***	-674.9***
	(5.72)	(-14.80)	(-4.81)	(-14.80)	(-15.58)
High Conflict Risk	30.32	-85.45	-136.2**	-85.23	-63.84
	(0.15)	(-1.72)	(-2.86)	(-1.71)	(-1.46)
Merger and Acquisition (Raw)			-0.0129		
			(-0.08)		
Merger and Acquisition (Adj)				-0.271	-0.259
				(-0.89)	(-0.85)
Constant	819.9	1666.0***	1225.4***	1665.8***	1893.0***
	(0.71)	(6.52)	(5.27)	(6.52)	(93.48)
Observations	24,182	24,182	6,179	24,182	24,182
Firm-level FE?	No	Yes	Yes	Yes	Yes
Quarter FE?	Yes	Yes	Yes	Yes	No
Quarter-Industry FE?	No	No	No	No	Yes

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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