



**UNIVERSITY OF GOTHENBURG**  
**SCHOOL OF BUSINESS, ECONOMICS AND LAW**

Master Degree Project in Finance

**Conflict Minerals Regulatory Events'  
Impacts on Stock Price Returns in the US:**

Lessons for future conflict mineral policy

Eric Bronstein

Supervisor: Martin Holmén  
Master Degree Project No. 2015:84  
Graduate School



## **ACKNOWLEDGEMENTS**

This paper has proved an immense challenge in many regards, and the completion of this project gives me great pride. Though the words may be mine, the effort and support comes from too many to name individually.

I begin with my supervisor, Martin Holmén, whose direction and guidance got me through several moments of hesitation along the way.

Next, Mom & Dad – thank you for your support always... with everything. Don't know where I'd be without you guys. Byu byu.

Lastly, Adina, my biggest support through this journey. This life is an adventure with you at my side and I am so grateful for that. Thank you for keeping me on the right path always.

## **ABSTRACT**

Over the past ten years, awareness about the problem of conflict minerals, those which are mined and used by rebel groups to finance conflict in certain countries, has grown in many areas of the world. In the United States, this awareness culminated in Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 which authorized the US Securities and Exchange Commission to issue a formal conflict minerals policy called the Conflict Minerals Rule. As this genre of policy is new and likely to see continued debate around the world, this study aims to assess the impacts of conflict mineral regulatory events on the stock price returns of the industries which the policy is intended to govern. The analysis tests if events in favor of conflict mineral policy generate negative cumulative abnormal returns, and to do so, I employ an event study methodology using publicly available stock price data and regulatory events spanning from congressional debates preceding the Dodd-Frank Act in 2010 through to the most current of legal challenges which followed the SEC's rule issuance. Though certain industries do report sporadic significant abnormal returns to certain regulatory events, the data suggests that there is no negative systematic effect on returns for the industries most expected to be impacted by the Conflict Minerals Rule.

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS .....	1
ABSTRACT .....	2
1. INTRODUCTION .....	4
2. BACKGROUND .....	7
2.1. Dodd-Frank Wall Street Reform Act .....	7
2.2. Security & Exchange Commission’s Conflict Minerals Rule .....	8
2.3. Legal Challenges to the SEC’s Conflict Minerals Rule .....	9
2.4. Social Sustainability and Growing Awareness of Conflict Mineral Policy .....	9
3. LITERATURE REVIEW .....	10
4. METHODOLOGY .....	13
4.1 Identification .....	15
4.2 An Event Study Model for Impacts of Conflict Mineral Regulatory Events on Stock Price Returns of Relevant Industries .....	16
5. DATA .....	18
5.1. Stock Price Data .....	18
5.2. Conflict Mineral Policy Events .....	18
6. RESULTS .....	21
6.1. Overall Perspective .....	21
6.2. Industry Specific Results .....	24
<i>Mining Industry</i> .....	24
<i>Aerospace &amp; Defense Products</i> .....	27
<i>Auto Manufacturers</i> .....	28
<i>Electronics Industries</i> .....	29
<i>Jewelry</i> .....	33
6.3 Robustness .....	37
7. LIMITATIONS .....	37
8. CONCLUSION .....	39
REFERENCES .....	42
APPENDIX A: LIST OF TICKER SYMBOLS OF COMPANIES IN STUDY .....	45
APPENDIX B: FULL CANDIDATE EVENT LIST .....	46
APPENDIX C: ROBUSTNESS RESULTS WITH 3-DAY EVENT WINDOW .....	47
APPENDIX D: TYPES OF RETURNS REACTIONS .....	50

## **1. INTRODUCTION**

As demand for various types of natural resources has grown in tandem with the global economy, violent and armed rebel groups in various parts of the developing world have attempted to access this wealth source as a means of financing their endeavors. Such has given rise to the concept of conflict resources. One sub-category of conflict resources is that of conflict minerals, including cassiterite, wolframite, columbite-tantalite and gold, which are crucial components in various types of electronic equipment and other industries. With rising awareness regarding conflict minerals, the United States government, in an effort towards social sustainability, has adopted legislation intended to force companies to audit their mineral sourcing and eliminate sourced supplies from conflict regions (Securities and Exchange Commission, 2012). Additionally, similar policies are in the works in other areas of the world, such as the European Union (European Commission, 2014). Such a policy is bound to create direct and indirect effects on numerous industries, and it is imperative to understand the impacts of such policy as best as possible since this brand of policy remains at a very nascent stage. Conflict mineral policy is bound to further evolve and the effectiveness of such policy inevitably to be reevaluated in the coming years. As such, this paper aims to observe if events in favor of conflict mineral policy have led to negative systematic impacts on stock price returns of publicly listed companies within the industries the policy would govern. Such results are put forth as consideration in the development of any future policies governing conflict minerals or any other conflict resources.

The first, and perhaps most famous implementation of social sustainability policy combatting conflict resources was the Kimberley Process Certification Scheme (KPCS), a United Nations endorsed policy adopted at country levels. The policy, which went into effect in 2003, was developed in response to rising global awareness about the problem of conflict diamonds, highlighted by the bloody civil war in Sierra Leone in the early 1990's. Encouraged by the international community, the diamond producing African countries met in Kimberley, South Africa to create a process to curtail such behavior, and a few years later, the Kimberley Process Certification Scheme was born and adopted by the United Nations in January of 2003 (United Nations Resolution-1459, 2003). Through a central mechanism of applying certificates through every phase of diamond production and to every rough diamond on the global market, from the moment a rough diamond is extracted from the earth until the time it reaches an end consumer, the Kimberley Process aims to prevent conflict stones, "those used by rebel movements or their allies to finance conflict aimed at undermining

legitimate governments” (KPCS Core Document, 2003), from reaching the rough diamond market.

Despite the efforts of the Kimberley Process in tackling conflict diamonds, many critics believe that the policy should be amended or replaced by new policy altogether, and in support of such possibilities, academics have made efforts to understand the resulting impacts of the policy on the industries on which it is meant to govern. Seitz (2012) and Bronstein and Woods (2014) are two examples of such. Seitz (2012) attempts to measure the impacts of the policy, and its related news, on the stock prices of jewelry retailers and diamond mining companies, and Bronstein and Woods (2014) offer results on the impact of the KPCS on the landscape of country-level competition.

More broadly, robust empirical ties between conflict and resources have been identified in the conflict resource literature. At the same time, sustainability issues of all kinds, including social sustainability issues such as conflict minerals, have become increasingly important topics of debate for governments, NGO’s and the everyday global citizen. The combination of social sustainability momentum in western society, along with the established empirical connections between conflicts and resources, suggests that this issue will not disappear now that an initial policy is in place. Already, some research and industry groups are contending that the policy is having the unintended consequences of hurting the legitimate mining operations in the conflict regions. By some estimates, the rule has inadvertently negatively affected 5-12 million Congolese civilians by shutting down the only method of survival for many artisanal miners (Seay, 2012). If such is the case, such negative economic consequences perhaps add to the political instability and indirectly support conflict. Such contentions, along with the fact that this class of policy is at its infancy, mean that any and all effects of such policy should be assessed, as one may reasonably expect that this vein of policy will continue to change, adapt and expand, in the US and elsewhere, in the years to come.

The need for conflict resource policy is paramount and can be expected to be of grave importance in the future as nobody wants their consumer goods to, in any way, support inhumane violence and corruption. With such a strong need for conflict resource policy, every avenue of understanding these policies’ impacts, both direct and indirect, should be researched. To the best of my knowledge, Seitz (2013) has, as of yet, made the first and only empirical attempt at this by performing an event study on industries perceived to be affected by conflict minerals events that transpired during the year 2010. He considers not only

regulatory events in the US, but also the effects of bans on production and export instituted by the Democratic Republic of Congo (DRC) (a type of event that is beyond the scope of this study). Seitz (2013) goes on to find that metal and gold mining companies experienced abnormally high returns for regulatory events which increased the likelihood of some type of conflict mineral legislation. Contrarily, for the other industries he considers, electronic and communication equipment manufacturers, there are no signs of systematically abnormal returns linked to the dates he considers.

Since 2010 (and the events Seitz considers) however, conflict minerals policy in the US has been met with resistance, with numerous legal challenges contending constitutionality of the rule. This study therefore proceeds with the initial efforts of Seitz (2013) and performs an event study on Seitz's already examined dates (those which preceded the actual legislation but increased its likelihood of inception), as well as more recent events pertaining to conflict minerals policy in the United States. Further, this study extends the industries of interest from mining and electronics (as studied by Seitz) to additionally include other industries anticipated to be impacted, such as aerospace, auto manufacturing and jewelry. Because industry groups have resisted the policy through these legal challenges, it implies that companies believe this type of policy will be bad for them. To see if this is the case from the perspective of the stockholders, I test to see if events in favor of (against) conflict mineral policy lead to systematically negative (positive) abnormal returns. When extending the range of event dates and industries of interest, the data suggests that though certain events do trigger abnormal returns to varying degrees within certain industries, overall there is no negative systematic impact on abnormal returns created by conflict mineral regulatory events. The evidence does suggest however that one particular event did apparently have a systematic impact, that being when the rule became absolutely certain to go into effect following a court ruling, an event which lead to statistically significant negative abnormal returns in most industries.

This paper is presented in the following manner. First, background information is presented in section 2 and offers an abridged summary of the conflict minerals issue and the SEC's rule intended to deal with such. Following, an overview of conflict resource literature is presented in section 3. Subsequently in section 4, I review the event study methodology applied in this study. The data and events used in this study are then presented in section 5, followed by a presentation and discussion about the results in section 6. After addressing some of the paper's



limitations in section 7, I then conclude in section 8 by drawing upon the results to discuss implications for future conflict mineral policy.

## **2. BACKGROUND**

In the mid 1990's, mounting awareness of what would be dubbed "conflict diamonds" eventually lead to the first such policy in attempting to tackle this trend. It came in the form of the Kimberley Process Certification Scheme, a UN endorsed policy to curb conflict diamonds. In recent years, an analogous awareness has grown with regard to conflict minerals. Particular focus has surrounded the DRC and several of its neighboring countries where certain mining operations in the region help to fund violent civil conflicts. Not only are the resources exploited to fund violent objectives, but often armed groups governing such mining operations subject those working the mine to severe human rights abuses. As social sustainability awareness has grown, governments and non-governmental organizations (NGO's) are making efforts to foster change and further spread awareness of the issue. Though efforts in this regard are by no means limited to the United States, this paper specifically considers the events pertaining to conflict mineral policy within the US. As such, this section outlines the recent history of conflict minerals regulatory events in the United States, commencing with events which lead to the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), transitioning to the legal challenges and court decisions which followed the SEC's issuance of the Conflict Minerals Rule, and concluding with a discussion regarding the issue's place within the social sustainability movement.

### **2.1. Dodd-Frank Wall Street Reform Act**

Section 1502 of the Dodd-Frank Act was the first US legislation to directly address conflict minerals and was signed into law by President Barack Obama on July 21, 2010. The proposed intention of Section 1502 is to mandate transparency among public firms which directly or indirectly support the conflict in the DRC area by either incorporating conflict sourced minerals into their production or sub-contracting firms which do. By requiring disclosure, the aim is to discourage companies from any trade activities which support the regional conflicts.

The minerals specifically classified as "conflict minerals" per the Dodd-Frank Act are cassiterite, columbite-tantalite, gold and wolframite, and their derivatives. The law also states that the US Secretary of State may designate additional conflict minerals in the future.

Further, Section 1502 of the Dodd-Frank Act defines the so called “Covered Countries” of the law as the ten countries listed in Figure 1 below. It is conflict minerals sourced from these particular countries that the law currently pursues disclosure of.

**Figure 1: List of "Covered Countries" as defined by Section 1502 of the Dodd-Frank Wall Street Reform Act**

- |  |                         |
|--|-------------------------|
| ➤ Democratic Republic of the Congo (DRC) | ➤ The Republic of Congo |
| ➤ Central Africa Republic                | ➤ Tanzania              |
| ➤ South Sudan                            | ➤ Burundi               |
| ➤ Zambia                                 | ➤ Rwanda                |
| ➤ Angola                                 | ➤ Uganda                |

## **2.2. Security & Exchange Commission’s Conflict Minerals Rule**

The enacted Dodd-Frank Act authorized the Securities and Exchange Commission (SEC) of the United States to issue and enforce a conflict minerals rule within the definitions of “conflict minerals” and “covered countries” defined in the legislation. Heavy discourse ensued regarding the proposed rule and it was not until more than two years after the Dodd-Frank Act became law that the SEC, on August 22, 2012, issued a final rule – the Conflict Minerals Rule.

The SEC’s Conflict Minerals Rule applies to all firms which report to the SEC that manufacture or contract to manufacture products where “conflict minerals are necessary to the functionality or production” of the product (Securities and Exchange Commission, 2012). For public firms which do use these minerals, they then must perform a special disclosure to the SEC. In this disclosure, if a company concludes that they do not use conflict minerals from one of the covered countries, then they must state what country the minerals are sourced from and the manner in which such a conclusion was drawn. If conflict minerals are sourced from covered countries, the reporting must disclose such in the annual reports and those companies are required to make such reports public. It is also worth noting that the SEC’s Conflict Minerals Rule does not consider mining firms as manufacturers, technically speaking. They are, therefore, exempt from the Conflict Minerals Rule. Nonetheless, while they are exempt from reporting, they are still affected by the policy since firms that mining companies supply to may need to adjust their behavior. As will be discussed in a later section, I include mining operations in this event study, despite their not falling under the jurisdiction of the actual rule.

Lastly, at the time of the rules issuance, the SEC estimated that compliance would cost 6,000 SEC issuing firms US\$3 to US\$4 billion upon the rules onset for initial compliance and with annual costs thereafter of between US\$207 to \$609 million. These large compliance

costs are an obvious reason as to why such policy events may negatively affect stock price returns of affected companies.

### **2.3. Legal Challenges to the SEC's Conflict Minerals Rule**

On October 22, 2012, precisely two months after the SEC's final Conflict Minerals Rule was announced, the US Chamber of Commerce and the National Association of Manufacturers filed an Amended Petition for Review with the US Court of Appeals Washington DC Circuit Court. This marked the first of many legal challenges to the Conflict Minerals Rule. It is this type of action that implies that the companies anticipate the policy to have negative effects, and thus why I look for evidence that conflict mineral regulatory events in favor of (against) the policy lead to negative (positive) abnormal returns.

Almost a year later, on July 23<sup>rd</sup> of 2013, the US District Court rejected this legal challenge, but shortly thereafter, on August 12<sup>th</sup> the decision was appealed by the petitioning party.

Following the petitioner's appeal, the Washington D.C. Court of Appeals ruled on April 14, 2014, rejecting all of the petitioners' arguments against the SEC with the exception of one issue. The court ruled unconstitutional a provision of the law mandating companies to specifically post on their website if any of their products are not "DRC conflict free." Despite negating this facet of the law, the decision is deemed heavily in favor of the SEC and in support of the Conflict Minerals Rule. Nevertheless, the SEC would still go on to appeal the decision regarding the one argument struck down in the appellate court's decision.

By the time the aforementioned legal proceedings had finished, many companies were uncertain they would be able to meet the June 2<sup>nd</sup> reporting deadline. In response, the petitioners filed a motion for a stay of implementation from the rule to allow for more time to report. On May 14<sup>th</sup>, this Motion to Stay was denied by the court.

In the most recent news, on November 18<sup>th</sup>, 2014, the Washington D.C. Court of Appeals has announced that it has agreed to rehear the case regarding the decision that part of the law was unconstitutional, and it is here that the state of challenge to the existing Conflict Minerals Rule currently resides.

### **2.4. Social Sustainability and Growing Awareness of Conflict Mineral Policy**

One of the motivations for this study and for evaluating a conflict mineral policy is that the policy deals with an important matter – the safety and livelihood of human beings. Ironically, many of the people who are impacted by the policy may not even be privy to it,

because they are so far removed from the western world. Being “important,” however, is both subjective and often not reason enough alone for governments to take action. Often, it takes awareness of the masses in conjunction with importance. Thankfully, rising awareness of sustainability has been a trend in recent years.

What began in the 1960’s as environmental sustainability, an awareness of environmental degradation, has since evolved into the ‘triple bottom line’ of environmental, economic and social responsibility. One (of several) definition(s) of social sustainability is as follows: Social sustainability occurs when the formal and informal processes, systems, structures and relationships actively support the capacity of current and future generations to create healthy and livable communities (McKenzie, 2004). While social sustainability can be a contentious and subjective debate, it would be clear to most proponents of social sustainability why conflict mineral policy is an important step in the sustainable direction.

As people have become more aware, pressure has also mounted on companies, considering what powerful actors many big companies are, to act with “corporate social responsibility” (CSR). Since many companies design policy surpassing legal requirements, a study such as this is also motivated in the efforts of supporting CSR policy of corporate management in their efforts towards sustainable supply chains. Invoking such CSR policies can give assurance to consumers and stakeholders and potentially improve the lives of millions in the DRC (Epstein and Yuthas, 2011).

While the importance of social sustainability is a subjective matter, I believe it to be so. This brief background about the social responsibility movement is intended to remind the reader of social responsibility’s importance (if you indeed concur that it is important) and further, to emphasize that this research not only facilitates social responsibility by educating the policymakers at government levels, but also by educating CSR managers in corporate settings.

### **3. LITERATURE REVIEW**

In the proceeding section, a review of the literature pertinent to this study is presented. First, and most importantly, I discuss the limited existing literature which pertains to event studies about conflict resource policies. Subsequently, I go on to discuss additional conflict resource policy literature which does not necessarily employ event study methodology. Lastly, I discuss some of the prominent literature which deals with both conflict and resources, but not necessarily studying the impacts of a particular conflict resource policy.

As mentioned, there is not ample literature which performs event studies on conflict resources, but recent efforts have been made by Seitz (2012) regarding conflict diamond policy and Seitz (2013) regarding conflict minerals policy, the latter of which serves as a foundation for the efforts of this paper.

In Seitz (2012), events pertaining to the Kimberley Process Certification Scheme (KPCS) were analyzed for stock returns of diamond mining and jewelry companies. Seitz finds that after 2004, jewelry companies experienced abnormal returns coinciding with KPCS events, though mining companies were not affected. Interestingly, Seitz finds that these sectors are impacted very differently, results implying that firms' positions in the supply chain relative to final consumers is important in how stock returns react. In essence, the policy has impacts on reputation of the final producers' products, thereby creating a significant effect on returns for firms close to end consumers (Seitz, 2012). Such a result is also reinforced by the latter research of Bronstein & Woods (2014) who report that managers of diamond industry companies, such as DeBeers and Tiffany Corporation, perceive the KPCS as a benefit to business in the industry, rather than a burden, as it gives consumers confidence in their products, thereby boosting demand (Bronstein & Woods, 2014).

In Seitz (2013), the author looks at four conflict minerals events which occurred in 2010. He uses a market return model presented with the S&P 500 as his US index variable to look at how a mining ban announcement in certain provinces of the DRC and US conflict mineral policy events effect returns on mining companies, electronic equipment manufacturers and communication equipment manufacturers publicly listed on US exchanges. Interestingly, Seitz (2013) finds that the mining and manufacturing sectors respond quite differently to the news events he finds of interest. He analyzes a dataset of all mining companies, as well as subsets of strictly metals mining companies and strictly gold mining companies. For his sample of all mining companies, he finds a negative and highly significant reaction when the SEC unanimously voted to propose rules for disclosure on December 15, 2010. The results for metal mining and gold mining companies are positive and highly significant on April 28, 2010, when a measure to establish legislation unanimously passed out of a hearing of the House of Foreign Affairs Committee, and on June 24, 2010, when the measure was then added to the Dodd-Frank Act. For the electronics and communications manufacturers, none of the aforementioned dates have any significant reaction to the news, but communication manufacturers did have significant abnormal returns during the production ban in the DRC. Seitz (2013)'s results suggest that there are real effects on the returns of publicly listed companies to conflict mineral related news, but that the effects are certainly not uniform as

each industry absorbed the news in a different manner. The results specifically suggest that investors for electronics and communications manufacturers were not overly concerned by the imposed costs due to the impending rule, since these industries did not experience abnormal returns (Seitz, 2013). In my study, I extend the efforts of Seitz in certain regards. Though I disregard the production ban event so as to focus on news pertaining specifically to US law, I extend his US relevant dates to include important events which have transpired since. Additionally, I consider other industries of interest which have been expected to be affected by the policy.

Though they do not employ an event study methodology in analyzing certain impacts of a conflict diamond policy, Bronstein and Woods (2014) use a discrete choice oligopoly model to gather insights regarding the effects of the Kimberley Process Certification Scheme on country-level competition in the rough diamond market. They find that such conflict diamond policy has had an effect of indirectly encouraging democratic governance by eliminating a competitive advantage of autocratic governments which existed prior to the policy. Additionally, the policy has “fostered competition” as market shares have decreased for the top producing countries and increased for smaller producers (Bronstein and Woods, 2013). Results such as this lend more concrete talking points to the continued debate about how to improve, adjust and put forth additional conflict diamond policy and also motivate the importance of understanding the direct and indirect consequences of conflict resource policies in general.

If we more broadly consider literature about conflict and resources (rather than specifically about conflict resource policy) the subject becomes far more comprehensive. In Guidolin and La Ferrara (2007), the authors use an event study to assess the effect of the end of conflict in Angola on the returns for diamond mining companies in that country. They find that events pertaining to the end of the conflict create significant and negative abnormal returns for diamond firms in the country, implying that conflict can be beneficial to incumbent firms in conflict areas (Guidolin and La Ferrara, 2007).

Many studies have also focused on ties between resource wealth and conflict, to which the prominent literature has repeatedly drawn an empirical connection. Lujala, Gleditsch, and Gilmore (2005) use diamond production and conflict data to test numerous hypotheses regarding this link. They draw distinction between lootable diamonds (alluvial mining near the surface) and non-lootable diamonds (primary mining which is highly capital intensive) and find that while there is a significant connection between diamond wealth and civil war

onset, the effect is far stronger and far more significant when tested with lootable diamonds versus non-lootable diamonds, proposing that this is part of the explanation for “the contrasting effects of diamond riches in Sierra Leone and Botswana” as Sierra Leone has alluvial deposits and Botswana has primary (Lujala et al., 2005). Olsson (2006) also supports this theory as he adds that not only are primary mines capital intensive to mine, but they are also easily taxed and controlled by governments.

Humphreys (2005) builds on the literature connecting diamonds and conflict by trying to identify the mechanisms by which the resources indeed create such conflict. Though more broadly about natural resources, including oil reserves and diamond deposits, his results do show that natural resource wealth tends to lead to conflict via weak state structures more so than wealth or state capture mechanisms (Humphreys, 2005), a result which is quite consistent with “resource curse” literature (Karl, 1997; Sachs and Warner, 1997 ).

The aforementioned samples of literature again highlight the motivation for this brand of research. There are robust empirical ties between conflict and resources, as witnessed in many examples across countries and time. Be this the case, the need for conflict resource policy is paramount and can be expected to be of grave importance in the future as nobody wants their consumer goods to in any way support inhumane violence and corruption. With such a strong need for conflict resource policy, every angle of these policies’ impacts, be them direct or indirect, should be researched. It is with that in mind that this paper offers its humble contribution.

#### **4. METHODOLOGY**

A particular challenge in qualifying impacts regarding conflict resources of all types is that production data for such resources is often limited, unreliable or even nonexistent for the purpose of being applied to econometric models. With regard to conflict minerals, because mineral mining, compared for example, with diamond mining, is so unconcentrated, there are numerous avenues for conflict minerals to merge into the supply chain rendering production measurements questionable.

An event study offers a solution in finding one angle by which the econometrics for measuring impacts of conflict mineral policy (and its related news) on the industries it pertains to is not jeopardized by the quality of the data. Because financial data on publicly traded firms is readily and reliably available and the events of choice are well defined, such a

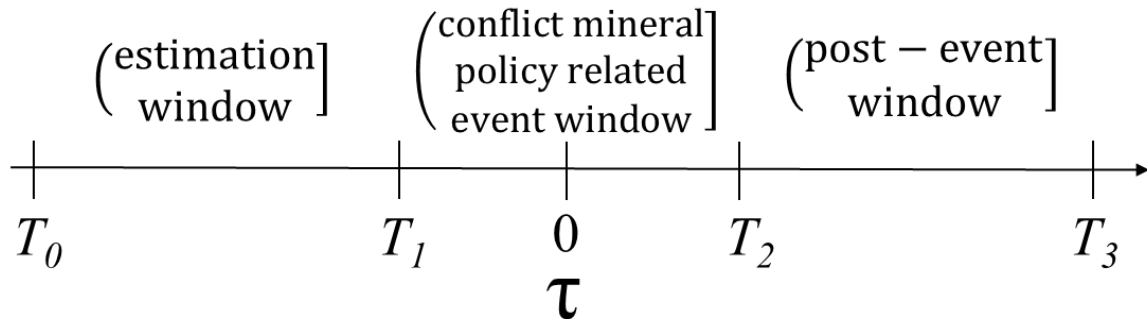
study offers future policy makers a sound econometric analysis regarding policy impacts of this type.

Event study econometric techniques have become a standard procedure, employed in a wealth of literature across both the fields of economics and finance, with more than 80 years having transpired since its first published application in a work by James Dolley (1933) who analyzed the effects on price of stock splits. Since this first published effort in 1933, countless applications have been made and the methodology has been refined. Perhaps one of the most comprehensive and well-regarded summaries of the event study framework comes from MacKinlay (1997). He methodically presents the procedures and principles of an event study while complementing explanations with examples. He explains the most common approaches to calculating the normal returns; particularly, the constant mean return model and the market model. MacKinlay also reviews the calculation of abnormal returns, cumulative abnormal returns, and in the case of analyses with many securities, the average of each of these measures across securities, before then providing test statistics for the cumulative abnormal return measures (MacKinlay, 1997).

This study utilizes the market return model as its methodological foundation to measure the impacts of recent conflict mineral policy events on the value of firms within the policy's domain. The framework accomplishes this by measuring and analyzing returns from a given estimation window with respect to an event window, which in the case of this paper, is a conflict mineral policy related event. Explicitly stated, I want to test for evidence that the abnormal returns for a security during an event window are negatively related to news that is in favor of conflict mineral policy. Because some of the events I consider are events which work against the actual policy implementation, these events are tested to see if they give evidence of positive abnormal returns. Abnormal returns are defined as the error in event window returns compared to that predicted by the data from the estimation window. The time line for an event study can thus be characterized as seen in Figure 1.  $\tau = 0$  represents the event date. From  $\tau = (T_0 + 1)$  to  $T_1$  is the representative estimation window.  $\tau = (T_1 + 1)$  to  $T_2$  represents the event window which is a designated period before and after the defined exogenous event such that all market reactions to the news occur within this period. The number 1 in the above windows is arbitrary, but represents the fact that the event window and estimation will not overlap (MacKinlay, 1997). Generally, the event window should be quite narrow as we assume market efficiency which means that any new information should be quickly reflected in the price of the security being studied (Fama, 1970). The model further



takes the assumption that the event is large enough such that variations in the price during the event window are driven by such event and under such an assumption, the model need not control for other factors. Lastly,  $T_2$  to  $T_3$  represents the post-event window and such information is not applied within the framework.



**Figure 2:** Time line for a conflict mineral policy related event window

#### 4.1 Identification

One crucial consideration for identification when it comes to event studies is whether or not the event is exogenous. Our goal with an event study is to measure the impact on returns of some “event” or news to the market, but if the event itself is not exogenous, then it may be that the company returns determine the event in some capacity. If such is the case, our estimates of the event effects on abnormal returns will be biased.

A classic example of such endogeneity is the case of a bankruptcy announcement for a firm. Clearly, the firm’s stock returns greatly reflect the financial stability of the firm and thus it is quite obvious how a firm’s stock returns would influence a bankruptcy announcement by such a firm. In this example, the endogeneity of the event means that though the event has an effect on the returns, the returns also have an effect on the event, and we cannot isolate the event’s effect.

In the case of this paper, conflict mineral policy is certainly not being shaped or decided upon based on the returns of companies within such an industry. Indeed, I think it is safe to generally argue that the manifestation of such policy is due to continued conflict in resource rich areas of the world and the growing awareness of such wrongdoings. Based on this, we argue that events pertaining to conflict mineral news, inclusive of those used in this study, are exogenous events and thus there is identification for the results regarding the effects of such events on abnormal returns.

## 4.2 An Event Study Model for Impacts of Conflict Mineral Regulatory Events on Stock Price Returns of Relevant Industries

The application of the market model, as applied in this paper, begins with a linear specification which ties the returns ( $R$ ) of a firm  $i$  at time  $t$  to the returns of the market portfolio,  $m$ , at time  $t$ . The specification is as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \quad (1)$$

$$\text{where, } E(\epsilon_{it}) = 0, \text{ Var}(\epsilon_{it}) = \sigma_{\epsilon_i}^2$$

$R_{it}$  is the period- $t$  returns of the subject firm,  $i$ , and  $R_{mt}$  is the period- $t$  returns of the S&P 500 index. In this analysis, the subject firms are identified as companies publicly listed in the United States and deemed to be in one of the industries “most affected” by the SEC’s Conflict Minerals Rule. These industries are considered to be the electronic equipment, communications equipment, aerospace, automotive, jewelry and industrial product industries (Ernst & Young, 2012), as well as the mining industry.

From the market model specification, OLS is used to estimate the regression using data from the estimation window to obtain estimates for  $\alpha_i$  and  $\beta_i$ :

$$R_{i\tau} = \alpha_i + \beta_i R_{m\tau} + \epsilon_{i\tau} \quad (2)$$

$$\text{for } \tau \in [\textit{estimation window}]$$

Having obtained  $\hat{\alpha}_i$  and  $\hat{\beta}_i$ , we can then obtain predicted returns of stock  $i$  during the event window:

$$\hat{R}_{i\tau} = \hat{\alpha}_i + \hat{\beta}_i R_{m\tau} \quad (3)$$

$$\text{for all } \tau \in [\textit{event window}]$$

We can also obtain an estimate of  $\sigma_{\epsilon_i}^2$  of the following form:

$$\hat{\sigma}_{\epsilon_i}^2 = \frac{1}{T_1 - T_0 - 2} \sum_{\tau=T_0+1}^{T_1} (R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{m\tau})^2 \quad (4)$$

By rearranging equation (2) above and incorporating our estimates,  $\hat{\alpha}_i$  and  $\hat{\beta}_i$ , we get an estimate for abnormal returns (the difference between the actual observed returns during the event window,  $R_{it}$ , and the estimated normal returns predicted by  $\hat{\alpha}_i + \hat{\beta}_i R_{m\tau}$ ):

$$\hat{\epsilon}_{i\tau}^* = R_{i\tau} - \hat{\alpha}_i - \hat{\beta}_i R_{m\tau} \quad (5)$$

Since our event window considers returns across several trading days, we further consider the *cumulative abnormal returns* from the event window, described as follows:

$$CAR_i(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} \hat{\epsilon}_{i\tau}^* \quad (6)$$

An estimate of the variance of  $CAR_i(\tau_1, \tau_2)$  is thus given by:

$$\hat{\sigma}_i^2(\tau_1, \tau_2) = Var(\widehat{CAR}_i(\tau_1, \tau_2)) = (\tau_2 - \tau_1 + 1) \hat{\sigma}_{\epsilon_i}^2 \quad (7)$$

The estimate of the variance of the  $CAR_i$  is based on the variance from the estimation window,  $\hat{\sigma}_{\epsilon_i}^2$ , because we intend to test against a null hypothesis that the cumulative abnormal returns are distributed identically during the estimation and event windows. The distributions for abnormal returns and cumulative abnormal returns, which we assume to be normal, are as follows:

$$\hat{\epsilon}_{i\tau}^* \sim N(0, \hat{\sigma}_{\epsilon_i}^2)$$

$$CAR_i(\tau_1, \tau_2) \sim N(0, \hat{\sigma}_i^2(\tau_1, \tau_2))$$

The theoretical process up to this point lays the framework for considering one event relative to one security. In this paper however, we test one event across many securities. Therefore, I consider the average cumulative abnormal returns across all the sampled securities. This is represented as follows:

$$\overline{CAR}(\tau_1, \tau_2) = \frac{1}{N} \sum_{i=1}^N CAR_i(\tau_1, \tau_2) \quad (8)$$

The estimator of the variance of  $\overline{CAR}$  is then represented by:

$$\hat{\sigma}_{\overline{CAR}}^2(\tau_1, \tau_2) = \frac{1}{N^2} \sum_{i=1}^N \hat{\sigma}_i^2(\tau_1, \tau_2) = \frac{(\tau_2 - \tau_1 + 1)}{N} \frac{1}{N} \sum_{i=1}^N \hat{\sigma}_{\epsilon_i}^2 = \frac{(\tau_2 - \tau_1 + 1)}{N} \bar{\sigma}_{\epsilon_i}^2 \quad (9)$$

To test if the abnormal returns experienced during the event window are statistically different from zero, I use the following test statistic:

$$J = \frac{\overline{CAR}(\tau_1, \tau_2)}{\sqrt{\hat{\sigma}_{\overline{CAR}}^2(\tau_1, \tau_2)}} \sim N(0, 1) \quad (10)$$

With this testing statistic now in hand, we can test the aforementioned null hypothesis. If the null hypothesis can be rejected, we can then observe the direction of the impact to see if there are negative impacts on returns for events in favor of the policy. Stated explicitly, for a particular event, we test to observe evidence if:

$$H_A: \overline{CAR} \begin{cases} < 0 \text{ if the event is "FOR" the policy} \\ > 0 \text{ if the event is "AGAINST" the policy} \end{cases} \quad (11)$$

## 5. DATA

### 5.1. Stock Price Data

The input data used in this study is publicly available daily stock price data which was retrieved from Bloomberg Financial software. Stock price data is subsequently transformed into returns data. The industries chosen for this study are those described by consultancy firms as the industries to be most impacted by the SEC's conflict minerals rule, which are defined to be electronics and communications, aerospace, automotive, jewelry, and industrial products (Ernst & Young, 2012). Additionally, I include certain mining sectors for analysis. To define the securities within each non-mining industry, I consider publicly listed firms in Yahoo's Industry Center website for each of the corresponding industries. Because some of the industries as defined by Yahoo's Industry Center are more specific than the more broadly defined aforementioned industries, I consider the industries, as defined by Yahoo (displayed in Table 1), and which include Aerospace/Defense Products, Auto Industry, Communication Equipment, Diversified Electronics, Electronics Equipment, Industrial Electronics and Jewelry. Table 1 also displays the number of securities examined within each industry. For the mining industry, I look at a group of "all mining" companies which are all the US publicly listed mining companies on the mining industry website, Miningfeeds.com, as well as a subset of gold mining firms. From each of the provided lists of companies within each sector, as designated by Yahoo Industry Center or Miningfeeds.com, I then drop all companies with an average trading volume of less than 100,000. I do so to eliminate the thinly traded securities which can create significant biases in the results (Brown and Warner, 1985; Cowan, 1992; Campbell and Wasley, 1993; Cowan and Sargeant, 1996). Lastly, a complete list of the stock tickers for firms within each of the industries assessed is provided in Table 6, Appendix A.

**Table 1: Industries of Consideration and the # of Securities within Each Industry**

Industry	All Mining	Gold Mining	Aero space	Auto	Comm Equip	Diversified Electronics	Electronics Equipment	Industrial Electronics	Jewelry
# of Securities	48	13	28	7	41	30	8	25	4

### 5.2. Conflict Mineral Policy Events

The events chosen for this study begin on April 28, 2010 and span until November 18, 2014, though the events are not evenly disbursed through this time period. In performing this event study, I use a 180 day estimation window and, the same as Seitz (2013), a 5 day event window. The latter is comprised of the two trading days prior to the event date, the event date itself, and the two days following the event date. Because industry groups have resisted

the policy (as exemplified by their court challenges), I interpret that industry representatives perceive the policy to be “bad” for the companies. To assess this notion, I am testing to see whether events in favor of the policy induce systematic negative abnormal returns; however, not all of my events are in favor of the policy. Analogously, events against the policy are being tested for positive abnormal returns. Table 2 denotes which events are “FOR” and which are “AGAINST” the policy.

The first three dates of this event study are dates which Seitz (2013) implements in his study and all occur prior to the final Conflicts Mineral Rule being adopted by the SEC. Nonetheless, they are crucial dates in the process of developing a conflict mineral policy and good candidates for observing if conflict mineral policy news does have significant effects on the industries of interest.

The subsequent seven dates pertain to legal actions that occur in response to the final Conflict Minerals Rule which was issued by the SEC. While we choose to include numerous events regarding legal action in this case, court rulings in particular provide definitively new news, an important feature of selected events. That is, the courts’ decisions, until they are announced are meant to be secret and therefore, the market reactions (or lack thereof) should be tight around the event date, reducing anticipation that may occur prior to the event window and thus impacting the results. The complete list of dates used is provided in Table 2 below.

As Seitz (2013) explained, the April 28, 2010 date is a good candidate for identifying significant changes due to conflict mineral policy, because despite there being much discussion about the possibility of action for a long time, when the conflict minerals measure unanimously passed a hearing of the House of the Foreign Affairs Committee, it represented an immense show of support to enact such legislation. The second date, on June 24, 2010, when the conflict minerals language was added to the Dodd-Frank Act, is another key event, because the Dodd-Frank Act was much anticipated to pass as it dealt with numerous responses to the financial crisis and therefore, upon its incorporation to the act, it became highly likely that a conflict minerals policy would become law. Both of these aforementioned events made some type of formal conflict mineral policy far more likely.

The third date of December 15, 2010 is an apparently clear event date as it is the first time, following the passage of the Dodd-Frank Act, that the SEC proposed the actual rule. This was the first time companies were informed as to the depth and breadth of the rule.

The fourth date is the first legal challenge to the SEC’s Conflict Minerals Rule which occurred when an industry group representing manufacturers challenged the rule in court on

October 12, 2012. Assuming such action was not anticipated by the market, then such an event should provide another point of insight as to whether such news is viewed as good or bad for the affected industries. This same vein of thought rings true for analyzing the rest of the six additional dates regarding legal challenge related action as well. There is certainly a distinction however between the event dates which present challenges to the courts and event dates which reflect court rulings. If court challenges by industry groups are actually well-known to the public, then there is a chance that these events are less suitable event dates. I proceed with caution, but also under the assumption that such court challenge announcements are not publicly known beforehand. Court rulings on the other hand are certainly not anticipated, as a court ruling is secret until issued by the court.

It is worth noting that I choose to omit the SEC's release of the final Conflict Minerals Rule, under the presumption that the lengthy discussion about the proposed rule which preceded the final rule would have led to much anticipation in the market prior to such a date. A complete list of candidate dates is also provided in Table 7, Appendix B.

**Table 2: Event Dates for Event Study**

Event	For or Against Conflict Mineral Policy	Event Date
Conflict Minerals measure unanimously passes a hearing of the House of the Foreign Affairs Committee	FOR	28-Apr-10
Measure is added to Dodd-Frank Financial Reform Act	FOR	24-Jun-10
SEC Regulatory Announcement of proposed Conflict Minerals Rule	FOR	15-Dec-10
Petition for Review filed to US Court of Appeals to set aside rule	AGAINST	12-Oct-12
Conflict Minerals Legal Challenge Rejected by US District Court	FOR	23-Jul-13
Legal Decision Appealed	AGAINST	12-Aug-13
Court Upholds most of the SEC's Conflict Minerals Rule	FOR	14-Apr-14
Industry Groups File Motion For Full Stay In Response To SEC Partial Stay	AGAINST	2-May-14
Motion to Stay DENIED	FOR	14-May-14
Announcement to rehear case about the one part of rule <u>previously thrown out by courts.</u>	FOR	18-Nov-14

The first three events occur prior to the announcement of the final Conflict Minerals Rule on August 22, 2012. The subsequent seven dates pertain to legal action that followed.

## 6. RESULTS

The results are presented in Tables 3, 4 and 5 with the first table containing the results for the mining related industries, the second table for all electronics industries and the third table for the remaining non-mining, non-electronics industries. Discussion of these results occurs first from an overall perspective. That is, I first consider the results in terms of their general implications when considering all the industries expected to be affected. Thereafter, I consider smaller subsets of the industries in analyzing the results. The first two columns of each table provide the event date and an event description. The third column denotes whether the event is for (in favor of) the policy or against the policy. Subsequent columns display the number of events (# of securities) and the resulting impact on cumulative abnormal returns.

### 6.1. Overall Perspective

*There is no negative systematic impact of conflict mineral regulatory events on the returns of affected industries*

Across all industries examined, the effect of the chosen events does not seem to offer robust results across industries (with the exception of one particular event, when the court upheld most of the SEC's Conflict Minerals Rule on April 14, 2014). At the same time, some of the analyzed events do indeed yield abnormal returns for particular industries. The fact that results in general are not robust, but yet we do observe the occasional abnormal returns, is a signal that the relevance of the policy news to investors within each industry is valued differently. When considering the results jointly and in the most general context, as one potentially affected group from the policy events, the data suggests that there is no negative (nor positive for that matter) systematic impact created by regulatory events as there seems to be no broad pattern to the occurrence or direction of significant abnormal returns and additionally, most industries have a convincing non-reaction to such events.

*If a regulatory event creates abnormal returns for multiple industries, the direction of the effect is the same*

In all but one instance where more than one industry experienced abnormal returns for a given event, the direction of such returns was consistent across the industries displaying significant results. Therefore, the data suggests that though a significant effect of conflict mineral policy news on abnormal returns is not always present, when it is, the direction of the impact on abnormal returns is the same across affected industries. In other words, when multiple industries are affected, the news is either "good news" or "bad news" for all of them. This suggestion of the data is highlighted by the aforementioned event when the court ruled

to uphold the SEC's rule nearly in its entirety on April 14, 2014. This event leads to statistically significant results in six out of nine of the industries examined (both mining and non-mining), and in all of the six industries which experienced abnormal returns, these abnormal returns were negative. Figures 3 and 4 show the cumulative abnormal returns which occur surrounding this event, and provide an illustration of how the reaction occurs in the same direction in a rather robust manner. Perhaps, the bad news of this event can be interpreted that the industries now had a definitive ruling that they would incur significant compliance costs with the rule. Prior to this event, though there were inclinations in both directions with regard to a rule going into effect, nothing was definitive. Lastly, the fact that when an event is significant in multiple industries the direction of the effect is the same is an arguably intuitive result. All of these industries were purposefully chosen as they were expected to be impacted by the law because their production incorporates the types of minerals defined as conflict minerals. Though each industry may incorporate such minerals to varying degrees of quantity and importance, one would expect that attempts to regulate this would affect these industries in a similar way.

*The court's definitive ruling on April 14, 2014 was a unique event*

While I have already stressed that this date was important as it is the prime example that the direction of the results are the same across industries if and when they prove abnormal, the importance of this event is still greater.

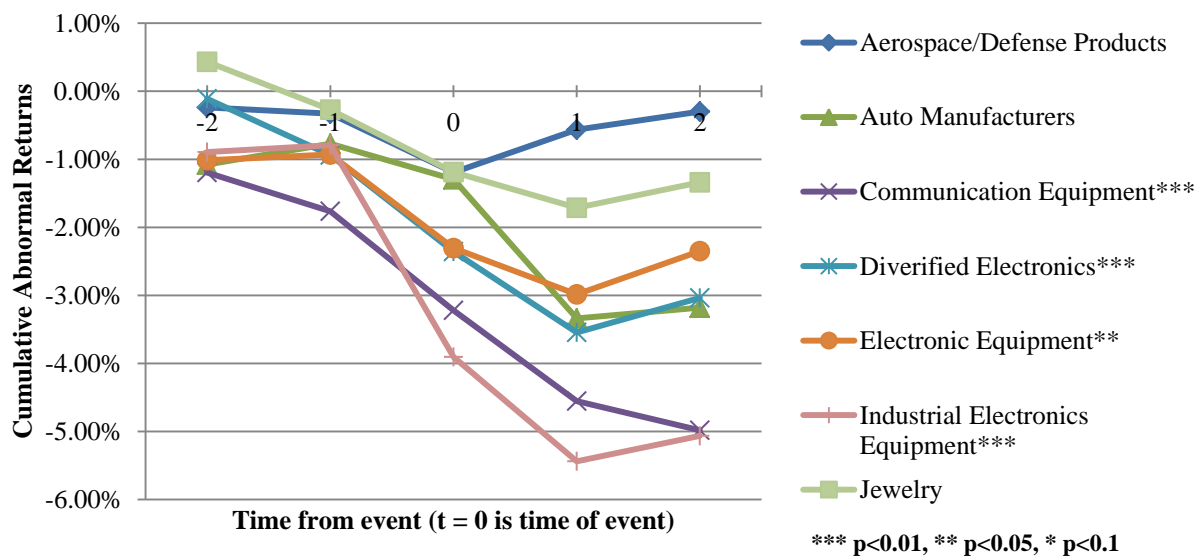
The resulting robustness surrounding abnormal returns on this date can perhaps be explained by the fact that this date is arguably the most important date analyzed. Of all the events considered, it is this event – when the court upheld most of the SEC's Conflict Minerals Rule on April 14, 2014 – which definitively confirmed that such a regulatory policy would take effect. All other regulatory events were only progressions towards this. An explanation for the lack of robustness preceding this date is that there was always anticipation by investors that the law would be debated, challenged and potentially struck down. Therefore, even when there were steps towards an actual rule coming to fruition, if investors perceived that it was still a 50/50 chance of the rule coming about in the long run, then abnormal returns would not be expected. On April 14, 2014 however, things changed. On this date, the debate and legal challenges to the rule were exhausted, and the rule was *final*. With the definitiveness of this final rule conveyed through the events of April 14, 2014, we see fairly robust results supporting the perception that the rule is “bad news” for the affected



industries. This is again well illustrated in Figure 3 and Figure 4 which display the cumulative abnormal returns surrounding the event date on April 14, 2014.

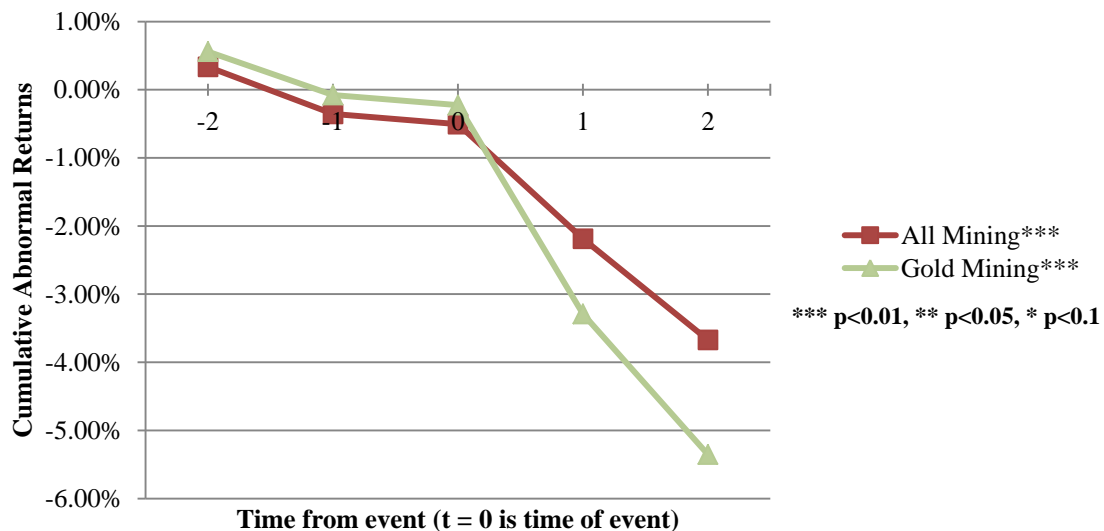
One additional interesting takeaway from Figures 3 and 4 is that most of the change in the CAR for each industry occurs on event date 0 and event date 1. This suggests that the markets were not anticipating the news that came about on this regulatory event. If there was anticipation, this would likely be observed in such a figure as a more noticeable reaction occurring prior to event date 0, which is the date when the actual event occurred.

**Figure 3: Cumulative Abnormal Returns for Non-Mining Industries around April 14, 2014 (D.C. Court of Appeals Upholds most of the SEC's Conflict Minerals Rule)**



Note that at t = -3 all CAR are equal to 0.

**Figure 4: Cumulative Abnormal Returns for Mining Industries around April 14, 2014 (D.C. Court of Appeals Upholds most of the SEC's Conflict Minerals Rule)**



Note that at t = -3 all CAR are equal to 0.

## 6.2. Industry Specific Results

### *Mining Industry*

The results from the all-mining and gold mining analyses experience more significant abnormal returns than any of the other industries considered. This is a particularly surprising result because in the final conflict minerals rule released by the SEC, the rule excluded mining companies from the reach of the policy, though they were originally considered to be affected under the proposed rule. The first three events, all of which occur prior to the final rule (when the industry thought it would need to report to the SEC), all suggest some level of significant abnormal returns. These results are, for the most part, in line with Seitz (2013). Both Seitz (2013) and I observe positive and significant abnormal returns for the first two events and negative and significant abnormal returns for the third event when considering gold mining companies only. When considering all-mining firms, we also both have negative and significant abnormal returns for the third event; we differ however in that Seitz's other common event dates show an insignificant effect on all-mining, whereas my results suggest a statistically significant effect for the first two events (Seitz, 2013). One explanation of this difference is that Seitz and I have different data sets of companies used in this analysis. Seitz has more than 330 companies in his all-mining set, and more than 60 in his gold mining only set. As my mining datasets are much smaller, it is perhaps susceptible to higher volatility. Also, gold mining, which is significant in both of our studies, represents a much higher percentage of the all-mining dataset in my study than in Seitz's which could also result in the significance of my all-mining results compared to his.

One particularly hard to explain result from both of our studies is the significant and positive abnormal returns (portrayed as "good news") of the first two events which were news in favor of this policy. This result is the opposite of the expectation being tested. There is certainly a component of this effect which is negative in that such a policy does create new costs, but overall the net effect is positive. I offer two possible explanations of this result. First, and as Seitz (2013) conjectures, the regulatory events seen as "good news" may be the result that such regulation creates a barrier to entry for new firms and therefore, offers a protection to the incumbents (Seitz, 2013). A second possibility is that the regulation may boost demand by easing consumer concerns about conflict related origins of the products. As an analogous example, many industry experts believe that the Kimberley Process Certification Scheme has had this kind of effect within the diamond industry (Bronstein and Woods, 2014). Therefore, if these explanations of the event from a "good news" perspective

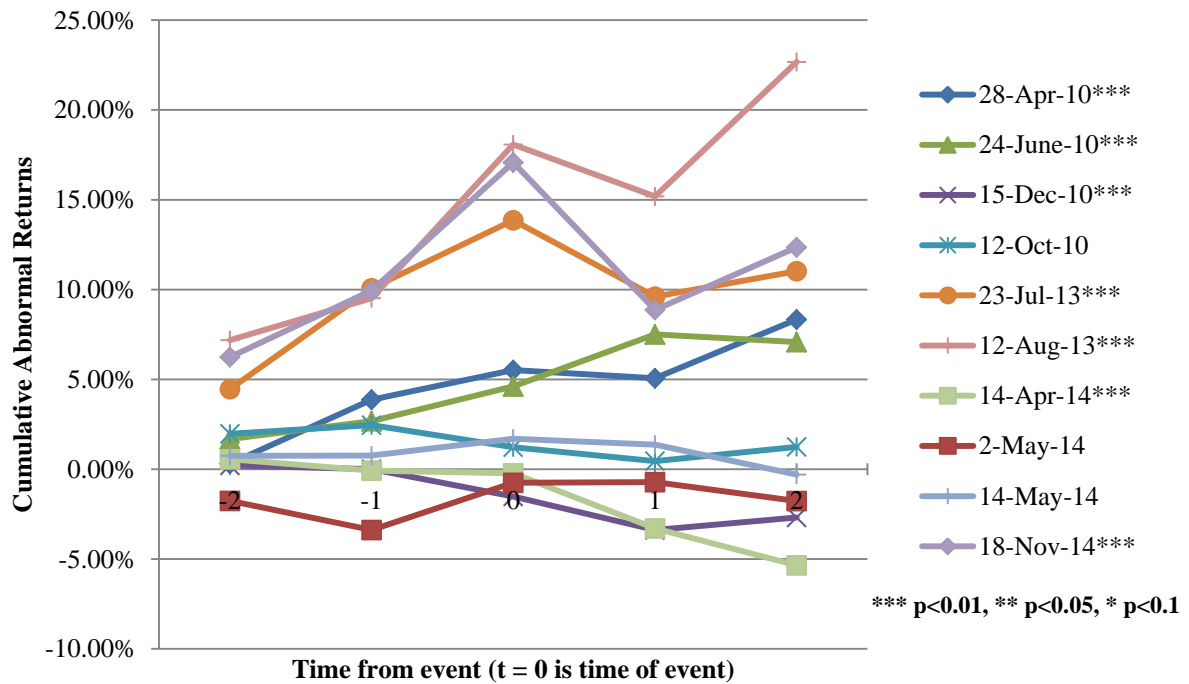
outweigh the “bad news” effect of a compliance cost, it would explain the overall positive effect of such events.

One thing we can definitely say is that across all the events, the mining industries do not always react to pro-regulation news in the same way. Sometimes events in favor of the policy come across as good news and other times as bad news. To a certain extent, this phenomenon may be feasible if opinions about the legislation change or the breadth of the regulatory legislation changes, but it seems more intuitive that these drastic shifts in opinion about what comprises “good news” versus “bad news” suggest that the model might be missing some control variables.

The last feature of the mining data to point out is that, for certain events, the abnormal returns are extremely large. August 12, 2013 yields abnormal returns of more than 15% for both all-mining and the gold mining. Additionally, July 23, 2013 and November 18, 2014 yield abnormal returns of more than 10% for the gold mining sector. To see if one or a few particular companies may be driving this result, I independently drop each of the 13 observed companies in the gold subset, performing the event study with 12 companies instead. In each case of a dropped company, regardless of the event, there were only subtle changes in the estimated effect of the event, suggesting that no single or few companies drastically influence the magnitude of this effect. This may be a sign that the gold industry, even after it was known that the SEC’s rule would not directly regulate them, remained highly sensitive to conflict mineral regulatory events.

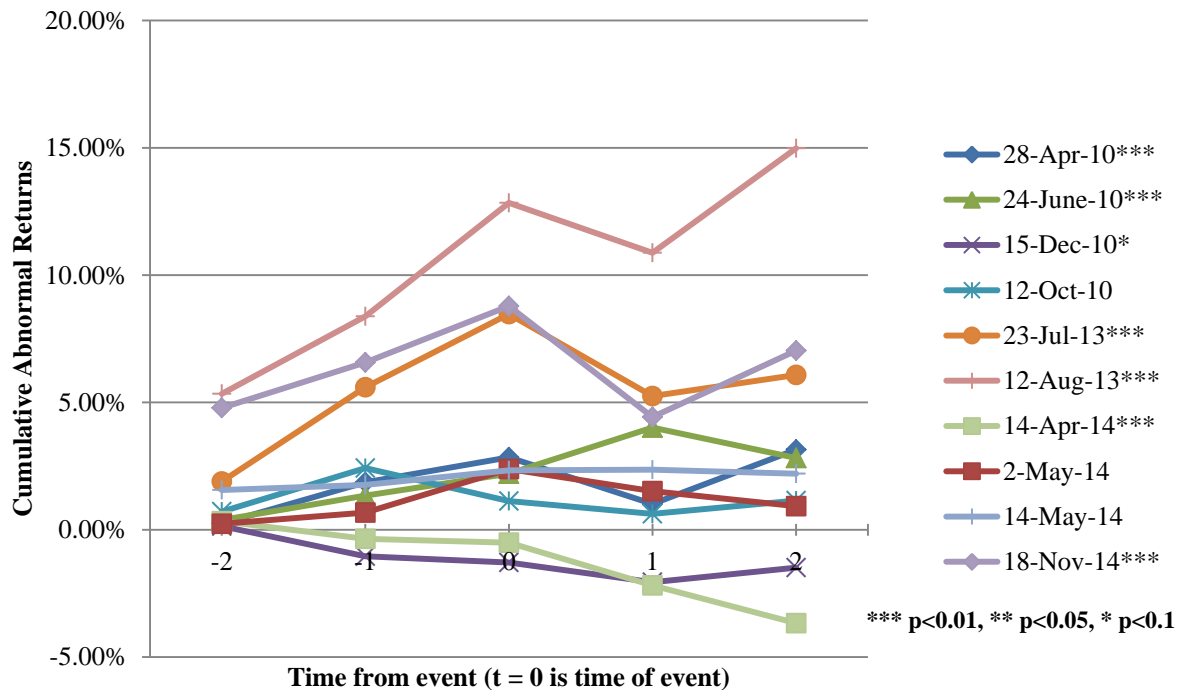
Figures 5 and 6 display the graphs of the cumulative abnormal returns for each of these sectors. The significance of events is denoted in the legend, but, as a general rule of thumb, the greater the change in cumulative abnormal return from event date -2 until event date 2, the more likely that such an event incurred a significant impact from the event. Insignificant events will generally be flat or have a minimal change across the event window. This, of course, also depends on the scale of the figure presented and thus, a reminder that the charts should be used as only a tool for understanding what is happening and not for drawing inference. This visual tool may also give insights why some of the events seem to experience extreme abnormal returns as it is evident that on the final day of the event window there is a particularly large reaction for two of the event dates. If there was a subsequent shock that fell within the event window it would explain this feature of the graph and also could explain part of the reason the returns are so large for some dates (the three day event window robustness results also support this with smaller significant abnormal returns).

Figure 5: Gold Mining Cumulative Abnormal Returns for each event date



Note that at t = -3 all CAR are equal to 0.

Figure 6: All Mining Cumulative Abnormal Returns for each event date



Note that at t = -3 all CAR are equal to 0.

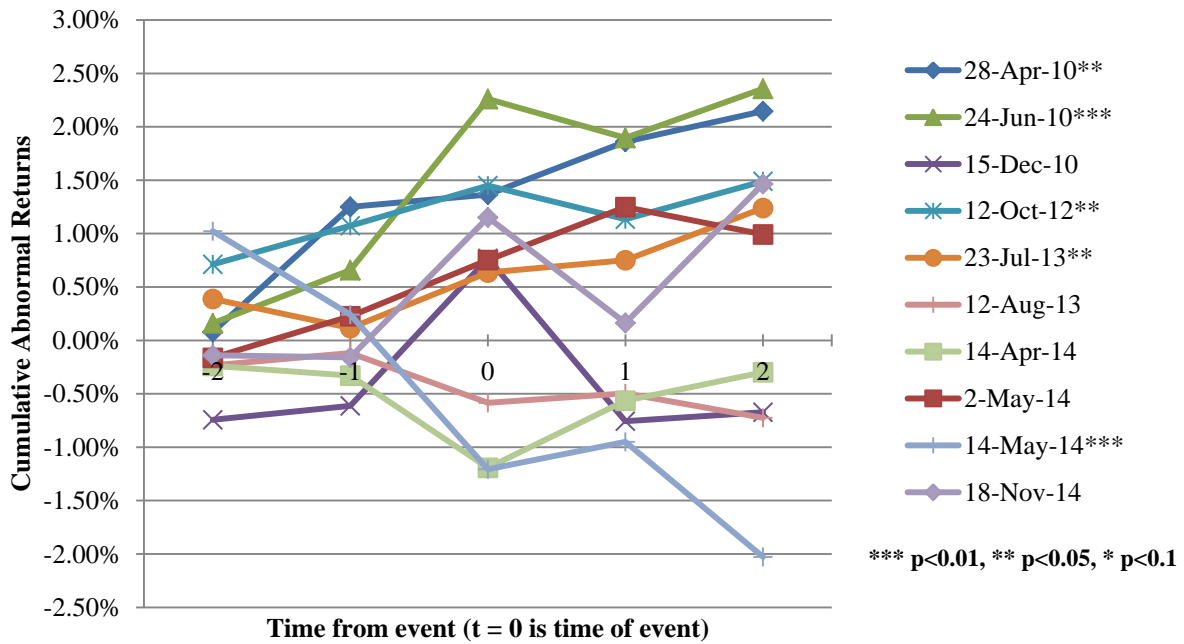
### *Aerospace & Defense Products*

The Ernst and Young (2012) report about the Conflict Minerals Rule identified aerospace as one of the industries to be impacted. To analyze this industry, I use what the Yahoo Industry Center lists as ‘Aerospace & Defense Products.’

Of all the non-mining industries observed, this one reported the most accounts of abnormal returns in one direction or another – half of the dates were significant at a 5% level of significance or better. However, as was befuddling with the mining results, the direction of these effects is not consistent. Four of the significant events (the 1<sup>st</sup>, 2<sup>nd</sup>, 5<sup>th</sup> and 9<sup>th</sup>) are ‘for’ policy, while the other significant event from this industry (the 4<sup>th</sup>) can be said to be against the policy. Intuitively, one might expect that the direction of significant effects from events in support of the policy should be in the same direction; that is, an event which supports the policy should always be either “good news” or “bad news” and not sometimes “good” and sometimes “bad”. This inconsistency is however what we witness, as one of the four events supporting the policy has an effect in the opposite direction as the other events. Likewise, the event against the policy should be expected to have an effect in the opposite direction to the effect most observed by events supporting the policy, but confoundingly, this is not the case. So while we do observe numerous abnormal returns, the results, in a more general context, are hard to draw generalizations from. What we can say at this juncture is that the industry does seem to be sensitive to conflict mineral policy related events, but the mechanisms at play and the direction of the effects incurred require further investigation, thus leading to a conclusion that there are no negative systematic impacts to regulatory events.

Figure 7 displays the CAR for the Aerospace and Defense Products industry for each event. From this figure, we can see a visual depiction of the confusing result referenced above in terms of the direction which regulatory events affect the industries CAR. As mentioned, of the five significant event dates, the 1<sup>st</sup>, 2<sup>nd</sup>, 5<sup>th</sup> and 9<sup>th</sup> events (specifically, April 28<sup>th</sup>, 2010, June 24<sup>th</sup>, 2010, July 23<sup>rd</sup>, 2010, and May 14<sup>th</sup>, 2014) are for the policy and the 4<sup>th</sup> (October 12<sup>th</sup>, 2012) can be considered against the policy. In the figure, it is quite easy to see the increasing trend of the 1<sup>st</sup>, 2<sup>nd</sup> and 5<sup>th</sup> events, and the negative trend of the 9<sup>th</sup> event. Then, when we would expect the 4<sup>th</sup> event to have a downward trend, it is clearly exuding a positive one. In this way, the figure helps illustrate that there is much to the story in the case of this sector which cannot be explained by this study.

Figure 7: Aerospace & Defense Products Cumulative Abnormal Returns for each event date



Note that at t = -3 all CAR are equal to 0.

### Auto Manufacturers

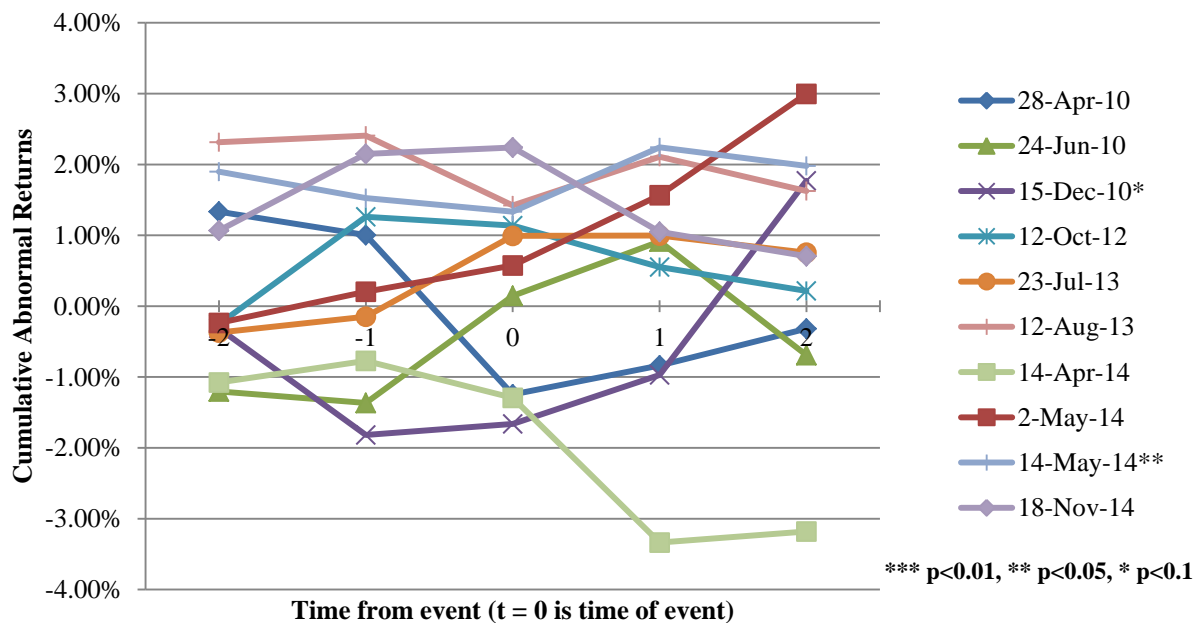
The auto manufacturing industry does offer some consistent results enabling a more general take away. However, in this instance, this result is derived from the broadly unresponsive reactions of the industry returns to the events. There is only one statistically significant event, when the motion to stay the law was denied by the courts on May 14, 2014, requiring companies to report as usual. With the overwhelming bulk of the results showing no reaction to the policy news, the data suggests that investors of companies within the auto industry are not too concerned by the impacts of the policy on this sector, especially if we consider that the date I argued as the “most important event” of all (April 14, 2014 when the rule was confirmed by the courts) showed no evidence of impact on the auto industry.

I propose a few explanations of such a result. First, if we assume that the actual compliance cost is not assumed to be significant enough for investors to reflect this in abnormal returns (if we did, we would probably see more broadly significant results across the industries), then it may be the case that the impact is minimal in auto manufacturing because consumers need cars and are thus less able to reduce demand when there are concerns about conflict mineral components. That is to say, perhaps the more inelastic the demand for a product, the less sensitive would its abnormal return responses be to regulatory policy events. The previous conjecture makes the strong assumption that US demand for cars is indeed less elastic than the demand for the products of the other industries analyzed.

Another possible explanation is that the large and complex machine that is an automobile may be viewed as less dependent (as a whole) on conflict minerals, than some other, smaller, less complex products. Conflict minerals presumably comprise a smaller percentage of the total materials used in the final end product of an automobile than in a physically smaller device, like a mobile phone for example. Perhaps investors (and consumers) interpret this as the industry being less impacted by conflict minerals policy and less dependent on conflict minerals than in other industries.

Figure 8 displays the graphs of the CAR for the auto industry across the event window. Most events, and as most are insignificant, exude minimal change across the event window from a subjective perspective. Of course, significance is also determined by the standard error of the CAR during the estimation window and therefore, it is not cut and dry which events are significant versus insignificant when observing the figure. For example, May 14, 2014, significant at a 5% level, appears to undergo little change. On the other hand, an insignificant event such as April 14, 2014 appears to have a larger change across the event window. Nonetheless, the general indifference of the auto industry to these events is apparently captured by this figure.

**Figure 8: Auto Industry Cumulative Abnormal Returns for each event date**



Note that at t = -3 all CAR are equal to 0.

### ***Electronics Industries***

In this section, I present all the Yahoo Industry Center industries under the umbrella of electronics. At my own discretion, these are electronic equipment, diversified electronics,

communications equipment and industrial electronics. As the Ernst and Young Conflict Mineral Rule Report (2012) only specifies that the “electronics industry” will be impacted, I decided to include all these subsets based on the choices presented by the Yahoo Industry Center.

The seventh date in our list, the aforementioned robust date of April 14, 2014 is the only event exuding the same effect across all of these four electronics industry subsets. For this date, each electronics industry subset shows significant and negative abnormal returns. The rest of the dates have tempered reactions in general. Industrial electronic equipment and communications equipment show no other significant reactions to any other dates, and electronic equipment and diversified electronics showed only two other significant reactions to tested events. Further, those additional significant reactions do not occur for the same events.

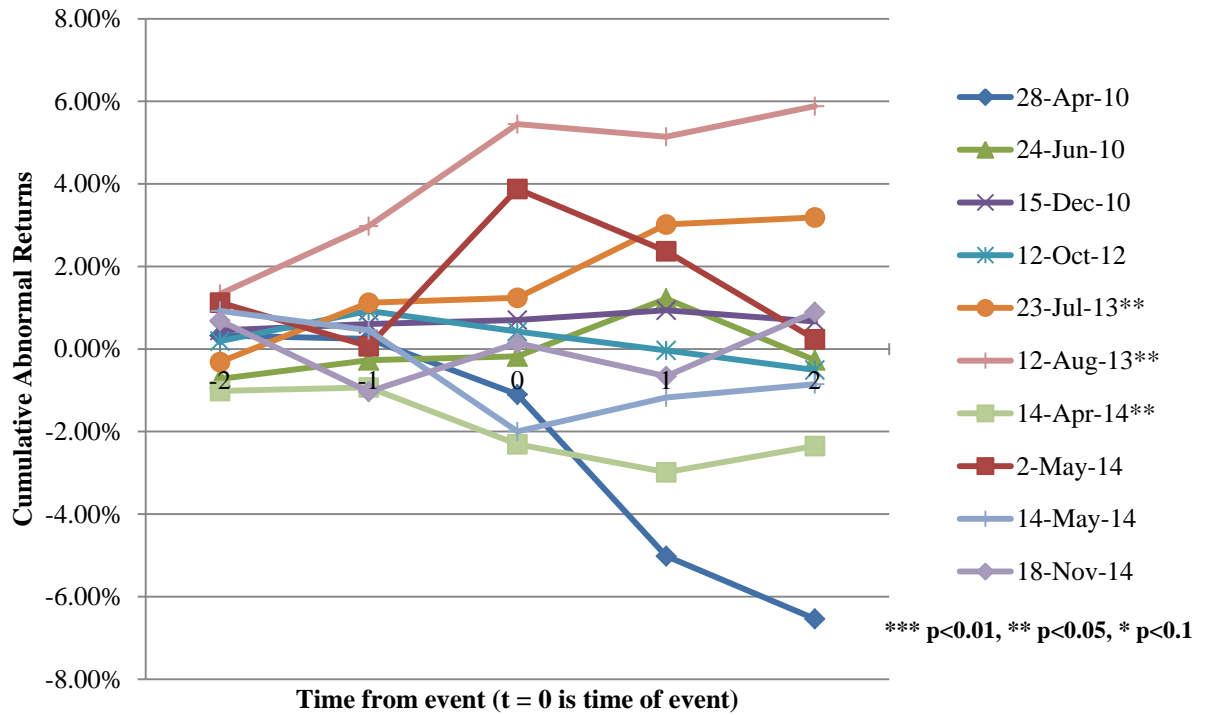
Though we witness a robust negative effect on abnormal returns when the courts uphold the SEC rule, the lack of significant, robust effects across any other regulatory events gives support to the fact that the industry, in fact, is not systematically sensitive to these types of policy events. This is a surprising result for one of the industries expected to be most severely impacted.

Electronics and communications manufacturers were two of the industries which Seitz (2013) also examined in his paper. Just as the gold and all-mining results were in line with Seitz (2013)’s reactions, the same goes for electronics and communication for the first three events I consider which we share in common. He too finds that these industries did not undergo significant negative (nor positive) reevaluation in response to the first three regulatory events (Seitz, 2013).

Below, in Figures 9 through 12, are CAR graphs for each event for each of the individual Yahoo Industry Center sub-industries which I have defined under the broader Electronics Industry umbrella. Again, the figures are illustrative in highlighting the pattern we have previously seen, where most of the insignificant events exude little change from the first to last date of the event window, with the opposite true for significant events. The figures show that while the occasionally significant events persist, there is no systematic effect that can be extracted.

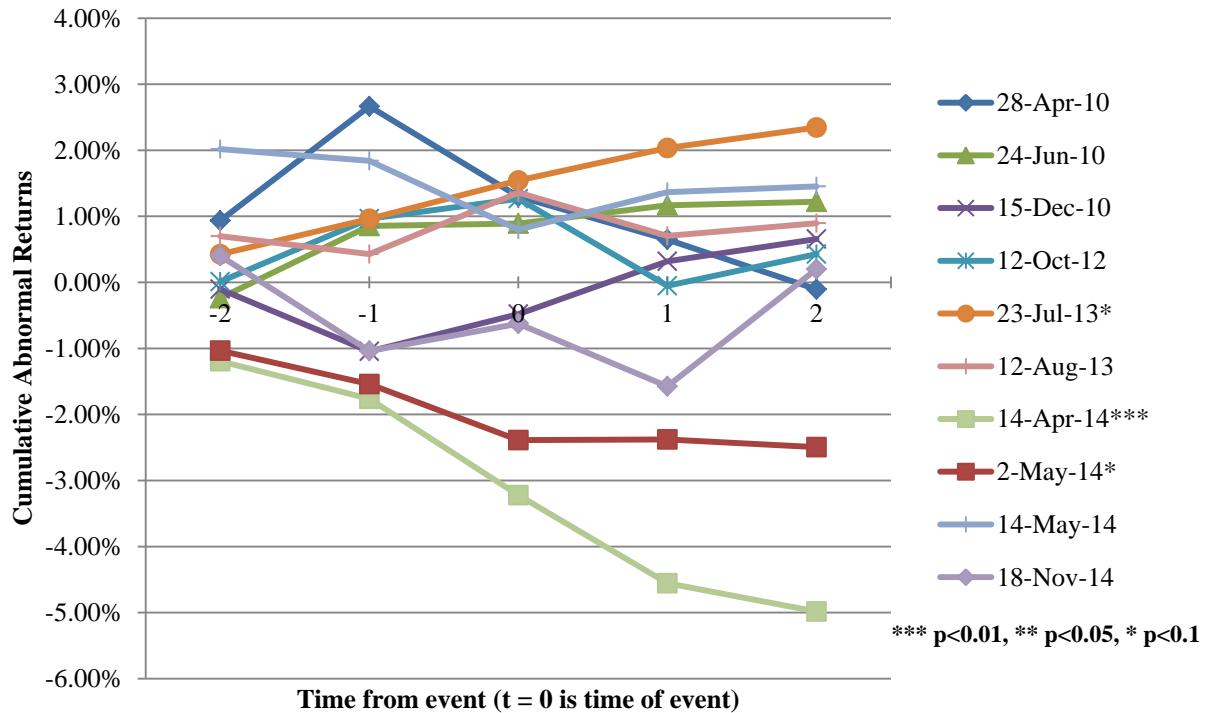


Figure 9: Electronics Equipment Cumulative Abnormal Returns for each event date



Note that at t = -3 all CAR are equal to 0.

Figure 10: Communication Equipment Cumulative Abnormal Returns for each event date



Note that at t = -3 all CAR are equal to 0.



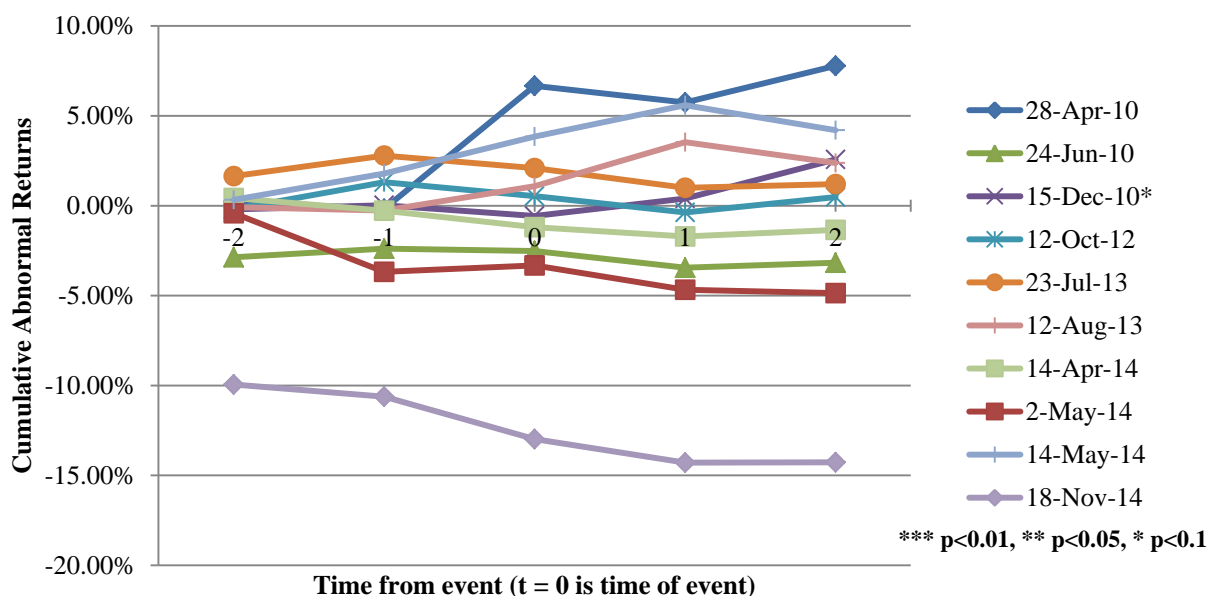
## Jewelry

The final industry analyzed is the jewelry industry. Perhaps when people hear the word ‘gold’ on the list of conflict minerals, the first industry to come to mind to be impacted would be jewelry, since this is most often where consumers literally see gold in their products. However, the results, in one of the most robust takeaways from this study, suggest that this policy has no impact on the returns of the jewelry industry – not a single event considered yielded significant abnormal returns.

Such a result may suggest that investors are not concerned with the compliance element of this policy and also don’t think that there is much of a benefit or penalty on the consumers’ image of jewelry products with such a policy in effect. If the latter effect is indeed the truth, it stands in conflict to the result seen with conflict diamonds, where the improvement to the image of the product created by establishing a conflict diamond policy actually benefits the industry (Bronstein and Woods, 2014).

In Figure 13, you can find the graph of the CAR for the Jewelry Industry for each event. As mentioned, the Jewelry industry displayed no significant reactions to any of the regulatory events implying that the market is not anticipating that the policy should impact the industry in any significant way. Again, the figure appears to capture this result as the CAR lines appear relatively flat. I mention again however, that this figure and the aforementioned statement are only tools for understanding and not for drawing conclusions, as adjusting the scale on this (or the other figures) could change the depiction presented.

Figure 13: Jewelry Industry Cumulative Abnormal Returns for each event date



Note that at t = -3 all CAR are equal to 0.

**Table 3: Panel A: Event Study Results for Mining**

Event Date	Event	For or Against The Policy	N	<i>All Mining</i>		<i>Gold Mining</i>	
				5-day	N	5-day	N
28-Apr-10	Conflict Minerals measure unanimously passes a hearing of the House of the Foreign Affairs Committee	FOR	44	0.0314*** (0.0010)	13	0.0834*** (0.0087)	
24-Jun-10	Measure is added to Dodd-Frank Financial Reform Act	FOR	44	0.0282*** (0.0081)	13	0.0708*** (0.0161)	
15-Dec-10	SEC Regulatory Announcement of proposed Conflict Minerals Rule	FOR	46	-0.0149* (0.0075)	13	-0.0269*** (0.0088)	
12-Oct-12	Petition for Review filed to US Court of Appeals to set aside rule	AGAINST	48	0.0114 (0.0086)	13	0.0124 (0.0092)	
23-Jul-13	Conflict Minerals Legal Challenge Rejected by US District Court	FOR	48	0.0608*** (0.0118)	13	0.110*** (0.0091)	
12-Aug-13	Legal Decision Appealed	AGAINST	48	0.150*** (0.0139)	13	0.227*** (0.0169)	
14-Apr-14	Court Upholds most of the SEC's Conflict Minerals Rule	FOR	47	-0.0367*** (0.0097)	13	-0.0535*** (0.0130)	
2-May-14	Industry Groups File Motion For Full Stay In Response To SEC Partial Stay	AGAINST	48	0.0093 (0.0191)	13	-0.0177 (0.0163)	
14-May-14	Motion to Stay DENIED	FOR	48	0.0220 (0.0145)	13	-0.0030 (0.0206)	
18-Nov-14	Announcement to rehear case about the one part of rule previously thrown out by courts.	FOR	48	0.0704*** (0.0132)	13	0.124*** (0.0220)	

Robust standard errors in parenthesis. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Five day event window. The mining companies from both the 'All Mining' and 'Gold Mining' composites are sourced from lists provided on mining industry website, miningfeeds.com. Stock price data is retrieved from Bloomberg Financial. The above results are calculated employing the market return model using S&P 500 data as the market index.

**Table 4: Panel B: Event Study Results for Other Industries (Non-mining/non-electronics)**

Event Date	Event	For or Against The Policy	<i>Aerospace &amp; Defense Products</i>		<i>Auto</i>		<i>Jewelry</i>	
			N	5-day	N	5-day	N	5-day
28-Apr-10	Conflict Minerals measure unanimously passes a hearing of the House of the Foreign Affairs Committee	FOR	26	0.0215** (0.0089)	5	-0.0032 (0.0177)	4	0.0779 (0.102)
24-Jun-10	Measure is added to Dodd-Frank Financial Reform Act	FOR	26	0.0236*** (0.0067)	5	-0.0069 (0.0126)	4	-0.0317 (0.0242)
15-Dec-10	SEC Regulatory Announcement of proposed Conflict Minerals Rule	FOR	26	-0.0067 (0.0059)	6	0.0177* (0.0074)	4	0.0257* (0.0102)
12-Oct-12	Petition for Review filed to US Court of Appeals to set aside rule	AGAINST	27	0.0149** (0.0058)	7	0.0022 (0.0094)	4	0.0049 (0.0109)
23-Jul-13	Conflict Minerals Legal Challenge Rejected by US District Court	FOR	28	0.0124** (0.0053)	7	0.0076 (0.0099)	4	0.0120 (0.0156)
12-Aug-13	Legal Decision Appealed	AGAINST	28	-0.0073 (0.0056)	7	0.0163 (0.0217)	4	0.0238 (0.0110)
14-Apr-14	Court Upholds most of the SEC's Conflict Minerals Rule	FOR	28	-0.0030 (0.0043)	7	-0.0318 (0.0329)	4	-0.0134 (0.0091)
2-May-14	Industry Groups File Motion For Full Stay In Response To SEC Partial Stay	AGAINST	28	0.0099 (0.0140)	7	0.0300 (0.0159)	4	-0.0486 (0.0323)
14-May-14	Motion to Stay DENIED	FOR	28	-0.0203*** (0.0063)	7	0.0198** (0.0076)	4	0.0421 (0.0398)
18-Nov-14	Announcement to rehear case about the one part of rule previously thrown out by courts.	FOR	28	0.0146 (0.0156)	7	0.0071 (0.0117)	4	-0.143 (0.118)

Robust standard errors in parenthesis. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Five day event window. The companies comprising each of the non-mining industries are retrieved from and defined by the respective categories within the Yahoo Finance Industry Center. Stock price data is retrieved from Bloomberg Financial. The above results are calculated employing the market return model using S&P 500 data as the market index.

**Table 5: Panel C: Event Study Results for Electronics Industries**

Event Date	Event	For or Against The Policy	<u>Electronic Equipment</u>		<u>Diversified Electronics</u>		<u>Communication Equipment</u>		<u>Industrial Electronic Equipment</u>	
			N	5-day	N	5-day	N	5-day	N	5-day
28-Apr-10	Conflict Minerals measure unanimously passes a hearing of the House of the Foreign Affairs Committee	FOR	6	-0.0654 (0.0401)	29	0.0044 (0.0152)	35	-0.0011 (0.0143)	23	-0.0033 (0.0165)
24-Jun-10	Measure is added to Dodd-Frank Financial Reform Act	FOR	6	-0.0027 (0.0138)	29	0.0182* (0.0089)	34	0.0122 (0.0078)	23	0.0256 (0.0220)
15-Dec-10	SEC Regulatory Announcement of proposed Conflict Minerals Rule	FOR	7	0.0067 (0.0133)	29	-0.0072 (0.0076)	37	0.0066 (0.0109)	25	-0.0084 (0.0132)
12-Oct-12	Petition for Review filed to US Court of Appeals to set aside rule	AGAINST	8	-0.0051 (0.0128)	29	0.0212** (0.0100)	39	0.0043 (0.0072)	24	0.0060 (0.0106)
23-Jul-13	Conflict Minerals Legal Challenge Rejected by US District Court	FOR	8	0.0319** (0.0094)	28	0.0055 (0.0112)	40	0.0234* (0.0129)	25	0.0082 (0.0069)
12-Aug-13	Legal Decision Appealed	AGAINST	8	0.0588** (0.0216)	29	-0.0168 (0.0126)	41	0.0090 (0.0081)	25	0.0275 (0.0199)
14-Apr-14	Court Upholds most of the SEC's Conflict Minerals Rule	FOR	8	-0.0235** (0.0084)	29	-0.0304*** (0.0085)	41	-0.0498*** (0.0069)	24	-0.0506*** (0.0163)
2-May-14	Industry Groups File Motion For Full Stay In Response To SEC Partial Stay	AGAINST	8	0.0024 (0.0283)	30	-0.0341** (0.0153)	41	-0.0249* (0.0135)	24	-0.0253 (0.0183)
14-May-14	Motion to Stay DENIED	FOR	8	-0.0085 (0.0079)	30	-0.0038 (0.0104)	41	0.0145 (0.0099)	24	-0.0133 (0.0302)
18-Nov-14	Announcement to rehear case about the one part of rule previously thrown out by courts.	FOR	8	0.0090 (0.0083)	30	0.0142 (0.0101)	40	0.0020 (0.0179)	24	-0.0177 (0.0201)

Robust standard errors in parenthesis. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Five day event window. The companies comprising each of the non-mining industries are retrieved from and defined by the respective categories within the Yahoo Finance Industry Center. Stock price data is retrieved from Bloomberg Financial. The above results are calculated employing the market return model using S&P 500 data as the market index.

### **6.3 Robustness**

As a robustness check, I conduct the same analysis using a three day event window in addition to the five day window previously presented. These results are presented in Appendix C, Table 8. The results are robust to the three-day event window as the occurrences of significant events and direction of the impact match that of the five-day event window results with very few exceptions.

One observation from the three-day event window results for the mining industry suggest much smaller magnitude abnormal returns than some of the excessively large abnormal returns observed with a five-day window. Such a result gives credence to the idea that some other shock may be influencing the five-day window results.

Also, the Aerospace & Defense Products industry has lost significance relative to several of the events in the five day window. The second regulatory event (June 24<sup>th</sup>, 2010) changed from a positive and significant result at the 1% level of significance to a positive and significant result at the 5% level in the robustness results. Also, the fourth and fifth events (October 12<sup>th</sup>, 2012 and July 23<sup>rd</sup>, 2013) which were significant at the 5% level of significance in the five-day results are now insignificant in the robustness check. Such results further support the broad conclusion that there is no negative systematic impact on abnormal returns.

The last observation from the robustness results is that they do support the idea that the courts definitive ruling on April 14, 2014 is an important date. With the three-day window, seven of nine industries had significant negative returns after the jewelry industry, for which this date was previously insignificant, now exudes significant and negative abnormal returns.

## **7. LIMITATIONS**

Research on the impacts of conflict mineral policies is just burgeoning, and as such, this study attempts to add to the small, but important, pool of knowledge surrounding this topic. I believe that any additional contribution to this sphere is valuable, even if its conclusions may not be perfectly clear or robust, as even the humblest of results lays a foundation of knowledge for future research and future policy decisions. For the sake of a wholly transparent foundation, this section identifies some of the limitations of this study.

First, a clear direction of the impact of policy events is challenging to identify for multiple reasons. The policy events likely have dueling impacts (a negative effect of the cost

of compliance and a positive effect of a non-controversial product image in the wake of such policy) which counteract one another. Identifying the individual component effects is extremely difficult, if not impossible. Additionally, when the results sometimes support a negative component dominating and sometimes a positive component dominating, it implies that the dominating effect is often different, further complicating the ability to draw conclusions.

Another challenge is that events are far from homogenous in this study. In many other event studies, for example, macro announcements or mergers, the events are far more similar. In this study, though it is possible to categorize each event as for or against conflict mineral policy, each event is of varying degrees of weight or importance to the issue. When the events are clearly and uniformly for or against, then we could easily lump together different dates to increase our number of event observations. Additionally, if we believe that events are of different weights, then it's also understandable for the magnitude of such effects to vary, further adding challenge to a clear interpretation of results

Another limitation stems from whether or not some of the events are anticipated and thus, due to market efficiency, do not show as abnormal returns during our defined event window. Specifically, three of the events in our list, the petition to set aside the Conflict Minerals Rule on October 12, 2012, the appeal of the court's decision by manufacturing groups on August 12, 2013, and the industry group's motion for a full stay of the rule on May 2, 2014, represent legal challenges which may not have been a complete secret. If the news was not "new" news when it was formally announced, then the information would have already been absorbed by the market, and if such was the case, the event would then be portrayed as not having an effect.

Lastly, my data also does not boast the breadth of company-event observations that would make these results more compelling. In particular, some of the publicly listed companies within industries of interest number less than ten.

Future research can aim to improve upon all the weaknesses of this study, and despite such weaknesses, this foundational effort is put forth to lay the groundwork for future efforts to understand any and all effects of conflict mineral policy.



## 8. CONCLUSION

From this study, the data suggests that negative effects of conflict mineral regulatory events in the United States on the returns of publicly listed companies within the “affected” industries are not present. While there is evidence that, for certain events and certain types of industries, the markets do indeed have a statistically significant reaction, there does not seem to be a broader pattern amongst stock price returns in terms of which direction the policy induces reactions, nor why certain regulatory events produce significant results while others do not. Nonetheless, the lack of broad impacts is itself an important result, and additionally, there are industry specific results that do precipitate. The data suggests the following key takeaways from this study:

- 1) In instances when events do exude statistically significant results for several industries, the effects are consistent in direction, a sign that when the results are significant, it may be a common mechanism at play.
- 2) The mining and aerospace industries (relative to the other assessed industries) are more sensitive to the regulatory events, containing the highest number of significant reactions to the chosen events. Yet within both these industries, events for (and against) the policy, do not yield consistent negative (positive) abnormal returns, and so, no negative systematic abnormal return impact can be identified.
- 3) The auto, electronics and jewelry industries individually exude no negative systematic abnormal return impacts to conflict mineral regulatory events.
- 4) The numerous industries governed by the SEC’s Conflict Minerals Rule, do not react to policy events in the same way and there is no apparent negative systematic impact on abnormal returns across these industries.

From these key takeaways, there are some important implications which can be derived. I put forth three implications which arise and are of hopeful value to future researchers pursuing studies about the effects of conflict mineral policies, to future policy makers, and even to management of companies governed by such policies when gauging how to deal with future related policy and also in developing internal CSR policy. These implications are as follows:

- *Future research must be devoted to identifying the mechanisms at play for conflict mineral events effects on stock returns, if and when those effects are present*
- *In the debate for and against future policy, policymakers should take note that policy event effects on abnormal stock return reactions, are not broadly evident.*

- *Management of companies which are governed by such types of policy should note that the evidence does not suggest that there are systematic negative effects on returns and that most industries examined showed little evidence of any significant reactions.*

The first implication aims to offer guidance to future research in this vein of study and is certainly of critical importance in drawing more clearly defined conclusions from studies of this type. We have observed the pattern that occurs in key takeaway 1), that when multiple industries have a significant reaction to the same event, the direction of the effect is the same for each industry. Yet at the same time, we have also observed the lack of pattern mentioned in key takeaway 2), that events, seemingly of the same type, are sometimes considered “good news” and sometimes “bad news.” These two takeaways imply that there are underlying mechanisms at work, and these mechanisms are likely affecting all the industries in the same manner. Is it the expected costs of compliance driving the results? Is it how the investors think demand for their industry’s product might be affected for better or worse? Or is it something else that drives the shareholder reactions? Answers to these questions are critical to improve future understanding of how and why some events of the same type are perceived as good news sometimes and as bad news at other times.

Perhaps the most important implication of all is what these results imply for future policymakers. In the debate between policymakers in favor of this brand of policy and groups arguing against them, the fact that there appears to be no systematic negative effect on stock returns is a point in favor of the policymakers in such a conversation. This would especially be the case if policymakers receive resistance from the electronics, auto manufacturing or jewelry industries, which are those industries for which the non-reactions to regulatory events were most clearly presented. In a world where certain countries have implemented policies deemed imperfect and where other countries are still developing such policies, this debate is likely happening right now and will continue for some time into the future, and thus, this implication is important for the informed discussion to proceed.

Lastly, the results of this study are even for corporate managers to contemplate. Management may want to reconsider unleashing their lobbying groups against such policy if evidence exists supporting that it shouldn’t hurt their share price. Management, especially from the electronics, auto manufacturing and jewelry industries, which by and large had no reactions to conflict policy events, may want to remove themselves from the policy debate if they were previously involved. Or, if management believes such policy events will not

negatively impact their stock returns, they may want to present themselves as a strong proponent of such policy and hope to benefit from some type of positive public relations campaign stemming from such. Additionally, these results might offer insights to companies in designing their own corporate social responsibility strategies if they have certain inclinations about how investors will react to certain policies. In this sense, the implication that management of companies to be governed by the SEC Conflict Minerals Rule should take note of these results and exploit them in determining their business strategy is quite profound.

The Dodd-Frank Act and the subsequent SEC Conflict Minerals Rule are undoubtedly constructive efforts towards effective and well-directed conflict minerals policy and efforts towards social sustainability, but it is just as certainly only the beginning of the conservation. With already existing discussions about the negative, unintended consequences regarding Dodd-Frank and the current SEC Conflict Minerals Rule, as well as forthcoming policy movements in other places in the world and a continually growing global consciousness regarding social sustainability issues, future conflict mineral policy, be it revisions of old or brand new, appears inevitable. With such the case, the initial insights and implications suggested by this paper are humbly put forth to researchers, policymakers, and corporate management to help guide their efforts regarding this important topic.

## REFERENCES

- Bloomberg. (2014) *Bloomberg Professional*. [Online]. (Accessed: 10 November 2014). Available at: Subscription Service
- Bronstein, E., & Woods, P. (2014). The Impact of the Kimberley Process Certification Scheme on Country-Level Competition in the International Rough Diamond Market
- Brown, S. J., & Warner, J. B. (1985). Using daily stock returns: The case of event studies. *Journal of Financial Economics*, 14(1), 3-31.
- Cowan, A. R., & Sergeant, A. (1996). Trading frequency and event study test specification. *Journal of Banking & Finance*, 20(10), 1731-1757.
- Dolley, J. C. (1933). Characteristics and procedure of common stock split-ups. *Harvard Business Review*, 11(3), 316-326.
- Ernst & Young. (2012). Conflict Minerals. (2014, September 17). Available from [http://www.ey.com/Publication/vwLUAssets/EY\\_ConflictMinerals/\\$FILE/EY\\_ConflictMinerals.pdf](http://www.ey.com/Publication/vwLUAssets/EY_ConflictMinerals/$FILE/EY_ConflictMinerals.pdf).
- Epstein, M. J., & Yuthas, K. (2011). Conflict minerals: Managing an emerging supply-chain problem. *Environmental Quality Management*, 21(2), 13-25.
- European Commission. (5 March 2014). *EU proposes responsible trading strategy for minerals from conflict zones*. Press Release, IP/14/218. (2015, January 1). available from [http://europa.eu/rapid/press-release\\_IP-14-218\\_en.htm](http://europa.eu/rapid/press-release_IP-14-218_en.htm).
- Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2), 383-417.
- Guidolin, M., & La Ferrara, E. (2007). Diamonds Are Forever, Wars Are Not: Is Conflict Bad for Private Firms?. *The American Economic Review*, 1978-1993.
- Humphreys, M. (2005). Natural resources, conflict, and conflict resolution uncovering the mechanisms. *Journal of conflict resolution*, 49(4), 508-537.
- Karl, T. L. (1997). *The paradox of plenty: Oil booms and petro-states* (Vol. 26). Univ of California Press.
- Lujala, P., Gleditsch, N. P., & Gilmore, E. (2005). A diamond curse? Civil war and a lootable resource. *Journal of Conflict Resolution*, 49(4), 538-562.
- MacKinlay, A. C. (1997). Event studies in economics and finance. *Journal of economic literature*, 13-39.
- McKenzie, S. (2004). *Social sustainability: towards some definitions*. Magill: Hawke Research Institute, University of South Australia.

MiningFeeds. (2014). Gold Mining Companies Listed in United States of America. (2014, October 2). Available from: <http://www.miningfeeds.com/gold-mining-report-united-states-of-america>.

MiningFeeds. (2014). Mining Companies Listed in United States of America. (2014, October 2). Available from: <http://www.miningfeeds.com/home-mining-report-united-states-of-america>.

Olsson, O. (2006). Diamonds are a rebel's best friend. *The World Economy*, 29(8), 1133-1150.

Sachs, J. D., & Warner, A. M. (1997). Fundamental sources of long-run growth. *The American Economic Review*, 184-188

Seay, L. E. (2012). What's Wrong with Dodd-Frank 1502? Conflict Minerals, Civilian Livelihoods, and the Unintended Consequences of Western Advocacy. (Working Paper No. 284). Center for Global Development.

Security and Exchange Commission. (22 August 2012). *17 CFR PARTS 240 and 249b*. [Release No. 34-67716; File No. S7-40-10]. RIN 3235-AK84. (2014, November 12), available from <http://www.sec.gov/rules/final/2012/34-67716.pdf>.

Seitz, W. (2012). Stock Market Reactions to Conflict Diamond Trading Restrictions and Controversies (No. WPS/2012-22). Oxford Centre for the Analysis of Resource Rich Economies, University of Oxford.

Seitz, W. (2013). Trade Restrictions and Conflict Commodities: Market Reactions to Regulations on Conflict Minerals from the Democratic Republic of the Congo (No. 102). Oxford Centre for the Analysis of Resource Rich Economies, University of Oxford.

Kimberley Process Certification Scheme. (2003). KPCS Core Document. (2014, September 23), available from: <http://www.kimberleyprocess.com/en/kpcs-core-document>.

United Nations General Assembly Resolution 1459, S/RES/1459(2003). (2003, January 28), available from: <http://unscr.com/en/resolutions/doc/1459>.

Yahoo Finance!. (2014). Industry Center – Aerospace Defense Products & Services: Company Index. (2014, October 1), available from [http://biz.yahoo.com/ic/611\\_cl\\_pub.html](http://biz.yahoo.com/ic/611_cl_pub.html).

Yahoo Finance!. (2014). Industry Center – Auto Manufacturers Major: Company Index. (2014, October 1), available from [http://biz.yahoo.com/ic/330\\_cl\\_pub.html](http://biz.yahoo.com/ic/330_cl_pub.html).

Yahoo Finance!. (2014). Industry Center – Communication Equipment: Company Index. (2014, October 1), available from [http://biz.yahoo.com/ic/841\\_cl\\_pub.html](http://biz.yahoo.com/ic/841_cl_pub.html).

Yahoo Finance!. (2014). Industry Center – Diversified Electronics: Company Index. (2014, October 1), available from [http://biz.yahoo.com/ic/836\\_cl\\_pub.html](http://biz.yahoo.com/ic/836_cl_pub.html).

Yahoo Finance!. (2014). Industry Center – Electronic Equipment: Company Index. (2014, October 1), available from: [http://biz.yahoo.com/ic/314\\_cl\\_pub.html](http://biz.yahoo.com/ic/314_cl_pub.html).

Yahoo Finance!. (2014). Industry Center – Industrial Equipment: Company Index. (2014, October 1), available from [http://biz.yahoo.com/ic/627\\_cl\\_pub.html](http://biz.yahoo.com/ic/627_cl_pub.html).

Yahoo Finance!. (2014). Industry Center – Jewelry Stores: Company Index. (2014, October 1), available from [http://biz.yahoo.com/ic/742\\_cl\\_pub.html](http://biz.yahoo.com/ic/742_cl_pub.html).

## APPENDIX A: LIST OF TICKER SYMBOLS OF COMPANIES IN STUDY

**Table 6: List of company ticker symbols included in the study**

Ticker Symbols								
<u>All</u>	<u>Gold</u>		<u>Auto</u>	<u>Communication</u>	<u>Diversified</u>	<u>Electronics</u>	<u>Industrial</u>	
<u>Mining</u>	<u>Mining</u>	<u>Aerospace</u>	<u>Industry</u>	<u>Equipment</u>	<u>Electronics</u>	<u>Equipment</u>	<u>Electronics</u>	<u>Jewelry</u>
N=48	N=13	N=28	N=7	N=41	N=30	N=8	N=25	N=4
ABX	AEM	ATK	F	ADTN	AEIS	AAPL	AIMC	CTHR
ACI	ANV	ATRO	GM	ALLT	AME	DAKT	AMRC	NILE
AEM	ABX	AVAV	HMC	ALU	AMSC	FN	AOS	SIG
ANR	GFI	BA	KNDI	ARRS	AVX	HAR	ARTX	TIF
ANV	GORO	BEAV	TTM	AUDC	AYI	PHG	BDC	
BTU	GG	COL	TSLA	AVNW	CTRL	SKUL	BGC	
CDE	GSS	CW	TM	AWRE	DLB	SNE	BLDP	
CLD	HMY	DGI		BDR	EMR	UEIC	CBAK	
CLF	KGC	ERJ		CALX	ETN		CPST	
CNX	MUX	ESL		CAMP	GLW		CRTP	
FCX	NEM	FLIR		CIEN	ITKG		ENS	
FMC	GOLD	GD		CMTL	KEM		FELE	
GFI	RGLD	HEI		CRNT	LFUS		GTI	
GG		HII		CYNI	LPL		HOLI	
GMO		HXL		DRWI	LRAD		HPJ	
GOLD		KAMN		EGHT	MEI		HYGS	
GORO		LLL		ENVI	MVIS		IDN	
GSS		LMT		HEAR	MXWL		JKS	
HL		MLER		HLIT	NEON		OSIS	
HMY		ORB		HRS	ORBK		POWL	
HREEF		RGR		IFON	PLNR		RBC	
IPI		SPR		IKAN	PLUG		UQM	
KGC		SWHC		INFN	PULS		WWD	
MCP		TASR		ITI	RVLT		XIDEQ	
MDMN		TDG		JDSU	SANM		ZBB	
MOS		TDY		MITL	SIMO			
MUX		TGI		MSI	TEL			
NEM		XLS		NOK	VICR			
NRP				NTGR	VII			
PVG				PTSC	WIRE			
PZG				QCOM				
RGLD				RITT				
RIC				SATS				
SCCO				SHOR				
SQM				SONS				
SWC				TCCO				
SZYM				TSYS				
TCK				VCRA				
TE				VSAT				
UEC				WSTL				
URG				ZHNE				
URRE								
URZ								
VALE								
VGZ								
WLB								
WLT								
X								

## APPENDIX B: FULL CANDIDATE EVENT LIST

**Table 7: Full Candidate Event List**

Event	Event Date
Conflict Minerals measure unanimously passes a hearing of the House of the Foreign Affairs Committee	28-Apr-10
Measure is added to Dodd-Frank Financial Reform Act	24-Jun-10
President Obama signs Dodd-Frank Financial Reform Act into law	21-Jul-10
SEC Regulatory Announcement of proposed Conflict Minerals Rule	15-Dec-10
Conflict Minerals Rule formally adopted	22-Aug-12
Petition for Review filed to US Court of Appeals to set aside rule	12-Oct-12
Conflict Minerals Legal Challenge Rejected by US District Court	23-Jul-13
Legal Decision Appealed	12-Aug-13
Court Upholds most of the SEC's Conflict Minerals Rule	14-Apr-14
Rule Stayed - SEC Commissioners Issue Joint Statement On Conflict Minerals Rule	28-Apr-14
Filings to be enforced - SEC releases statement	29-Apr-14
Industry Groups File Motion For Full Stay In Response To SEC Partial Stay	2-May-14
Motion to Stay DENIED	14-May-14
Announcement to rehear case about the one part of rule previously thrown out.	18-Nov-14



## APPENDIX C: ROBUSTNESS RESULTS WITH 3-DAY EVENT WINDOW

**Table 8: Panel A: Event Study Results for Mining**

Event Date	Event	For or Against The Policy	N	<i>All Mining</i>	<i>Gold Mining</i>
				3-day	3-day
28-Apr-10	Conflict Minerals measure unanimously passes a hearing of the House of the Foreign Affairs Committee	FOR	44	0.0077 (0.0079)	13 0.0476*** (0.0059)
24-Jun-10	Measure is added to Dodd-Frank Financial Reform Act	FOR	44	0.0363*** (0.0063)	13 0.0583*** (0.0113)
15-Dec-10	SEC Regulatory Announcement of proposed Conflict Minerals Rule	FOR	46	-0.0220*** (0.0064)	13 -0.0359*** (0.0088)
12-Oct-12	Petition for Review filed to US Court of Appeals to set aside rule	AGAINST	48	-0.0009 (0.0077)	13 -0.0153* (0.0071)
23-Jul-13	Conflict Minerals Legal Challenge Rejected by US District Court	FOR	48	0.0336*** (0.0112)	13 0.0515*** (0.0066)
12-Aug-13	Legal Decision Appealed	AGAINST	48	0.0554*** (0.0076)	13 0.0800*** (0.0114)
14-Apr-14	Court Upholds most of the SEC's Conflict Minerals Rule	FOR	47	-0.0252*** (0.0085)	13 -0.0385*** (0.0110)
2-May-14	Industry Groups File Motion For Full Stay In Response To SEC Partial Stay	AGAINST	48	0.0128 (0.0118)	13 0.0105 (0.0128)
14-May-14	Motion to Stay DENIED	FOR	48	0.008 (0.0105)	13 0.0063 (0.0195)
18-Nov-14	Announcement to rehear case about the one part of rule previously thrown out by courts.	FOR	48	-0.0036 (0.0104)	13 0.0263* (0.0127)

Robust standard errors in parenthesis. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Three day event window. The mining companies from both the 'All Mining' and 'Gold Mining' composites are sourced from lists provided on mining industry website, miningfeeds.com. Stock price data is retrieved from Bloomberg Financial. The above results are calculated employing the market return model using S&P 500 data as the market index.

**Table 9: Panel B: Event Study Results for Other Industries (Non-mining/non-electronics)**

Event Date	Event	For or Against The Policy	<i>Aerospace &amp; Defense Products</i>		<i>Auto</i>		<i>Jewelry</i>	
			N	3-day	N	3-day	N	3-day
28-Apr-10	Conflict Minerals measure unanimously passes a hearing of the House of the Foreign Affairs Committee	FOR	26	0.0178** (0.0068)	5	-0.0217 (0.0118)	4	0.0552 (0.0842)
24-Jun-10	Measure is added to Dodd-Frank Financial Reform Act	FOR	26	0.0174** (0.0076)	5	-0.0069 (0.0126)	4	-0.0058 (0.0110)
15-Dec-10	SEC Regulatory Announcement of proposed Conflict Minerals Rule	FOR	26	-0.0001 (0.0055)	6	-0.0066 (0.0231)	4	0.006 (0.0010)
12-Oct-12	Petition for Review filed to US Court of Appeals to set aside rule	AGAINST	27	0.0042 (0.0050)	7	0.0081 (0.0113)	4	-0.0018 (0.0074)
23-Jul-13	Conflict Minerals Legal Challenge Rejected by US District Court	FOR	28	0.0036 (0.0051)	7	0.0137 (0.0072)	4	-0.0066 (0.0032)
12-Aug-13	Legal Decision Appealed	AGAINST	28	-0.0026 (0.0024)	7	-0.0021 (0.0151)	4	0.0361 (0.0195)
14-Apr-14	Court Upholds most of the SEC's Conflict Minerals Rule	FOR	28	-0.0033 (0.0040)	7	-0.0226 (0.0187)	4	-0.0214** (0.0053)
2-May-14	Industry Groups File Motion For Full Stay In Response To SEC Partial Stay	AGAINST	28	0.0141 (0.0089)	7	0.0180 (0.0121)	4	-0.0426 (0.0289)
14-May-14	Motion to Stay DENIED	FOR	28	-0.0197*** (0.0070)	7	0.0035 (0.0138)	4	0.0527 (0.0476)
18-Nov-14	Announcement to rehear case about the one part of rule previously thrown out by courts.	FOR	28	0.0030 (0.0047)	7	-0.0002 (0.0116)	4	-0.0435 (0.0190)

Robust standard errors in parenthesis. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Three day event window. The companies comprising each of the non-mining industries are retrieved from and defined by the respective categories within the Yahoo Finance Industry Center. Stock price data is retrieved from Bloomberg Financial. The above results are calculated employing the market return model using S&P 500 data as the market index.

**Table 10: Panel C: Event Study Results for Electronics Industries**

Event Date	Event	For or Against The Policy	<u>Electronic Equipment</u>		<u>Diversified Electronics</u>		<u>Communication Equipment</u>		<u>Industrial Electronic Equipment</u>	
			N	3-day	N	3-day	N	3-day	N	3-day
28-Apr-10	Conflict Minerals measure unanimously passes a hearing of the House of the Foreign Affairs Committee	FOR	6	-0.0534 (0.0452)	29	-0.0076 (0.0121)	35	-0.0029 (0.0122)	23	0.0036 (0.0128)
24-Jun-10	Measure is added to Dodd-Frank Financial Reform Act	FOR	6	0.0194 (0.0120)	29	0.0056 (0.0109)	34	0.0141** (0.0058)	23	0.0056 (0.0114)
15-Dec-10	SEC Regulatory Announcement of proposed Conflict Minerals Rule	FOR	7	0.0049 (0.0085)	29	-0.0110* (0.0061)	37	0.0042 (0.0093)	25	-0.0072 (0.0084)
12-Oct-12	Petition for Review filed to US Court of Appeals to set aside rule	AGAINST	8	-0.0023 (0.0079)	29	0.0086 (0.0067)	39	-0.0006 (0.0064)	24	0.0198* (0.0101)
23-Jul-13	Conflict Minerals Legal Challenge Rejected by US District Court	FOR	8	0.0333*** (0.0083)	28	0.0021 (0.0088)	40	0.0161 (0.0098)	25	0.0033 (0.0067)
12-Aug-13	Legal Decision Appealed	AGAINST	8	0.0381** (0.0126)	29	-0.001 (0.0062)	41	0.0000 (0.0069)	25	0.0162 (0.0149)
14-Apr-14	Court Upholds most of the SEC's Conflict Minerals Rule	FOR	8	-0.0197** (0.0072)	29	-0.0343*** (0.0085)	41	-0.0336*** (0.0060)	24	-0.0454*** (0.0141)
2-May-14	Industry Groups File Motion For Full Stay In Response To SEC Partial Stay	AGAINST	8	0.0125 (0.0118)	30	-0.0160* (0.0079)	41	-0.0135 (0.0094)	24	-0.0248** (0.0115)
14-May-14	Motion to Stay DENIED	FOR	8	-0.0210** (0.0062)	30	-0.0222*** (0.0048)	41	-0.0065 (0.0092)	24	-0.0306 (0.0189)
18-Nov-14	Announcement to rehear case about the one part of rule previously thrown out by courts.	FOR	8	-0.0135 (0.0113)	30	-0.0059 (0.0089)	40	-0.0198** (0.0080)	24	-0.0351 (0.0212)

Robust standard errors in parenthesis. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Three day event window. The companies comprising each of the non-mining industries are retrieved from and defined by the respective categories within the Yahoo Finance Industry Center. Stock price data is retrieved from Bloomberg Financial. The above results are calculated employing the market return model using S&P 500 data as the market index.

## APPENDIX D: TYPES OF RETURNS REACTIONS

**Table 11: Comparative Event Type Reactions of AR & CAR for All Mining**

Days from Event	Bad News Event		No News Event		Good News Event	
	AR	CAR	AR	CAR	AR	CAR
-2	0.336%	0.336%	1.550%	1.550%	4.830%	4.830%
-1	-0.690%	-0.355%	0.209%	1.758%	1.834%	6.664%
0	-0.151%	-0.506%	0.614%	2.372%	2.284%	8.947%
1	-1.683%	-2.188%	0.017%	2.389%	-4.349%	4.598%
2	-1.484%	-3.672%	-0.136%	2.253%	2.672%	7.270%

This table shows an exemplary “good news” event, “bad news” event and “no news” event for the all-mining industry using a five-day event window. The “bad news” event corresponds to April 14, 2014, the “no news” event corresponds to May 14, 2014, and the “good news” event corresponds to November 18, 2014.