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Dodging Bullets

The Heterogeneous Effect of Political Violence on Greenfield FDI

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Abstract

The relationship between political violence and greenfield foreign direct investment is contingent on the type of violence, characteristics of the investment-receiving sector, and extent to which the investing firm is geographically diversified. This paper presents an analysis with a dynamic fixed effects model for a panel of 90 developing countries from 2003 to 2012. The analysis shows that nationwide political conflict is negatively associated with total and non-resource-related greenfield foreign direct investment, but not with resource-related greenfield foreign direct investment. The insensitivity to political conflict of multinational firms in the resource sector is associated with the high profitability of natural resource extraction and the companies' geographic constraints on location choice during the period of estimation. In the non-resource sector, the less geographically diversified firms are most sensitive to the risk of conflict.

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Dodging Bullets:

The Heterogeneous Effect of Political Violence on Greenfield FDI

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1. INTRODUCTION

Although research on business in emerging and developing economies has flourished over the last decade (Meyer & Peng, 2016), there has been relatively little focus on the effect of political violence on multinational enterprise (MNE) strategy. This lack of attention is surprising because in terms of value more than 13% of all greenfield investments flowing to developing countries in the period from 2003-2012 went to countries experiencing a political conflict with at least 25 battle-related deaths per year, and nearly 5% went to countries experiencing a war (fDi Markets, 2013). Recent research on the topic acknowledges that many multinational enterprises own subsidiaries in areas prone to political conflict, and focuses on how firms can meet the challenges posed by this threat. Oetzel and Getz (2012) study how stakeholders affect the tactics MNEs use to strategically respond to conflict, whereas Bader and Schuster (2015) focus on the role of networks to eliminate the negative effect of terrorist threats on the wellbeing of expatriates. However, few studies explore the mechanisms that attract MNEs to these fragile states in the first place (Czinkota, Knight, Liesch & Steen, 2010; Driffield, Crotty & Jones, 2013).

Whereas the reasons for MNEs' entry into areas marred by political violence remain largely unknown, a considerable number of studies published in International Business (IB) and political economy journals have tried to answer the question of whether total foreign direct investment (FDI) inflows are in the least affected by political violence. On a conceptual level, scholars tend to agree that political violence may have a detrimental effect on expected returns, reducing the propensity to invest. Nevertheless, the empirical results remain inconclusive. Nigh (1985) establishes that political violence in developing countries has a negative effect on U.S. manufacturing FDI, and Abadie and Gardeazabal (2008) show that terrorism has a large negative effect on inward FDI flows relative to Gross Domestic Product (GDP). Asiedu (2006) finds that in African countries, the number of coups, riots, and assassinations is negatively associated with the ratio of net FDI flows to GDP. However, in an earlier paper on the determinants of FDI in developing countries, she infers that the average number of assassinations and revolutions does not significantly influence FDI inflows (Asiedu, 2002). Li (2006) also concludes that the occurrence of unanticipated interstate wars has a negative influence on FDI, but he finds no significant association between FDI and intrastate wars or terrorist incidents, which

represent most of the political violence incidents since the end of the Cold War (Pettersson & Wallensteen, 2015). In contrast to Li (2006), Busse and Hefeker (2007) find that civil war negatively affects FDI, whereas interstate war has no effect on FDI. Several other scholars find no relationship between political violence and FDI (Biglaiser & DeRouen, 2007; Li & Vashchilko, 2010; Oetzel & Oh, 2014), whereas Biglaiser and DeRouen (2006) and Asiedu and Lien (2011) find a positive relationship between FDI and conflict.

There are several explanations for these heterogeneous and seemingly contradictory findings in the literature on political violence and FDI. First, the relationship between political violence and FDI is contingent upon the *type of violence*. Building on the literature classifying different types of risk (Miller, 1992; Oetzel & Oh, 2014), we develop the argument that the effect of political violence depends upon the extent to which violence poses a continuous risk to business activities. Risk is considered to be continuous if it is persistent and foreseeable, whereas discontinuous risk refers to events that are episodic and difficult to anticipate (Oetzel & Oh, 2014; Ramanujam, 2003). In contrast to Oetzel & Oh (2014), we conceptualize country risk as a continuum on which, at one end, persistent risks such as corruption and expropriation risk are continuous risks; and at the other end, less-predictable hazards, for example, terrorist attacks, pose discontinuous risks to MNEs. Political conflict falls in the middle; it is less predictable and persistent than corruption but more continuous than terrorism. Following Li (2006), we argue that a certain level of predictability is required for firms to adjust their location choice process; hence, only the types of violence that pose a relatively continuous risk may affect firms' location choice strategies. In addition, the geography of political violence matters because political conflicts that are geographically concentrated or localized in one part of the country are likely to pose less risk to an MNE investing in that country than political conflicts that are non-localized and are instead spread throughout the entire country.

Second, the relationship between political violence and FDI depends upon *characteristics of the FDI-receiving industry* and *firm-level attributes*. Industries differ in the degree to which investments yield economic rents. When expected returns are high, MNEs are willing to take additional risk to capture these rents and are hence more likely to invest in countries affected by political violence. Moreover, sectors differ in terms of geographic constraints on investment activity due to the availability

of resources only in certain locations. Particularly when resources or inputs are scarce, the presence of limited investment opportunities might result in the insensitivity of FDI to political violence. In this paper, we test whether these mechanisms could drive MNEs to conflict areas, using data from the natural resource industry, a sector in which rents can be exceptionally high and location choice is significantly restricted. Finally, the ability of the MNE to diversify or absorb the potential downward shock of political violence moderates the relationship between political conflict and FDI. Geographically diversified MNEs are considerably less affected by political violence than relatively undiversified MNEs, present in only a small number of countries.

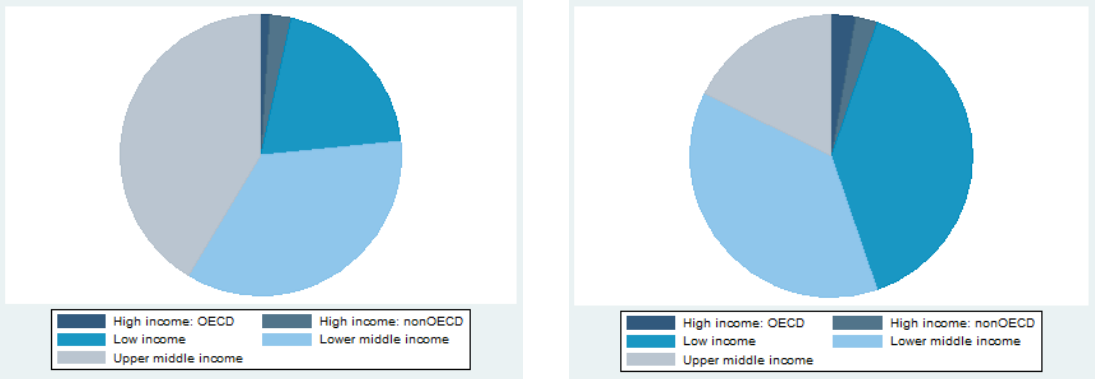


Figure 1: Pie charts depicting the number of deaths due to terrorist attacks (START, 2015) (left-hand side) and conflict (UCDP/PRIO, 2015) (right-hand side) for the period 2003-2012

This paper is linked to the extensive literature on FDI and external sources of risk, notably political violence (Abadie & Gardeazabal, 2008; Driffield et al., 2013; Li & Vashchilko, 2010; Oetzel & Oh, 2014; Oh & Oetzel, 2016) and political institutions (e.g., Burger, Ianchovichina, & Rijkers, 2016; Feinberg & Gupta, 2009; Globerman & Shapiro, 2003; Henisz & Delios, 2001; Meyer, Estrin, Bhaumik & Peng, 2009; Peng, Wang & Jiang, 2008). It builds on the work of Burger et al. (2016), which analyzes sectoral heterogeneity with respect to the relationship between political risk and FDI in the Arab World before and during the Arab Spring. We extend the analysis to a set of 90 developing countries. Developed economies are excluded because political violence is foremost a developing country phenomenon (see Figure 1). In contrast to Burger et al. (2016), who focus on political instability, this study explores the effects of political violence, defined as '*collective attacks within a political community against the political regime, its actors – including competing political groups as well as incumbents – or its policies*' (Gurr, 1970, p. 3-4). Instances of political violence include civil wars,

territorial disputes, acts of terrorism and genocides; cases of criminal behavior are not considered political violence (Kalyvas, 2013). Political violence is different from political risk and instability, because, whereas political risk poses a relatively continuous risk, political violence is more discontinuous. In addition, political risk is generally conceptualized as uncertainty about government policy, which affects MNEs indirectly, whereas political violence is foremost associated with the direct effect of capital destruction. Instead of considering political violence as one homogeneous category, we study the different manifestations of political violence (political conflict, terrorism, state terror, and assassination) separately, recognizing the complex nature of the phenomenon.

In addition, this paper relates to the literature on the strategy tripod perspective (Peng, Wang & Jiang, 2008; Peng, Sun, Pinkham & Chen, 2009). Since the conception of the institution-based view of international strategy that, combined with the Resource-Based View and the industry approach, forms the tripod of strategy, several studies have focused on the effect of institutions on international strategy and the interaction with the Resource-Based View (e.g. Darendelli & Hill, 2016; Goerzen, Sapp & Delios, 2010; Holburn & Zelner, 2010). Yet, this literature largely overlooks the interrelations with the industry-based view – a significant gap given the evidence that the sector in which an MNE operates matters for its location choice decisions in countries with weak institutions (Burger et al., 2016; Driffield et al., 2013; Garcia-Canal & Guillén, 2008; Ramos & Ashby, 2013). Nevertheless, there is no theory on the mechanisms that explain these heterogeneous effects. We build on the existing literature identifying the underlying mechanisms that differentiate sectors and analyzing the interrelations between industry-level mechanisms and the other two legs of the strategy tripod.

We also contribute to the existing IB and economic geography literature by developing a theory that uncovers the mechanisms behind the heterogeneous relationship between political violence and FDI, testing several hypotheses that help explain the mixed results of previous studies. In our study, we bring together the notions of space, place, and organization, a previously identified and emerging topic in IB (Beugelsdijk et al., 2010). We incorporate the spatial context in three different ways. First, we consider the *geographic scope of political violence*, arguing that the effect of violence on inward FDI depends critically upon the extent to which firms can opt for a location in which the risk of attacks is minimized. Second, we develop the concept of *geographical constraints on location choice,* referring

to the limitations on the location choice process resulting from requirements for inputs, which are exclusive, specific and irregularly dispersed across space, and we show that these constraints can moderate the effect of risk on location choice. Third, we show that the ability to absorb discontinuous risk depends on the *geographic diversification of a firm*.

In our study, we establish that there is considerable heterogeneity in MNEs' investment responses to political conflict in developing countries. This heterogeneity reflects differences in the type of violence, industry characteristics, notably high rents and geographic constraints on location choice, and differences in the extent of a multinational's geographic diversification. We find empirical evidence that conflicts have a negative effect on FDI in manufacturing and services but no effect on resource-related FDI; this finding holds for nationwide conflicts and not for localized conflicts. Finally, we show that the negative effect of conflict on total greenfield FDI stems from the sensitivity of relatively undiversified MNEs' to political conflict. Most other types of political violence have no effect on any type of greenfield FDI, but the onset of a large war has a sizable negative effect on all types of greenfield FDI.

These findings inform the strategies of MNEs with a nuanced and much needed understanding of the effects of political violence and the risks it poses to their businesses in the context of a significant rise in the incidence of politically violent events around the world in recent years (Ianchovichina, 2016). Oetzel and Oh (2016) argue that because political violence is less continuous and hence more difficult to anticipate than political risk, the implications for firm strategy differ from those relevant to MNEs dealing with political risk. We show that the continuity of the risk posed by political violence is indeed an important factor influencing MNEs' entry strategy into developing countries marred by political violence. Other factors, which influence an MNE's sensitivity to risk, include the sector characteristics, the MNE's exposure to violence and the ability of firms to diversify risk. Finally, our results suggest that political violence does not necessarily depress earnings and put off investors; thinking otherwise is too simplistic. The paper shows that for geographically diversified MNEs entering a country in conflict may even be profitable.

Several policy implications emerge from this analysis. First, because conflict-related risks vary by sector and conflict type, it is imperative to collect and examine disaggregated greenfield investment

and conflict data when analyzing FDI in fragile developing countries. Second, institutions offering investment guarantees must recognize the differential exposure and sensitivity of MNEs to conflict when pricing risk. Third, FDI to resource-rich, conflict-affected countries can hamper rather than facilitate countries' efforts to escape the conflict-resource trap. FDI flows to fragile countries are mostly financing resource projects, deepening resource dependence and thus threatening prospects for successful peace building (Doyle and Sambanis, 2000). Hence, the efforts of fragile developing countries to diversify and attract FDI into manufacturing and services sectors must be accompanied by efforts to improve political stability, governance, transparency, and institutional quality.

The rest of the paper is organized as follows. Section 2 presents a review of the previous literature, a theoretical framework building on the risk and economic geography literature, and several hypotheses, which are tested in section 4. Section 3 presents the econometric framework and the data. Section 4 discusses estimation issues and the main empirical results, and section 5 presents additional analysis exploring the robustness of the results. Section 6 discusses the mechanisms at play in the case of the oil and gas sector. Section 7 provides a summary of the findings and suggestions for future research.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

A large strand of the IB and economics literature has analyzed the role of risk in internationalization decisions (e.g., Agarwal & Ramaswami, 1992; Kogut & Chang, 1996; Pennings & Sleuwaegen, 2004; Rivoli & Salorio, 1996). Most of the theory explaining and classifying risk and uncertainty can be traced back to the work of Frank Knight (1921). According to Knight, risk applies to situations in which an informed agent can make a reasonable judgment on the probability of the event occurring; as such, risk differs from pure uncertainty in which these probabilities are unknown. Miller (1992) distinguishes three main sources of business risk: the general environment, the industry, and the firm itself. A large body of literature is focused on one specific type of environmental risk, namely political risk (e.g., Brunetti & Weder, 1998; Burger et al., 2016; Darandeli & Hill, 2016; Henisz, 2000; Kobrin, 1979; Miller, 1992; Schneider and Frey, 1985). Although several definitions of political risk exist (Kobrin,

1979), the concept is most often defined as the risk that a sovereign government might change 'the rules of the game' to which firms ought to adhere (Butler & Joaquin, 1998).

The IB literature has traditionally analyzed the effect of three types of political risk on multinationals' location choice decisions: corruption (Brouthers, Gao & McNicol, 2008; Cuervo-Cazurra, 2006; Habib & Zurawicki, 2002), absence of political constraints (García-Canal & Guillén, 2008; Henisz, 2000; Holburn & Zelner, 2010) and expropriation risk (Duanmu, 2014; Kobrin, 1984). The average effect of all three types of political risk on FDI is consistently found to be negative, although large differences exist depending upon the resources available to the firm. For example, Holburn and Zelner (2010) find that the effect of weak constitutional constraints on MNEs' location choice is dependent upon whether the multinational acquired relevant political capabilities in its home environment, whereas Duanmu (2014) demonstrates that the strength of the home country's political influence can moderate the effect of expropriation risk on FDI. Finally, Goerzen, Sapp and Delios (2010) show that experience in the host country positively affects the returns to FDI in environments with high political risk.

Similar to the studies mentioned above, we focus on risk deriving from the environment, specifically, the level of risk resulting from political violence. This risk is closely related to political risk because it also leads to ambiguity concerning government policy. During episodes of major political violence, a host government is more likely to change existing regulations or unexpectedly impose new ones, thus raising the cost of doing business once the MNE enters a market and incurs sunk costs (Li, 2006). These regulatory changes can include breach of contract, limiting repatriation of profits, exchange controls, embargoes, and other restrictive trade policies (Li & Vashchilko, 2010). However, political risk is different from political violence because political violence can also lead to extensive destruction of both human and physical capital due to fighting between government and rebel groups, or terror acts (Bodea & Elbadawi, 2008). In addition, whereas corruption, expropriation risk and political constraints are generally persistent over time, political violence can consist of singular incidents or short episodes of conflict, making it more difficult to predict accurately political violence than other forms of political risk.[1] For example, few predicted the Arab Spring uprisings in 2010 (Gausse, 2011).

The above discussion links to the distinction between risk and uncertainty in which the difference between the two concepts is whether the probability of an event occurring is known. Because it is unlikely that managers know the exact probabilities with which political violence affects their business activities, it seems straightforward to conclude that political violence generates uncertainty instead of risk. However, in reality, managers attempt to approximate the odds of such events (albeit with a margin of error) and, when doing so, they inevitably convert uncertainty into risk. Still, their ability to convert uncertainty into risk depends largely on the process underlying the risk.

Discontinuous risk of infrequent and episodic events is closer to pure uncertainty than continuous, Knightian risk of predictable events. The distinction between these two types of risk was made by Oetzel and Oh (2014), who built on the work by Ramanujam (2003). Following this distinction, political violence poses a more discontinuous risk than do most forms of political risk; hence, the occurrence of political violence confers less information about the event reoccurring.

The Multiple Facets of Political Violence and FDI

Although political violence can pose large risks to subsidiaries, the results of empirical inquiries into the relationship between FDI and political violence are inconsistent (Asiedu, 2011; Biglaiser & DeRouen, 2007; Dai et al., 2013; Driffield et al., 2013). A plausible explanation for these inconsistent findings is that the effect depends upon the type of political violence. Different types of violence (e.g., terrorism, conflict, and assassinations) not only have different effects on business activities but also differ in terms of the nature of the risk they pose. Following Oetzel and Oh's (2014) distinction between continuous and discontinuous risk, we recognize that (i) political violence poses a less continuous risk than do some types of political risk, such as corruption or the lack of constitutional constraints; and (ii) within the category of political violence, there remains substantial heterogeneity in terms of risk continuity. Whereas Oetzel and Oh (2014) presume that the effects of continuous and discontinuous risk are similar, we argue otherwise. In the case of a discontinuous risk, the event occurring does not directly affect the probability of reoccurrence; therefore, it most likely hardly affects risk assessment and ultimately location choice strategy.

Figure 2 illustrates our classification of political violence based on two dimensions: the continuity of the political risk and its level of impact on the MNE's operations. Both high level of impact and high degree of risk continuity are necessary conditions for political violence to affect location choice. First, we recognize that the impact of political violence must be high to affect location choice. Political conflicts (e.g. international wars and civil conflict) and terrorism,[2] placed in the right-side panel of Figure 2, are high-impact events. They can lead to significant negative shocks to earnings because of property damage, death and injury of employees, destruction of required infrastructure, disruptions in the supply chain, and an increase in the cost of trade (Bodea & Elbadaw, 2008; Li & Vashchilko, 2010). Moreover, because of nationalistic sentiments, consumers might be reluctant to purchase products from a foreign firm, if it is a subsidiary of a company located in a country hostile to the host. This reluctance reduces the expected profitability of a subsidiary, particularly in the case of market-seeking FDI. As a result, the pay-off to an investment in a conflict-affected country is subject to a large one-sided risk, making FDI into such countries less attractive.

Political terror, defined as "*violations of physical or personal integrity rights carried out by a state*" (Wood & Gibney, 2010, p. 369), rarely directly affects an MNE's earnings, although in rare cases, an MNE's involvement in countries known for a lack of respect for human rights results in consumer boycotts in the home country (Driffield et al., 2013). Therefore, political terror is considered to be a relatively low impact event and it is placed in the left-side panel of Figure 2. Similarly, there is little reason to expect that political assassinations[3] affect an MNE's investment decision as they have a limited effect on a subsidiary's operations. Hence, this type of event also belongs in the left-side panel of Figure 2.

Second, the risk of political violence has to be relatively continuous to affect location choice. In other words, the underlying event needs to be fairly persistent and predictable. Assassinations can be characterized as discontinuous because they are irregular and almost by definition difficult to predict; the success of an assassination depends upon an element of surprise. Similarly, following Oetzel and Oh (2014), we characterize terrorism as a discontinuous risk because isolated incidents tend to be uncommon and non-persistent. Some countries are more prone to attract terrorists, but the actual occurrence of terrorism is difficult to anticipate, making this type of violence more discontinuous than

political conflict and terror. Oetzel and Oh's study also showed that a recent terrorist attack does not significantly affect the probability of entry, confirming our statement that a certain level of continuity is a necessary condition for political violence to have a direct effect on location choice strategies. Finally, political terror, placed in the bottom left corner of Figure 2, poses continuous risk. This type of violence tends to be persistent and relatively predictable based on political trends, the quality of institutions, and the past prevalence of torture, extrajudicial killings, and political imprisonment.

	Type of impact → / Type of risk ↓	Level of impact	
		Low	High
Continuity	Discontinuous/ Intermittent	Assassinations	Terrorism
	Continuous	Political Terror	Political conflict (e.g., civil conflict or interstate war)

Figure 2: Different types of political violence, organized by level of impact and continuity

Political conflict is defined as "*a contested incompatibility that concerns government and/or territory where the use of armed force occurs between two parties, of which at least one is the government of a state*" by Pettersson and Wallensteen (2015, p. 1). War that causes at least 1,000 battle-related deaths per year is a specific case of political conflict. Conflict poses a continuous risk due to its persistent properties and relatively predictable nature. Political leaders often reveal parts of their military strategy in speeches, electoral statements, or political manifests. Moreover, after the onset of a political conflict, a manager is likely to readjust the risk perception of an investment because the probability of future battles is high. In other words, the incidence of battles conveys information about the probability of their impact on business activities and hence enables an updated risk assessment. Given that political conflict poses a continuous risk and at the same time has a high level of impact, we expect that particularly this type of political violence is negatively associated with the location choice decisions of MNEs. Thus, in the remainder of this paper, we focus on political conflict and formulate our first hypothesis.

H1: Total greenfield FDI flows in developing countries are negatively associated with political conflict.

Conflict heterogeneity: Geographic Scope

Although we expect that political conflict is negatively associated with FDI inflows, we also expect that this relationship is heterogeneous. The geographic scope of political conflict within a country can moderate the relationship between political conflict and FDI. Geographic scope refers to the extent to which the conflict is concentrated in one part of the country, where the scope is smallest in conflicts concentrated in only one province and largest in nationwide conflicts. In a subnational analysis, Dai et al. (2013) find that the likelihood of foreign subsidiaries' survival is negatively associated with their geographic exposure to conflict. Likewise, it can be expected that the sensitivity of MNEs to political conflict depends upon the extent to which they can limit their exposure to fighting. In countries affected by conflict with a relatively small scope, localized in one part of the country, MNEs can limit their exposure by locating elsewhere within the same country. This is not possible in countries marred by nationwide conflict. Therefore, a conflict with a small scope is likely to pose less risk to MNEs investing in that country than is violence with a large scope, prevalent in all areas of the country (Figure 3).

Type of political conflict → / Type of sector ↓		Geographic scope	
		Localized/limited scope	Nationwide/wide scope
Geographic constraints	None	Less sensitive	More sensitive
	Severe	Not sensitive	Not sensitive

Figure 3: MNE's sensitivity to political conflict: geography considerations

In addition, the goals of rebels fighting in remote or geographically confined areas tend to be different from the goals of groups participating in nationwide conflicts. Buhaug and Gates (2002) showed that geographically contained conflicts are more likely than nationwide conflicts to concern a territorial incompatibility because separatist groups are often active in their area of interest, whereas nationwide conflicts often involve a party contesting the national government. The second type of

conflict is more likely to lead to a change in government and hence create additional political risk. Consequently, we can formulate our second hypothesis.

H2: The effect of a political conflict on total greenfield FDI flows to a developing country depends on the geographic scope of the conflict, so that total greenfield FDI flows are less sensitive to a localized than to a nationwide political conflict.

Sector heterogeneity: Geographic constraints and economic rents

It is likely that the effect of political conflict on FDI is dependent upon industry characteristics (Driffield et al., 2013). We focus on two industry characteristics: geographic constraints on location choice and economic rents. First, FDI in some industries may be insensitive to political conflict because its set of location choices is restricted by requirements on inputs, which are exclusive, specific and irregularly dispersed across space (Figure 3). Only a limited number of locations can satisfy the criteria of an MNE that would like to invest abroad (Dunning & Narula, 2004; Narula & Bellak, 2009; Buckley et al., 2007; Mataloni Jr., 2011), particularly when the economic activities of the firm require high asset specificity (Burger et al., 2013). If assets are scarce and only available in a limited set of locations, MNEs have *geographical constraints on their location choice.*

With geographic constraints on location choice, the acquisition of a first-mover advantage (Lieberman & Montgomery, 1988) increases in importance. First-mover advantages, defined as the advantage of firms investing first over those that invest later, can arise from three sources: technological leadership, buyer switching costs, and pre-emption of rivals' acquisition of assets. Whereas technological leadership and, to a lesser extent, buyer switching costs are currently determined in increasingly global markets, first-mover advantages due to the acquisition of assets are specific to a geographical area. As a result, location choice strategies play an important role in obtaining this type of advantage; this is particularly true for MNEs that are geographically constrained in their location choice. By being first in acquiring a license to operate in a location rich in scarce assets, the MNE preempts rival firms from accessing these assets (Lieberman & Montgomery, 1988), significantly affecting its

profits. Smit and Trigeorgis (2004) show that if by investing a firm can obtain strategic advantages over its rivals, investing is the optimal action even when uncertainty is high.

Natural resource MNEs are particularly dependent upon specific scarce assets; thus, they are geographically constrained in their location. These firms might invest in a location despite the presence of political conflict to secure access and acquire the rents associated with a first-mover advantage (Mason & Weeds, 2010; Smit & Trigeorgis, 2004). As a result, MNEs active in the resource sector should be less sensitive to political conflict than MNEs in sectors in which location choice is less restricted. We refer to the effect of limited investment opportunities as the *geographic-constraints mechanism.*

Second, FDI flows may not be sensitive to conflict if the returns on an investment are sufficiently high to counteract the negative effect of the increased risk associated with conflict. In this paper, we focus on the natural-resource industry, in which returns to investment can be especially high in times of commodity booms (Kolstad & Wiig, 2009). During resource booms, large rents increase the value of a project and hence increase the probability of investment despite high risk due to war. We refer to the effect of economic rents on the responsiveness of FDI to political conflict as the *economic-rent mechanism*. As the geographic-constraints and the economic-rent mechanisms are expected to be the main factors that differentiate the sensitivity of resource-related and non-resource-related FDI to political conflict, we formulate our third hypothesis.

H3: Resource-related greenfield FDI flows are less negatively associated with political conflict in developing countries than non-resource-related greenfield FDI flows.

Sector heterogeneity: Geographic scope of conflict

The *geographical constraints on location choice* interact with the geographic scope of conflict (Figure 3). MNEs are constrained in their location choice by local resource availability, and not all locations are suitable for all types of investments because they lack the appropriate specialized location advantages (Mataloni Jr., 2011; Burger, Van der Knaap, & Wall, 2013). Particularly, for investments in the resource sector, the number of potential locations is limited given the very specific location

requirements with respect to the presence of natural resources. If an MNE is limited in its location choice, it might not have the option to locate its subsidiaries away from political conflict, and we expect that the firm is not sensitive to conflict, irrespective of its geographic scope. Hence, firms active in the resource sector might be unable to locate their operations in a safe area that is far away from a localized conflict, whereas MNEs active in non-resource industries might have several investment options within the same country and thus can choose a safer location. Therefore, in cases of localized conflict, resource MNEs might have fewer opportunities to circumvent areas where fighting is concentrated than firms that are less constrained in their location choices. Accordingly, we formulate the following hypothesis:

H4: The moderating effect of the geographic scope of conflict is larger for non-resource-related greenfield FDI flows than for resource-related greenfield FDI flows in developing countries.

Firm heterogeneity: MNE's ability to absorb risk through geographic diversification

Political violence tends to be exogenous to actions of investors (Li, 2006). It poses a type of uncertainty that can only be resolved with the passage of time and hence there is limited room for subsidiaries to implement strategies reducing the level of political violence. In a firm-level analysis Oetzel and Oh (2016) confirm this, showing that experience with political conflict does not influence MNEs investment response to new disasters. Garcia-Canal and Guillén (2008) even found that firms that have invested in a high-risk economy in the past develop an aversion against entering countries with similarly high levels of risk.

Nevertheless, whereas MNEs might not be able to influence the level of political violence faced by the MNE, the impact of political violence on a firm's internationalization strategy is likely to depend on firm-specific resources, particularly the firm's ability to absorb and diversify risks. Rugman (1976) already demonstrated that in the case of imperfectly correlated national economic fluctuations an MNE faces less risk than a comparable firm selling goods in one market alone because the number of subsidiaries in the MNE's portfolio reduces the variance of the overall portfolio of subsidiary results (Kogut & Kulatilaka, 1994). Several studies confirmed that geographic diversification improves firms' risk-return performance (Kim, Hwang & Burgers, 1993; Qian, 1996; Qian & Li, 1998). Following these

findings, we expect that the degree of an MNE's geographic diversification will reduce the negative effect of the risks posed by political violence on earnings.

In addition, real options theory posits that geographic diversification confers firms the option to transfer production to another subsidiary in the case of unanticipated events (Kogut & Kulatilaka, 1994; Lee & Makhija, 2009; Li & Rugman, 2007). Accordingly, MNEs present in a relatively large number of countries can minimize the effect of downside risks on earnings. Both the option value and the value of diversification are largest when unanticipated events are not globally correlated (Belderbos, Tong & Wu, 2014). Because political violence tends to be limited to one or at most a few countries, this condition is typically satisfied. Hence, geographically diversified firms seem better able to absorb risks posed by political conflict than relatively undiversified MNEs. Accordingly, we expected that conflict has a smaller effect on their expected earnings, increasing the probability that more diversified firms invest in countries characterized by a high conflict risk relative to MNEs that are less diversified. Oetzel and Oh (2014) find evidence that the impact of terrorism on FDI is moderated by international diversification, albeit using it merely as a control variable. We therefore hypothesize the following:

H5: Greenfield FDI flows from more geographically diversified MNEs are less negatively associated with political conflict than greenfield FDI flows from less geographically diversified MNEs.

3. METHODOLOGY AND DATA

Our economic model departs from the assumption that the decision to invest in a foreign subsidiary is a function of both expected returns and perceived uncertainty (e.g., Wheeler and Mody, 1992; Meon and Sekkat, 2012). Therefore, we assume that MNEs evaluate each investment opportunity individually and invest if the expected payoff exceeds a certain cutoff value. Hence, our model represents a positive sum economy in which an investment made in one country does not directly affect the amount of FDI in other territories. Guimaraes, Figueirdo and Woodward (2003) show that in models with only location-level determinants such as ours, the assumption behind the location decision does not directly affect the results.

We estimate the following sector-specific, reduced-form dynamic investment model:

$$FDI_{ist} = \propto_0 + \propto_1 FDI_{is(t-1)} + \propto_2 P_{i(t-1)} + \propto_3 X_{i(t-1)} + \mu_i + \mu_t + \varepsilon_{ist}, \qquad (1)$$

The model links the greenfield foreign direct investment, FDI_{ist}, flowing into country i in sector s in year t with a range of variables underpinning perceived uncertainty and expected returns. These variables include lagged FDI in sector s; political violence indicator $P_{i(t-1)}$ for country i in the previous year; a set of control variables $X_{i(t-1)}$, which capture conditions that might confound the relationship between political violence and greenfield FDI; a set of country dummies μ_i for time-invariant country characteristics; and a vector of time dummies μ_t.

The country fixed effects capture time-fixed heterogeneity, controlling for effects such as country size, resource endowments, culture, ethno-linguistic fractionalization, as well as institutions because institutions change very slowly over time. Moreover, the country fixed effects control for unobserved heterogeneity, limiting the risk of self-selection bias. We thus consider only within country variation, that is, whether a country attracts less FDI when its level of political violence increases. The time dummies capture time-dependent effects, such as global FDI waves, global commodity price fluctuations, and other global economic phenomena. The lagged FDI_{is} variable minimizes the risk of omitted variable bias because the amount of FDI received in the previous period is one of the best predictors of FDI received in the subsequent period. In addition, this variable makes possible the estimation of the long-term effects of our variables. To reduce the problem of reverse causality, all independent variables are lagged. However, ultimately, this model cannot determine causality, so the results should be interpreted as conditional associations, not causal relationships.

The data on flows of greenfield FDI into developing countries for the period from 2003 to 2012 are obtained from the fDi Markets database, a Financial Times databank tracking cross-border investment in new projects and expansions of existing ventures. The data are collected through Financial Times newswires, internal information and other media sources, project data acquired from industry organizations and investment agencies, and data purchased from market research and publication companies. Each project is cross-referenced against multiple sources. The data set includes 51,800 greenfield investments in developing countries, amounting to US$ 4.62 trillion. Annual FDI inflows are aggregated to the sector level of the receiving country. To test hypotheses three and four, we split

the total FDI flows into resource-related flows, which include flows to hydrocarbons, minerals, and agriculture, and non-resource-related FDI flows, which include flows to manufacturing, construction, distribution, and commercial services. FDI flows are measured in millions of US dollars, and because the distribution of these flows is skewed, they are log-transformed, using the logarithm of the inverse hyperbolic sine: $y = \ln(x + \sqrt{x^2 + 1})$.

We focus on greenfield investment because it consists of a relatively homogeneous group of investments in new facilities and excludes investments resulting from fire sales (Krugman, 2000). This focus eliminates concerns that heterogeneity of FDI is driving the results and the possibility that investment reflects repairs of facilities associated with prior investments rather than new projects. In developing countries, the inflow of greenfield investments is also considerably greater than the inflow of brownfield investments (Markusen & Stähler, 2011). A comparison of the number of greenfield investments in our data set to all mergers and acquisitions (M&As) registered by the Thomson One data service in the same period reveals that 81.6% were greenfield investments. Moreover, many policy makers are particularly interested in attracting greenfield FDI (UNCTAD, 2013). Finally, data on greenfield investments are more detailed than data on M&As. Although the Thomson One data service includes information on M&As, the size of the investment is missing for approximately 50% of the observations in developing countries for the period under study.[4]

Following the political science literature, we measure political conflict using the number of battle-related deaths (*BRD*) per year in a country. The data are obtained from the UCDP/PRIO Battle Related Death database (Pettersson & Wallensteen, 2015) and are gathered using information taken from a selection of publicly available sources, including journals, news agencies, NGO reports and statements of governments. The battle-related deaths variable is a best estimate, based on all information evaluated by UCDP/PRIO. The variable measures fatalities in conflict situations such as conventional battlefield fights, guerrilla attacks on government personnel, and bombardments of military bases, cities, and villages. It only includes battle-related deaths for conflicts with more than 25 battle-related deaths per year. Although this indicator has limitations – e.g., it does not measure non-fatal casualties or damage to property – it is widely available for conflict countries and is considered a good proxy for

political violence. In addition, this variable is less likely to be endogenous to FDI than most subjective measures of conflict because MNE investments are unlikely to cause battle-related deaths directly. Because the battle-related deaths variable is highly skewed, we take the natural log of the inverse hyperbolic sine function.

For our second and fourth hypotheses on the geographic scope of political conflict, we use again the UCDP/PRIO Battle Related Deaths data set. UCDP/PRIO records the warring parties and the incompatibility of each conflict. The geographic scope variable is a dummy, which is 0 if a conflict is localized and 1 if a conflict is nation-wide. First, we coded every secessionist conflict as *localized* because secessionist fighting is generally confined to the territory that is fought over (Buhaug & Gates, 2002). Subsequently, we manually checked whether conflicts, in which the incompatibility concerned the government instead of a regional territory, were nationwide by analyzing articles on the conflict on the website of BBC news and profiles of the insurgents on the START website (2014). Finally, we visually confirmed our coding using maps based on the UCDP/PRIO Georeferenced Event Database (Sundberg & Melander, 2013) for all conflicts in Africa and South Asia. Unfortunately, UCDP/PRIO GED does not yet collect georeferenced data on conflicts on other continents. We found no inconsistencies in the coding based on the information provided by BBC News or START. We exclude the main effect of localized conflict from our regressions because the type of conflict is virtually country invariant and is hence absorbed by the country fixed effects in our regression.[5] If a country experienced both a localized and non-localized conflict, we coded the observation as having experienced a nation-wide conflict. In 22.4% of the observations, there is an ongoing conflict; of those, 56.6% are coded as localized.

Although fDi Markets records FDI data on the project level, it does not include any information on the investing firm other than the name of the company and its parent company. We collected firm-level data from Bureau van Dijk's Orbis database, containing annual report data of over 79,000 companies worldwide, and manually matched these data to companies in the fDi Markets data set. Nevertheless, 32.9 % of all investment projects in fDi Markets could not be linked to companies in the Orbis data set. We code geographically diversified firms using a dummy variable which is 1 if the firm has subsidiaries in at least 10 countries and zero otherwise.[6] To facilitate the comparison of different

models and to limit sample selection bias,[7] we divide greenfield FDI into FDI by geographically diversified firms and FDI by other firms. Whereas we restrict the coefficients of our control variables to be fixed at the country-year level, the effect of political conflict and the constant are allowed to vary over the values of the diversification dummy. In the section containing our robustness analysis, we also present the results of a firm-level model.

The data on our control variables come primarily from the World Bank's World Development Indicators Database. We control for *GDP* given in millions of US$ in 2013 prices; the size of the *population*; and *inflation* measured as the annual growth rate of the GDP implicit deflator. In addition, we add three variables that control for continuous political risk: the *level of democracy*; *regulatory quality*; and *control of corruption*. Democracy is measured by the Polity Index developed by Marshall et al. (2013), which ranges from -10 to +10, where low negative numbers indicate autocracies and high positive numbers correspond to democracies. The quality of regulations indicator, part of Kaufman's World Governance Index (WGI), measures perceptions of a government's ability to formulate and implement sound policies and regulations that permit and promote private sector development. The control of corruption measure also comes from the WGI and measures the extent to which public officials use power for private gain. Both WGI variables are measured as a z-score varying from approximately -2.5 to 2.5, with higher values corresponding to better governance. Furthermore, we control for nominal *exchange rates* (level and standard deviation[8]) using data collected through OANDA. Appendix 1 provides descriptive statistics and the correlation matrix. Appendix 2 shows a list of all countries included in the sample.

4. ESTIMATION AND EMPIRICAL RESULTS

Using a fixed effects estimator to estimate the dynamic model (1) presents a problem. In panels with a large number of countries but a small number of periods, the standard fixed effects estimates are inconsistent because the transformation process creates a correlation between the regressor and the error (Nickell, 1981). We therefore use the least-squares dependent variable estimator, also known as the LSDVC model, developed by Bun and Kiviet (2003) to correct for this bias. The bias correction is initialized by a system GMM estimator. In a simulation, Flannery and Hankins (2013) compared the

LSDVC model to other popular models designed to address dynamic panel data bias, including the popular system GMM model developed by Blundell and Bond (1998). They find that even in the case of moderate endogeneity and serial correlation, the LSDVC emerges as the most accurate methodology. We estimate dynamic model (1) separately for the resource and non-resource sectors and perform a Chow test (Chow, 1960) in order to test whether the coefficients in the resource and non-resource FDI estimations are statistically different from each other. The Chow test is designed to test whether the coefficients of a model estimated over one group are similar to those estimated in another group.

In addition to analyzing the short-term effect of political violence on greenfield FDI inflows, we are also interested in the long-term effect. The dynamic panel model (1) makes it possible to identify the long-term equilibrium effect of political violence on greenfield FDI as follows:

$$\alpha_{\text{LR ln(BRD)}} = {}^{\alpha_2}/_{(1-\alpha_1)}.^{9} \qquad (2)$$

Results

Table 1 shows the baseline results estimated using the Bun and Kiviet LSDVC estimator for three different specifications in which the dependent variable represents total greenfield FDI (columns 1 and 2), resource greenfield FDI (columns 3 and 4), and all other greenfield FDI, also referred to as non-resource FDI (columns 5 and 6). Battle-related deaths are negatively associated with total FDI flows, and the variable is significant at the 10% level. A 10% increase in the number of battle-related deaths decreases total greenfield FDI flows by approximately 0.95%, ceteris paribus. This effect is in addition to the decline in FDI stemming from worsening macroeconomic conditions and restrictions in investment policies; these additional effects are captured by the controls for changes in GDP, exchange rates, inflation, and the regulatory quality index. The long-term effect of BRD on total greenfield FDI flows, shown in Table 1, is slightly greater than the short-term effect. We therefore find support for the first hypothesis (H1), namely that political conflict has a negative effect on total greenfield FDI.

In the second specification, we take into account the geographic scope of conflict by adding a moderator for scope of conflict to the model. The coefficient of the moderator is positive and eliminates the negative effect of the main effect. However, the moderator is not significantly different from zero.

Therefore, we find no support for our second hypothesis (H2) that the effect of political conflict on total FDI flows depends on the geographic scope of the conflict**.**

Table 1 Effect of Political Violence on Total, Resource, and Non-resource Greenfield FDI

	Dependent Variable: Log greenfield FDI (in USD millions), LSDVC Estimation					
	Total FDI		Resource-Related FDI		Non-Resource-Related FDI	
	(1)	(2)	(3)	(4)	(5)	(6)
BRD_{t-1} (ln)	-0.095+	-0.111	0.009	0.046	-0.125*	-0.225**
	(0.052)	(0.072)	(0.074)	(0.102)	(0.051)	(0.070)
BRD (ln)*$localized_{t-1}$		0.033		-0.075		0.202*
		(0.096)		(0.137)		(0.094)
Greenfield $FDI_{i,\,t-1}$ (ln)	0.190***	0.189***	0.095*	0.095*	0.119**	0.109*
	(0.042)	(0.043)	(0.043)	(0.043)	(0.044)	(0.044)
GDP_{t-1} (ln)	-0.427	-0.440	-1.484+	-1.461+	0.126	0.061
	(0.594)	(0.597)	(0.848)	(0.851)	(0.582)	(0.583)
$Population_{t-1}$ (ln)	8.696**	8.734**	14.547***	14.528***	6.432*	6.583*
	(2.831)	(2.838)	(4.027)	(4.035)	(2.763)	(2.759)
WGI $regulatory\ quality_{t-1}$	-0.069	-0.084	1.616+	1.655+	-0.819	-0.916
	(0.647)	(0.651)	(0.925)	(0.929)	(0.635)	(0.637)
Polity $Index_{t-1}$	0.006	0.002	0.014	0.022	-0.012	-0.033
	(0.049)	(0.049)	(0.070)	(0.070)	(0.048)	(0.048)
Exchange $Rate_{t-1}$ (ln)	-1.515+	-0.272	-1.447	-1.438	-0.893	-0.870
	(0.783)	(0.367)	(1.024)	(1.026)	(0.741)	(0.741)
Exchange Rate $Volatility_{t-1}$	-24.344**	-24.497**	-12.680	-12.378	-12.606+	-13.489+
	(7.480)	-7.476	(10.638)	(10.626)	(7.331)	(7.317)
Control of $Corruption_{t-1}$	1.495*	1.487*	0.784	0.804	1.306*	1.259*
	(0.627)	(0.629)	(0.893)	(0.896)	(0.611)	(0.612)
$Inflation_{t-1}$	-0.002	-0.002	0.011	0.011	0.001	0.002
	(0.008)	(0.009)	(0.012)	(0.012)	(0.008)	(0.008)
Long-term BRD (ln)	-0.117*	0.137	0.010	0.051	-0.142*	-0.253**
	(0.065)	(0.088)	(0.083)	(0.113)	(0.059)	(0.079)
Observations	707	707	707	707	707	707
Number of countries	90	90	90	90	90	90
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: Political conflict proxied by battle-related deaths. Bootstrapped standard errors are in parentheses.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

With respect to the control variables, the lagged FDI term is highly significant across both specifications. Exchange rate volatility and level are negatively associated with FDI flows. The effect is particularly strong for exchange rate volatility. Control of corruption and large population size are positively and significantly associated with FDI flows, whereas regulatory quality, level of democracy,

inflation and GDP do not significantly affect FDI in any of the specifications, possibly because these variables vary little during the years covered by our sample.

In columns 3 to 6, we show results from split-sample analyses for resource-related and non-resource-related FDI. In the resource sector, the coefficient on BRD is positive, very small and not statistically significant (column 3). The addition of the localized conflict moderator (column 4) slightly increases the estimate of the positive effect of BRD, but the moderator itself is small and statistically insignificant. Additionally, the long-term effect of BRD on resource-related FDI is positive and insignificant. Hence, there is no evidence that political violence affects greenfield FDI flows to this sector, either over the short or long term.

In models 5 and 6, which explain FDI to the non-resource sector, the effect of political conflict is negative and statistically significant at the 5% level; this effect is slightly greater than that for total FDI. A Chow test shows that the effect of battle-related deaths on non-resource-related FDI is significantly larger than the effect on resource-related FDI at the 5% level. Hence, we find empirical support for the third hypothesis (H3), namely that resource-related FDI is less sensitive to conflict than non-resource-related FDI.

The scope-of-conflict moderator (model 6) is positive, relatively large, and significant at the 5% level. A Chow test shows that the moderator is significantly larger in the model explaining non-resource-related FDI (model 6) than in the model analyzing resource-related FDI (model 4). Hence, we find support for hypothesis 4. Due to the addition of the moderator, the coefficient of BRD becomes more negative and its significance increases to the 1% level. Whereas an increase in the BRD in a localized conflict does not affect greenfield FDI in the non-resource sector (effect size = 0.023, standard error = 0.072), a 10% increase in the BRDs in a nationwide conflict is associated with a significant reduction of 2.3% in greenfield FDI in the non-resource sector, ceteris paribus. The long-term effect is even slightly larger.

With respect to the control variables in the split sample analysis (Column 3-6), the lagged FDI term and the size of the population are highly significant in the regressions for both sectors. Exchange rates, the level of democracy and inflation do not significantly affect FDI in any of the specifications. The control of corruption and exchange rate volatility are important only in the non-resource sector,

whereas GDP and regulatory quality have a significant effect only in the resource sector. The finding that the regulatory quality measure has an opposite sign in the split sample analyses is noteworthy. Compared to political violence, low-quality investment regulations pose a continuous risk to MNEs because these institutions are very persistent, and the risk posed by them is predictable. Our results suggest that the regulatory environment matters for rent-seeking resource activities associated with large capital investments. None of the results changed meaningfully when a non-corrected LSDV estimator was used, suggesting that the Nickell bias is small.[10,11]

Table 2 Effect of Political Conflict on FDI by relatively Undiversified and Diversified Firms

	Dependent Variable: Log greenfield FDI (in USD millions), LSDV Estimation					
	Total FDI		Resource-Related FDI		Non-Resource-Related FDI	
	Undiversi-fied MNEs	Diversified MNEs	Undiversi-fied MNEs	Diversified MNEs	Undiversi-fied MNEs	Diversified MNEs
	(1)	(2)	(3)	(4)	(5)	(6)
BRD_{t-1} (ln)	-0.129+	-0.015	0.060	0.088	-0.145*	-0.064
	(0.073)	(0.082)	(0.071)	(0.071)	(0.061)	(0.061)
Constant	-50.651	-53.071	-106.398*	-108.520*	-51.979+	-54.134+
	(34.898)	(34.912)	(49.570)	(49.577)	(30.738)	(30.729)
BRD (ln)*$localized_{t-1}$	-0.001		-0.122		0.084	
	(0.079)		(0.092)		(0.069)	
Greenfield $FDI_{-i, t-1}$ (ln)	0.120**		0.037		0.137***	
	(0.037)		(0.033)		(0.036)	
GDP_{t-1}	-0.100		-0.933		0.293	
	(0.460)		(0.655)		(0.442)	
$Population_{t-1}$ (ln)	3.955		7.898*		3.761+	
	(2.417)		(3.316)		(2.155)	
WGI $regulatory\ quality_{t-1}$	0.275		1.091		-0.454	
	(0.706)		(1.017)		(0.620)	
Polity $Index_{t-1}$	-0.037		0.008		-0.050	
	(0.044)		(0.047)		(0.036)	
Exchange $Rate_{t-1}$ (ln)	-0.400		0.050		-0.319	
	(0.295)		(0.459)		(0.295)	
Exchange Rate $Volatility_{t-1}$	-13.326*		-6.163		-4.232	
	(5.404)		(7.057)		(3.556)	
Control of $Corruption_{t-1}$	1.000+		0.361		1.117*	
	(0.568)		(0.778)		(0.542)	
$Inflation_{t-1}$	0.001		0.011		-0.002	
	(0.008)		(0.010)		(0.007)	
Observations	1,234		1,234		1,234	
Number of Countries	90		90		90	
Country FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	

Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 2 shows the results for hypothesis 5. For these regressions we aggregated greenfield FDI, distinguishing between investments made by relatively diversified and undiversified MNEs. Since this results in a three-dimensional data set (country - year - diversification dummy), it is impossible to use

the Bun and Kiviet LSDVC estimator. Instead, we estimate an Ordinary Least Square model with country and year fixed effects and robust standard errors.[12] Model 1 shows that the effect of BRD on undiversified firms' greenfield FDI flows is negative but only statistically significant at the 10% level. A 10% increase in BRD is associated with a 1.3% decrease in FDI flows made by undiversified MNEs. In contrast, the effect of BRD on FDI of diversified firms, defined as those having subsidiaries in 10 countries or more, is close to zero and is not significant (Column 2). A Chow test shows that the coefficients in columns 1 and 2 are statistically different from one another at the 1% level, supporting hypothesis 5 that political conflict has a smaller effects on FDI made by diversified MNEs than on FDI made by undiversified MNEs. In Column 3 to 6 we also distinguish between resource-related and non-resource-related greenfield FDI flows of diversified and undiversified firms. The effect of BRD on resource-related FDI flows, shown in Columns 3 and 4, is small and statistically insignificant, irrespective of whether these are investments made by undiversified or diversified MNEs. This supports our previous finding that political conflict does not significantly affect resource-related FDI flows (see Table 1, Column 3-4).

The results for non-resource-related FDI flows, shown in Columns 5 and 6 of Table 2, show a different pattern. Nationwide conflict affects negatively the non-resource-related FDI flows of undiversified firms. This effect is significant at the 5% level, indicating that a 10% increase in BRD decreases non-resource-related FDI flows of undiversified MNEs by 1.5%. Non-resource-related FDI made by diversified MNEs are less affected by increases in the number of BRD and the coefficient is not significant. The difference between the coefficients in regressions 5 and 6 is statistically significant at the 1% level. Thus, whether firms are geographically diversified matters for the relationship between political conflict and greenfield FDI flows only in the case of non-resource-related FDI.

5. ROBUSTNESS ANALYSES

In this section, we explore the robustness of the main results to the inclusion of other types of political violence. We also investigate the importance of within-sector heterogeneity and the robustness of our results to using an alternative measure of political conflict, distinguishing in particular between wars and conflicts. In addition, we test our hypotheses at the firm level using a two-stage Heckman model. Section 6 discusses the special case of the hydrocarbons industry and the role of economic rents and geographic constraints on investment.

Different types of political violence

We argued in the theoretical section that there are two necessary conditions for political violence to affect FDI inflows. Violence must have a sufficient effect on a subsidiary's profits and pose a relatively continuous risk to its operations. Because political conflict is the only type of political violence that meets these conditions, we focused on the type of violence in the main results section. However, the literature suggests that the effect of other types of political violence on FDI flows is mixed. When data on assassinations were more readily available than were data on other types of political violence, researchers combined data on assassinations with data on revolutions and riots to proxy for the level of political violence. Edwards (1990), for instance, finds that assassinations, riots and strikes do not affect FDI inflows when controlling for political risk. Asiedu (2002) obtains a similar result when she combines data on the number of assassinations and revolutions in one 'political risk measure'. However, when she does not control for other types of political violence, Asiedu (2006) finds a significant negative effect of assassinations on FDI in Sub-Saharan Africa. Concerning political terror, Blanton and Blanton (2007) and Bary, Clay and Flynn (2013) find that it negatively affects FDI inflows but just like Asiedu (2006), these authors do not control for other types of political violence.

Most studies on terrorism focus on its impact on developed economies. They generally find that terrorism leads to a negative shock to a country's GDP and global capital markets (Abadie & Gardeazabal, 2003; Chen & Siems, 2004), a drop in inward FDI (Enders & Sandler, 1996), an increase of vacancy rates in Central Business Districts (Abadie & Dermisi, 2008), and a drop in the number of tourists (Drakos & Kutan, 2003). Studies on the effect of terrorism in developing countries, particularly

those focusing on its relationship with FDI, are considerably less abundant. Moreover, those that consider developing nations show conflicting results (Abadie & Gardeazabal, 2008; Enders et al., 2006; Li, 2006; Oetzel & Oh, 2014; Powers & Choi, 2012). Again, several of these authors ignore other forms of political violence and risk in their empirical strategies, which could largely explain the mixed results.

In Table 3, we include measures for *terrorism*, *political terror* and *assassinations* in our regression models to test our assumption that political violence must be both relatively continuous and detrimental to returns on economic activity. We measure terrorism using the number of deaths during terrorist attacks from the Global Terrorism Database (GTD). This database, developed by the National Consortium for the Study of Terrorism and Responses to Terrorism, is based on reports from a variety of open media sources (LaFree & Dugan, 2007). We prefer this proxy to the number of terrorist attacks because it measures not only the prevalence of attacks, but also their intensity. The number of terrorist fatalities is highly skewed; hence, we transform the measure using the natural log of the inverse hyperbolic sine function. We measure political terror with the widely used Political Terror Scale (Wood & Gibney, 2010), an index constructed based on information from three sources: Amnesty International Yearly Country Reports, the U.S. State Department Country Reports on Human Rights Practices, and the World Reports of Human Rights Watch. The index ranges from 0 in the case of a strong rule of law to 5 in the case of widespread political terror. We measure the numbers of assassinations using the Cross-National Time Series data developed by Banks (2015).

The results confirm that terrorism, political terror, and assassinations in a country do not affect its total greenfield FDI inflows (Figure 2, columns 1-3). The coefficient of the conflict variable BRD is negative and significant at the 10% level in two of the three regression models (columns 1-2). Although terrorism and assassinations do not significantly affect greenfield FDI in the resource sector, political terror has a positive effect on investment in this industry (columns 4-6), indicating that MNEs in the resource sector benefit from a certain level of oppression. This benefit could be explained by the fact that a high level of oppression might be necessary to keep certain governments in place. MNEs active in the resource sector might benefit in such an environment because they depend upon government contracts that might be reneged upon by a new government; hence, these MNEs have the most to lose if an incumbent ruler is removed from office. The effect of conflict on resource greenfield FDI remains

small and insignificant (columns 4-6). In the models explaining non-resource FDI, terrorism, political terror, and assassinations are not significantly different from 0. The effect of conflict (BRD) remains strongly negative and significant at the 0.1% or 1% level. The type of conflict moderator is positive and significant at the 5% level. Hence, nationwide political conflicts have a strong negative effect on non-resource FDI, whereas localized conflicts have a negligible effect on this type of FDI.

Table 3 Effect of Political Conflict, Terrorism, Political Terror and Assassinations on Greenfield FDI

	Dependent Variable: Log greenfield FDI (in USD millions), LSDVC Estimation								
	Total FDI			Resource-related FDI			Non-Resource related FDI		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
BRD_{t-1} (ln)	-0.133+	-0.125+	-0.112	0.037	-0.004	-0.036	-0.254***	-0.216**	-0.226**
	(0.075)	(0.073)	(0.072)	(0.107)	(0.103)	(0.083)	(0.073)	(0.071)	(0.070)
BRD (ln)* $localized_{t-1}$	0.034	0.039	0.034	-0.074	-0.053	0.058	0.202*	0.198*	0.202*
	(0.096)	(0.096)	(0.096)	(0.138)	(0.137)	(0.113)	(0.082)	(0.094)	(0.094)
$Terrorism_{t-1}$ (ln)	0.074			0.031			0.098		
	(0.072)			(0.102)			(0.070)		
Political $terror_{t-1}$		0.186			0.632**			-0.006	
		(0.166)			(0.236)			(0.139)	
$Assasinations_{t-1}$			0.006			0.035			0.004
			(0.063)			(0.090)			(0.062)
Observations	707	707	707	707	707	707	707	707	707
Number of countries	90	90	90	90	90	90	90	90	90
Economic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Political conflict proxied by battle-related deaths. Bootstrapped standard errors are in parentheses.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Within-sector heterogeneity

The analyses so far distinguish between non-resource and resource industries but there might be substantial within-sector heterogeneity that may affect our results. There are substantial differences between the manufacturing and service industries, for example, in terms of sunk costs and labor intensity. There might also be considerable heterogeneity in the natural resource category. Investments in the hydrocarbon industry (oil, gas and coal) might not be sensitive to political violence because they occur in remote locations (offshore). Recognizing these differences, we re-estimate the model using more disaggregated data on manufacturing and services FDI flows and hydrocarbon and non-hydrocarbon FDI flows.

Our results confirm that the negative effect of conflict on non-resource FDI is observed in both the manufacturing and service industries (Table 4, columns 1 and 2). The coefficients of the conflict variable and the scope-of-conflict moderator are similar across the two specifications and a Chow test shows that the coefficients of the BRD variable are not systematically different for the two industries. This indicates that it is valid to group manufacturing and services into one non-resource industry. The results in columns (3) and (4) suggest that the effect of conflict on hydrocarbon and non-hydrocarbon FDI is comparable in size and positive but insignificant in both cases. In addition, a Chow-test shows that the difference between the BRD coefficients in Column 3 and 4 is not statistically significant. Hence, there is no evidence that the insensitivity of resource-related FDI to political conflict is driven solely by the hydrocarbon sector.

Table 4 Effect of Political Conflict on Manufacturing, Services, Hydrocarbon, and Non-hydrocarbon Greenfield FDI

	Dependent Variable: Log greenfield FDI (in USD millions), LSDVC Estimation			
	Manufacturing FDI	Service FDI	Hydrocarbon FDI	Non-hydrocarbon FDI
	(1)	(2)	(3)	(4)
BRD (ln)	-0.132+	-0.209**	0.055	0.091
	(0.071)	(0.067)	(0.105)	(0.091)
BRD (ln)*localized$_{t-1}$	0.123	0.168*	0.020	-0.082
	(0.101)	(0.096)	(0.142)	(0.123)
Observations	707	707	707	707
Number of countries	90	90	90	90
Economic Controls	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Note: Political conflict is proxied by battle-related deaths. Bootstrapped standard errors are in parentheses.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Conflict and war onset

As an additional robustness check, we use a dummy variable for conflict onset instead of our continuous BRD variable to measure whether a country experiences a conflict or a war according to the definitions of UCDP/PRIO. We code an observation as a conflict if there were at least 25 BRD but not more than 1,000 BRD in a year and as a war (or a large conflict) if there are at least 1,000 BRD per year. Thus, we measure the effect of conflict and war onset rather than the intensity of the disputes. Figure 4 shows

that conflicts are more prevalent than wars and that in both categories approximately half of the disputes are localized and the other half are nationwide.

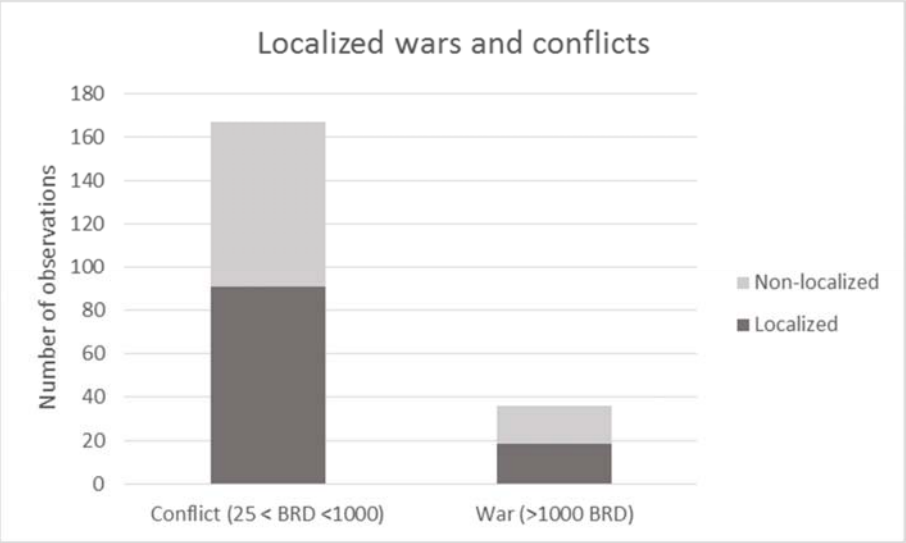


Figure 4 Incidence of conflict and war and their geographic scope in developing countries over the period of 2003-2012

Table 5 shows the results of the LSDVC regression model, including dummy variables for conflict and war and moderators for their geographic scope. In regression 1, the coefficient of the political conflict dummy is negative and significant at the 0.1% level and the coefficient on the scope-of-conflict moderator is positive and significant at the 5% level. These results indicate that the onset of a nationwide political conflict has a large effect on greenfield investments and that the scope of conflict matters to MNEs. The onset of a nationwide political conflict decreases greenfield FDI flows on average by 86.2%, whereas the onset of a localized political conflict has a smaller effect which is not significantly different from zero (effect size = -0.413, standard error = 0.503). The main effect of war onset is also negative and as statistically significant as in the case of conflict onset, but as expected the size of the war effect is much larger than that of conflict. There is evidence that the scope of violence matters in this case too. The moderator for the onset of a localized war is positive and significant at the 10% level. Quantitatively, the onset of a nationwide war has a very large effect on greenfield FDI flows; on average, the onset of nationwide wars are associated with a decline in greenfield investment flows of 93.2%. The onset of a localized war has a smaller effect on greenfield FDI and it is not significantly different from zero (effect size = -0.937, standard error = 0.778).

In model 2, the main effect of conflict onset on resource-related FDI is negative, but insignificant. The coefficient of the moderator for geographic scope is positive, but also insignificant. Hence, there is no evidence that the onset of a conflict affects resource FDI, independent of the scope of the conflict. However, the onset of a war has a negative effect on resource-related FDI, which is statistically significant at the 10% level. The onset of a nationwide war decreases resource FDI flows by 84.1%, whereas that of a localized has a small and statistically insignificant (effect size=-0.103, standard error = 1.183).

In model (3), the main effect of conflict onset on non-resource-related FDI flows is negative and significant at the 1% level. The geographic scope moderator is positive and significant at the 5% level. The onset of a nationwide conflict reduces greenfield FDI flows to the non-resource sector by 80.4%, but the effect of a localized conflict is not significantly different from 0 (effect size = 0.051, standard error = 0.547). The onset of a war has a strong negative effect, but this effect is again only statistically significant if the war is nationwide. This analysis suggests that even when we consider conflict onset rather than conflict intensity, we find support for the hypotheses proposed in the theoretical section of the paper. One additional insight we obtain is that unlike conflicts, war onset has a negative effect on all types of greenfield FDI.

Table 5 Effect of Political Conflict and War on Total FDI, Resource FDI and Non-Resource FDI

	Dependent Variable: Log greenfield FDI (in USD millions), LSDVC Estimation		
	Total FDI (1)	Resource-related FDI (2)	Non-resource-related FDI (3)
Conflict Dummy$_{t-1}$	-1.985***	-0.562	-1.632**
	(0.528)	(0.762)	(0.522)
Conflict Dummy*Localized$_{t-1}$	1.572*	0.123	1.683*
	(0.689)	(0.995)	(0.679)
War Dummy$_{t-1}$	-2.692***	-1.842+	-2.172***
	(0.664)	(0.957)	(0.655)
War Dummy*Localized$_{t-1}$	1.755+	1.739	0.954
	(0.999)	(1.441)	(0.986)
Observations	707	707	707
No. of Countries	90	90	90
Economic Controls	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Bootstrapped standard errors are in parentheses.
*** p<0.001, ** p<0.01, * p<0.05, +p<0.10

Firm-level Model

In this section, we discuss how we test our hypotheses using firm-level panel data. This method has the advantage of enabling us to measure geographic diversification continuously and to add control variables for firm-level characteristics that might confound the relation between FDI and political conflict. However, the disadvantage is that for many of the observations in the original data set, firm-level variables were not available. Although as many as 67.1% of all parent companies in the fDi Markets data set could be matched to firms registered in ORBIS, only for 1,413 of those firms (10.2%) data on firm-level characteristics were available. Although a sample of this size is not uncommon in IB research, it considerably decreases the precision of our estimates and the ability to detect statistically significant effects. In addition, a missing value logistic regression (Long & Freese, 2006) shows that firm-level data are not missing at random; the probability that data are missing depends on the sector and the level of political conflict. As this could considerably bias our results, we prefer the country-level estimates and show the estimates of the firm-level regressions merely for robustness.

The firm-level data set comprises data on the 1,413 MNEs that invested in a developing country between the years 2003 and 2012, according to the fDi Markets data set. For each MNE (*m*) we report greenfield FDI to a host country (*i*) in a certain year (*t)*, resulting in the following regression model:

$$FDI_{mit} = \propto_0 + \propto_1 P_{i(t-1)} + \propto_2 X_{i(t-1)} + \propto_3 X_{m(t-1)} + \propto_4 X_{io(t-1)} + \mu_i + \mu_t + \mu_o + \varepsilon_{mit}, \quad (2)$$

Similarly to our previous models, the independent variable of interest is political conflict *P* for country *i* in the previous year, while we control for destination country variables $X_{i(t-1)}$, a set of country dummies μ_i, and a vector of time dummies μ_t. In addition, we add fixed effects for the country of origin μ_o, controlling for time-invariant characteristics of the home country of the MNE. We also add a set of firm-level control variables $X_{m(t-1)}$, including greenfield FDI flows by the MNE *m* to country *i* in the previous year, the *age* of the firm (ln), the number of *employees* (ln), the rate of return on equity (*ROE*), and *geographic diversification*, measured by the number of countries in which the multinational is present (ln). The diversification variable is standardized to simplify the interpretation of the main effect of political conflict and the moderator. Finally, we include a set of bilateral variables, $X_{io(t-1)}$,

controlling for the population-weighted *distance* (ln) between the host country *i* and country of origin *o;* whether the origin and host country share a *common language*, *common border*, or *colonial history*. Data on these bilateral variables were obtained from the gravity data set developed by Head, Mayer and Ries (2010).

We estimate a two-stage Heckman model to simultaneously examine investment at the extensive margin - i.e. whether to invest - and the intensive margin - i.e. how much to invest. The first stage analyzing the extensive margin consists of a probit model, where the dependent variable is 1 if a MNE invested in a host country in year *t* and 0 otherwise. The second stage, examining the intensive margin, consists of an OLS-model estimating the amount of greenfield FDI (transformed using the inverse sine-transformation) for those firms that decided to invest. To avoid multicollinearity resulting from limited nonlinearity in the functional form, we use the colonial history dummy as our exclusion restriction. However, our results are also robust to using different exclusion restrictions.

Table 6 presents the results from the two-stage Heckman model. Column 1 shows the results for the regression of the intensive margin, where the dependent variable is the amount of greenfield FDI flows given that an MNE invests in a country. At the average geographic diversification level, a nationwide conflict has a significant negative effect on total FDI flows, whereas a localized conflict does not significantly affect greenfield FDI flows (Column 1). This is consistent with our hypotheses and main results. However, in the equation for the extensive margin there is no significant main effect of BRD, irrespective of the type of conflict. Hence, political conflict affects greenfield FDI flows through a decrease in the size of investment projects, whilst there is no evidence that conflict affects the probability that an MNE invests in a country. The diversification moderator is not statistically significant for the intensive margin, but it is positive and significant at the 10% level for the extensive margin (Column 2). At particularly high levels of geographic diversification, with presence in at least 26 countries, the effect of BRD becomes positive. This indicates that for MNEs that are better able to absorb the risk posed by political violence, the increase of conflict can actually positively affect the probability of investment. Although this might seem counterintuitive, it could suggest that MNEs that are sufficiently diversified have a competitive advantage in countries with high discontinuous risk and

can accordingly reap the monopoly rents associated with this advantage. This can in turn initiate entry into high-risk environments.

Table 6 Heckman estimation of the effect of Political Conflict on firm level greenfield FDI flows

	Dependent Variable: Log greenfield FDI (in USD millions), Heckman estimation					
	(1)		(2)		(3)	
	Total FDI		Resource-related FDI		Non-resource-related FDI	
	Intensive Margin	Extensive Margin	Intensive Margin	Extensive Margin	Intensive Margin	Extensive Margin
BRD_{t-1} (ln)	-0.247*	-0.009	-0.093	-0.018	-0.276*	0.002
	(0.109)	(0.022)	(0.200)	(0.041)	(0.108)	(0.023)
BRD (ln) * $localized_{t-1}$	0.301**	0.000	0.142	0.021	0.308**	-0.010
	(0.106)	(0.022)	(0.191)	(0.041)	(0.106)	(0.023)
BRD(ln)*$Diversfication_{t-1}$	-0.018	0.007+	0.010	0.004	-0.007	0.007*
	(0.012)	(0.003)	(0.027)	(0.007)	(0.012)	(0.004)
Bilateral Controls						
Distance	0.196+	-0.228***	-0.908	-0.337***	-0.058	-0.254***
	(0.113)	(0.016)	(0.571)	(0.039)	(0.215)	(0.017)
Common Border	-0.961**	0.424***	0.925	0.349*	-0.523	0.496***
	(0.371)	(0.079)	(0.953)	(0.172)	(0.535)	(0.080)
Common Language	-0.538**	0.307***	1.729*	0.337***	-0.152	0.339***
	(0.196)	(0.040)	(0.767)	(0.080)	(0.379)	(0.042)
Colonial History		0.126**		0.145+		0.181***
		(0.046)		(0.087)		(0.049)
Firm Controls						
$Diversification_{t-1}$ (std)	-0.155*	0.096***	0.516	0.216***	-0.065	0.128***
	(0.062)	(0.014)	(0.381)	(0.036)	(0.113)	(0.015)
FDI_{t-1} (ln)	0.009	0.061***	0.057***	0.068***	0.001	0.059***
	(0.018)	(0.002)	(0.008)	(0.003)	(0.018)	(0.002)
Age_{t-1} (ln)	-0.105**	-0.019*	-0.209+	-0.029	-0.095**	-0.004
	(0.035)	(0.009)	(0.118)	(0.025)	(0.033)	(0.010)
ROE_{t-1}	-0.001	0.000+	-0.001	-0.002*	0.000	0.001*
	(0.001)	(0.000)	(0.005)	(0.001)	(0.001)	(0.000)
$Employees_{t-1}$ (ln)	-0.059	0.118***	0.247	0.137***	0.106	0.170***
	(0.051)	(0.006)	(0.239)	(0.014)	(0.137)	(0.006)
Constant	177.034***	-57.929***	39.617	-50.043**	201.298***	-62.014***
	(46.194)	(9.001)	(77.702)	(19.365)	(48.315)	(9.271)
Inverse Mills Ratio	-1.427**		0.300		-1.550***	
	(0.434)		(0.511)		(0.454)	
Observations	519,030		58,528		491,123	
Economic Controls	Yes		Yes		Yes	
Destination FE	Yes		Yes		Yes	
Origin FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	

Standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Concerning the control variables, distance positively affects the intensive margin, but has a negative effect on the extensive margin. A common border and a shared language negatively affect the intensive margin, but positively affect the extensive margin. In addition, a shared colonial history has a positive effect on the extensive margin. Hence, the bilateral controls indicate that an increase in psychic

distance decreases the probability that an MNE sets up a subsidiary in a country, but increases the size of the FDI flow if the MNE makes an investment. Moreover, FDI in the previous year, the rate of return on equity and the number of employees positively and significantly affect the probability of investment, whereas they do not affect the size of the investments. Age has a significant negative effect on both the intensive and extensive margin, whereas geographic diversification increases the probability of an MNE making an investment, while decreasing the size of FDI flow.

We also estimate the Heckman model separately for resource and non-resource FDI decisions.[13] The estimates for non-resource-related FDI flows (Column 3) are similar to those of total FDI flows. This is not surprising; in the firm-level data set 88% of the observations concern non-resource FDI flows. However, the estimates for the resource sector differ (Column 2). Political conflict, the type of conflict and the diversification moderator are no longer significant. In line with our hypotheses, the effect sizes are also considerable smaller than the effects on non-resource-related FDI flows. However, the number of MNEs in the resource-related FDI regression is small and therefore, the estimates of the coefficients are relatively imprecise. This concern in combination with the sample selection effect, explained above, lowers our confidence in the Heckman estimates for the resource sector.

6. THE CASE OF HYDROCARBONS: THE ROLE OF ECONOMIC RENTS AND GEOGRAPHIC CONSTRAINTS ON LOCATION CHOICE

This section examines the factors behind the insensitivity of resource-related FDI to political violence by focusing on the two mechanisms discussed in the theory section: the size of the economic rents and the geographic constraints on location choice. We focus on the oil and gas industry because no data on rents and location choice are available for other natural resource industries. The BP Statistical Review of World Energy provides a large data set containing information on global oil, gas reserves and prices, obtained from government sources and published data. As a proxy for geographic constraints on location choice, we use proven global reserves of oil and gas that can be extracted from known reservoirs with reasonable certainty in the future. We first standardize the oil and gas reserves data (because oil and gas reserves are measured in different units) and subsequently take the average of the two measures to obtain our *gasoilreserves* variable. We then interact this score with battle-related deaths

to test the limited-location-choice mechanism. The main effect of global oil and gas reserves is excluded because it does not vary over countries and is hence absorbed by the time fixed effects.

It is possible that oil-and-gas-related FDI flows and political violence are the result of the discovery of one of these valuable resources. Therefore, we also control for large oil and gas field discoveries within a country using a data set obtained from the BP Statistical Review of World Energy. The variable for discovery is a dummy coded as one if a major oil or gas field was found in the country, and zero otherwise. A *major gas/oil discovery* is a discovery of a field that contains at least 500 million barrels of oil or 79 million m^3 of gas (Halbouty, 2001).

We proxy oil and gas rents with a global price index of oil and gas prices (*gasoilindex*). This index is constructed using data from the BP Statistical Review of World Energy. We take 2003 as the base year and subtract 100 from the index to ease the interpretation of our results. We interact this price index with battle-related deaths to test for the effect of rents on the responsiveness of resource-related FDI to political violence. The main effect of our global oil and gas price measure is excluded because it does not vary over countries and is hence absorbed by the time fixed effects.

Column (1) of Table 7 shows the baseline model for the oil and gas industry. Similar to column (3) in Table 4, the results show that the effect of political violence on oil and gas FDI is comparable to the effect on total resource-related FDI flows (see columns 3-4, Table 1): battle-related deaths do not have a significant effect on oil-and-gas-related FDI. In columns (2) and (3), respectively, we add the moderator for hydrocarbon reserves and moderator for the price index. Figures 5a and 5b present the effect of these moderators, as estimated in model 3. The moderating effect of reserves on the relationship between battle-related deaths and oil and gas FDI is negative and significant, indicating that when new oil and gas reserves are discovered, MNEs active in the oil and gas sector are less willing to invest in countries marred by political violence. Nevertheless, the change in global reserves must be large for the total effect of conflict on greenfield FDI flowing to the hydrocarbon sector to be different from zero. Figure 5a shows that the effect of battle-related deaths on oil-and-gas-related FDI flows is positive if global reserves decrease by 0.5 standard deviations or more relative to the mean. However, the effect only becomes significantly greater than zero if global reserves decrease by at least 2.5 standard deviations relative to the mean. The effect of conflict on oil and gas FDI is significantly smaller than

zero only if reserves increase by 2.0 standard deviations or more relative to the mean. If global reserves increase by two standard deviations relative to the mean, a 10 percent increase in battle-related deaths is associated with a reduction of greenfield FDI in the oil-and-gas sector of approximately 4%, ceteris paribus. Hence, our results thus suggest that during the estimation period, the geographic-constraints mechanism was at work.

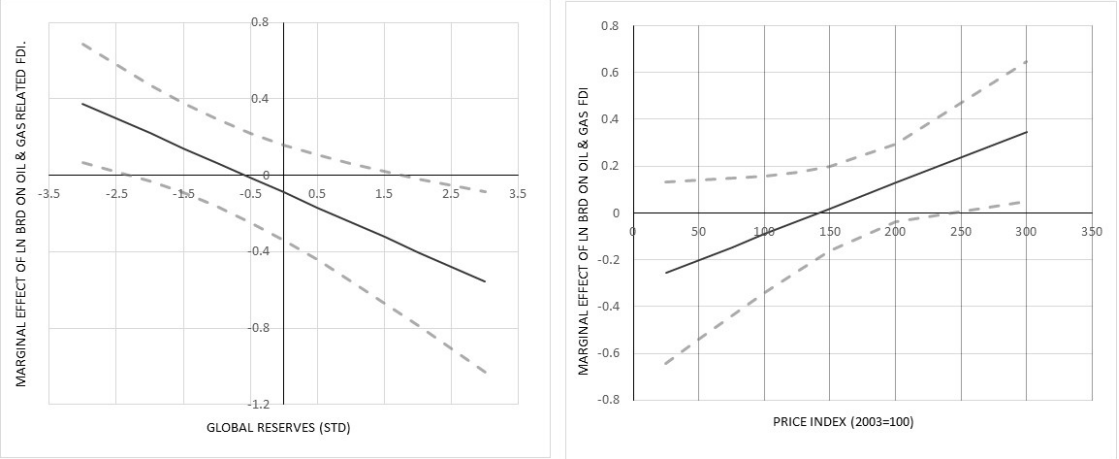
Table 7 Effect of Political Conflict on Greenfield FDI in the Oil and Gas sector

	LSDVC estimations, greenfield FDI in USD millions			
	(1)	(2)	(3)	(4)
BRD_{t-1} (ln)	0.064	0.090	-0.091	-0.097
	(0.077)	(0.078)	(0.114)	(0.130)
Ln(BRD)*$gasoilreserves_{t-1}$		-0.090*	-0.156**	-0.156**
		(0.046)	(0.055)	(0.055)
Ln(BRD)*$gasoilindex_{t-1}$			0.002*	0.002*
			(0.001)	(0.001)
Ln(BRD)*$localized_{t-1}$				0.013
				(0.141)
Major Gas/Oil $discoveries_{t-1}$	-0.391	-0.332	-0.337	-0.336
	(0.507)	(0.507)	(0.505)	(0.505)
FDI_{t-1} (ln)	0.086*	0.086*	0.081+	0.081+
	(0.043)	(0.043)	(0.043)	(0.043)
GDP_{t-1} (ln)	-0.962	-0.950	-1.004	-1.008
	(0.877)	(0.877)	(0.874)	(0.877)
Population (ln)	13.495**	14.050**	13.965**	13.973**
	(4.312)	(4.330)	(4.313)	(4.322)
WGI regulatory $quality_{t-1}$	1.287	1.121	1.104	1.096
	(0.997)	(1.002)	(0.998)	(0.996)
WGI $Corruption_{t-1}$	-0.419	-0.482	-0.656	-0.659
	(0.905)	(0.905)	(0.907)	(0.909)
Polity $Index_{t-1}$	-0.061	-0.038	-0.052	-0.053
	(0.073)	(0.074)	(0.074)	(0.074)
Real Exchange $Rate_{t-1}$ (ln)	0.415	0.470	0.468	0.466
	(0.545)	(0.544)	(0.542)	(0.543)
Exchange Rate $Volatility_{t-1}$	-2.525	-1.560	-3.752	-3.798
	(11.240)	(11.242)	(11.206)	(11.208)
$Inflation_{t-1}$	0.009	0.010	0.010	0.010
	(0.012)	(0.012)	(0.012)	(0.012)
Observations	707	707	707	707
Number of countries	90	90	90	90
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

The gas and oil reserves variable is standardized, and the gas and oil index is a price index.
Bootstrapped standard errors are in parentheses.
*** p<0.001, ** p<0.01, * p<0.05

The effect of political violence is positively moderated by oil and gas prices, indicating that the effect of battle-related deaths on FDI flows to the oil and gas sector depends positively upon the global prices of oil and gas. This dependency implies that during commodity booms when prices are high, MNEs are more likely to enter countries marred by political conflict than when prices are low. Figure 5b shows that only in cases of exceptionally high oil and gas prices do the effects of political violence

on oil- and gas-related FDIs become significantly different from zero. For example, if prices are at their base 2003 level and global reserves are at their mean value, the effect of political violence on oil-and-gas-related FDIs flows is negative but insignificant. However, when the oil-and-gas price index increases to 240, i.e., the 2012 level, the effect of battle-related deaths becomes significantly positive at the 5% level. Hence, we find that the effect of political violence on oil and gas FDI flows depends positively on economic rents or the profitability of oil and gas extraction and that the rent mechanism was at work towards the end of our investigation period. Finally, in Column (4), we add the moderator effect of localized and battle-related deaths to the model. The effect of this moderator is positive but insignificant and does not change the results associated with the rents and geographic-constraints mechanisms.



Figures 5a and 5b. Marginal effect of ln(BRD) on oil- and gas-related FDIs at different levels of global oil and gas reserves (std) and oil and gas prices, respectively

7. CONCLUDING REMARKS

This study makes several contributions to the literature on political violence and FDI, particularly on the heterogeneous nature of their relationship. We argue that the relationship between political violence and greenfield FDI flows is contingent on the type of violence, the characteristics of the FDI-receiving sector and the international scope of the MNE. We differentiate among several different types of political violence: high- and low-impact events, discontinuous and continuous events, and localized and nationwide events. We also differentiate between resource and non-resource sectors, focusing specifically on differences stemming from geographic constraints on location choice and economic rents.

By disaggregating total FDI into sectoral flows and limiting our analysis to a homogeneous set of greenfield investments, we show that the effect of political conflict on greenfield FDI flows depends upon sector characteristics, particularly those flows tied to economic rents and geographic constraints on location choice. We show that while non-resource-related greenfield FDI flows are negatively associated with political conflict, resource-related greenfield FDI flows do not significantly decrease when political conflict intensifies. We also find evidence that the effect of nationwide political conflict on non-resource FDI tends to be greater than the effect of localized conflict. Resource-related FDI is affected neither by localized nor geographically dispersed conflicts. Finally, we find evidence that political conflict particularly deters investment by MNEs that are relatively geographically undiversified. These results are remarkably robust across different specifications and provide a plausible explanation for the ambiguous results reported in the literature.

We empirically show that the insensitivity of resource MNEs to political violence can be attributed to the high profitability of resource extraction and these companies' geographic constraints on location choice during the period of estimation. The two mechanisms are related, as suggested by the prolonged period of high oil prices in the 2000s and the subsequent increase in investment opportunities provided by the discovery of hydraulic fracturing. During periods of commodity booms, profitability and limited investment opportunities reinforce one another. However, when the development of alternative sources of energy reduces the constraints on location choice within the resource sector, or if the economic rents associated with resource extraction drop, resource MNEs are

likely to be considerably less willing to invest in countries experiencing political conflict. Although we use the oil and gas sector to illustrate the effect of the rents mechanism and the geographic constraints mechanism on the propensity of MNEs operating in this industry to invest in conflict areas, we recognize that certain non-resource sectors might also be characterized by these mechanisms. Hence, we argue more generally that MNEs active in sectors in which these mechanisms are at play are more likely to invest in countries experiencing political conflict.

Finally, our results suggest that a certain level of continuity and impact are necessary conditions for political violence to affect greenfield FDI flows. Only political conflict, a continuous and high-impact type of political violence, has a significant effect on greenfield FDI. Other types of political violence, such as terrorism and assassinations, do not affect greenfield investments, although political terror is positively associated with the flow of greenfield FDI into resources, possibly because political repression reduces political instability and the risk that resource licenses might be reneged upon due to government change.

The findings in this paper point to a vicious cycle between resource dependence and conflict by providing evidence that political violence entrenches the resource dependency of fragile countries. We show that some types of political violence, namely repression through political terror, can be positively associated with resource-related FDI and that political conflict is detrimental to non-resource-related FDI – the type of investment considered most effective in promoting structural transformation and employment creation. At the same time, conflict does not affect resource-related FDI – the type of investment associated with the resource curse (Collier, 1998; Fearon and Laitin, 2003; Hodler, 2006; Poelhekke & Van der Ploeg, 2013; Sachs and Warner, 1995).

These findings provide managers of MNEs with a more nuanced understanding of the effects of political violence and the risks it poses to the MNE. We show that the continuity of the risk posed is an important factor influencing MNEs' entry strategy. However, also sector characteristics that influence an MNE's sensitivity to risk, the MNE's exposure to violence and the ability to diversify risk should be taken into account when making a risk assessment of investment into developing countries marred by political violence. As such, our results emphasize that the assumption that political violence necessarily depresses earnings and puts off investors is too simplistic. Our finding that political conflict

positively affects greenfield FDI by the most diversified firms, suggests that if MNEs are able to absorb discontinuous risk, entry into conflict countries might even increase earnings. As such, MNEs might want to consider entry into conflict countries – taking into account sector and firm attributes, despite the large level of risk posed, with the intention of obtaining a competitive advantage.

The main limitation of this study is that the empirical analysis cannot establish a causal relationship between FDI and political violence; therefore, the results should be interpreted as conditional associations. Although it is unlikely that total FDI flows have a direct effect on the number of battle-related deaths, FDI in the natural resource sector might affect political violence – particularly separatist violence – by intensifying grievances or increasing the perceived gains of secession. However, finding sources of exogenous variation in political violence that can be exploited in a panel format is challenging. Therefore, we address the endogeneity problem by including fixed effects and a large set of control variables, including income and quality of institutions. In the robustness analyses, we also control for the discovery of large oil and gas reserves because it is likely that the discovery of valuable resources rather than the involvement of an MNE fuels conflict. This additional control variable does not change our main results.

Another limitation lies in the data sources used. The data on greenfield FDI flows are collected through Financial Times newswires, internal information sources, other media sources, project data acquired from industry organizations and investment agencies and data purchased from market research and publication companies. MNEs investing in conflict countries might actively avoid publication of the investment project in the media to avoid a public outcry. This selection effect could drive our results on the effect of political conflict on total greenfield FDI flows. To our knowledge, however, there are no FDI data sets that are not based on media coverage while simultaneously covering an equally large set of countries and allowing for disaggregation at the sector level. Nevertheless, it is unlikely that our results on sector heterogeneity are driven by sample selection bias. It could be expected that particularly resource-related FDI is sensitive to public outcry because this type of investment is generally believed to have negative environmental, economic and institutional development effects (Collier & Hoeffler, 1998; Fearon and Laitin, 2003; Hodler, 2006; Ross, 2004; Sachs and Warner, 1995). Non-resource-related greenfield FDI, however, is widely considered a vehicle for economic development and

accordingly does not have a reputation as bad as resource-related FDI (Poelhekke & Van der Ploeg, 2013). Hence, it could be expected that managers in this sector face fewer incentives to avoid publication of FDI projects than do managers in the resource sector. Such a selection mechanism would yield results opposite to ours. It is therefore unlikely that such a mechanism drives our sector-level results.

This study explores the effects of political violence on greenfield FDI flows to developing countries and considers how the characteristics of a host country and the presence of political violence affect MNE location decisions. Additional research could examine sectoral FDI and conflict at the subnational level. During such an examination, it is possible to consider the distance from the investment location to the epicenter of a conflict, the exact location and characteristics of an MNE, and the role of oil rent sharing between subnational and national governments in determining what affects the likelihood of MNE investment in an affected region. In addition, future research could analyze a longer time span, studying how gestation periods matter for MNEs' sensitivity to political violence.

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Appendix 1: Descriptive Statistics and Correlation matrix

	Variable	Mean	S.D.	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)	BRD (ln)	1.28	2.50	0.00	9.92	1															
(2)	Localized Conflict dummy	0.25	0.43	0.00	1.00	0.292	1														
(3)	GDP (current US$, billions)	10.08	1.86	6.15	15.95	0.251	0.216	1													
(4)	Regulatory Quality	-0.48	0.59	-2.26	0.69	-0.056	-0.032	0.315	1												
(5)	Polity Index	2.69	5.44	-9.00	10.00	-0.024	-0.073	0.033	0.494	1											
(6)	Population (ln)	16.45	1.48	13.10	21.02	0.368	0.356	0.802	0.054	-0.034	1										
(7)	Exchange rate (ln)	4.30	2.84	-0.35	16.02	0.121	0.069	-0.23	-0.376	-0.027	-0.009	1									
(8)	Exchange rate volatility	0.01	0.01	0.00	0.20	0.011	-0.02	-0.093	-0.07	0.049	-0.002	0.148	1								
(9)	Inflation (annual %)	8.85	9.48	-25.31	103.82	0.015	0.034	0.01	-0.22	-0.08	0.036	0.125	0.055	1							
(10)	Control of Corruption	-0.62	0.46	-1.51	1.00	-0.075	-0.057	0.171	0.605	0.238	-0.076	-0.438	-0.085	-0.125	1						
(11)	No. of Assassinations	0.15	1.10	0.00	26.00	0.176	-0.021	0.078	0.021	0.038	0.074	0.065	-0.005	0	0.004	1					
(12)	Political Terror Scale	3.11	0.86	1.00	5.00	0.482	0.215	0.27	-0.275	-0.222	0.511	0.179	0.077	0.109	-0.364	0.152	1				
(13)	Terrorism: Fatalities	1.59	2.25	0.00	8.62	0.712	0.304	0.39	-0.066	-0.013	0.548	0.146	0.044	0.052	-0.145	0.161	0.557	1			
(14)	Global Oil/Gas Reserves	0.36	0.98	-0.80	2.02	0.014	0.026	0.133	0.043	0.062	0.023	0.033	-0.057	0.024	0.014	-0.029	-0.054	0.008	1		
(15)	Oil/Gas Price Index	101.23	42.45	21.96	165.83	0.025	0.02	0.109	0.02	0.038	0.016	0.033	-0.054	0.1	0.014	-0.069	-0.007	0.051	0.516	1	
(16)	Major Oil/Gas discovery	0.08	0.27	0.00	1.00	0.031	0.109	0.391	-0.07	-0.167	0.338	-0.037	-0.036	0.032	-0.064	0.021	0.147	0.074	0.017	-0.002	1

Appendix 2: List of countries in the sample

Albania	Ethiopia	Morocco
Algeria	Gabon	Mozambique
Angola	Gambia	Namibia
Armenia	Georgia	Nepal
Azerbaijan	Ghana	Nicaragua
Bangladesh	Guatemala	Niger
Belarus	Guinea	Nigeria
Bolivia	Guinea-Bissau	Pakistan
Botswana	Guyana	Panama
Brazil	Haiti	Papua New Guinea
Bulgaria	Honduras	Paraguay
Burkina Faso	India	Peru
Burundi	Indonesia	Philippines
Cambodia	Iran, Islamic Rep.	Rwanda
Cameroon	Iraq	Senegal
Central African Republic	Jamaica	Sierra Leone
Chad	Jordan	South Africa
China	Kazakhstan	Sri Lanka
Colombia	Kenya	Sudan (-2011)
Congo, Rep.	Lebanon	Suriname
Congo, Dem. Rep.	Liberia	Syria
Costa Rica	Libya	Tajikistan
Côte d'Ivoire	Madagascar	Thailand
Cuba	Malawi	Togo
Djibouti	Malaysia	Tunisia
Dominican Republic	Mali	Turkey
Ecuador	Mauritania	Uganda
Egypt, Arab Rep.	Mexico	Ukraine
El Salvador	Moldova	Uzbekistan
Eritrea	Mongolia	Yemen

Appendix 3: Results of Fixed Effects (LSDV), Random Effects and pooled OLS models

	Dependent Variable: Log greenfield FDI (in USD millions), LSDV Estimation		
	Total FDI	Resource FDI	Non-Resource FDI
	(1)	(2)	(3)
BRD_{t-1} (ln)	-0.120+	0.040	-0.228***
	(0.065)	(0.093)	(0.064)
BRD_{t-1} (ln)*localized	0.049	-0.066	0.208*
	(0.091)	(0.129)	(0.088)
Observations	707	707	707
Number of Countries	90	90	90
Economic Controls	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Robust standard errors are in parentheses.
*** p<0.001, ** p<0.01, * p<0.05, +p<0.10

	Dependent Variable: Log greenfield FDI (in USD millions), Random Effects Estimation		
	Total FDI	Resource FDI	Non-Resource FDI
	(1)	(2)	(3)
BRD_{t-1} (ln)	-0.089*	-0.045	-0.101*
	(0.040)	(0.047)	(0.047)
BRD_{t-1} (ln)*localized	0.082+	0.035	0.111*
	(0.045)	(0.061)	(0.052)
Observations	707	707	707
Number of Countries	90	90	90
Economic Controls	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Robust standard errors are in parentheses.
*** p<0.001, ** p<0.01, * p<0.05, +p<0.10

	Dependent Variable: Log greenfield FDI (in USD millions), Pooled OLS Estimation		
	Total FDI	Resource FDI	Non-Resource FDI
	(1)	(2)	(3)
BRD_{t-1} (ln)	-0.089*	-0.045	-0.101*
	(0.040)	(0.047)	(0.047)
BRD_{t-1} (ln)*localized	0.082+	0.035	0.111*
	(0.045)	(0.061)	(0.052)
Observations	707	707	707
Number of Countries	90	90	90
Economic Controls	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Bootstrapped standard errors are in parentheses.
*** p<0.001, ** p<0.01, * p<0.05, +p<0.10

[1] The literature on the determinants of political violence also remains inconclusive (for an overview see Blattman & Miguel, 2010).
[2] Terrorism is *the threatened or actual use of illegal force and violence to attain a political, economic, religious or social goal through fear, coercion or intimidation* (LaFree & Dugam, 2007).
[3] Political assassinations are the murder or attempted murder of a high government official or politician with a political aim (Banks, 2015).

[4] Some of the data on the size of investment are estimated by fDi Markets rather than directly observed. Therefore, we repeated our estimations with the number of projects (ln) as the dependent variable. The results were qualitatively the same as those reported here and are available from the authors on request.
[5] Only Pakistan and Mali experienced both a localized and non-localized conflict.
[6] Firms that were not matched to firms registered by Orbis or firms for which no data were available on the number of employees were assumed to be small and hence undiversified. We also tested our hypotheses using other operationalizations of the diversification variable and obtained results that were qualitatively the same. These results are available from the authors on request.
[7] Data on firm-level variables other than multinationality were limited, even more so than the data on the geographic location of subsidiaries.
[8] Following the literature, exchange rate volatility is operationalized as the standard deviation of the first difference of the natural logarithm of daily bilateral exchange rates vis-a-vis the U.S. dollar.
[9] Standard errors of the long run effect are obtained by using the delta method for non-linear combinations of estimates.
[10] The results of the non-corrected LSDV are reported in the appendix with a random effects and pooled OLS model. All support our hypotheses (1), (3) and (4).
[11] In an additional analysis, we excluded the level and volatility of exchange rates because the inclusion of these variables reduced the size of our sample by 25%. The results were qualitatively the same as those reported herein and are available from the authors on request.
[12] For the analysis in Table 1 we show that the Nickell bias is limited and we assume that the bias remains negligible in the models distinguishing between diversified and undiversified MNEs.
[13] We estimate separate Heckman regressions for resource-related and non-resource-related FDI flows instead of including interaction effects to avoid the issue of interpretation concerning three-way interactions. In addition, the regression results in Table 1 show that also the control variables behave differently for the two sectors. Finally, many of the firms in the resource sector also make greenfield FDI in the non-resource sector.