

The consequences of conflict and post-conflict periods on foreign direct investment

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Abstract

The main objectives of this research is to identify how foreign direct investment (FDI) reacts to minor conflicts and wars, to examine the relationship between post-conflict periods and FDI, and to determine to what extent different endings of conflict influence FDI inflows. Five hypotheses concerning conflict, post-conflict and different endings of conflict are formulated. Data from the UCDP/PRIO Armed Conflict Dataset, the UCDP Conflict Termination Dataset and UNCTAD FDI data are combined, resulting in a panel dataset of 45 years consisting of 139 countries. The results, after conducting regressions estimated by fixed effects, show that FDI is negatively affected by conflict, relative to periods with no conflict. Moreover, wars influence FDI inflows stronger than minor conflicts. Furthermore, FDI decreases in post-conflict countries, relative to countries in conflict. Ending a conflict with either a peace agreement or cease-fire agreement does not seem to matter for FDI inflows, relative to other endings of conflict. A conflict ending with government victory seems to decrease FDI.

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Chapter 1 Introduction

Over the last 50 years, one third of all countries experienced a civil war. Civil conflict, with battle-related deaths of a minimum of 25 per year, occurred in more than 50 percent of all countries (Blattman & Miguel, 2010). Although the number of countries in conflict has declined over the last 25 years, violence and conflict are still present in the current time; approximately 1.5 billion persons live in fragile, conflict-affected states (World Bank, 2011). The development of these countries is of the utmost importance, since they represent a large share of the world. Conflict countries are in need of inflowing capital, to strengthen infrastructure and improve the labour market (Schwartz et al., 2004).

Foreign direct investment (FDI) is an important source of capital for developing countries. In the period from 1980 to 2002, FDI stock increased tenfold, whereas during the 1990s, FDI specifically increased in developing countries. Meanwhile, the growth of FDI stock exceeded the growth of world exports (UNCTAD, 2003). For countries that are in conflict and countries that recently experienced conflict FDI inflows is one of the main sources, besides development aid, to the extent that these investments can increase economic growth rates to levels similar to pre-conflict and thus to recover from the impacts of conflict (Turner et al., 2008). For a country to develop, it is vital to have access to foreign capital which allows for opportunities that would otherwise not be possible (Busse & Hefeker, 2007). However, conflict and post-conflict countries are plagued by political instability including high levels of corruption, lack of formal governance structures and protection of property rights, making these nations less attractive for foreign direct investors (UN, 2009).

To increase investments to political instable countries, an insurance industry which services multinationals to decrease political risk by purchasing insurance contracts has emerged. Examples are the U.S. Governments' Overseas Private Investment Corporation (OPIC) and the World Bank's Multilateral Investment Guarantee Agency (MIGA). These organizations offer political risk insurances that are associated with the direct and indirect impact of political violence, such as civil war, uprisings, or terrorist attacks. The aim of these organizations is to stimulate investments to developing countries (Jensen, 2008).

Conflict is a serious political risk that is of importance to investors (Chan & Mason, 1992). Military conflict creates a general atmosphere of insecurity. Factories are in risk of being destroyed and employees can be injured or killed. This reduces potential benefits and can even lead to the total loss of investments. The overall functioning of the market is

disturbed, which in general will create an uncertainty in the planning process (Kobrin, 1982). The negative relationship between conflict and investments is also shown by the capital flight phenomenon: investors pull back their investments at the start of a conflict, due to the increased risk in a country (Davies, 2010). By avoiding conflicts and ensuring political stability, host countries can thus create an environment that is favourable to investments.

However, after the ending of a conflict the instability of the country continues. Incomes are approximately 15 percent lower than before the conflict (Collier, 1999) and the risk of reoccurrence of conflict within five years after the ending of conflict is almost 44 percent (Collier et al., 2008). For the first time in 50 years, there are currently more cases of post-conflict than conflict countries in Africa (Nkurunziza, 2008). This illustrates the importance of investigating the situation in post-conflict countries.

This paper is centred on the question how FDI is affected by periods of (post-) conflict. Particularly, it investigates the relationship between conflict and FDI inflows, and examines whether conflicts with a higher intensity affect FDI inflows more than conflicts with a lower intensity. Furthermore, this article examines whether post-conflicts periods leads to an increase in FDI inflows. In addition, I examine whether different endings of conflict matter for future FDI inflows. To my knowledge, it has not been researched yet if different forms of terminations of conflict, such as a peace agreement, victory for the government, or a slowly decrease of activity, influence the way in how much FDI a country receives. My findings confirm the expectations of a negative effect of conflict on FDI, and a bigger impact on FDI as a result of wars than minor conflicts. Contrary to expectations is the negative relationship between post-conflict countries and FDI inflows. There is no support found for a positive relationship between ending a conflict with an agreement or government victory and FDI.

This research contributes to the existing literature in two ways. First, it is one of the few papers that examine the relationship between post-conflict countries and FDI. Second, most papers examine the relationship between different endings of conflict and the chance of reoccurrence of conflicts, thereby leaving out the effect on FDI inflows. Therefore, to my knowledge, this is the first paper examining this relationship.

The paper is organized as follows. In chapter 2, a theoretical framework will be given, including existing literature and theory that will derive at the hypotheses. Chapter 3 will discuss the data and methodology used. Afterwards, chapter 4 discusses the obtained results. Chapter 5 presents a robustness check. Finally, conclusions of the research will be drawn in chapter 6, followed by a discussion.

Chapter 2 Theoretical Framework

2.1 FDI

“FDI is a cross-border investment by a resident entity in one economy with the objective of obtaining a lasting interest in an enterprise resident in another economy. This interest implies the existing of a long-term relationship between the direct investor and the enterprise. In this relationship, the director investor has a significant degree of influence on the management of the enterprise at all times. Ownerships representing the investor should contain at least 10% of the voting power” (OECD, 2013).

The literature distinguishes four types of FDI; market seeking, efficiency seeking, strategic-asset seeking, and resource seeking. The main goal of market seeking FDI is to serve domestic markets, while producing goods in the host country and selling goods in the local market. Therefore, domestic demand such as large market and high income in the host country is most important for this type of FDI. Consequently, this means that market seeking FDI in smaller and poorer countries is less likely to occur. Efficiency seeking FDI focuses on producing goods in the host country and selling abroad. Hence, domestic demand is less relevant. Inexpensive labour and the ease with which firms can export their products are more important for this type of FDI, such that products can be produced cheaply and easily exported (Asiedu, 2002). Strategic-asset seeking FDI seeks to learn, or gain access to, the strategic assets available in the host country, in order to develop their firm-specific advantages. Firm-specific advantages do not arise solely from the possession of proprietary assets but also from the capacity to acquire, or the efficient coordination of, the complementary assets owned by other firms in the host country (Makino et al., 2002). Resource seeking FDI involves investing in a host country in order to achieve cost-minimization by obtaining resources that are either too costly or not available in the home country (Brouthers et al., 2008).

As explained above, various reasons are connected to multinational enterprises (MNEs) investing abroad. The question why MNEs are willing to invest in country abroad, and why some countries receive more than others has been studied extensively. One of the most used theories of FDI flows is Dunning’s ownership, location and internalization (OLI) paradigm (Dunning, 1981). In this paradigm the author distinguishes three sets of factors that influence FDI decisions. First, the greater the ownership-specific advantages a MNE possesses, relative to other firms in the market, the more likely it is to engage in, or increase,

FDI. Ownership advantages are considered as a collection of a firm's assets. This includes, among others, product development, patents, and marketing skills. These assets are commonly modelled in terms of firm productivity. In general, only firms with the highest productivity, and thus the greatest ownership advantages, choose to engage in FDI (Helpman et al., 2004). Second, the location factor represents local attractiveness of the host country, where the foreign country is compared to the home country. When a foreign country possess a large market size, high growth rate, or low wages, relative to the home country, MNEs are more likely to exploit these advantages by engaging in FDI. Third, alternatives of operating abroad are evaluated. These alternatives can be solely selling its products in the host market, licensing, or joint venture. The greater the net benefits of internalizing foreign intermediate markets, the more likely a firm will be to engage in FDI (Dunning, 1981; Dunning, 2000).

Determinants of FDI found in the literature can be split up in economic and political determinants. The level of development of the host country, often measured as gross domestic product (GDP) or GNP per capita, is considered one of the main determinants. A high income per capita is a proxy of market size, which is positively related to prospects of profitability. Likewise, GDP (per capita) growth has a positive with FDI inflows, since a high growth rate indicates a favourable development potential (Schneider & Frey, 1985).

Blonigen (2005) argues that the quality of institutions is an important determinant for FDI. A low quality of institutions can lead to poor legal protection of assets, which increases the risk of expropriation of a firm's assets. Poor quality of institutions increases the costs of doing business (for example due to corruption), and finally it may lead to poor infrastructure. These three consequences of poor quality of institutions deter FDI inflows.

Political instability is often taken into account as a determinant of FDI. Ake (1975) defines political stability as "*the regularity of the flow of political exchanges. The more regular the flow of political exchanges, the more stability. Alternatively, we might say that there is political stability to the extent that members of society restrict themselves to the behaviour patterns that fall within the limits imposed by political role expectations. Any act that deviates from these limits is an instance of political instability.*" (p. 273). More recent papers define political instability as the probability of a government collapse (Alesina et al., 1996; Gates et al., 2006).

Most studies find that political instability has a negative effect on FDI flows (Schneider & Frey, 1985; Busse & Hefeker, 2007). Yet, other studies show no significant effect of political instability on FDI inflows (Li & Resnick, 2003; Sethi et al., 2003). Globerman and Shapiro (2003) examine a two-stage model, where the first stage examines the

probability of a country being chosen as FDI recipient, and the second stage investigates the determinants of the amount received. They found that political stability, including armed conflict, social unrest, and terrorist threats, does not influence the decision on whether a country receives FDI, but it does decrease the amount received. Even though conflict is considered an extreme factor of political stability, a considerable amount of studies that investigate the determinants of FDI do not take into account the importance of conflict. In section 2.3, I will elaborate further on the existing studies that examine this specific relationship.

The reason of the numerous studies on FDI determinants is because FDI is an important source of development and economic growth of the host country. It contributes to growth mainly by technological diffusion, which involves the transmission of ideas and new technologies. Foreign firms contribute more to economic growth than local firms (Borensztein et al., 1998). MNEs investing in foreign countries possess more advanced technology, which can be adopted by local firms (Findlay, 1978). However, the application of these more advanced technologies requires a sufficient level of human capital in the host country. Without ample ‘absorptive capacity’ the direct effect from FDI in foreign countries can be negative (Borensztein et al., 1998; Girma, 2005). Overall, the effect of FDI on host countries is considered positive. Haskel et al. (2007) find that the total factor productivity of an industry’s domestic plants in the U.K. increase by about 0.5% after a 10-percentage-point increase in foreign presence in that industry, due to productivity spillovers from inward FDI to domestic plants.

2.2 Conflict

The outbreak of a conflict is often seen as a result of poverty. For example, as explained by Blattman and Miguel (2010), the correlation between low per capita incomes and higher propensity for internal war is often shown in the literature. However, as Collier and Hoeffler (1998) explain, ethno-linguistic fractionalization, the amount of natural resources, and population size are factors that are positively related to the probability of civil conflict too.

The UCDP (2015) defines conflict as: “a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths.”

Conflict comes in several forms. In this paper four different kinds of conflict are taken into

account. 1) Extrasystemic armed conflicts, which occurs between a state and a non-state group outside its own territory, 2) interstate armed conflicts, between two or more states, 3) internal armed conflicts, between the government of a state and one or more internal opposition group(s) without intervention from other states, and 4) internationalized armed conflict, which occurs between the government of a state and one or more internal opposition group(s) with intervention from other states (secondary parties) (UCDP, 2015).

Several consequences are associated with a conflict. First, conflict increases the transaction costs of an investment. Second, transportation costs are likely to increase, due to the destroyed infrastructure. Third, assets may be destroyed, and conflict is likely to disrupt the labour and goods market. Finally, conflict is often accompanied by policy change, which may affect investments decisions since it increases political risk (Mihalache-O'keef & Vashchilko, 2010). The consequences of civil war are considered to be more damaging than international wars, since civil wars are entirely fought on the country's territory. One of the consequences of civil war is the reduction of the labour force due to increasing mortality rates. Public debt increases too, due to the reconstruction of destroyed infrastructure and the increase in military expenditure. On average, developing countries spend around 2.8 percent of their GDP on the military, which increases to approximately 5 percent during civil war (Collier et al., 2003). Since GDP decreases during conflict, this rise in military expenditure leaves less room for other expenses, for example for subsidies for investments. According to Hoeffler and Reynal-Querol (2003), after a civil war of seven years (the average duration of a conflict) incomes are, on average, around 15 percent lower than if a country did not experience war.

2.3 Conflict and FDI

Conflict is often assumed to negatively influence FDI inflows at all times. However, there have been several examples where, even during conflict, FDI stayed equal or even increased. One of these countries in my data sample is Colombia. Colombia has been in conflict during the full period of 1970 until 2014, yet FDI inflows (as a percentage of GDP) increased with approximately 3.5 percentage-points over these 45 years. This can be explained by the Colombian oil sector, which attracts the largest portion of FDI compared to other sectors (Maher, 2015).

Brooks (2005) points out two reasons why MNEs continue to invest in countries that are engaged in conflict. First, host countries may have a large internal market, of both population and economic size. MNEs partly continue to invest in these countries to keep

serving these large markets, and partly to prevent competitors from establishing a larger market share. Second, countries may possess unique, highly valuable natural resources. The author mentions Iraq after the invasion of Kuwait during the 1990s as an example. The presence of oil in Iraq attracted many MNEs, whom reached an agreement with the Iraqi government to develop the country's oil reserves after 1991. However, due to sanctions imposed by the UN these deals were constrained. In absence of those sanctions, Iraq would have continued to receive FDI even during conflict. According to Mihalache-O'Keef and Vashchilko (2010), these increases in FDI during periods of conflict do not solely happen in the natural resources industry, where companies can reap the benefits of first-mover advantages and where high costs cause an exit barrier, but also in other sectors such as financials and tourism. The authors provide examples such as AMT investing in a battery-manufacturing facility in Angola in 1998 during war time, and the opening of a Hyatt Regency hotel in Afghanistan in 2003 during civil conflict.

The effect of conflict on the economic prosperity of a country can be shown in two different lights. The first theory is the 'war ruin' school of thoughts. The second is the 'war renewal' school of thoughts, which focuses at the positive sides of a conflict. Kang and Meernik (2005) discuss these two perspectives and examine which one of the two is more accurate. The war ruin stream of literature argues that besides destruction and deaths that is caused by war, it is also the reason of, among others, inflation, surplus labour, increased military expenditure, and war debt. This view of conflict is often supported in empirical analyses. Arunatilake et al. (2001) for example, calculate the foregone loss of FDI due to war in Sri Lanka, which they expect to be 50 percent. Suliman and Mollick (2009) examine the effect of war in 29 Sub-Saharan African countries, and conclude that war has a significant negative impact on FDI. Asiedu (2006) includes a political risk variable, which includes coups, assassinations and revolutions, as explanatory variable to examine the effect on FDI, and finds a negative effect for all three measurements. Goswami and Haider (2014) examine the effect of political risk on FDI inflow. This variable consists of 12 categories, including internal conflict (civil war, terrorism and political violence, and civil disorder), and external conflict (war, cross-border conflict and foreign pressures), and are analysed separately. The authors find that all measurements of political risk deter FDI. According to Bussmann (2010) conflict significantly reduces the FDI stock in a country.

The opposite line of thought, 'war renewal' receives less empirical support. It argues that conflict is an opportunity or even a necessity for redevelopment. The old and poorly laid

existing infrastructure will be replaced by better organized infrastructure. Moreover, war brings an opportunity for technological innovation and advances human capital. Studies that support the war renewal thought are Organski and Kugler (1980) and Olson (1982). An example of war renewal can be seen in Iraq. Before the war, the government established economic sanctions that prevented FDI. During the war, these sanctions were removed and therefore FDI inflows increased during the conflict period (Moore and Parker, 2007). Biglaiser and DeRouen (2007) explain this phenomenon by U.S. FDI ‘following the flag’. They argue that security signals increase due to the presence of U.S. troops in the warzone, which increases U.S. FDI, but it does not increase global FDI.

Li (2006) argues that unanticipated interstate war reduces a country’s chance to be chosen as an investment location, but it has little effect on the amount of FDI. Foreign investors have a long-term view, and assess the probability of political violence before investing. This assessment is based on expected risks and often occurs before the events of political violence. However, it is not always possible to examine the risks beforehand, which forces investors to adjust their investment decisions *ex post* when they experience political violence. In a later study, the author argues that FDI has an *ex post* illiquid nature, which means that after the investment is made, it is not always possible to reverse this (‘irreversible investments’). FDI often consists of factories and facilities build in the host country, which are not easy to translate into liquid assets (Li, 2008). This could mean that foreign direct investors do not stop investing after the start of a conflict, due to the sunk costs they invested. As mentioned before, Mihalacho-O’keef and Vishchilko (2010) show that countries experiencing political violence continue to receiving FDI inflows.

Table 1 shows an overview of the existing literature on conflict and FDI and the findings.

Table 1. Previous literature

Author (year)	Research	Finding
Arunatilake et al. (2001)	Effect war on FDI in Sri Lanka	Negative
Asiedu (2006)	Effect political risk on FDI	Negative
Biglaiser and DeRouen (2007)	Effect conflict on US FDI and global FDI	Positive / Negative
Bussmann (2010)	Effect conflict on FDI stock	Negative
Goswami and Haider (2004)	Effect political risk on FDI	Negative
Li (2006)	Effect war on destination-choice and amount	Partly negative
Mihalacho-O'keef and Vishchilko (2010)	Effect conflict on FDI	Positive
Moore and Parker (2007)	Effect Iraq war on FDI	Positive
Olson (1982)	War renewal	Positive
Organski and Kugler (1980)	War renewal	Positive
Suliman and Mollick (2009)	Conflict on FDI	Negative

In conclusion, the uncertainties and risks that are accompanied by conflict make investing in conflict zones less attractive. However, since FDI is a long-term investment, multinationals may be reluctant to discontinue their investments due to the investments that are already made. It may be more expensive to decrease investments and therefore stop receiving the returns that are coming from this investment than to continue in a risky environment. For this reason, I argue that FDI is more affected by a more intense conflict. The threshold that I will be looking at is of more than 999 battle-related deaths per year. A conflict with deaths between 25 and 999 per year is considered a minor conflict in the UCDP dataset, whereas a conflict with more than 1000 deaths per year is considered a war. A war may impact FDI more, since it obviously causes more deaths, and therefore fewer people will be able to participate in the labour market. Scarce labour may increase the costs of labour and thus increase the cost of the investment, due to the probability of disruptions of the supply chain.

The following hypotheses are formulated:

H1a: Overall, FDI inflows will decrease during periods of conflict.

H1b: FDI will be less affected by a minor conflict, relative to when the conflict reaches the threshold of more than 1000 deaths per year, and thus is considered a war.

2.4 FDI in post-conflict countries

As explained in the previous section, conflict severely affects the economy of the country. After an average conflict of seven year duration, incomes are approximately 15 percent lower than if the war did not occur (Collier, 1999). Schwartz et al. (2004) and Turner et al. (2008) explain the importance of incoming FDI for post-conflict countries. They argue that post-

conflict countries need basic (infrastructure) services, but lack the adequate public revenues, government capacity and investor interest to redevelop. Since development aid is not sufficient to support post-conflict countries to get back on track, FDI can be a valuable tool to revitalize industries, rebuild infrastructures and eventually even eliminate the need for aid

Similar to the economy, the post-conflict peace is typically fragile: there is a risk of nearly 44 percent that a country will experience conflict again within five years after ending the conflict (Collier et al., 2008). This phenomenon is connected to the “poverty-conflict trap”. The poverty-conflict trap is caused by reduced levels of domestic economic activity, which tend to create incentives for increased external and internal conflict, which in turn reinforce low levels of domestic economic activity (Blomberg & Hess, 2002).

As explained in the previous section, MNEs assess the expected risks in a country before investing. MNEs are seeking information about economic attributes, as well as about the political environment. However, post-conflict countries usually offer low and unreliable information due to the consequences of the conflict on the country’s administration or because of possible government’s incentive to misrepresent the data (Garriga & Phillips, 2013).

This means that also after conclusion of conflict, the country remains risky for investors. Collier et al. (2008) find that economic development substantially reduces risks, but to recover from conflict and to reach a stable level of economic development requires a long time. FDI is able to support economic development, and therefore it can decrease the risk of a reoccurring conflict. It is clear that FDI can have a vital role in the redevelopment of a post-conflict country.

Traditionally, risk and uncertainty have been viewed negative for investments (see for example Caballero, 1991). However, real option theory suggests that high uncertainty may in fact create business opportunities or make certain projects more attractive (Smit & Trigeorgis, 1997). As a result of a decrease of GDP during the conflict and the need for economic development, entry barriers are likely to be relatively low in post-conflict countries. In addition, due to the high risks and low costs, there is a high return. This can encourage multinational firms to engage in FDI in a post-conflict country. Real option theory argues that when uncertainty is high and exogenous, MNEs may prefer high-commitment entry modes, since this decreases uncertainty and this provides valuable growth options (Li & Rugman, 2007). An example of a high-commitment entry can be engaging in a joint venture (JV). MNEs enter an uncertain foreign market often in the form of JV, which gives an option to buy the local partner. When the market booms, the MNE decides to buy the local firm (i.e.,

execute the option) (Kogut, 1991).

Additionally, the growth rate of a post-conflict country is on average 1.1 percent higher than in peace-time (Collier et al., 2003). Even though this growth rate is not stable during the complete decade (the peak seems to be around the fourth and the fifth year after the ending of the conflict), this is an attractive factor for FDI. According to Schwartz et al. (2004) post-conflict countries generally experience a spurt in economic growth, as a result of peace and the inflow of humanitarian and reconstruction aid. The authors state that post-conflict countries often face difficulties in consuming aid, due to a lack of absorptive capacity. As explained in section 2.1, FDI will solely be able to stimulate economic growth when a country possesses sufficient absorptive capacity. However, according to Collier and Hoeffler (2004), during the first three post-conflict years absorptive capacities is no greater than normal, but in the remainder of the first decade it is approximately double its normal level.

This catching-up of post-conflict countries can be explained by the neoclassical growth model of Solow (1956). This theory states that there is one stable equilibrium in an economy combined with a stable growth rate. Countries in post-conflict possess less capital than their peaceful counterparts, and are not situated at the stable equilibrium as a result of the conflict. Each additional unit of capital will result in a higher return than in a richer country, moving to the stable equilibrium (steady state), and thus converging with richer countries.

The conditional convergence theorem (Barro & Sala-i-Martin, 1992) supports the Solow model to explain the high growth rates of post-conflict countries. This theory states that countries that are further below the steady state position have a higher GDP growth rate. A country that has experienced conflict lost considerably in terms of income, but has already proven to possess a certain amount of growth potential. Post-conflict countries will grow faster, due to the lost amount of GDP.

Very little empirical research has been conducted on the relationship between FDI and countries that experience a post-conflict period. The “Post-Conflict Economic Recovery” report of the UNDP (2008) shows that countries that experience a strong growth recovery after conflict, tend to receive more FDI and that FDI sharply increases immediately after ending of a conflict. Yet, in general, FDI inflows are greatest several years after the conflict has ended. The possibility of high returns to investment and the high growth rates of the country may stimulate FDI in post-conflict countries, despite the risky economic environment. Accordingly, it is hypothesized:

H2: FDI inflows increase in post-conflict countries relative to countries in conflict.

2.5 The effect of different endings of conflict on FDI

As mentioned in the introduction, it is essential for post-conflict economies to recover as quickly as possible economically to avoid falling back into violent conflict. A topic which has not been studied yet is the relationship between the way a conflict ends and future FDI inflows. There are several ways how a conflict can end, where approximately one third of all conflict ends in parties signing a peace agreement (Harbom et al., 2006). Kreutz (2010, p.245) defines a peace agreement as “an agreement concerned with the resolution of the incompatibility signed and/or publicly accepted by all, or the main, actors in a conflict. The agreement should address all, or the central, issues of contention.” In a cease-fire agreement all main actors of the conflict agree to terminate military operations. A cease-fire agreement is often considered as a predecessor of a peace agreement: 60 percent of all cease-fire agreements are included in peace agreements (Harbom et al., 2006).

The economic consequences of the different terminations of conflicts have not been given enough attention in the existing literature. There are several studies that examine what increases the likelihood of sustainable peace, and what thus can increase future FDI inflows due to decreased risks. Appel and Loyle (2012) examine whether countries that implemented post-conflict justice (PCJ) institutions increase the attraction of FDI. A PCJ includes any process within five years following an armed conflict that attempts to address wrongdoings which took place during that conflict. The authors find a positive result between the implementing of a PCJ on FDI inflow. PCJs serve as a signal for stability because they are implemented to prevent violence and increase stability in a post-conflict country.

Licklider (1995) argues that negotiated agreements between parties may not last as long as military victories, since the organizational structure stays the same as before the conflict, and thus leaves room for resuming conflict. Likewise, after a military victory, the new government can be confident that previous opponents are unable to start conflict again, which provides more security. Contrastingly, Atlas and Licklider (1999) argue that negotiated agreement may actually be a sign for higher credibility of peace, since both parties were able to reach to an agreement. This leads to greater validity than if conflict had simply faded over time.

According to Kreutz (2010) intrastate conflicts are less likely to recur after government victories or after the deployment of peacekeepers. One element of a peace agreement that is often included is power-sharing. Here the power is divided between two or more parties, for example between a rebel group and the government. According to Hartzell

and Hoddie (2003), the bigger the network of parties participating in a power-sharing institution, the less likely it is to return to the use of armed violence to resolve frictions. Since the security concerns produced by civil war are diverse, the power-sharing institutions designed to address safety concerns should be multi-dimensional rather than focused solely on political decision-making. Power-sharing offers some kind of security and stability, which may encourage FDI inflow.

These studies are relevant since the less likely it is for a conflict to occur again, the more political stable a country is and therefore more chance of receiving FDI. However, no studies have been done on the exact relationship between conflict terminations and FDI inflows.

For that reason I will examine if there is a relationship between how a country ends its conflict and FDI inflows. To conclude from the literature above, the probability of reoccurrence of conflict seems most likely when the conflict slowly ends, without any victories and/or agreements. Thus, political instability is highest after termination of low activity, and therefore will receive less FDI after termination with an agreement or government victory. Accordingly, the following hypotheses are formulated:

H3a: FDI inflows will increase in countries that terminate conflict with a peace- or cease-fire agreement, relative to countries that end conflict with victory for rebel, slow ending of conflict, or where one actor ceases to exist.

H3b: FDI inflows will increase in countries that terminate conflict with a government victory, relative to countries that end conflict with victory for rebel, slow ending of conflict, or where one actor ceases to exist.

Chapter 3 Data and methodology

In the following chapter, I will describe the datasets used, provide a description of all variables, and explain the strategy of the analysis.

3.1 Data sample

The analysis comprises the period 1970 to 2014 for a sample of 139 countries, which can be found in table A1. Due to lack of data approximately ten countries are eliminated from the original dataset. Additionally, pooling developed and developing countries together may

result in inaccurate results between the relationship of conflict and FDI, since FDI inflows into developed economies are often “horizontal” FDI, whereas FDI inflows into developing countries is motivated by “vertical” integration goals (Blonigen & Wang, 2004). For this reason, I exclude developed countries from the dataset.

Table 2 shows the number of countries per region that are present in the dataset. More than one third of the countries included in the dataset are African. Even though this is a big part, the dataset still shows enough variation between countries relative to other regions.

Table 2. Number of countries per region

Region	Frequency	Percentage
Europe	11	7.91%
Middle East	14	10.07%
Asia	23	16.55%
Africa	51	36.69%
Americas	33	23.74%
Oceania	7	5.04%
Total	139	100%

Table 3. Number of years of conflict divided by regions

Region	Frequency	Percentage
Europe	7	0.65%
Middle East	174	16.20%
Asia	296	27.56%
Africa	458	42.65%
Americas	139	12.94%
Oceania	0	0.00%
Total	1,080	100%

Table 3 shows the number of years regions are in conflict during the time period. It shows that countries in Africa are in conflict for the longest time during 1970 until 2014, relative to countries in other regions. Yet, this is explained the presence of the large sample of African countries in the dataset. Furthermore, it shows that the seven countries situated in Oceania have not experienced conflict during the time period, but are included as controls.

3.2 Dependent variable

The dependent variable in this research measures the inward FDI flows. As explained in chapter 2, FDI is a long-term investment in control by a resident entity in one economy of an

enterprise resident in a different economy (UNCTAD, 2015). As often used in the literature, it is measured as the percentage of the total GDP.

Li (2009) points out the caveat of using FDI as a percentage of GDP in analyses. The author correctly mentions that this measurement consists of two parts. A statistically significant effect after analysis can imply either a relationship with FDI, or with GDP. It is possible that an independent variable significantly affects GDP only, and thus may lead to wrong conclusions.

For this reason, to increase the robustness of the analysis, I use FDI inflows in US Dollars at current prices and current exchanges rates in millions as the main dependent variable, and FDI as a % of GDP as alternative dependent variable. Yet, this variable is skewed. A solution for skewed variables is transforming the values into log values. However, since this variable contains negative values, this is not possible. As a solution, I use the inverse hyperbolic sine (IHS) transformation proposed by Johnson (1949). This transformation allows negative and positive values, in contrast to the simple log transformation, and can be interpreted the same way as a standard logarithmic dependent variable (Blattman, 2011). This transformation reduces the influences of extreme observations on regression coefficient estimates (Burbidge, 1988). The variable is transformed using the following equation:

$$\log (y_i + (y_i^2 + 1)^{1/2})$$

3.3 Independent variables

For the information on conflict, I use data provided by the UCDP/PRIO Armed Conflict Dataset v.4-2015 and the UCDP Conflict Termination Dataset v.2-2015. A conflict is listed when it causes at least 25 battle-related deaths per year. Armed conflicts are divided into two categories: minor conflicts and wars. A conflict is considered minor when it causes between 25 and 999 battle-related deaths in a year, whereas a conflict is a war when it results in 1000 or more battle-related deaths per year (Gleditsch et al., 2002). To examine the separate effects of minor conflicts and war on FDI, I constructed one dummy variable for minor conflict, which is one when a conflict is minor and zero otherwise. An additional dummy variable is created which is one when a conflict is a war and zero otherwise.

It is not possible to use the dummy variable of conflict to test the second hypothesis of post-conflict countries, since this dummy variable is zero in all times when a country is not experiencing a conflict at that moment; however this may not be a post-conflict period. A country is treated as a post-conflict country as soon as a conflict ends, and until ten years after the ending of the conflict. Afterwards, the country is considered to be ‘post-post-conflict’

(Collier & Hoeffler, 2004). For this reason, I constructed a third dummy variable which is one when a country is in post-conflict stage, and zero when in conflict.

For the third hypothesis, the Conflict Termination Dataset is merged with the original dataset. This dataset offers data on the endings of every conflict. The dataset considers six different forms of endings of conflicts: 1) Peace agreement, 2) Cease-fire agreement, 3) Victory government, 4) Victory for rebel, 5) Low activity, and 6) Actor ceases to exist. A peace agreement is concerned with resolving or regulating the disagreement completely or a central part of which is signed and/or accepted by all or the main parties active in the last year of conflict. Cease-fire agreements are mostly concentrated upon ending the use of violence by the opposing sides but they can also offer amnesty for participation in the conflict. Victory of the government side means the opposition is defeated or eliminated from the conflict, where on the other hand victory of the rebel side means a defeat for the government. Low activity of a conflict means that the conflict continues, but it does not reach the minimum threshold with regards to battle-related deaths. This may be due to victory from one of the parties, but it could also be a step towards exploring the possibility of negotiations, organizational reorganization, or intra-rebel fighting. Finally, when an actor ceases to exist conflict activity continues, but at least one of the parties stops participating or becomes another conflict actor (Kreutz, 2010). Figure A1 in the appendix shows the division of outcomes in a pie chart.

To test hypothesis 3a, I construct a dummy variable which is 1 when the conflict ends on either a peace agreement or a cease-fire agreement, and zero for all other outcomes. For hypothesis 3b, a dummy variable is constructed for victory of government, which is 1 and zero otherwise. In this case, the outcomes of peace agreements and cease-fire agreements are reported as missing, since this effect is estimated in hypothesis 3a.

3.4 Control variables

As explained in the literature section, there has been numerous amounts of studies on the determinants of FDI. In this research, I use variables that are mostly used in the literature and that have found to have a significant impact on the amount of FDI received.

I include GDP per capita (in current US\$) to control for the market size, and as an indicator of the level of development of a country. This variable is considered one of the most important influences in explaining FDI (Schneider & Frey, 1985). Since this variable is skewed, and does not show negative values, this variable is log transformed. Additionally, the GDP growth rate measures the attractiveness of a country, which is expected to have a positive effect on FDI inflows.

Another important determinant is the openness of a country, which is measured by the sum of exports and imports of goods and services as a share of the GDP. Asiedu (2006) points out the different effects openness can have on FDI flows. The ratio of trade openness is often used as an indicator of trade restrictions. When MNEs are ‘market seeking’, trade restrictions (and thus less openness) can have a positive effect on FDI, since this way companies can avoid tariffs (the ‘tariff jumping’ hypothesis) by setting up a part of their corporation in the host country. However, multinationals which are looking to export their products from the host country, trade restrictions may have a negative impact on FDI. Since market seeking FDI is more common in countries with a rich population, I expected trade openness to have a positive effect on FDI in this research, since all countries in my dataset are developing countries.

As an indicator of the overall economic stability I include the inflation rate, which is expected to be negatively related with FDI inflows (Busse & Hefeker, 2007). A high inflation rate discourages FDI by creating uncertainty and it may lead to domestic currency devaluation, which results in a reduction of the real value of earnings in the local currency (Buckley et al., 2007).

The four control variables above are taken from the World Governance Indicators (World Development Indicators, 2014).

Often literature makes use of the ICRG data to measure institutional quality, which offers six different measures. However, this data starts at 1984; therefore I decide to use V-Dem Dataset v6.1 (2016), since this data fully covers the time period of my analysis.

I include a political corruption index, which is calculated by taking the average of (a) the public sector corruption, (b) the executive corruption index, (c) the indicator for legislative corruption, and (d) the indicator for judicial corruption. The index runs from less corrupt to more corrupt, where the highest value indicates a more corrupt environment (V-Dem, 2016). Mauro (1995) shows that corruption negatively impacts the ratio of total and private investment to GDP. Likewise, Wei (2000) finds that corruption has a significant and negative impact on FDI.

Finally, as an indicator of the quality of institutions, I add a variable that measures the transparency and predictability of the laws of a country. This variable takes values from zero to four, where zero indicates the non-existence of transparency and predictability and four represents strong transparency and predictability (V-Dem, 2016). As explained in section 2.1, poor quality of institutions will negatively affect FDI.

3.5 Descriptive statistics

The main interest of this research is to examine the differences in FDI during conflict, and after conflict. Therefore, the most basic assumption in this research is that FDI actually is affected by conflict, and that there is a difference between FDI inflows during conflict and after conflict. To check this assumption, a simple T-test is performed, which can be found in table 4.

Table 4. Comparison of means for FDI as a percentage of GDP

Variable	Value	N	Mean	T score
Conflict dummy (1 for conflict, 0 otherwise)	0	4894	4.297	3.651***
	1	1073	1.617	
Post-conflict dummy (1 for post-conflict, 0 for conflict)	0	1074	1.616	-3.006***
	1	1147	2.337	

The conflict dummy includes both minor conflicts and wars.

The post-conflict dummy is 1 when a country is post-conflict and 0 when a country is in conflict.

Significance level is denoted as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

This table offers a quick overview of how conflict and post-conflict affect FDI. This test for equality of means observes the means of FDI and test whether FDI in a country in conflict significantly differs relative to a country that is not. Similarly, it tests the same for post-conflict countries, and countries that are in conflict. Both scores show a significance of 1%, which means that there is indeed a difference in means of FDI. The table shows a lower mean for FDI when the conflict dummy is one relative to when it is zero, and a higher mean of FDI when the post-conflict dummy is one relative to when it is zero.

Table A2 in the appendix shows the descriptive statistics of all variables. In total, 6255 observations are present in the dataset. It shows that there are more cases of minor conflict than war in the dataset. There are in total 773 observations of minor conflict, whereas 301 cases of wars. The correlation table, table A3, shows that there are no problems concerning multicollinearity. The highest correlation between variables is between the post-conflict dummy and the minor conflict dummy (-0.75).

3.6 Methodology

The dataset used in this study is a panel dataset. Panel data consists of observations on individual units, in this case countries, which are followed over time. Panel data controls for

unobserved individual-specific characteristics, which are included in the error term of the regression (Hill et al., 2012). This dataset takes into account 139 countries, in years ranging from 1970 until 2014.

Using panel data, either fixed or random effects are most suitable to conduct analyses. To test for any correlation between the error component and the regressors in a random effects model, the Hausman test is conducted. The Hausman test assumes that both the random effects and fixed effects estimators are consistent. The Hausman test is rejected ($\chi^2 = 47.78$ and $p=0.0000$) and thus conclude that the random effects estimator is inconsistent and fixed effects is preferable.

The following regression is estimated to test for hypothesis 1:

$$\ln FDI_{it} = \beta_0 + \beta_1 \text{Minor Conflict Dummy}_{it-1} + \beta_2 \text{War Dummy}_{it-1} + \beta_3 \text{Control variables}_{it-1} + \kappa_t + \varepsilon_{it}$$

Where the minor conflict dummy is 1 when a country experiences a minor conflict, that is between 25 and 999 battle-related deaths per year, and zero otherwise. The war dummy is 1 when a conflict is a war, which is a conflict that causes 1000 or more battle-related deaths per year. The control variables explained in the previous chapter, and time fixed effects (κ_t) are included. Time fixed effects are included to control for time-variant factors affecting the dependent variable.

As explained in chapter 2, I expect both the minor conflict dummy and the war dummy to have a negative effect on FDI, and thus a negative coefficient. Moreover, since I expect wars to affect FDI more negatively than minor conflicts, β_2 is expected to be larger than β_1 .

To estimate hypothesis 2, the following equation is used:

$$FDI_{it} = \beta_0 + \beta_1 \text{Post-conflict dummy}_{it-1} + \beta_2 \text{Minor Conflict Dummy}_{it-1} + \beta_3 \text{War Dummy}_{it-1} + \beta_4 \text{Control variables}_{it-1} + \kappa_t + \varepsilon_{it}$$

In this model, I expect β_1 to be positive, since post-conflict periods influences FDI positively. The dummies for minor conflict and wars are included, however as control variables instead of explanatory variables.

A complication in time-series regression can occur when the errors of the regression model

are correlated with one another; therefore the Wooldridge test for serial correlation is needed. This test is rejected, which means that the data shows signs of serial correlation. Finally, the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity is conducted. This test shows that heteroskedasticity is present in the data. Heteroskedasticity exists when variance between observations is larger than others.

To solve this, the fixed effects estimators standard errors are made robust to cluster effects (Adkins and Hill, 2011).

Chapter 4 Results

In this chapter, the results of the analyses are presented. First, the results of hypothesis 1 are discussed, where after hypothesis 2 is being reviewed, and lastly the outcomes of hypothesis 3 are presented.

As explained in the data section, two measurements of FDI are used in this analysis. The results show a higher R-squared for the models where the transformed FDI inflows in US Dollars are used as dependent variable. For that reason, I take this variable as main model and the results of the models with FDI as a percentage of GDP as dependent variable are shown in the appendix. Likewise, to control for possible endogeneity all independent variables are lagged with one year.

Moreover, since the dependent variable can be interpreted as a log transformed variable, and all explanatory variables in the models are dummy variables, reading the coefficient results requires some caution. Unlike the coefficient of a continuous variable, the outcome of a dummy variable is not the usual percentage effect of that variable on the dependent variable (Van Garderen & Shah, 2002). Kennedy (1981) introduced a formula that allows deriving the effect of a dummy variable into percentage terms:

$$\hat{g} = \exp[\hat{\beta} - \frac{1}{2}\hat{V}(\hat{\beta})] - 1$$

Whereas \hat{g} represents the percentage impact of the dummy variable on the variable being explained. The coefficients of the results will be interpreted using this formula.

4.1 The effect of (post-) conflict on FDI

Table 4 shows the result of conflict and post-conflict influencing FDI. In the first and second column, the model is estimated with a dummy that includes minor conflicts, and a dummy for

wars, which tests for hypothesis 1a and 1b. Column one shows a negative effect for both minor conflicts and wars on FDI, however not significant. Column two, after inclusion of time fixed effects, shows negative coefficients for both dummies, significant at the 10% level, which supports hypothesis 1a: FDI will decrease in countries that experience conflict. In this case, a country experiencing a minor conflict will receive 41.93% less FDI than countries not experiencing a conflict. Furthermore, the coefficient for wars is larger than the coefficient for minor conflicts, hence hypothesis 1b is supported: FDI is more negatively affected by wars than by minor conflicts. Countries experiencing a war receive 56.60% less FDI than peaceful countries.

The results for the second hypothesis are shown in column three and four. It shows that post-conflict countries are negatively related to FDI inflows, relative to countries in conflict. The coefficients show a negative sign, whereas in model three this is significant at the 1% level, yet after inclusion of time fixed effects it is significant at the 10% level. Therefore, hypothesis two is rejected. More particular, relative to countries in conflict, FDI inflows in post-conflict countries are approximately 68.24% lower. Minor conflicts and war, which are now included as control variables, are in model 4 significant at the 5% level.

Concerning the control variables, the results show that, in line with expectations, GDP per capita, GDP growth, and trade openness have a positive effect on FDI, significant at the 1% level. Likewise, the inflation rate is negatively related with FDI, significant at the 5% level. Corruption, against expectations, shows a significant positive effect on FDI, yet is not significant in model four. Similarly, transparency and predictability is positively related to FDI as expected, however in model four when time fixed effects are included the coefficient changes sign and turns insignificant.

Table 4. Regression results for conflict and post-conflict

Variables	(1)	(2)	(3)	(4)
Minor conflict dummy	-0.3637 (0.334)	-0.5087* (0.264)	-1.6014*** (0.450)	-1.3488** (0.576)
War dummy	-0.5487 (0.544)	-0.7552* (0.399)	-1.5602** (0.659)	-1.5500** (0.667)
Post-conflict dummy			-1.0178*** (0.300)	-1.0061* (0.531)
Ln GDP per capita	2.6613*** (0.178)	1.0963*** (0.249)	3.2042*** (0.290)	1.3410*** (0.417)
Inflation rate	-0.0003** (0.000)	-0.0002*** (0.000)	-0.0004** (0.000)	-0.0003** (0.000)
GDP growth	0.0589*** (0.012)	0.0449*** (0.010)	0.0513*** (0.017)	0.0363*** (0.013)
Trade openness	0.0300*** (0.005)	0.0153*** (0.004)	0.0438*** (0.011)	0.0175** (0.007)
Corruption index	7.8726*** (1.488)	2.8748** (1.376)	6.2836*** (2.139)	1.4553 (2.057)
Transparency and predictability	1.0775*** (0.201)	0.3326* (0.182)	0.7822** (0.387)	-0.0488 (0.448)
Constant	-17.3513*** (1.387)	-8.9545*** (2.757)	-18.4598*** (2.247)	-7.4856* (4.377)
R-squared	0.450	0.638	0.456	0.622
Number of years	45	45	45	45
Number of countries	128	128	91	91
Year fixed effects	No	Yes	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes

FDI inflow is measured in US\$ at current prices and current exchanges rates in millions.

All independent variables are lagged with one year.

Robust standard errors reported in parentheses under the regression coefficients.

Significance level is denoted as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.2 Different endings of conflict and the effect on FDI

Table 5 shows the results of the regressions that examine the impact of different endings of conflict on FDI. For this hypothesis, the sample solely contains post-conflict observations.

Column one and two show that a conflict ending with either a peace agreement or a cease-fire agreement does not influence FDI, relative to the ending by victory of government, victory of rebel, low activity, or where one actor ceases to exist. The variable shows a positive effect, yet a negative effect when time fixed effects are included. However, it does not show a

significant effect in both cases. Hence, hypothesis 3a is rejected.

Column three and four show the effect of a government victory on FDI. In this case, peace agreements and cease-fire agreements are removed from the sample, since this effect is examined in hypothesis 3a. The expectation of a government victory having a positive effect on FDI relative to victory of rebel, low activity, or where one actor ceases to exist is rejected. As a matter of fact, the coefficients show a negative sign, which means that FDI decreases when a conflict ends with victory for the government, relative to victory for the rebel group, low activity, or where one actor ceases to exist. This result is significant at the 5% in column three, yet when time fixed effects are included, this result becomes insignificant. Hence, there is no support for hypothesis 3b.

Column five shows regression results including all outcomes. A dummy is constructed for every outcome separately. All dummies are included in the regressions, with the exception of the reference category outcome 6: an actor ceases to exist. It shows that all outcomes have a positive effect on FDI, relative to the leave of one actor. These results are significant at the 1% level.

Table 5. Regression results for different endings of conflict

Variables	(1)	(2)	(3)	(4)	(5)
Agreement dummy	0.1123 (0.613)	-0.2640 (0.528)			
Gov. victory dummy			-1.4223** (0.550)	-0.7665 (0.633)	
Peace agreement					4.2218*** (0.917)
Cease-fire agreement					4.7247*** (0.856)
Government victory					4.5150*** (1.250)
Rebel victory					3.7176*** (1.186)
Low activity					5.0092*** (0.929)
Ln GDP per capita	3.2014*** (0.321)	1.8759*** (0.463)	3.4134*** (0.453)	2.9354*** (0.584)	2.0404*** (0.509)
Inflation rate	-0.0008 (0.001)	-0.0007 (0.001)	0.0005 (0.000)	0.0004 (0.001)	-0.0007 (0.001)
GDP growth	0.0465*** (0.016)	0.0366** (0.015)	0.0381** (0.015)	0.0441** (0.017)	0.0336** (0.014)
Trade openness	0.0319*** (0.011)	0.0171 (0.012)	0.0275** (0.013)	0.0307** (0.013)	0.0169 (0.012)
Corruption index	5.2048* (2.671)	0.8653 (2.765)	5.2580 (6.037)	2.5375 (6.354)	1.7500 (2.939)
Transparency	0.9717* (0.552)	0.5234 (0.661)	1.1835 (0.773)	0.9401 (0.845)	0.6849 (0.721)
Constant	-18.8768*** (2.628)	-13.4686** (5.872)	-18.9411*** (3.057)	-20.0399*** (5.011)	-20.2163*** (6.184)
R-squared	0.426	0.547	0.521	0.581	0.553
Number of years	32	32	23	23	32
Number of countries	83	83	64	64	83
Year fixed effects	No	Yes	No	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes

FDI inflow is measured in US\$ at current prices and current exchanges rates in millions.

All independent variables are lagged with one year.

Reference category in model 5 is outcome 6: actor ceases to exist.

Robust standard errors reported in parentheses under the regression coefficients.

Significance level is denoted as: *** p<0.01, ** p<0.05, * p<0.1.

Chapter 5 Robustness Check

To ensure the reliability of the results, four robustness checks are incorporated. First, as explained in the chapter three, FDI as a percentage of GDP is used as alternative dependent variable. The results of these regressions can be found in table A4 and A5. These results slightly differ from the main results. The main contrast is that for hypothesis 1a and 1b the results are not significant, minor conflicts even shows a, insignificant, positive sign in column 1 and 4. Moreover, the results for hypothesis 2 show in this model a positive sign, yet not significant. The agreement dummy, testing for hypothesis 3a, does show positive coefficients, however are not significant. Government victory shows negative effects on FDI, yet is not significant. Hence, all hypotheses are rejected in this model. Additionally, most control variables do not show to have a significant effect on FDI.

Second, all independent variables are lagged with three years, rather than one year, since it may take longer than one year for MNEs to react to (the ending of a) conflict. These results are shown in table A6. Column one shows a negative relationship between wars and minor conflicts and FDI, yet not significant. In column two however, minor conflicts significantly impact FDI inflows, at the 10% level. Wars do not seem to significantly affect FDI inflows. Column 3 and 4 show a significant negative relationship between post-conflict countries and FDI, relative to countries in conflict, significant at the 10% level, hence hypothesis 2 is rejected. Additionally, column 3 and 4 now show a significant negative effect for both minor conflicts and wars on FDI, significant at the 5% level.

Compared to the main results, all coefficients in the model with three years lag are larger. Model 4 in the main results show that minor conflicts decrease FDI with 78.01%, relative to countries in peace, whereas after three years minor conflicts decrease FDI with nearly 90%. Wars decrease FDI with approximately 83% in the main model, whereas this is 91.46% after three years. Post-conflict countries receive 68.24% less FDI in the main model, compared to 85.25% in this model. These results show that it takes longer to react to a conflict or ending of a conflict than one year, since after three years FDI decreases more than after one year.

Table A7 shows the results for hypothesis 3a and 3b. Both hypotheses are rejected; conflicts ending with either a peace agreement or cease-fire agreement, or a government victory, relatively to other outcomes, does not seem to impact FDI. Column three shows that all endings positively influence FDI, relative to an ending where one actor ceases to exist.

Third, I ran the regressions using solely the region with most observations, Africa, to estimate whether any differences exist between the overall results and the results of Africa. The results of hypothesis 1 and 2 can be found in table A8. Column 1 does not show a significant effect of both minor conflict and war on FDI. Column 2 shows a negative relationship between minor conflicts and war on FDI. This relationship is not significant for minor wars, however wars significantly decrease FDI, hence hypothesis 1b is supported. Column 3 and 4 include post-conflict countries, which shows a negative relationship between post-conflict countries and FDI, significant at the 5% level: hence hypothesis 2 is rejected. Wars show again a significant negative effect on FDI. The dummy for minor war, even though not significant in column 3, is significant at the 5% level in column 4. The dummy for wars is larger than for minor conflicts, which supports hypothesis 1b. Additionally, column 4 shows larger coefficients in this model than the coefficients in the main model. This means that FDI inflows in countries in Africa are relatively more affected by minor conflicts and wars. Moreover, countries in Africa attract less FDI in post-conflict periods.

Again, ending conflicts with an agreement does not influence FDI, relative to all other outcomes. Government victory shows a negative effect on FDI in column 3, yet is not significant in column 4. Both hypothesis 3a and 3b are rejected.

Fourth, instead of comparing post-conflict periods with periods of conflict, a new dummy is constructed that is one when a country is post-conflict, and zero when there is no conflict. These results can be found in table A10. In the main results, it shows that relative to conflict countries, FDI in post-conflict decreases. The results of table A10 show that FDI inflows in post-conflict decreases relative to no-conflict periods. This can be explained by the more risky environment in post-conflict countries than in countries that are not experiencing conflict.

In general, altering specific factors in the analysis provides similar results as the main results. The main difference is present when FDI as percentage of GDP is used as dependent variable. Even though the coefficients for hypothesis 1 are similar, those are not significant. The results of hypothesis 2 are different: whereas in the main results post-conflict countries seem to negatively affect FDI, here it shows positive results. Nevertheless, as described in the data section, FDI inflows in US Dollars are preferred as dependent variable and therefore most weight should be attached to original results displayed in table 4. In other cases, the checks support the main results and thus strengthen the original observations.

Chapter 6 Conclusions and discussion

The aim of this research was to investigate how FDI is affected by the intensity of a conflict, to determine the relationship between post-conflict countries and FDI, and to examine whether different endings of conflict matter for FDI inflows. This paper contributes to the literature in a way that it is one of the few papers that examines the relationship between post-conflict countries and FDI. Additionally, this paper is the first in investigating the six different outcomes and the relationship with FDI.

Five hypotheses were tested over the period of 1970 until 2014, including 139 countries. Table 6 gives an overview of the hypotheses, including whether these hypotheses are supported. The results are divided by the two dependent variables: FDI in US\$ at current prices and exchanges rates in millions and FDI as a percentage of GDP. Evidence was found for two of the five hypotheses.

Table 6. Overview results hypotheses

Nr.	Hypothesis	Supported:	
		FDI in US\$	FDI as % of GDP
1a	Negative effect of conflict countries	Yes	No
1b	Negative effect of high intensity of conflict	Yes	No
2	Positive effect of post-conflict countries	No	No
3a	Positive effect of ending with agreement	No	No
3b	Positive effect of government victory	No	No

The results of the analysis show evidence of both minor conflicts and wars affecting FDI inflows negatively. Wars seem to have a bigger impact on FDI than minor conflicts, explained by the higher intensity of wars.

Post-conflict countries are negatively related to FDI inflows, relative to countries that are experiencing conflict. This is contrary to expectations, yet can be explained by the risky environment in post-conflict countries. As explained in chapter two, the risk of reoccurrence of conflict shortly after the ending of a conflict is high. Moreover, incomes are lower and infrastructure has been destroyed.

Finally, ending a conflict with a peace agreement or a cease-fire agreement does not influence FDI inflows, relative to a government victory, victory for the rebel, slow ending of conflict, or where an actor ceases to exist. A conflict ending with a government victory, on the

other hand, decreases FDI inflows, relative to victory for the rebel, slow ending of conflict, or when an actor ceases to exist. This can be explained by the continuing of the same government leading as before conflict. Organizational structures are most likely to be similar to pre-conflict period, and thus leaving more room for reoccurrence of conflict.

This research suffers from several limitations. First, some countries could not be taken into account in the analysis due to lack of availability of FDI data, which may cause sample selection bias. Countries that do not possess data on FDI are usually underdeveloped countries, which consequently are countries that are in higher risk of conflict. Since these countries are not taken into account, this may cause downward bias: the estimates are lower than the true parameters.

Second, the UCDP/PRIO includes conflicts in the dataset when it reaches the minimum threshold of 25 battle-related deaths per year. If this threshold is not reached within 12 months of the first recorded fatality, no official start date is recorded to the conflict. This leads to the exclusion of legitimate armed conflicts that did start, but did not accumulate sufficient battle-related deaths in the given time frame. This could mean that a conflict which reaches 20 battle-related deaths every year for a long period of time is not included in the dataset, even though this may impact the society and economy. Additionally, the UCDP/PRIO dataset solely includes conflicts where at least on party is the government of a state. This means that other conflicts are not taken into account.

Third, as mentioned in chapter 4, this analysis is subjected to endogeneity problems. That means the relationship between conflict and FDI may not be causal. Bussmann (2010) and Lee and Mitchell (2012) both argue that an increase in FDI decreases the chances of conflict. Although, in principle, the endogeneity problem can be avoided by applying instrumental variable technique, the problem is finding an ideal instrumental variable. A good instrument would be a variable which is highly correlated with conflict but not with the error term in the regressions. An alternative solution for possible endogeneity is to lag all independent variables. Since this is more feasible in my analysis, all independent variables are lagged with one year. Yet, the use of lagged independent variables may not be the ideal solution for the endogeneity problem (see for example Bellemare et al., 2015).

Further research should focus more on post-conflict countries and FDI, since the proportion of post-conflict countries globally is increasing. Determining how post-conflict countries can increase receiving FDI is necessary for the economic development. As this thesis suggested,

post-conflict countries are negatively related to FDI inflows, relative to countries in conflict, even though countries in this situation are in need for financial aid to recover from the conflict. MNEs may now be reluctant to invest due to the presence of high risk of reoccurrence of conflict. Therefore, this thesis is relevant for policy makers: they are able to anticipate to the results of this research and evaluate ways to make investing in (post-) conflict countries more interesting for MNEs. Furthermore, analysing how the ending of a conflict can increase future FDI inflows in post-conflict countries is one of the acts that need to be done to increase the chance of redevelopment.

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Appendix

Table A1. Country sample

Afghanistan, Albania, Algeria, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Bahamas, Bahrain, Bangladesh, Barbados, Belize, Benin, Bermuda, Bhutan, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cayman Islands, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo, Costa Rica, Cyprus, Democratic People’s Republic of Korea, Democratic Republic of Congo, Djibouti, Dominica, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, French Polynesia, Gabon, Gambia, Georgia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, India, Indonesia, Iran, Iraq, Israel, Ivory Coast, Jamaica, Jordan, Kenya, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Libya, Lithuania, Madagascar, Malawi, Malaysia, Maldives, Mali, Marshall Islands, Mauritania, Mauritius, Mexico, Mongolia, Montserrat, Morocco, Mozambique, Namibia, Nepal, New Caledonia, Nicaragua, Niger, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Republic of Korea, Republic of Moldova, Romania, Rwanda, Saint Kitts and Nevis, Saint Lucia, Samoa, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Slovakia, Slovenia, Solomon Islands, Somalia, South Africa, Sri Lanka, Sudan, Suriname, Swaziland, Syria, Tajikistan, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Uganda, United Arab Emirates, United Republic of Tanzania, Uruguay, Venezuela, Zambia, Zimbabwe

Table A2. Descriptive statistics

Variables	N	Mean	SD	Min	Max
FDI (% of GDP)	5,967	3.916	21.803	-106.4	660.36
Ln FDI (millions US\$)	5,967	7.904	5.355	-0.287	23.527
Minor Conflict Dummy	6,255	0.124	0.329	0	1
War Dummy	6,255	0.048	0.214	0	1
Post-conflict Dummy	2,222	0.516	0.4998	0	1
Agreement Dummy	1,131	0.383	0.486	0	1
Gov. victory Dummy	694	0.4899	0.500	0	1
Ln GDP per Capita	5,348	7.179	1.413	4.054	11.447
Inflation Rate	5,192	44.808	552.35	-31.905	26765.9
GDP Growth	5,227	3.940	7.036	-64.05	149.97
Trade Openness	4,998	77.397	43.993	0.021	531.74
Corruption Index	4,956	0.576	0.228	0.028	0.945
Transparency and Predicatability	4,956	0.848	1.299	-3.643	3.727

Figure A1. Pie chart of Outcome variable

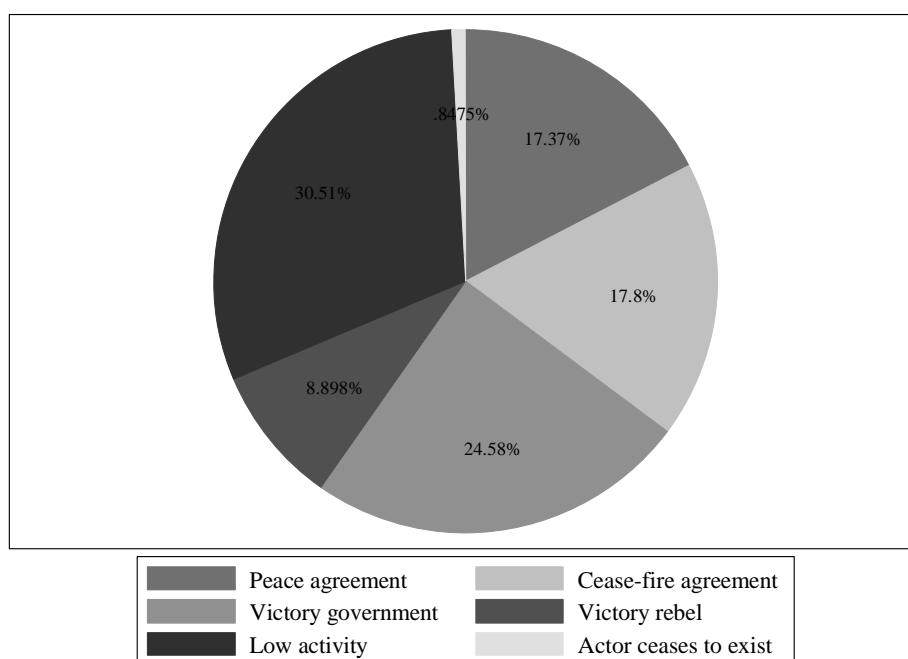


Table A3. Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11
1. FDI (%)	1										
2. FDI (US\$)	0.18	1									
3. Minor conflict	-0.04	0.08	1								
4. War	-0.02	-0.04	-0.08	1							
5. d.Post-conflict	0.06	-0.02	-0.75	-0.41	1						
6. lnGDP p. cap.	0.13	0.46	-0.14	0.11	0.01	1					
7. Inflation	-0.03	-0.05	0.00	0.07	-0.05	-0.04	1				
8. GDP growth	0.12	0.10	-0.01	-0.07	0.08	-0.01	-0.09	1			
9. Trade	0.39	0.06	-0.20	-0.13	0.15	0.29	-0.01	0.12	1		
10. Corruption	0.00	-0.01	0.11	0.07	0.01	-0.37	0.04	-0.03	-0.14	1	
11. Transparency	0.08	0.20	0.02	-0.03	0.07	0.15	0.01	0.01	0.01	-0.19	1

Table A4. Regression results conflict and post-conflict: alternative dependent variable

Variables	(1)	(2)	(3)	(4)
Minor conflict dummy	0.0310 (0.263)	-0.0423 (0.238)	-0.0720 (0.445)	0.1653 (0.659)
War dummy	-0.3472 (0.366)	-0.3813 (0.346)	-0.2902 (0.388)	-0.1522 (0.653)
Post-conflict dummy			0.0216 (0.199)	0.0662 (0.495)
Ln GDP per capita	0.6859*** (0.164)	-0.7724** (0.361)	0.5453** (0.256)	-1.5379** (0.691)
Inflation rate	-0.0002** (0.000)	-0.0001** (0.000)	-0.0003** (0.000)	-0.0002** (0.000)
GDP growth	0.0773*** (0.023)	0.0629*** (0.020)	0.0717** (0.034)	0.0591** (0.025)
Trade openness	0.0332*** (0.006)	0.0204*** (0.006)	0.0336*** (0.010)	0.0123 (0.010)
Corruption index	3.7395** (1.453)	0.5735 (1.520)	1.7925 (1.722)	-1.2783 (1.922)
Transparency and predictability	0.4796*** (0.170)	0.0465 (0.169)	0.3415 (0.231)	-0.1689 (0.147)
Constant	-7.4798*** (1.564)	4.8074 (3.670)	-5.1742*** (1.537)	12.9165** (6.119)
R-squared	0.094	0.179	0.067	0.164
Number of years	45	45	45	45
Number of country	128	128	91	91
Year fixed effects	No	Yes	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes

FDI inflow is measured as a percentage of GDP.

All independent variables are lagged with one year.

Robust standard errors reported in parentheses under the regression coefficients.

Significance level is denoted as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A5. Regression results of different endings of conflict: alternative dependent variable

Variables	(1)	(2)	(3)	(4)	(5)
Agreement dummy	1.0662 (1.029)	0.3330 (0.689)			
Gov. victory dummy			-0.4993 (0.320)	-0.2427 (0.342)	
Peace agreement					-0.3050 (1.076)
Cease-fire agreement					0.6216 (0.750)
Government victory					0.5331 (1.061)
Rebel victory					-2.3831 (1.608)
Low activity					-0.3947 (0.808)
Ln GDP per capita	0.7535* (0.405)	-1.9378* (1.157)	0.7484* (0.418)	0.4002 (0.519)	-1.9631* (1.043)
Inflation rate	-0.0006 (0.000)	-0.0003 (0.000)	-0.0000 (0.000)	0.0002 (0.000)	-0.0002 (0.000)
GDP growth	0.0971 (0.071)	0.0719 (0.048)	0.0043 (0.013)	0.0045 (0.013)	0.0703 (0.043)
Trade openness	0.0282*** (0.010)	0.0026 (0.017)	0.0219 (0.015)	0.0209 (0.015)	0.0004 (0.020)
Corruption index	-1.6138 (1.741)	-5.2189* (3.023)	-2.3612 (2.214)	-3.3560 (2.098)	-4.0125 (2.706)
Transparency	0.6407 (0.440)	-0.1092 (0.288)	0.3409 (0.255)	0.2403 (0.239)	0.1745 (0.345)
Constant	-4.7517* (2.665)	18.0996* (10.609)	-2.8546 (1.750)	-1.3004 (4.324)	17.3136* (9.434)
R-squared	0.077	0.253	0.063	0.244	0.264
Number of years	32	32	23	23	32
Number of countries	83	83	64	64	83
Year fixed effects	No	Yes	No	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes

FDI inflow is measured as a percentage of GDP.

All independent variables are lagged with one year.

Reference category in model 5 is outcome 6: actor ceases to exist.

Robust standard errors reported in parentheses under the regression coefficients.

Significance level is denoted as: *** p<0.01, ** p<0.05, * p<0.1.

Table A6. Regression results H1 and H2, 3 years lag.

Variables	(1)	(2)	(3)	(4)
Minor conflict dummy	-0.1118 (0.396)	-0.4736* (0.276)	-3.2893*** (0.508)	-2.0851*** (0.531)
War dummy	-0.2266 (0.698)	-0.6560 (0.412)	-3.1377*** (0.746)	-2.2503*** (0.649)
Post-conflict dummy			-2.7921*** (0.294)	-1.8026*** (0.471)
Ln GDP per capita	1.3876*** (0.232)	0.3453* (0.206)	2.1866*** (0.381)	0.5743 (0.415)
Inflation rate	-0.0001 (0.000)	-0.0001 (0.000)	-0.0002 (0.000)	-0.0001 (0.000)
GDP growth	0.0483*** (0.014)	0.0405*** (0.013)	0.0473*** (0.015)	0.0376** (0.018)
Trade openness	0.0234*** (0.006)	0.0111*** (0.004)	0.0411*** (0.010)	0.0129** (0.006)
Corruption index	8.0206*** (1.545)	1.7318 (1.070)	7.6707*** (2.165)	1.2716 (1.681)
Transparency and predictability	1.3205*** (0.196)	0.2812* (0.144)	1.0096*** (0.378)	0.1088 (0.415)
Constant	-8.3323*** (1.514)	-1.1554 (2.082)	-10.7692*** (2.644)	0.1748 (4.165)
R-squared	0.250	0.622	0.320	0.598
Number of years	45	45	45	45
Number of countries	130	130	95	95
Year fixed effects	No	Yes	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes

FDI inflow is measured in US\$ at current prices and current exchanges rates in millions.

All independent variables are lagged with three years

Robust standard errors reported in parentheses under the regression coefficients.

Significance level is denoted as: *** p<0.01, ** p<0.05, * p<0.1.

Table A7. Regression results H3, 3 years lag.

Variables	(1)	(2)	(3)	(4)	(5)
Agreement dummy	0.5111 (0.701)	-0.0403 (0.571)			
Gov. victory dummy			-1.2757 (0.830)	-0.2140 (0.790)	
Peace agreement					3.8117*** (0.833)
Cease-fire agreement					3.8090*** (0.799)
Government victory					3.8806*** (1.175)
Rebel victory					3.4357*** (0.975)
Low activity					3.8824*** (0.873)
Ln GDP per capita	2.1610*** (0.437)	1.3101*** (0.451)	2.8122*** (0.445)	2.1001*** (0.588)	1.2871** (0.506)
Inflation rate	-0.0003 (0.000)	-0.0002 (0.000)	0.0005 (0.000)	0.0004 (0.001)	-0.0003 (0.000)
GDP growth	-0.0052 (0.015)	-0.0039 (0.017)	-0.0085 (0.022)	-0.0073 (0.025)	-0.0057 (0.017)
Trade openness	0.0297*** (0.009)	0.0224** (0.010)	0.0173 (0.020)	0.0415** (0.018)	0.0221** (0.010)
Corruption index	7.3715** (3.152)	2.8122 (2.808)	6.4566 (5.430)	5.4405 (5.362)	2.9389 (2.890)
Transparency	1.3177** (0.572)	0.9212 (0.668)	1.5152* (0.855)	1.2287 (0.920)	0.9381 (0.686)
Constant	-13.4051*** (3.599)	-10.7446* (6.090)	-15.0412*** (4.563)	-20.3679*** (7.325)	-14.5618** (6.346)
R-squared	0.325	0.517	0.417	0.552	0.518
Number of years	33	33	25	25	33
Number of countries	87	87	64	64	87
Year fixed effects	No	Yes	No	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes

FDI inflow is measured in US\$ at current prices and current exchanges rates in millions.

All independent variables are lagged with three years.

Reference category in model 5 is outcome 6: actor ceases to exist.

Robust standard errors reported in parentheses under the regression coefficients.

Significance level is denoted as: *** p<0.01, ** p<0.05, * p<0.1.

Table A8. Regression results H1 and H2: Africa

Variables	(1)	(2)	(3)	(4)
Minor conflict dummy	0.2623 (0.523)	-0.3019 (0.328)	-0.9158 (0.642)	-1.8279** (0.724)
War dummy	-0.6331 (0.729)	-1.3517** (0.578)	-1.6431** (0.799)	-2.7957*** (0.785)
Post-conflict dummy			-0.8335** (0.361)	-1.7196** (0.675)
Ln GDP per capita	2.0362*** (0.306)	0.8701*** (0.292)	2.1753*** (0.571)	1.4693** (0.610)
Inflation rate	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0005* (0.000)	-0.0006*** (0.000)
GDP growth	0.0490*** (0.015)	0.0302*** (0.011)	0.0429** (0.017)	0.0202** (0.010)
Trade openness	0.0283*** (0.007)	0.0166*** (0.006)	0.0387*** (0.014)	0.0141* (0.008)
Corruption	6.7211*** (1.869)	-0.4832 (1.206)	6.2221** (2.460)	-3.1654* (1.828)
Transparency and predictability	1.1531*** (0.331)	0.1185 (0.205)	0.9040* (0.524)	-0.4934 (0.463)
Constant	-13.3991*** (2.071)	-6.5903** (2.718)	-12.6836*** (3.840)	-6.2051 (4.810)
R-squared	0.348	0.602	0.312	0.595
Number of years	45	45	44	44
Number of countries	49	49	40	40
Year fixed effects	No	Yes	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes

FDI inflow is measured in US\$ at current prices and current exchanges rates in millions.

All independent variables are lagged with one year.

Robust standard errors reported in parentheses under the regression coefficients.

Significance level is denoted as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A9. Regression results H3: Africa

Variables	(1)	(2)	(3)	(4)
Agreement dummy	0.9751 (0.835)	-0.1008 (0.481)		
Gov. victory dummy			-1.8046** (0.680)	-1.0283 (0.787)
Ln GDP per capita	2.7181*** (0.696)	1.0132 (0.710)	2.9719*** (0.522)	2.9742*** (0.749)
Inflation rate	-0.0115 (0.007)	-0.0078 (0.007)	-0.0130 (0.010)	-0.0167 (0.010)
GDP growth	0.0408*** (0.011)	0.0290** (0.011)	0.0392*** (0.010)	0.0467*** (0.014)
Trade openness	0.0145** (0.007)	-0.0065 (0.006)	0.0040 (0.017)	0.0117 (0.016)
Corruption index	1.0424 (3.044)	-7.3056*** (2.384)	-5.7739** (2.713)	-8.1196*** (2.519)
Transparency and predictability	1.3048*** (0.447)	0.3305 (0.404)	1.0262*** (0.315)	0.6704* (0.352)
Constant	-12.9735*** (3.437)	1.6707 (5.977)	-7.2447* (3.705)	-10.8776* (5.623)
R-squared	0.335	0.568	0.392	0.533
Number of years	32	32	23	23
Number of countries	38	38	30	30
Year fixed effects	No	Yes	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes

FDI inflow is measured in US\$ at current prices and current exchanges rates in millions.

All independent variables are lagged with one year.

Robust standard errors reported in parentheses under the regression coefficients.

Significance level is denoted as: *** p<0.01, ** p<0.05, * p<0.1.

Table A10. Regression with alternative reference category post-conflict dummy

Variables	(1)
Post-conflict dummy	-0.0888 (0.217)
Minor conflict dummy	-0.1757 (0.297)
War dummy	-
Ln GDP per capita	1.0393*** (0.264)
Inflation rate	-0.0002* (0.000)
GDP growth	0.0430*** (0.010)
Trade openness	0.0154*** (0.005)
Corruption index	2.6919* (1.562)
Transparency and predictability	0.5058*** (0.190)
Constant	-9.0713*** (3.133)
R-squared	0.621
Number of years	45
Number of countries	123
Year fixed effects	Yes
Country fixed effects	Yes

FDI inflow is measured in US\$ at current prices and current exchanges rates in millions.

All independent variables are lagged with one year.

Robust standard errors reported in parentheses under the regression coefficients.

Significance level is denoted as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.