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**Impact of Terrorism on Foreign Direct Investment:
Analysis of BRICS Countries**

Bachelor's Thesis

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Declaration

1. I hereby declare that I have compiled this thesis independently, using the listed literature and resources only.
2. I hereby declare that my thesis has not been used to gain any other academic title.
3. I fully agree to my work being used for study and scientific purposes.

In Prague on
30.04.2021

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References

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Abstract

Foreign Direct Investment can potentially be affected by adverse economic atmosphere resulted from terrorism in developing countries. In this thesis, this potential relationship is investigated in BRICS countries during the period 1992-2018 using panel data to which terrorism variable and several other macroeconomic metrics have been incorporated. In general, it has been documented that terrorism in the form of number of attacks does not affect FDI inflows in BRICS. The result does not change even after the inclusion of lagged values of number of incidents. Furthermore, Inflation and Human Development Index (HDI) are macroeconomic variables that are statistically insignificant. On the other hand, GDP per capita, Trade Openness and Population have been found to have statistically significant impact on inward FDI in BRICS countries.

Keywords:

Terrorism, Impact, Foreign Direct Investment, BRICS, Panel Data, Fixed Effects

Abstrakt

Přímé zahraniční investice mohou být potenciálně ovlivněny nepříznivou ekonomickou atmosférou vyvolanou terorismem v rozvojových zemích. V této diplomové práci je tento potenciální vztah zkoumán v zemích BRICS v období 1992–2018 pomocí panelových dat, do nichž byla začleněna proměnná terorismu a několik dalších makroekonomických metrik. Obecně bylo zdokumentováno, že terorismus ve formě počtu útoků neovlivňuje příliv PZI do BRICS. Výsledek se nemění ani po zahrnutí zpožděných hodnot počtu incidentů. Inflace a index lidského rozvoje (HDI) jsou navíc makroekonomické proměnné, které jsou statisticky nevýznamné. Na druhé straně bylo zjištěno, že HDP na obyvatele, otevřenost obchodu a populace mají statisticky významný dopad na příchozí přímé zahraniční investice v zemích BRICS.

Klíčová slova

Terorismus, Dopad, Přímé Zahraniční Investice, BRICS, Panelová data, Fixní efekty

Název práce

Dopad Terorismu Na Přímé Zahraniční Investice: Analýza Zemí BRICS

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Institute of Economic Studies

Bachelor Thesis Proposal

Proposed Topic:

Impact of Terrorism on Foreign Direct Investment: Analysis of BRICS countries

Preliminary scope of work:

Research question and motivation

I am going to study the following research question: “Does terrorism have significant negative effect on FDI inflows in BRICS countries?”

The definition of “terrorism” varies a lot in different sources. One can define it as the mean of applying pressure and violence on local governments and countries by targeting specific groups of people in order to achieve some economic, political or religious objectives.

Several researches have been conducted to study the effects of terrorist attacks on economies. To exemplify, Eckstein and Tsiddon (2004) have found out that terror activities have a significant negative impact on GDP per capita, investment and exports. Beyond this, terrorism has been proved to affect tourism as well by Drakos and Kutun (2003). According to Enders, Sachsidia and Sandler (2006), there is a small but significant impact of terrorist acts on the stock of U.S. FDI in the OECD countries. Another interesting finding is, presumably, the evidence that terrorism lowers investment, whereas it increases government spending (Blomberg, Hess & Orphanides, 2003). At the core of these studies is to find out the relationship between terrorism and economic activities.

In this thesis, I will shed light on the impact of terrorism and several other macroeconomic variables on FDI inflows in emerging economies, as developed countries are more prone to limited and temporary macroeconomic impacts of terrorist acts due to distribution of resources across different sectors (Sandler & Enders, 2008). For this purpose, I will examine the BRICS countries namely, Brazil, Russia, India, China, and South Africa.

Contribution

There are several works analysing different factors and trends affecting FDI inflows in BRICS, however, no research examining relation between terrorism and foreign direct investments in this group of countries has been found to my knowledge. That’s why, my study aims to fill this gap in the existing literature by analyzing relation between terrorism and FDI over 26 year period in the aforementioned countries including some other important macroeconomic variables, thus resulting in better understanding of peculiarity of FDI in these fast-growing countries.

Methodology

For my thesis, I am going to combine datasets for terror incidents with datasets derived for FDI and other macroeconomic variables such as GDP per capita, exports, imports etc. in order to answer my research question. My analysis will be based on panel data estimation comprising the period between 1992 and 2018. For terrorist acts, I am going to collect data from *Global Terrorism Database (GTD)*. On the other hand, data for FDI and macroeconomic variables will be derived from *The World Bank’s World Development Indicator (WDI)*.

Outline

Abstract

- I. Introduction
- II. Literature Review
- III. FDI and Its Determinants
- IV. Role of Terrorism
- V. Data and Methodology
- VI. Results
- VII. Conclusion

List of academic literature:

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Table of Contents

1	Introduction	1
2	Literature Review	3
3	FDI: Definition and Its Determinants.....	6
	<i>3.1 Definition of FDI.....</i>	6
	<i>3.2 Key Determinants of FDI.....</i>	7
4	Role of Terrorism	12
	<i>4.1. Definition of Terrorism.....</i>	12
	<i>4.2. Terrorism and FDI Determinants</i>	14
5	Data and Methodology	18
	<i>5.1. Description of Variables.....</i>	18
	<i>5.2. Model Specifications</i>	19
	<i>5.3. Econometric Model.....</i>	20
6	Empirical Results and Limitation	22
	<i>6.1. Descriptive Statistical Analysis</i>	22
	<i>6.2. Regression Analysis and Test Results.....</i>	24
	<i>6.3. Limitation.....</i>	27
7	Conclusion	29
	References.....	31
	List of Appendices	36
	Appendices	37

1 Introduction

The use of terrorism, especially after 9/11 attack, as a mean of applying pressure and violence on local governments and countries by targeting specific groups of people to achieve some economic, political, or religious objectives has been a broad debate topic, particularly in today's era of unprecedented globalization. Despite the drastic measures and preventions already taken by governments, massive globalization and technological progress have made such acts appear to be more feasible for terrorists and more attractive considering its immediate and in some cases, profound effects on the victim country. Repercussions of terrorism to the economy and its sectors can be considered as one of the most actual topics in this sense, regarding its vulnerability to these repulsive acts.

This thesis focuses on the analysis of the impact of terrorism on foreign direct investments (FDI) in fast-growing economies, namely BRICS countries, since FDI is one of the most effective ways to trigger economic growth in developing and emerging economies (OECD, 2002). In this regard, there have been conducted remarkable number of investigations assessing this phenomenon across various economic sectors and different regions and countries. BRICS, which includes Brazil, Russia, India, China, and South Africa, is of great importance for analyzing FDI trends from the perspective of fast-growing economies referring to the fact that as of 2018, these five countries comprised about 23.2% of the gross world product (combined \$19.6 trillion nominal GDP) and about 41.53% of the world population (3.21 billion people). This thesis will notably contribute to the existing literature by turning out to be the first work which mainly assesses the relation between terrorism and FDI in BRICS, since none of the pre-conducted research has analyzed this relationship based on the standpoint of these countries. The thesis focuses on a 26-year period (1992-2018) using panel data analysis and utilizes the entire dataset for this period. The objectives of the study aim to make an in-depth evaluation of the impact of terrorism on the FDI inflows to the aforementioned countries and to shed light on the other specific factors that might influence this trend with the help of several other macroeconomic variables.

The thesis commences by reviewing the already existing literature written on this topic, as followed by Chapter 3, which clarifies the definition and the main determinants of the FDI concept. As the next step, in the Chapter 4 the actual interpretation of the terrorism and hereby, its links to FDI determinants are explained. Subsequently, the following chapter is devoted to the comprehensible description of the main variables and model specifications that the investigation utilizes. Meanwhile, empirical results and limitations of the study are constructed in the Chapter

6. The final chapter represents the contribution of the thesis, interpretation of the results and concludes the overall investigation.

2 Literature Review

This section of the study is devoted to the research which have been studied before and examines the association between terrorism and foreign direct investment in a detailed way. It is worth of pointing out that investment decisions are determined by several additional macroeconomic variables which are hard to overlook, therefore the impact of the terrorist attacks on them will be investigated as well.

In today's intertwined and globalized economy, terror incidents have implications on different economic sectors to various extents. To exemplify, Barth et al. (2006) using data for 152 countries and investigating the period 1970-2003 have found that terrorist incidents, specifically those targeting private properties have a significant negative impact on economic growth and capital formation. Additionally, findings indicate that on average, terrorist attacks may affect economic growth in a notably negative way, however, that is substantially smaller relatively to the effects of wars and internal conflicts (Blomberg et al., 2004). These are consistent with studies that have been so far conducted by Gaibullov and Sandler (2008) which establishes the fact that each additional incidence of transnational terrorism per million persons accounts for 0.4 percentage points reduction in economic growth. Furthermore, it has been found out that terrorism has statistically significant negative impact on GDP per capita, consumption, investment, and exports and that Israel would have 10-15% more per-capita output than it had in 2003, if there was not intended terrorist acts in this country (Eckstein & Tsiddon, 2004). Another interesting finding is, presumably, the evidence that there is a strong relationship between the number of victims stemming from jihadist terrorism and inflation according to the investigation made by Caruso and Schneider (2010) in which an in-depth examination is made based on 22 countries. This finding is in line with the claim offered by Shahbaz (2013) who have established the similar pattern in Pakistan during 1971-2010.

Beyond these, there are many studies analyzing country-specific impacts of terrorism, thus helping to divert from heterogeneity bias which is likely to happen in cross-country analysis. To exemplify, Abadie and Gardeazabal (2003) finds that in the late 1960's in comparison with synthetic region, Basque Country witnessed 10% decline in per capita GDP. In addition, using quarterly frequencies for period 1988-2010, Shahzad et al. (2016) shows that there exists long-run association between terrorism, FDI and economic growth in Pakistan. Moreover, terrorism has been proved to be responsible for less economic growth in Turkey during 1987-2001 (Öcal & Yildirim, 2010). According to Greenbaum et al. (2007), the number of employment and businesses in Italy during

1985 and 1997 have decreased because of terrorist incidents and more interestingly, this trend continued the year following an attack. Utilizing daily time series data for period 1990-2003, Eldor and Melnick (2004) found that terrorism in the form of suicide attacks had a persistent impact on the stock and foreign exchange market in Israel.

Apart from the aforementioned variables, the effect that terrorism has on foreign direct investment and determinants of FDI in the BRICS countries are worth to be separately discussed, since the main purpose of the thesis is to study the association between terrorism and FDI in these countries. According to Abadie and Gardeazabal (2008), terrorism might be responsible for relocation of assets across countries and depression in net foreign investment. Furthermore, previous investigations claim that developed countries are more prone to limited and temporary macroeconomic impacts of terrorist acts due to the distribution of resources across various sectors (Sandler & Enders, 2008). In the case of less developed countries, the paper by Enders and Sandler (1996) documents 13.5% and 11.9% drop in net foreign direct investment (NFDI) in Spain and Greece, respectively. In addition, the terrorist attacks result in a considerable decrease in tourist arrivals which is one of the main sources of foreign direct investment in many developing countries (Drakos & Kutan, 2003). Nevertheless, effect of terrorism on FDI in developed countries cannot be overlooked due to its immediate impacts on the economy. The fact that there exists a small but significant influence of incidence of terrorism on the stock of U.S. FDI in OECD countries (Enders et al., 2006) endorses this opinion. Similarly, finding by Agrawal (2011) which analyzes OECD countries, indicates a noteworthy negative association between the terrorism and FDI, too.

When it comes to the determinants of FDI in BRICS, Vijayakumar et al. (2010) finds market size, labor cost, infrastructure, currency value, and gross capital formation to be the potential determinants, whereas economic stability, growth prospects, and trade openness is considered to have a insignificant role as determinants of FDI in these nations. Moreover, in a panel analysis of BRICS and MINT (Mexico, Indonesia, Nigeria, and Turkey) economies, Asongu et al. (2018) establishes observation of significant roles of market size, infrastructure, trade openness, insignificant roles of natural resources, and institutional quality. Additionally, inflation and unemployment rates, real effective exchange rate (REER), industrial production index, GDP, political stability, government effectiveness and human capital have been documented as significant factors determining FDI inflows to BRICS (Gupta & Singh, 2016; Jadhav, 2012; Maryam & Mittal, 2020; Shah & Ali, 2016).

This thesis is clearly inspired by the previously conducted scholarly articles; however, in the literature review part, neither of the studies have investigated the essentiality of the relationship between terrorism and FDI inflows in BRICS economies, which can be highlighted as a new approach and analysis for the given topic which aims to be conducted from the different perspective of view. In order to analyze this pattern and assess the association in the main focal countries of the investigation, panel data analysis is employed.

3 FDI: Definition and Its Determinants

This chapter presents definition and potential determinants of foreign direct investment. In the first part, definition of FDI is introduced and explained in the way that it will be used in this thesis. Meanwhile, the second part provides and clarifies the potential determinants in this regard. This chapter is based on the previous literature and evidence from certain institutions as a whole.

3.1 Definition of FDI

There is a unanimous agreement that foreign direct investment is one of the most effective ways to incentivize economic growth and fill the gap between savings and investments in developing countries. The impacts that FDI has on several economies are considered to be transfer of capital, know-how and technology, improvements in human capital, and trade which makes it attractive for policymakers in many developed and developing states. Taking the immediate and long-term benefits stemming from FDI along with globalization into consideration, it can be now considered as the main objective of interest for developing countries to focus on potential ways for attracting more FDI to their economies from developed countries as well as from different international organizations. The intend of monitoring FDI and its effects on countries led OECD and IMF to define it as:

“... international investment made by a resident entity in one economy (direct investor) with the objective of establishing a lasting interest in an enterprise resident in an economy other than that of the investor (direct investment enterprise). “Lasting interest” implies the existence of a long-term relationship between the direct investor and the enterprise and a significant degree of influence by the direct investor on the management of the enterprise. Direct investment involves both the initial transaction between the two entities and all subsequent capital transactions between them and among affiliated enterprises, both incorporated and unincorporated.”

(OECD & IMF, 2004)

In other words, FDI is described as an activity when investor firm from one country creates and expands its subsidiaries in the firm located in other country. Furthermore, it has been established that ownership of 10 percent is the minimum level required for making the investor company eligible for enough voting power in the enterprise in the host country.

Generally, foreign direct investment is reported either as FDI stocks or FDI flows. According to OECD, the stocks capture the total value of direct investment at a given point, usually the end of

a quarter or a year. On the other hand, FDI flows refer to the value of cross-border transactions related to direct investment, usually during a quarter or a year.

3.2 Key Determinants of FDI

Firstly, the key six determinants of FDI that the thesis is being utilized from will be introduced and clearly explained. The main reason behind this is that there exists slightly various interpretations and ways of measurement for some of these variables, which makes it an essential and inevitable step to define them in a proper way that this thesis will refer to. This section is based on and inspired by the secondary sources, including the existing literature and scholarly articles.

Market Size

Among important factors impacting FDI flows from and to countries and regions, market size captures unique and vital place. It has gained significant value over years due to increased volumes of FDI worldwide, helping the assessment of investment decisions by advanced countries, global organizations, and companies. It is deemed to enable investor firms to evaluate opportunities and hereby, plan investment approach accordingly.

There are also a lot of research which have analyzed relationship between market size and foreign direct investment flows. To exemplify, Wheeler and Mody (1992) have observed statistically significant and positive impact of market size on investment by the U.S. firms in the 1980's along with several other variables. Additionally, Schmitz and Bieri (1972) in their paper, in which they study pattern of the U.S. direct investment in the EEC during 1952 and 1966, have documented the fact that the size of the market is one of the main variables having 10% significance level. On the other hand, among the recent literature, Asiedu (2006), Shah(2014), Mughal and Akram (2011), Jaumotte (2004) and Nunnenkamp (2002), have found robust relationship between the size of market and FDI in developing countries.

Trade Openness

Trade openness is one of the traditional variables used to measure FDI decisions in the developed and developing economies. It can be understood as an extent to which the recipient country is flexible and accessible to foreign investments for international trade. However, the role of the openness of trade in the economic growth has been a largely debated topic for decades, resulting in many ambiguous and controversial findings offered by various approaches. This is mostly due to the fact that there is not a standardized understanding of trade liberalization which caused the definition of the trade openness to vary remarkably over the years (Yanikkaya, 2003). For instance,

according to Krueger (1978), an open economy might be achieved by employing favorable export-oriented policies such as exchange rate regime. Nevertheless, Harrison (1996) narrates that the principle of neutrality of incentives between the savings from import substitution and the earnings from exports should be applied when it comes to the concept of trade openness.

It is worthwhile to note that the influence of openness on foreign direct investment is another debatable topic among researchers. Positive correlation between these two variables have been revealed in several papers (Biglaiser & DeRouen, 2006). Likewise, Liargovas and Skandalis (2012) have found out positive contribution of the trade openness to the FDI inflows in developing economies, in which they analyze 36 countries over the period 1990 and 2008. Furthermore, in the given paper the main linkages between FDI and international trade is investigated. In this regard, Aizenman and Noy (2006) state that countries cannot choose their capital account policies without taking their degree of trade openness into consideration because of rapid growth in the trade integration. On the other side, some papers such as by Seim (2009) show negative rapport between FDI inflows and trade openness in transition economies. According to Liargovas and Skandalis (2012), implementation of some policies regarding the trade openness can lead to considerable effect in attracting the FDI, which was the case in Latin American countries after the free trade agreements (FTA) came into effect.

Probably one of the challenges which causes controversial results and does not allow researchers to define trade openness unanimously is the fact that the different measures are used to examine its effects, however, these measures have a common feature; majority of them represent trade as a share of income for a given country (Yanikkaya, 2003). Thus, being one of the most basic measures for openness, higher trade share for a country is associated with more openness of its economy to benefits derived from trade (Squalli & Wilson, 2011).

Economic Growth

Economic growth can tell us a lot about the fundamentals of a given economy, thus, shapes the investment decisions and plans for the investors, which makes it hard to overlook in an empirical study. Currently, it seems that the existing literature unanimously agrees upon the claim that the foreign investment has a locomotive effect for economic growth through its contribution to an increase in productivity, adoption of new and advanced foreign technologies, new job opportunities and attainment of better managerial skills, i.e., human capital through various means. In spite of this positive association, there is still a question of “What causes what?”, which have led some researchers to investigate the causality between these two important variables.

Among these controversial studies, Borensztein et al. (1998), examining several industrial and 69 developing countries have revealed that the impact of FDI on economic growth depends on the human capital level of the host country and there exists a complementarity between FDI and human capital. Building on the prementioned fact, Hansen and Rand (2006) have found robust causal link from FDI to economic growth in the long term. Their study further indicates that when the FDI ratio increases by one percentage point, the GDP level (proxy for economic growth) rises by 2.25 per cent, averagely. This is consistent with the findings of Yao (2006) who has concluded that the main reasons for China's economic success are both FDI and exports, which had positive effect on and significant contribution to the economic growth in the Chinese provinces during the period between 1978 and 2000. Moreover, the FDI stock has been proved to have a significant positive impact on the economic growth in the Eurozone countries during 2002 and 2012 (Pegkas, 2015). On the other side, it has been documented that over the period 1969-2000, Chile has witnessed FDI caused by GDP, while there was a bi-directional causality between these two metrics in Malaysia and Thailand during the same period (Chowdhury & Mavrotas, 2006). Hence, this finding is contrary to the general theoretical assumption which claims that the FDI causes the growth.

Additionally, among those who underline the limitations that might stem from this variable, Ayanwale (2007) asserts that the majority of the research that investigate the relationship between the FDI and economic growth are cross-country studies, whereas the role that FDI has on growth might be country specific. In this sense, Zhang (2001) believes that the country specific characteristics such as economic and social condition of the host country are the main factors on which the economic growth caused by FDI depends.

Macroeconomic Stability

The economic crisis and financial chaos that happened in the developed economies during the last few years have caused constraints in their investment abilities and decisions (Milner, 2014) which as a result, led to the inevitable decrease in capital for developing countries that stemmed from foreign investments (Choi et al., 2016) and started a high competition between them for available foreign capital (Williams, 2015). Therefore, macroeconomic stability and steadiness in the real and financial sector in the FDI recipient country has become another important and defining factor for multinational companies from advanced countries in the process of choosing their target economy for the investment, in order to deviate from the probable risks that can potentially derive from the adverse financial environment (Shah, 2016; Şiklar & Kocaman, 2018).

Given the arguments mentioned above, it would be useful to refer to additional studies that depict the relationship between macroeconomic stability and FDI inflows in the developing economies. To start with, paper by Shiklar and Kocaman (2018), in which the impact of macroeconomic stability on FDI in Turkish economy during twelve-year period is analyzed, has found that the negative association between FDI and macroeconomic instability exists and that FDI inflows are negatively and permanently affected by fluctuations in the inflation and real exchange rates. Further, their finding shows that the primary reason for growth in inward FDI in Turkey after the 2001 crisis was the strong macroeconomic environment observed in the country. By the same token, studying the similar pattern for African developing countries from 1990 to 2015, Shah (2016) finds positive relationship between the FDI inflows and the predictable depreciation incorporated with low inflation rate.

What is more, with a motivation to investigate the coincidence of low FDI and high inflation in the 1970s and 1980s versus high FDI and low inflation in the less developed economies after 1990s, Sayek's (2009) paper demonstrates fall in the net benefit of investing when there is an increase in the inflation. According to the empirical analysis by Alguacil et al. (2011), both macroeconomic stability and institutional quality have direct contribution to the economic performance of developing countries during 1976 and 2005. Macroeconomic instability also creates a skepticism among the foreign investors by becoming an indicator of a failure of national policies (Boateng et al., 2015). However, an economy with a financial stability and steady inflation will gain more interest and confidence of investors, making them more preferable, especially in the current times of global economic slowdown (Shah, 2014). On the contrary to the literature mentioned above, there are empirical studies which have found no rapport between inflation and inward FDI at all (Moosa & Cardak, 2006; Wijeweera & Mounter, 2008).

Human Development

Human development has emerged as an important indicator for drawing a general portrait of a socio-economic state of a given country, especially underdeveloped ones', after the dramatic increment in worldwide FDI. This is related to the fact that foreign investors often take the quality of human capital as a factor to capitalize on during the process of investment decisions (Sharma & Gani, 2004).

Additionally, many researchers do not agree upon the general assumption which assumes economic growth and markets as sole determinants of development, instead, they argue on the

necessity of the inclusion of government and social and political institutions in the assessment of development (Sen, 1999; Stiglitz, 2006).

Among empirical literature, Hussain et al. (2010) have found significant effect of FDI on human development in the case of Pakistan during 1975 and 2008. Furthermore, restrictive policies and discrimination towards the foreign investors have been found to increase the positive impact of the FDI on human development in the emerging countries (Reiter & Steensma, 2010). By analyzing the similar trends for both developed and less developed economies, Sharma and Gani (2004) have also pointed out a positive relation between these two pre-mentioned variables.

4 Role of Terrorism

In this chapter, general concept and the definition of terrorism which is referred in this thesis will be introduced. Moreover, the relationship of the terrorist incidents with the already established determinants of foreign direct investment will be elaborated on as well.

4.1. Definition of Terrorism

Terrorism itself has been a largely debated concept over the decades. It has always been one of the main concerns for the local governments and the regional unions from the perspective of legal framework. Especially after 11 September 2001 attack, which overlaps with the beginning of massive globalization, the concept of terror and terrorism have gained paramount attention and importance both for governmental agencies and researchers as a serious focal issue which should be dealt with. This importance and seriousness of the given concept mostly stem from the fact that terrorism has been one of the most effective ways of gaining attention and announcing or imposing one's own thoughts to society due to the ease in carrying out these repugnant acts in today's world. Despite the plethora of the arguments and research made about the definition and traits of terrorism, it is a known fact that there has not been made a single unified agreement which solely defines what is really behind the concept of terrorism and how it is. This divergence in opinions, however, is not observed in the general aspects of acts as defining elements of the terrorism. It is rather noticed in subtle specifics and details such as whether these acts should be directed towards the specific targets or features in order to be classified as terroristic ones, or even categorized as old or new type of terrorism.

Primoratz (1990) argues that the terrorism is morally neutral and deliberate intimidation with the aim to cause or persuade others to implement the acts that they would otherwise not do, thus it is a strong mean of coercion through fear, which is consistent with the views of Wellman (1979). Carl Wellman in his article also considers violence not essential for terrorism with which Primoratz (1990) does not agree, since he thinks that speaking of non-violent terrorism would not make any sense. In contrast to Wellman's opinion about absence of necessity between violence and terrorism, Coady (1985) defines terrorism as a specific type of violence which accounts for terror. Furthermore, terrorism is believed to have a certain structure in the form of targets such as primary and secondary (Primoratz, 1990). According to this view, secondary target is constituted by innocent people who are hit directly by terrorist acts and this feature distinguishes terrorism from war.

In addition to definitions, there are different opinions about strategy, motivation and weapons used for terrorist incidents. For example, Laqueur (1996) who is known for relating terrorism and history to each other, states in his article that changes have been observed on these aspects of terrorism since the beginning of the 20th century. He also points out shifts in the terrorist operations and trends such as targeting more indiscriminate killing rather than attacking specific targets like airplane hijacking or officials of the opposite side. At the end of his article, Laqueur (1996) concludes that one successful terrorist incidence out of 99 unsuccessful ones is enough to harm lots of victims, leaving a great devastation and panic behind it.

When it comes to the arguments about the old and new concepts of terrorism, Duyvesteyn (2004) challenges all dominant views by the opinion that for the purpose of a phenomenon to be considered as a “new” one, it needs to be not seen or witnessed before or developed from unknown perspective. Further, he elaborates on and disagrees with the aspects which are said to make terrorism fundamentally new e.g., change from political motivations to religion and fanaticism, from domestic to transnational terrorism, and shift from the target specific acts to the intention of killing as many people as possible, which comes along with the application of the weapons capable of the mass destruction.

Considering the objectives of this thesis, the definition of terrorism will be used as Pinkerton Global Intelligence Service (PGIS) and Global Terrorism Database (GTD) offer, since these are the main sources that data about terrorism will be derived from in a contributive manner to the investigation process. According to PGIS, the incidence of terrorism is:

“the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation.”

At the same time, the possession of the following three attributes is put as mandatory by PGIS for the incident to be included in the GTD database as terrorist. These are:

- Intentionality of the act – The attack is a willful action of a perpetrator.
- Inclusion of partial or actual violence – The attack entails violence or threat of violence on property, as well as against people.

- Sub-nationality of the offenders – State-level incidents are not included in the database as terrorist acts.

In addition to these attributes defined by PGIS, for the purpose of this work, at least two of the following three criteria are required to be entailed for the action to be regarded as terrorism:

- The attack is committed with the purpose of several goals other than a single aim such as physical devastation – The acts need to have profound pursuits such as systemic economic change rather than superficial objectives.
- The existence of an evidence that the objective of the attack is to reach to larger audiences with the use of immediate victims – Willfulness criterion is met as long as there is a planner behind the act, thus not everyone involved in performing the attack is needed to be aware of its intention.
- The violation of rules set by International Humanitarian Law (IHL) – The attack is not included in the context of legitimate warfare activities which conform with IHL.

4.2. Terrorism and FDI Determinants

In this section, the possible association of terrorism with the determinants of foreign direct investment which were mentioned in the previous chapter is presented. This section is based on the previous research and supported by empirical work.

Terrorism and Trade

Trade is often considered to be sensitive to terrorist actions, and terrorism itself is often regarded as an impediment to international trade since it takes place between countries in bilateral and multilateral ways. According to Nitsch and Schumacher (2004), this impediment can be outlined in three steps. First, terrorist incidents may cause an increase in the trade costs due to insecurity concerns and changes in consumption and production habits among the population of venue country. Second, these repulsive acts are known to be followed by the security measures which make costs and time of doing business more expensive and longer, respectively. Lastly, the goods manufactured for trade are always susceptible to the risk of being a target for terrorists, which can hereby result in the disruption of supply chains between countries.

Furthermore, analyzing the link between international terrorism and trade for OECD countries from 1970 to 2008, Egger and Gassebner (2015) have concluded that the effects of terrorism on trade is observed only in medium run, which is contrary to most of the works previously conducted which agree on the significant adverse impact of terrorism on trade. Besides, the paper by Bandyopadhyay et al. (2018) declares that there is no strong effect on the overall trade of primary products caused by terrorism, however, that of manufactured goods are affected in a significantly negative way. Additionally, the same paper documents an adverse relationship between terrorism and manufactured imports.

Terrorism and Population

Typically, the relationship between terrorism and population is associated with developing large countries. This might result from the difficulties with controlling larger populations with socioeconomic problems such as income inequality. Statistically, it has been proved that fatalities stemming from the terrorist activities and growth rates of population are interconnected with each other, in addition to the fact that specific cultural zones incorporated with identity factors and undesired socioeconomic conditions are more prone to terrorism (Coccia, 2018a, 2018b).

Moreover, analyses conducted by Lutz and Lutz (2017) are consistent with the general conclusion which suggests that the more populous the country is, the more terrorist attacks take place with casualties given the fact that these countries are more susceptible to people who are likely to resort to such activities. When it comes to the usage of per capita levels, however, Lutz and Lutz (2017) could not find any solid evidence for the proposition which indicates a difficulty of security operations and police forces as a triggering reason for more potential terrorist acts in populous regions.

What is more, Piazza (2006) has challenged the dominant view by arguing that the main reasons for terrorism are the measures of economic development such as inequality, poverty etc. He, on the contrary, concluded that the root causes of violence are population, ethnic and religious divergence, high state repression and political extremism, all of which can be summarized as “social cleavage theory”.

Terrorism and GDP

Scholars seem to have diverse conclusions again when it comes to the study of nexus between terrorism and GDP per capita. Typically, two prevalent views about the topic, the one proposing significant link between these two variables and the other one alleging the opposite, are in trends.

As an example, a country-specific paper by Bilgel and Karahasan (2017) has documented 6.6 percent decrease in real GDP per capita in the terrorism-plagued provinces in comparison with the same synthetic regions in case of absence of terrorism. This result conforms to the finding of Ismail and Amjad (2014) who have categorized per capita GDP among prominent and determining variables for terrorism both in the short and long term.

Contrarily, Enders et al. (2016) have reinvestigated the nexus between the same two variables and ended up with a proposition claiming that GDP per capita is not a causative factor for terrorism regardless of its low or high levels. Among the novel literature, according to Gaibulloev and Sandler (2019), unless the country is small or developing with intense terrorism acts, per capita GDP is affected a little or not at all.

Terrorism and Inflation

Inflation is one of the most important determinants of macroeconomics management since it reflects the purchasing power of a nation. This importance has brought many researchers to an intention to probe the nexus between inflation and terrorism. General overlapping agreement is that these two factors have positive relationship.

A country-specific study by Shahbaz and Shabbir (2011) illustrates that terrorism increases when inflation rises and that bidirectional causality between these variables holds. Further, investigation of root causes of terrorism in South Asian countries over the 30-year time frame by Akhmat et al. (2014) results with the finding that inflation is among those variables which is in positive association with terrorism. Also, this study links inflation and terrorism by showing shortages, which arise from the terrorist incidents, as a triggering reason for an inflation.

Besides, the analysis of 94 countries during the period of 2005-2016 made by Tahir (2020) has found both rising government expenditures and high inflation rates as contributors for an increase in terrorist acts, given the fact that both factors fuel poverty among the growing population. A different approach was adopted by Ajide and Alimi (2021) paper, where inflation volatility is also included for the case of African countries and the results yield that not inflation itself, but inflation volatility stirs up terrorism.

Terrorism and Human Development

Human development is often analyzed in three dimensions: health, education and living standards. The metric that is used for the measurement and combination of these indicators is Human

Development Index by UNDP. This metric is favored by scholars very often due to the fact that it allows to make estimations about economic and social condition of countries, which can be considered useful, when analyzing terrorism and extremism trends. In general terms, terrorism is one of the factors causing deteriorating human development factors, as it induces destruction of infrastructure, outflow of foreign investment, and upsurge in unemployment (Khan et al., 2018). The paper by Khan et al. (2018) has also revealed that there exists adverse relationship and bidirectional causality between terrorism and human development considering the example of Pakistan. In contrast, Piazza (2006) have found no causality from human development to terrorism.

Moreover, education and poverty, the indicators of HDI, have been observed to display positive and negative relationship with terrorism, respectively (Durodie, 2016). From the perspective of a number of terrorist acts, however, Newman (2006) has failed to detect any clear association between these pre-mentioned variables. He, instead, has concluded that the societies with lower HDI are more exposed to the cluster of deadlier terrorist groups in comparison with the countries having higher HDI ratings. Another notable finding might be the fact that democracy-free and medium HDI countries are more prone to the volatility in food prices stemming from the terrorist attacks. Finally, analyzing the trends between terrorism, human development, and military expenditure in 53 African countries over 14-year time span, Asongu (2017) has found out that human development has a positive, yet insignificant impact on terrorism and it helps to decrease the potentiality of terrorism in North Africa. The same paper also concludes that military measures are more effective ways at combating terrorism in Africa rather than human development.

5 Data and Methodology

This chapter will shed light on and provide insights about variables and respective data that are used for the regression model of this thesis. The main reason is having better understanding of used variables in the model and intuition behind the claimed influence of each of them on dependent variable to shape our expectations before estimation. It is based upon the already existing models, methodologies, and previously conducted papers.

5.1. Description of Variables

It is worth to note that the dependent variable FDI and the independent variables that are forecasted to influence it have been carefully chosen for the selected countries over the selected period. Data about each variable in the model have been collected from different sources on the 1992-2018 time periods. This paper builds upon the panel data analysis to measure the rapport between terrorism and FDI including several other explanatory variables for BRICS which are known as the most developed countries among transition economies.

As mentioned above, FDI will serve as a dependent variable in the model in the form of net inflows in current US dollars. Among explanatory variables, market size will be included as population (Brenton et al., 1999; Nunnenkamp, 2002), since larger market size means greater prospective consumption and hereby, a greater attention for foreign investment. Inclusion of population representing market size also serves the purpose of this thesis, considering the fact that the BRICS countries constitute almost half of the world population. Besides, trade openness will be measured as a trade share (ratio of exports plus imports to GDP) expecting that more openness will indicate more investment, referring to the fact that it is an effective and traditional way of analyzing economic performance of countries which take part in foreign trade (Dowrick & Golley, 2004).

In this study, GDP per capita will be used and referred as a proxy measure for economic growth based on previous research (Borensztein et al., 1998; Zhang, 2001). Moreover, being one of the most common measures for macroeconomic stability, inflation based on CPI (Gupta & Singh, 2016) will be incorporated to the model with the expectation of a negative relationship with FDI. Additionally, human development will be used considering the definition that UNDP (1990) offers: “the process of widening people’s choices in a way which enables them to enjoy long, healthy and creative lives”. It will be proxied by Human Development Index (HDI) that has been introduced by UNDP of which expected effect to FDI is positive.

Lastly, data for terrorism will be obtained from the Global Terrorism Database, as mentioned before. The dataset for this variable consists of 201,183 observations in total for the period 1970-2019 with information on at least 45 variables for each observation. All observations and variables included in this dataset have been derived from a large number of different media sources over years of which reliability is inspected by a committee before its inclusion to the dataset. The attacks with no casualty will also be taken into consideration, however, attacks with failure will not be considered in the model. In this thesis, the terrorism variable will be measured as number of terrorist attacks (Shahbaz, 2013) for the selected countries with expected negative effects. It is worth to mention that 18,317 terrorist attacks i.e., observations for the BRICS countries during 1992-2018 after modifying the dataset for the selected countries and period have been observed. The total number of attacks and total number of victims (injured plus killed) are 14,280 and 58,033, respectively in the pre-specified time span.

5.2. Model Specifications

The primary goal of this thesis is to contribute to and fill the gap in the existing literature by scrutinizing the link between terrorism, FDI and its determinants in BRICS countries, namely Brazil, Russia, India, China, and South Africa. Therefore, the following regression model of panel data analysis has been adopted based on paper by Gupta and Singh (2016):

$$LN FDI_{it} = \beta_0 + \beta_1 * Terrorism_{it} + \beta_2 * Population_{it} + \beta_3 * Trade Openness_{it} + \beta_4 * GDP per capita_{it} + \beta_5 * Inflation_{it} + \beta_6 * HDI_{it} + u_{it} \quad (1)$$

In the specification above, $LN FDI_{it}$ is dependent variable as log of net inflows of Foreign Direct Investment in current US dollars for country i at time t . $Population_{it}$, $GDP per capita_{it}$, $Inflation_{it}$ and HDI_{it} are proxies for market size, economic growth, macroeconomic stability (based on CPI) and human development for country i at time t , respectively. Moreover, $Terrorism_{it}$ and $Trade Openness_{it}$ are measured by the number of terrorist acts and exports plus imports divided by GDP for country i at time t , respectively. Lastly, u_{it} is the error term which comprises all other factors that are not incorporated to the model which have impact on dependent variable.

In addition to terrorism, the reason for inclusion of other explanatory variables to the model is their potential impact on FDI and terrorism both across-time and cross-sectionally, as discussed in the above chapters. Hence, exclusion of them from the model might give a cause to violation of

exogeneity assumption and biased estimates, and therefore decreasing the quality of the model. All dependent, independent, and explanatory variables used in the model have been summarized below in Table 1, which provides information about variable name, measurement, source, and expected sign.

Table 1. Description of Variables

Variable	Expected Sign	Measurement and Source
Foreign direct investment	dependent variable	Units of measurement is log of net FDI inflows in current US dollars. Source is World Bank's WDI.
Terrorism	negative	Units of measurement is number of attacks. Source is Global Terrorism Database.
Population	positive	Units of measurement is annual population number. A proxy for market size. Source is World Bank's WDI.
Trade Openness	positive	Units of measurement is percentage. It is obtained from ratio of exports plus imports to GDP. Source is World Bank's WDI.
GDP per capita	positive	Units of measurement is current US dollars. A proxy for economic growth. Source is World Bank's WDI.
Inflation	negative	Units of measurement is percentage. Annual percentage change on CPI is proxy for inflation. Source is World Bank's WDI.
Human Development Index	positive	Units of measurement is composite index. It measures average achievement in three dimensions: healthy life, knowledge, and standard of living. Source is United Nations Development Program.

Source: Author's compilation

5.3. Econometric Model

As stated above, I use panel data approach for determining and assessing the potential association between terrorism and FDI and other explanatory variables for the selected countries as a group. Panel data is an econometric method used for the analysis of data of a group of individuals usually in two dimensions, cross-sectional and time span. Due to its econometric benefits such as availability of large number of observations and offsetting multicollinearity problem, this can be considered as a popular and preferred way to study economic issues cross-sectionally across countries (Maddala, 1999; Webb & Hall, 2009). Since the dataset of this investigation comprises both cross-sectional and time series elements, both fixed effect and random effect models can be referred as applicable to the analysis. For this reason, I run Hausmann test in order to determine which panel data model is more applicable (Hausman, 1978). According to this test, null hypothesis suggests that random effect model is appropriate, whereas alternate hypothesis claims that fixed effect model is appropriate if null hypothesis is rejected. After having the test conducted in STATA program, the following results are attained which is clearly displayed in the Table 2.

Since the value of p is less than the value of 5% significance level, null hypothesis which claims that random effect model is appropriate is rejected. Hence, preferred model for this study to find the impact of independent variables on dependent variable is fixed effect model.

Table 2. Hausmann specification test

Null Hypothesis: H_0	Applicable model is random effect
Chi-square	147.17
Prob < Chi-square (p-value)	0.000

Source: Author's computation from STATA (13.0)

6 Empirical Results and Limitation

6.1. Descriptive Statistical Analysis

It is important to have initial understanding of the selected dataset for determining potential problems that can arise in the model. In this regard, I have created descriptive statistics of variables prior to the regression analysis which displays outline of basic numbers of each variable that is included in the panel data. These numbers are summarized below in the Table 3. According to the table, all variables except inflation have equal number of 135 observations, however, inflation does not differ much from the other variables and possesses 134 observations. This signals about the fact that the panel data is almost balanced with only one missing observation. Regarding the summary statistics, FDI inflows in logarithmic formation has minimum value of 15.02686 and maximum value of 26.39634 which belong to South Africa for the year 1992 and China with the highest population for the year 2013, respectively. Standard deviation of the same variable is considerably less than the average number of 23.23494, which implies the fact that the values are closely distributed around the mean. In addition, statistics for terrorism, of which potential direct effect to FDI is investigated, reveal that the minimum number of attacks was zero which is observed in several countries during several years, whereas the highest amount of terror incidents happened in India with 1027 attacks in 2016. Notably, the average value for terrorist acts is 213.09. Building on that, Russia appears to be a country with the highest values of GDP per capita and human development index, while India has been detected with the lowest values of the same given variables. To conclude, China and Brazil stand for the lowest and highest value of inflation in the dataset, respectively.

Table 3. Descriptive statistics of variables

Variables	Observations	Mean	Standard deviation	Minimum	Maximum
Log of FDI Inflows	135	23.23494	1.940775	15.02686	26.39634
Terrorism	135	105.7778	213.0924	0	1027
Population	135	5.63e+08	5.45e+08	3.87e+07	1.39e+09
Trade Openness	135	42.87173	15.68842	15.63559	110.5771
GDP per capita	135	4563.312	3790.737	301.159	15974.64
Inflation	134	55.31166	266.4377	-1.401474	2075.888
Human Development Index	135	0.6584519	0.0898112	0.44	0.823

Source: Author's computation from STATA (13.0)

Next step is to check the existence of outliers beforehand considering the fact that the large number of outliers are subject to negatively influence the quality of the model and estimations as they either overestimate or underestimate the real value of the arithmetic means and variances, thus anyway negatively affect the significance of the overall model. I used box plot option in order to detect the outliers by determining upper limit and lower limit with the following formulas $UL = Q_3 + 1.5 * (Q_3 - Q_1)$ and $LL = Q_1 - 1.5 * (Q_3 - Q_1)$, respectively, for each variable included in the regression equation. The main condition here is that if for each variable there exists any observation with values greater than upper limit or less than lower limit, they will be considered as outliers and excluded from the model. Hence, I provided box plots of each variable in Figure 1 for better intuition. As a result of this operation, two observations from natural logarithm of FDI inflows, five observations from per capita GDP, 11 from number of attacks, one from trade openness and 13 observations from inflation have been excluded. There have not been recorded any outlier in population and HDI, thus the observations in these variables originally remain as the way they are. The total number of remaining observations is 101 now.

Additionally, multicollinearity (MC) problem which is the existence of strong association between independent variables in the regression equation is another possible issue that may arise in an empirical model. This is the main reason for large standard errors in the model and results in wrong assessment about the real effect of explanatory variables on dependent variable giving a cause to and triggering the inaccurate conclusion. Table 4 summarizes correlation matrix of values between the variables of the model. The available methodology indicates that there exists no multicollinearity between variables if the value of the correlation coefficient is in the interval -0.7 and 0.7. In our model, there seems to be MC only between GDP per capita and HDI, while the rest is in the mentioned interval. Moreover, I use variance inflation factor method to double check the multicollinearity and determine to which extent MC between GDP per capita and HDI can be noted as significant. According to Table 5, these variables are correlated, however, this correlation is tolerable and not strong enough to cause high standard error in the model which is because the values are not greater than 10 (Miles, 2005; O'Brien, 2007).

Table 4. Correlation matrix of independent variables

	No of Attacks	GDP per capita	Trade Openness	Inflation	HDI	Population
No of Attacks	1.0000		-	-	-	-
GDP per capita	-0.2770	1.0000	-	-	-	-

Trade Openness	-0.1510	0.0750	1.0000	-	-	-
Inflation	0.2210	-0.0230	0.0210	1.0000	-	-
HDI	-0.3957	0.8379	0.2467	0.0590	1.0000	-
Population	0.1600	-0.4584	-0.1465	-0.3741	-0.4544	1.0000

Source: Author's computation from STATA (13.0)

Table 5. Variance Inflation Factor method

Variables	VIF
HDI	4.37
GDP per capita	4.03
Population	1.62
Inflation	1.39
No of attacks	1.33
Trade Openness	1.16

Source: Author's computation from STATA (13.0)

Subsequently, Gauss Markov assumption is applied in order to have consistent and unbiased estimators of the slope parameters. In this regard, normality assumption is important because if the variables are normally distributed, then the value of observations is close to each other and share the same characteristics which offers us a better prediction of value of the dependent variable. I have established histogram with normal density plot for checking the normality assumption. As it is obvious from Figure 2, significant deviation from normality is not observed for majority of variables, except for number of terrorist attacks. There are still a few observations with high number of incidents in spite of the fact that the outliers are excluded from the model. Nevertheless, I prefer to keep these observations in the model in order to make the sample to be a good quality representative of population dataset. Lastly, minor and negligible variability is not considered as significant, considering the fact that the perfect normality does not stand in the purpose of this thesis.

6.2. Regression Analysis and Test Results

Even though Hausmann test conducted above has shown that fixed effect model of panel data is preferred to random effect, cross-sectional dependence is checked with the help of Pesaran test (Pesaran, 2004) before the regression analysis in order to have adjusted model and mitigate the extent of prospective bias in the model. According to Pesaran test, the test value is -4.5 with p-

value of 0 which indicates that the null hypothesis is rejected at 90% confidence level, thus there exists cross-sectional dependence in the given dataset. Therefore, one essentially needs to be careful in the interpretation. Next step is checking heteroskedasticity. For this purpose, I use Breusch-Pagan test in which null hypothesis claims homogeneity (Breusch & Pagan, 1979). For this dataset, however, the p-value is 0.4745 which is greater than the value of α at 5% significance level. Hence, we fail to reject null hypothesis and conclude that there is no heteroskedasticity.

Next, I started to run the regression analysis. As discussed earlier, I am going to use fixed effect model which has been endorsed by Hausmann test, to find out the noteworthy impact of the independent variables on the net inflows of FDI in BRICS over 1992-2018. Table 6 demonstrates the regression output for the model specification with the standard errors in the parentheses. I use 4 model specifications in order to see the dynamics and changes on the value of the coefficients. Thus, each variable is added one by one to determine whether the influence of the independent variable is consistent or not. This way, it also allows me to judge the consistency of our estimators. In the first model specification, number of terrorist incidents is included as an independent variable. The results clearly indicate that it has positive impact on net FDI inflows which is against our estimations; nevertheless, it is not statistically significant, as p-value is greater than α . Additionally, per capita GDP and Trade Openness are added to the second model specification as control variables for having better assessment of the effect of number of terrorist acts on the dependent variable. It turns out that both of them have statistically significant impact on FDI inflows in BRICS countries at 1% significance level as expected, however, the insignificance of number of terrorist attacks continues. Model 3 comprises two more control variables, including inflation and HDI with negative and positive impacts, respectively which is in accordance with the constructed expectations. Despite these coefficients, neither of them has significance on the dependent variable. In the fourth specification model, population is added as the last control variable for which positive significant effect on inward FDI is observed at 5% significance level. It means that the selected countries with more population are subject to receive more foreign investment, which can be explained by the argument that foreign investors favor markets with greater sizes. However, this is not enough to change the trend that terrorism variable in our model possesses from the very beginning which means that it is not one of the important factors affecting FDI inflows to BRICS countries. According to our choice of the models, it seems that trade openness, market size, and economic growth remarkably play an important role in the accumulation of FDI inflows in BRICS. Lastly, R-square of the model is 0.2454 which signifies that 24.54% of total deviation of our dependent variable is captured by the model variables.

Table 6. Panel regression results. Fixed effect model

VARIABLES	Dependent variable: Log of net FDI inflows			
	Model 1	Model 2	Model 3	Model 4
No of attacks	0.000445 (0.00258)	0.00205 (0.00164)	0.00208 (0.00165)	0.00168 (0.00162)
GDP per capita		0.000210*** (2.15e-05)	0.000195*** (3.60e-05)	0.000224*** (3.69e-05)
Trade Openness		0.0497*** (0.00754)	0.0480*** (0.00863)	0.0413*** (0.00883)
Inflation			-0.0100 (0.0177)	0.000430 (0.0177)
HDI			0.789 (2.168)	-4.571 (3.032)
Population				6.36e-09** (2.58e-09)
Constant	23.47*** (0.139)	20.31*** (0.346)	19.99*** (1.205)	20.10*** (1.174)
Observations	101	101	101	101
R-squared	0.000	0.620	0.622	0.646
Number of country1	5	5	5	5

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Source: Author's own computation from STATA (13.0)

Next, the logic for the inclusion of the lagged values of the number of attacks is to check the possibility that if the number of incidents, which happened several years ago, is able to create a sort of image about the security level of the countries which, to certain degree, might have an impact on the investment decisions of foreign investors. Thus, approaching from this perspective, the lagged values of the number of attacks have been added to another model in order to observe whether there exists any association between the current values of FDI and the lagged values or not. Even though the four-year time lag of number of incidents has been included to the FDI inflows, it turns out that the number of attacks that happened one to four years ago do not have statistically significant impact on the inward FDI in BRICS countries at 5% significance level. This finding also supports what have been already found in the previous model, where only current values of number of attacks have been included on FDI. It seems that the number of terrorist acts does not have that significant influence on FDI in these countries. According to the Table 7, the variables that have significant effect on FDI inflows to BRICS after the inclusion of lagged values

of attacks are per capita GDP, Trade Openness and Population, whereas Inflation and HDI are statistically insignificant as it was in the previous model.

Table 7. Regression results after including lagged values of no of attacks

Variables	Coefficient	Standard Error	P-value
<i>Number of Attacks</i>	-0.0000386	0.0025542	0.988
<i>Number of Attacks_{t-1}</i>	0.0003525	0.003366	0.917
<i>Number of Attacks_{t-2}</i>	-0.0041212	0.0028298	0.151
<i>Number of Attacks_{t-3}</i>	-0.0016518	0.0032808	0.617
<i>Number of Attacks_{t-4}</i>	-0.0024591	0.0025317	0.336
<i>GDP per capita</i>	0.0001899	0.000055	0.001
<i>Trade Openness</i>	0.0345869	0.0113589	0.004
<i>Inflation</i>	0.0244181	0.0293209	0.409
<i>HDI</i>	-2.155924	3.987134	0.591
<i>Population</i>	6.85e-09	3.92e-09	0.086
<i>Constant</i>	18.64067	1.799254	0.000
R-squared = 0.4325			

Source: Author's own computation from STATA (13.0)

6.3. Limitation

The main limitation in this work is that only the number of terrorist acts has been added to the regression models, which result in insignificant effect of terrorism on FDI in the sample countries. This is mostly due to the fact that the range of number of attacks vary greatly among the sample countries during the specified time period. Some countries experience excess amount of terrorism, whereas some countries face with only minor incidents in some years. Also, we observed considerable decrease in number of observations after excluding outliers from the model. All these might have decreased the overall significance of this variable on dependent variable. In this regard, the number of deaths resulted from terrorism can be added to the model as well, in order to better assess the impact of terrorism on FDI or the inclusion of completely different countries with similar peculiarities can be notably beneficial too serving for the same purpose. On the other hand, some observations of terrorism variable with high number of incidents, i.e., some outliers have been kept for the purpose of preserving the consistency of time period, which might have increased the total variance in the model and consequently, result in insignificance of terrorism on the dependent

variable. Another limitation is that this thesis studies the impact of selected variables in BRICS as a whole; however, a country-specific analysis of the same countries could presumably depict better picture with the same purpose, since these countries possess various idiosyncratic economic and social dynamics, even though they are classified as emerging economies.

7 Conclusion

This chapter builds upon the conclusion in which the results obtained from the regression models in the empirical part of this work are summarized. This thesis has been conducted with the purpose to find out the impact of terrorism on FDI inflows in BRICS during the period 1992-2018 with the involvement of several other macroeconomic variables such as per capita GDP, population, trade openness, inflation and HDI. Before elaborating on the findings, it is worth to note that the main contribution of this thesis, as mentioned before, is that this is the first work to assess the trends of foreign direct investment from the perspective of terrorism in BRICS countries, which is important for in-depth investigation of the impact of security levels of these transition countries on an important branch of their economies.

Since the main purpose of this thesis is to analyze any potential association between terrorism and FDI in BRICS countries, our finding does not align with the expectations, as terrorism is statistically insignificant for FDI inflows. Nevertheless, this may be the case due to several reasons. The first explanation is that the terrorist incidents with no loss of human life do not tend to affect people or investors which might be result of people's comprehension of these attacks as unimportant. Moreover, lower social awareness caused by indifference of media can be another reason for the insignificance of terrorist attacks. Into the bargain, another possible reason for this pre-mentioned statement might be successful measures taken by governments to fight against the consequences of terrorism after they happen, which generally include the economic and political disruption of countries and a potential disarray among the society.

The inclusion of lagged values of number of terrorist attacks with the aim to reveal any possible relationship between foreign direct investment and terrorism that happened up to four years prior to actual investments, however, did not change the overall result. We still observed the statistically insignificant effect of terrorism on FDI which might indicate that perhaps, the number of attacks is not a good indicator for the measurement of terrorism variable.

GDP per capita has been observed to positively affect FDI inflows in BRICS countries as expected, which indicates that the countries with high economic growth generally tend to attract the attention of foreign investors. Next, the statistical significance of trade openness might be explained with the argument that the liberal state of economies as well as the high volumes of exports and imports in the countries are other contributors of positive trends in inward FDI. Furthermore, population is a proxy for market size as mentioned before and significant impact of population on FDI in

BRICS can be explained by the fact that a greater market size is prone to attract more investment, considering the fact that it is a good market opportunity and lucrative for the investors. These findings are in line with and meet our expectations.

On the other hand, there has not been monitored high levels of inflation or hyperinflation in our sample of countries during the specified time span which has appeared as an insignificant effect on FDI in the regression model. Hence, inflation variable is not a determinant for decisions of investors in these countries. Last, the insignificance of HDI is against our expectations, however, this might be because these developing countries with transition economies do not get affected in terms of FDI inflows by non-sufficient levels of HDI.

In conclusion, the main output of this thesis, which is the effect of terrorism on FDI in BRICS, do not perfectly align with the previous findings described in Chapter 2, which have identified association between these two variables in other countries (e.g., Enders & Sandler, 1996; Abadie & Gardeazabal, 2008; Shahzad et al., 2016). Additionally, the evidence about significant role of market size, economic growth, and trade openness as determinants of FDI in BRICS is similar to those of Asongu et al. (2018), Gupta and Singh (2016), Shah and Ali (2016) etc. On the other hand, the insignificance of inflation in BRICS is in line with the finding of Vijayakumar et al. (2010), whereas the same evidence about HDI contradicts the results of the previous research (e.g., Hussain et al., 2010; Sharma & Gani, 2004).

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List of Appendices

Appendix 1: Box Plots of Variables Used in the Model

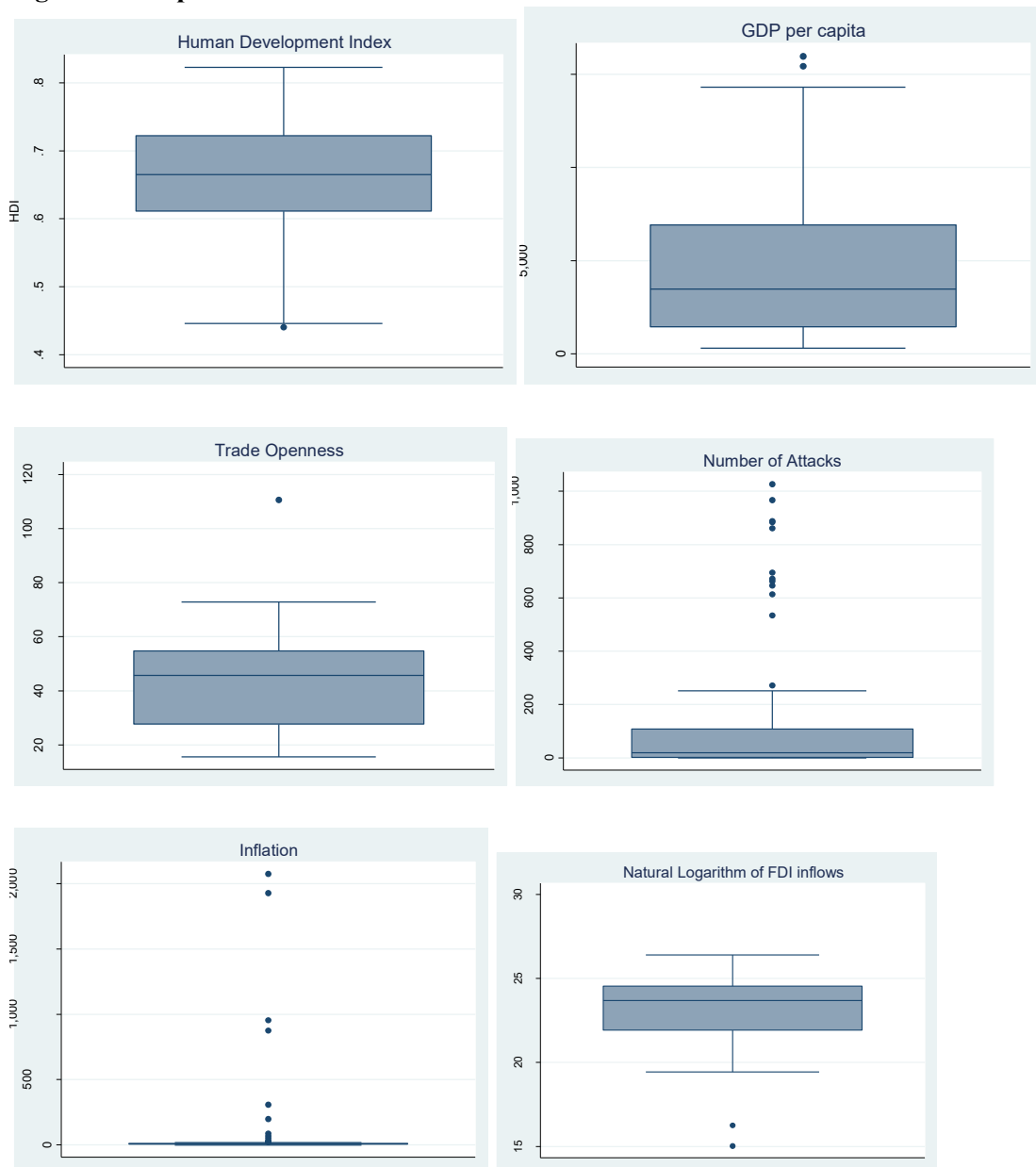
Appendix 2: Histogram of Variables Used in the Model

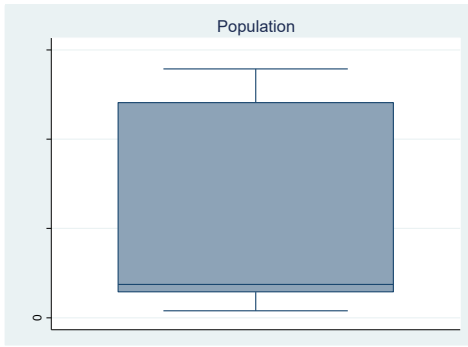
Appendices

Appendix 1: Box Plots of Variables Used in the Model

Figure 1 displays box plots constructed for each variable used in the model. One can clearly see the outliers exceeding upper and lower limits which have been excluded from the dataset.

Figure 1. Box plots of variables used in the model





Appendix 2: Histogram of Variables Used in the Model

Figure 2 presents histogram with normal density plot for each variable incorporated to the model. One can clearly see whether and to what extent the variables deviate from normality.

Figure 2. Histogram of all variables in the model with normal density

