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TERRORISM ACTIVITIES AND CAPITAL FLOWS OF DEVELOPED COUNTRIES IN THE WORLD

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TERRORIST ACTIVITIES AND CAPITAL FLOWS OF DEVELOPED COUNTRIES*+

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Abstract

Main aim of paper is to empirically measure the consequences of terrorism activities on capital flows of developed countries of the world. Capital flows are interpreted as FDI inflows and outflows of developed countries. The methodology is based on dynamic panel data models (System-2 step-GMM estimator) using sample covering up to 36 developed countries all over the world (Europe, America, Asia, Oceania) from 2000 to 2016. The key results indicate that terrorism incidents, economical and institutional variables are found to have different impact on capital flows of developed countries. All used variables of the model will show the level of their impact of capital flows. The results indicate that terrorist activities weaken economic activity of a country while minimizing capital flows in certain situations. The recommendations and proposals are given based on the results of research.

Key words: *Developed countries of the world, capital flows, international competitiveness, terrorism activities*
JEL classification: *F21, F52, F59, F6*

1. Introduction

Due to its actuality, terrorism has become popular subject within scientific, political and social sphere. Terrorist incidents in EU developed countries like Germany (Year 2016), France (Years 2015 and 2016), Belgium (Year 2016), Spain (Year 2017) and UK (Year 2017)

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emphasized the relevance of terrorism prevention by strengthening national security and economic activities.

According to BFRS, terrorism act represents as the use (or threat) of violence against noncombatant targets by illegal organizations to induce fear which creates political and economic turmoil in short term with many other long-term consequences. Terrorists, as opposed to warfare, try to achieve their scopes without targeting the combatants and without directly hitting the decision makers (De Mesquita 2005). Terrorism can be also seen as an act of violence with intention to disrupt normal course of life to achieve political and economic gains (Enders et al. 2006; Enders and Sandler 1996).

Foreign direct investments (FDI) represent one of the key generators of economic growth. According to Buckley et al. (2002), capital accumulation and augmentation of human capital through education, trainings and new managements represent positive characteristics FDI inflows.

FDI can provide income, capital, technology, expertise, and market access. Tarzi (2005) identified key factors of investment inflow in a country, i.e. to determine why certain developing countries have high FDI inflows, while inflows in other countries are minimal. The most important identified factors are market size, market growth rate, competitiveness of the economy, infrastructure, and productivity of the employees. Author points out the importance of legislation in the host country with a focus on the policies that encourage investment, taxation, repatriation, rules for property acquisition for foreign citizens, FDI regulations, labor policy, etc. He considered company characteristics, such as company size, business sector, types of industry, and strong and sustainable strategies as well. Emphasis was also placed on product differentiation factors, among which the most important are technology, brand, marketing activities, skills, logistics, and organization, that can be the foundations of international competitiveness of a company. Finally, the research indicates far-reaching consequences of terrorist activities, not only on FDI, but also on other economic parameters such as the gross domestic product of other countries.

Neoclassical growth models FDI promote creation of capital stock and enhances productions which impacts on the economic growth (under certain conditions). FDI relates to technology transfer as well. The efficiency of FDI flows is on higher level by not only short run but also long run effects (Roman, 2012). Nevertheless, FDI aimed at other countries sometimes might be harmful. It could be seen especially in case of domestic economy with decreasing rates of economic growth (Melnyk et. al, 2014).

Foreign direct investments require an investment friendly and conducive environment in the host country (Buckley et al. 2002). In other words, terrorist activities reduce security and investor's confidence in countries exposed to terrorist activities, reducing the inflow of foreign direct investment. Terrorism acts in the host country provoke fear of loss, which increases the

perceived investment risk. High risk without a potential increase in the expected return on investment will drive foreign investment away from the host country (Shahzad et.al., 2016).

Costs of anti-terrorist security burden the economy and reduce its economic potential (Bezić et.al., 2016). The economic effects of international terrorism are evident in the short and long run. In the short run, terrorism results in material losses, casualties and creation of a negative investment climate. In the long run, international terrorism affects the price increase due to increased spending on national security and anti-terrorist activities. Negative consequences can be seen economic sectors like tourism, transport sector etc. The example of terrorist attacks in the USA in 2001 shows that terrorism can have negative effects on sectors or branches of industry (air transport and tourism) (Drakos, 2004, Ito and Lee, 2004) or result in a drastic increase in spending necessary for the establishment of national security (Enders; Sandler, 2006). In this way, security costs are incurred by all users of products in the international market, in addition to the country threatened by terrorism.

Terrorism (and civil wars) may cause overflow of costs among neighboring countries and divert capital inflows in the event of security risks in the neighboring country. Also, increased danger of terrorism may affect the reduction of economic activity across the region (Bezić et. al., 2016). Terrorism also affects the increase in operating costs, which is reflected through high insurance premiums, higher spending on security and higher wages for employees at risk.

There is a distinction between transnational terrorism and terrorism. Mickolus et al. (2009) defines it as “the use, or threat of use, of anxiety-inducing, extra-normal violence for political purposes by any individual or group, whether acting for or in opposition to established governmental authority, when such action is intended to influence the attitudes and behavior of a target group wider than the immediate victims and when, through the nationality or foreign ties of its perpetrators, its location, the nature of its institutional or human victims, or the mechanics of its resolution, its ramifications transcend national boundaries.” In another words, domestic terrorism occurs within the boundaries of a certain country while international terrorism occurs outside country's boundaries and jurisdiction.

This research is based on the hypothesis that terrorism incidents have visible impact on the capital flows of developed countries of the world. Capital flows are measured by FDI inflows and FDI outflows of developed countries. It can be also assumed that terrorist incidents have significant negative impact on FDI but not significant in case of FDI outflows. The main objective of the research is to analyze and define institutional, economic, natural and terrorism dimensions and test their impact on capital flows (FDI inflows and FDI outflows) of 36 developed countries of the world and propose measures to improve level of security to create a safe investment environment.

Although majority of research articles put attention on FDI inflows of various groups of countries, this study includes FDI inflows and outflows as separated concepts for developed

countries of the world. FDI inflows and outflows are estimated using advanced econometric method system (two step) GMM estimator which eliminates potential problems of endogeneity.

Although developing countries of the world are more frequently victimized terrorist attacks, developed countries become targets of terrorist attacks. Just for an example, according to Global Terrorism Index (2017), here have been nearly 10,000 deaths from terrorism in OECD countries between 1970 and 2016 with 58 per cent of these deaths occurring prior to 2000. Moreover, in OECD member countries, deaths from terrorism dramatically increased in 2015, rising by 650 per cent when compared to 2014. Twenty-one of the 34 OECD countries experienced at least one terrorist attack with most of deaths occurring in Turkey and France (Global Terrorism Index, 2016). Therefore, the purpose of this research is to confirm negative impact of terrorist attacks on developed countries of the world. Results show significant negative impact of FDI inflows while FDI outflows proved to be statistically insignificant variable. The research consists of six interrelated parts. After the introduction, the second part of the research presents previous research covering capital flows (FDI) and terrorist activities. Methodological framework of the research and are presented in the third part. The fourth part of the research includes the construction of an econometric model and background documentation. The fifth part shows the results of the conducted empirical research on the example of developed countries in the world. The sixth part of the research sets out the proposals and recommendations and concluding observations.

2. Literature review

This section embodies theoretical aspects and conducted research about terrorism and its economic implications. The emphasis has been put on investigating the relationship between terrorism activities and foreign direct investments (FDI). Due to the actuality and growing relevance of FDI and terrorist activities, certain number of research papers were published. Majority of articles confirmed negative impact on FDI capital flows which are reviewed within this section.

Enders and Sandler (1996) found that terrorism discouraged net FDI by 13.5 percent annually in Spain and 11.9 percent annually in Greece in the period from 1975 to 1995. Authors stated that smaller countries that face a persistent threat of terrorism may incur economic costs in the form of reduced investment and economic growth. Research conducted by Abadie and Gandeazab (2003) are based on the insight that terrorist activities and increased global insecurity have a (negative) impact on the distribution and transfer of capital and investment inflow in different countries. FDI. Author's results indicate a standard deviation increase in terrorist risk is connected with a fall in net FDI of about 5% of gross domestic product (GDP).

Blomberg and Mody (2005) analyzed impacts of terrorism, wars and revolutions using a gravity model of bilateral FDI flows that included 12 countries of origin and 43 host countries in the period between 1981 and 1988. This model separates the effects of terrorism on FDI

from impact of other forms of insecurity/violence on FDI. The findings, for the most part applicable to developing countries, show how insecurity and violence in the host countries have a negative and significant effect on FDI while on the other hand, insecurity/violence in the country of origin results in an outflow of FDI.

Lutz and Lutz (2006) measured the impact of terrorism on FDI in 23 Latin American countries in the period 1969 and 1988. Authors confirmed significant negative impact of terrorism on FDI inflows. Using terrorism and FDI data, Kang and Lee (2007) investigated the role of terrorism on FDI within the period from 1980 to 2002. They found that terrorism is negatively and significantly related to FDI inflows.

Alomar and El-Sakka (2011) found negative significant impact of terrorist attacks on foreign direct investment inflows of 136 less developed countries. Filer and Stanišić (2012) confirmed the impact of terrorism on capital flows in over 160 countries during a 25-year period. According to the authors, terrorist attacks have negative impact on FDI while having no impact on external debt or portfolio investments. Powers and Choi (2012) analyzed 123 developing countries from 1980 to 2008. Authors revealed that transnational terrorism weakens FDI.

Omay et al (2013) found the intensity of the terrorist events influences the impact of terrorism on FDI. Terrorist attacks of high intensity have bigger influence on the FDI inflows compared to lower intensity terrorist attacks.

Bandyopadhyay et. al. (2014) investigates the impact of terrorism on share of FDI in GDP of 78 developing countries for the period between year 1984 and 2008. Their study distinguishes the adverse FDI consequences of domestic terrorism from those of transnational terrorism. Authors concluded that both types of terrorism are found to depress FDI. Ezeoha and Ugwu (2015) found that conflicts and terrorism attacks in 41African countries have a negative impact on FDI inflows over the period 1997 to 2012. Authors stated that institutional development moderated this influence.

Bezić, Galović and Mišević (2016) examined the effects of terrorism on inward FDI of 29 EU and EEA member countries from 2000 to 2013. Their results indicate negative and statistically significant impact of terrorism on incoming FDI per capita.

Some of studies didn't confirmed the impact on terrorism on FDI. One of them is Li (2006) who differentiated anticipated and unanticipated terrorism and reports that neither has a direct impact upon FDI. Research of Younas (2009) imply that domestic and interstate conflicts are not determinant factors of FDI inflows.

Previous literature results imply that terrorism activities have significant impact on FDI flows. Therefore, hypothesis "terrorism incidents have visible impact on the capital flows of developed countries of the world" can be tested.

3. Methodology

The impact of terrorism on capital flows (measured by inward and outward FDI) of developed countries is examined using system GMM two-step dynamic panel with asymptotic standard errors function.

To provide nonbiased results, authors have chosen two-step estimator than one-step estimator as econometric method of this research. One of the major reasons is that two-step estimator is asymptotically efficient and robust to whatever patterns of heteroskedasticity and cross-correlation the sandwich covariance estimator models. Another reason is that some researchers often reported one-step results as well because of downward bias in the computed standard errors in two-step estimator. Furthermore, one-step GMM has certain limitations (Ullah et al., 2018). In order to avoid potential data loss owing to the internal transformation problem with the first-step GMM, Arellano and Bover (1995) recommended the use of a second order transformation (two-step GMM).

Two forms of dynamic estimators were created while implementing GMM method: differentiated GMM estimator (Arellano and Bond, 1991) and system GMM estimator (Arellano and Bover, 1995; Blundell and Bond, 1998). Differentiated and system GMM estimators have been created for dynamic panel analysis and have certain assumptions of data generating process (Roodman, 2009), which should be considered, i.e. that:

- There is a possibility of autonomously distributed individual time-invariant effects. Such a situation is contrary to the temporal regression model;
- Some of the regressors can be endogenous,
- The occurrence must be dynamic in nature, with the realization of the current dependent variable that is influenced by the variable from former periods,
- Idiosyncratic disorders (except for time-invariant effects) have specific forms of heteroscedasticity, autocorrelation, and
- Idiosyncratic disorders are uncorrelated between individual variables.

The dynamic model with a single time-shifted (lagged) variable can be shown by the following equation (1):

$$y_{it} = \beta y_{it-1} + u_i + v_{it}, |\beta| < 1 \quad (1)$$

wherein yit is the value of the dependent variable also in the period t; yt–1 is the dependent variable with a shift (lag) for one period; ui are individual time-invariant effects, and vit is a random error. Individual impacts are treated as stochastic, and further assumption that is crucial for the consistency of the model is that errors vit are serially uncorrelated. Individual time-invariant effects are initially associated with the former influence of the dependent variable of the model, which points to the above-mentioned problem of endogeneity.

The GMM model removes endogeneity by “internally transforming the data”– transformation refers to a statistical process where a variable’s past value is subtracted from its present value

(Roodman, 2009, p. 86).

In exceptional cases, when there is no serial correlation (autocorrelation) in the random error, lagged differences i.e. shifts of endogenous variables can be included as instruments of the model (Arellano and Bond, 1991; Greene, 2005; Stojčić et al. 2011; Stojčić and Hashi, 2011; Stojčić et al., 2012).

Research will show significant impact of terrorism more on inward than in case of outward FDI. Inward and outward FDI values are transformed in natural logarithms. The same case is for GDP per capita variable. We expect visible impact of natural disasters on FDI inflows and outflows per capita. It is also assumed that the economic variable GDP per capita has a certain effect in the context of an increase in the inward and outward FDI stock per capita. The variable of capital openness and financial freedom should have a positive sign, but different significance depending about direction of FDI. FDI is a process that develops over time. Proving the above predictions may provide an answer to the question of significance of the impact of terrorism on the FDI flows of developed countries of the world. These assumptions of the empirical part will be subjected to econometric testing in order to confirm the main hypothesis of the research. Based on the two separated models, relevant variables are selected and tested. The econometric models are created as it follows:

(2)

$$\text{LNFDIPCinwardstock}_{it} = \beta_0 + \beta_1 \text{LNFDIPCinw(-1)}_{i(t-1)} - \beta_2 INCIDENTS_{it} - \beta_3 DISASTERS_{it} + \beta_4 LNGDPpc_{it} + \beta_5 Kaopen_{it} + \sum_{t=2002}^{2016} year_t + u_{it} + v_{it}$$

(3)

$$\text{LNFDIPCoutwardstock}_{it} = \beta_0 + \beta_1 \text{LNFDIPCout(-1)}_{i(t-1)} - \beta_2 INCIDENTS_{it} - \beta_3 DISASTERS_{it} + \beta_4 LNGDPpc_{it} + \beta_5 Kaopen_{it} + \sum_{t=2002}^{2016} year_t + u_{it} + v_{it}$$

Inward FDI stock per capita (LNFDIPCinwardstock) is selected to be a dependent variable in the econometric model (2) and outward FDI stock per capita (LNFDIPCoutwardstock) represents dependent variable of another econometric model (3). FDI stocks are the accumulated value held at the end of the reference period (typically year or quarter). The data are taken from the reference database UNCTAD (2017).
The following variables were selected as independent variables of the model, including the natural logarithm of the state of incoming foreign direct investment from the previous year (LNFDIPCinw(-1) for inward FDI stock and LNFDIPCout(-1) for outward FDI stock), the number of incidents (INCIDENTS), natural logarithm GDP per capita (LNGDPpc), the KAOPEN Index (Kaopen), and natural disasters (DISASTERS). LNFDIPCinw(-1) and LNFDIPCout(-1) represent the state of inward and outward foreign direct investment per capita in the previous year and, simultaneously, the time-shifted variable.

Another independent variable is the INCIDENTS variable that represents the total number of terrorist attacks, i.e. incidents. This category is calculated as sum of injured people and fatalities from terrorist attacks. The data were collected from the database Global Terrorism Database (2017). A number of empirical studies (Kang and Lee, 2007; Agrawal, 2011;

Bandyopadhyay et. al. 2014; Bezić et al., 2016; Filer and Stanišić, 2016) include the number of terrorist incidents and/or casualties of terrorism as independent variables of the model. The conducted studies generally confirm the negative impact of terrorism on FDI. Therefore, in this study, the variable INCIDENTS is selected, that measures the impact of terrorism on inward and outward FDI stocks of developed countries of the world.

The model includes natural logarithm of the economic variable GDP per capita (LNGDPpc) of developed countries in the world. The values of GDP per capita of the observed countries were collected from statistical database of UNCTAD (2017). GDP values are initially denominated in US dollars. The equation of the model involves the so-called Chinn-Ito (KAOPEN) Index measuring observed countries' degree of capital account openness. The variable Kaopen represents the institutional variable of the model and at the same time shows the characteristics of the financial climate in a particular country. The KAOPEN Index is based on binary „dummy"variables that show the limitations of cross-border financial transactions of the Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) by the IMF. The Index was originally developed by Chinn and Ito (2006) and is applicable to the studies of the impact of terrorism on foreign direct investment by Filer and Stanišić (2016). The econometric calculation includes the variable of natural disasters (DISASTERS), whose data were downloaded from the International Disasters Database (2017). The natural disasters variable is treated as an independent variable in studies by authors such as Filer and Stanišić (2012), Sanjo (2011), Filer and Stanišić (2016) who confirm the negative impact of natural disasters on FDI. The variable u indicates individual time-fixed effects, while v represents random error of the model. The impact of omitted variables is measured by the effects of the constant.

4. Empirical data and analysis

Empirical part of the research is based on secondary research by the authors. The research results relate to the period from 2000 to 2016 and includes 516 (Equation 2) and 518 observations (Equation 3). The econometric model consists of a total of 36 developed countries of the world. The group of selected countries includes Northern American countries (USA, Canada), Developed Asian and Pacific Countries (Australia, Japan, New Zealand) EU Countries (Austria, Belgium, Bulgaria, Cyprus, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Lithuania, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom, Switzerland, Norway, and Iceland. The classification of the analyzed countries has been downloaded from UN World Economic Situation Prospects Report (2017).

By using a dynamic model, the potential problems of endogeneity and measured errors can be eliminated by using instruments i.e. temporal shifts (lags) of the dependent variable. Implementation of the dynamic panel eliminates the problems that can affect reliability and

assessment of the results of the empirical analysis. Diagnostics of the model is conducted first, and the impact will be tested by the selection of the dynamic panel. The significance of the impact of terrorist incidents and other independent variables on FDI inflow is tested by using the system two-step GMM estimator. The dynamic panel analysis is based on the implementation of the econometric software GRETL. The results indicate the impacts of the selected independent variables of FDI stocks from the previous year (LNFDIPCinw(-1) and LNFDIPCout(-1)), the number of incidents (INCIDENTS), GDP per capita (GDPpc), the values of KAOPEN Index (Kaopen), and natural disasters (DISASTERS) on two dependent variables LNFDIPCinwardstock and LNFDIPCoutwardstock. The results of the assessment and diagnosis of the dynamic panel model are presented on the example of the above mentioned dependent variables. Detailed printout of the results of the system two-step GMM estimator can be found in Table A1 (see Appendix).

Table 1. Results of the Dynamic Panel of System GMM Estimator from 2000 to 2016 (dependent variables LNFDIPCinwardstock (2) and LNFDIPCoutwardstock (3))

INDEPENDENT VARIABLES (2)	VALUE	INDEPENDENT VARIABLES (3)	VALUE
Lagged dependent variable *LNFDIPCinw(-1)*	0,723686***	Lagged dependent variable LNFDIPCout(-1)	0,669763***
INCIDENTS	−0,00152372***	INCIDENTS	0,000322894
DISASTERS	−0,0134141***	DISASTERS	−0,0101781***
LNGDPpc	0,243016***	LNGDPpc	0,762484***
Kaopen	0,00755836	Kaopen	0,0267862***
Constant	0,199837**	Constant	−4,84173***
MODEL DIAGNOSTICS	VALUE	MODEL DIAGNOSTICS	VALUE
Number of observations	518	Number of observations	516
Number of instruments	124	Number of instruments	124
Wald test	16891,5	Wald test	90954,3
Prob>chi2	0.000	Prob>chi2	0.000
Sargantest	34,6841	Sargantest	25.2068
Prob>chi2	1.0000	Prob>chi2	1.0000
Arellano-Bond test for AR(1) in the first differentions	2,90837	Arellano-Bond test for AR(1) in the first differentions	2,51333
Prob>chi2	0,0036	Prob>chi2	0,0120
Arellano-Bond test for AR(2) in the first differentions	-1,29508	Arellano-Bond test for AR(2) in the first differentions	-1,00313
Prob>chi2	0,1953	Prob>chi2	0,3158

Note: P-values in parentheses and labels *** indicate the level up to 1% significance. P-values in parentheses and labels * indicate the level up to 5% significance. P- values were obtained by calculating the two-step dynamic procedure.

Source: Authors' calculations

Table 1 shows two different results. Left side (Model (2)) of a Table 1 indicates impact of terrorism and other variables on inward FDI stock of developed countries. Right side (Model (3)) measures impact of terrorism and other variables on outward FDI stock of developed countries of the world. The results of Wald Test indicate satisfactory explanatory power of the variables for both models. Moreover, respective significance of the test is confirmed for models (2) and (3). The synthesis of the both diagnostics results imply that the model is well specified. Models are appropriate to econometric testing of the impact of independent variables on the dependent variables inward FDI stock and outward FDI stocks.

The resulting value (Prob>chi2) of the Sargan test amounts to 1.0000 and is higher than 0,05, which means that both models are acceptable and correct. Arellano-Bond test is used to examine the existence of autocorrelation of the first (AR1) and the second order of errors (AR2) in the first differences of the equation. Furthermore, the results of Arellano-Bond (2) tests for both models don't indicate the presence of the second-order autocorrelation due to bigger coefficients, which are much higher than the allowable limit of 0,05 (0,19 and 0,31). Therefore, the null hypotheses of no second-order autocorrelation are fully accepted for equations. The coefficients have the expected signs and satisfactory statistical significance.

5. Results and discussion

After reviewing the results of model diagnostics, the results are interpreted through two-step GMM estimation. There is a difference between results of left and right side of the Table 1 which will be interpreted within following section. Model (2) and Model (3) indicate positive and highly significant coefficient of temporally shifted (lagged) dependent variables, which supports the thesis that the current values are positively related to the previous realizations.

In case of Model (2) the magnitude of the coefficient shows that a 1% increase in the value of inward FDI stock per capita from the previous period results in an increase of 0,72% in the current period with provided constancy of other variables of the model. Coefficient of Model (3) shows that a 1% increase of outward FDI stock per capita from the previous period results in an increase of 0,66% in the current period (with provided constancy of other variables of the model). Results indicate no statistical significance for outward FDI stock per capita. The fact is that developed countries represent world's major FDI senders. Therefore, domestic terrorism incidents could not have strong impact on their FDI which is often oriented towards foreign developing and less developed countries.

From Model (2) perspective, inward FDI stock per capita will be reduced by 0,0001% if the variable number of incidents is increased by 1%, provided ceteris paribus. On the other side, there is no significance for the impact of variable INCIDENTS in Model (3). This number is lower than research results of Filer and Stanišić (2012). They used fixed effects estimation method which measured impact of terrorist incidents on FDI from 1980 to 2008. Coefficient is -0.0534 with 10% level of significance. Based on the results of dynamic panel system estimation, Kang and Lee (2007) measured the impact of terrorist incidents on FDI with coefficient of -0,003 with 5% level of significance. Model includes 811 observations within the period from 1980 to 2002. Finally, results indicate that FDI inflows of developed countries remained significantly negatively correlated with terrorism activities. Moreover, the impact is weaker than other. We conclude that variables LNFDIPCinw(-1) and LNGDPpc have strong impact on current FDI inflows of developed countries. This is not the case for terrorist incidents which experience a small but significant drop in FDI inward stock of developed countries.

The value of inward FDI per capita results in an increase of 0,24% if GDP per capita is increased by 1% provided the constancy of other variables of the Model (2). Coefficient of Model (3) shows that a 1% increase of variable LNGDPpc results in an increase of 0,76% of inward FDI stocks with provided constancy of other variables of the model. Outward FDI stocks per capita (Model (3)) decreases by 0,02% if the variable Kaopen increases by 1%, provided the constancy of other variables of the model. In the case of Model (3), the Kaopen variable has the expected sign, but its significance is unsatisfactory. The DISASTERS variable has statistically significant impact on dependent variables of both models. In the example of Model (2) inward FDI stock per capita will be reduced by 0,01% if the variable number of incidents is increased by 1%, provided ceteris paribus. The same value reflects on the relationship between disasters and outward FDI stock per capita (Model (3)).

The results imply positive and statistically significant impact of terrorism on inward FDI stocks per capita but not on outward FDI stocks per capita. The impact of Kaopen variable on inward FDI stocks per capita is relatively weak and insignificant while it recorded significant impact on outward FDI stocks per capita. There are recorded statistically significant impacts of GDP per capita on the dependent variables on both models. The highly significant impact of the disasters on inward and outward FDI stocks per capita has been confirmed as well. According to which FDI flows represents a process that develops over a period. One should not ignore the fact that FDI flows may be the result of FDIs from previous periods. It is evident that direct foreign investments do not provide short-term but long-term, tangible results.

The results of both Models (2) and (3) can be summarized in a few following statements. Nature disasters occurred in developed countries certainly play negative role in attracting/sending FDI. Higher level of economic performance (GDP per capita) stimulates higher concentration of FDI flows of developed countries as well. Developed countries with more FDI stock a year ago tend to attract/send more FDI during current year. However,

terrorist incidents proved to be negatively and significantly related only in case of FDI inward stock of developed countries.

6. Conclusions

The key contribution of this research is that there exists relationship between terrorist incidents and capital flows (FDI inflows and FDI outflows). The literature research implies that FDI inflows is negatively related to terrorism. Research covers a total of 36 countries for years 2000-2016. The results of the two-step GMM estimator takes different two types of capital flows into account. The main hypothesis of the research is confirmed, stressing out that „terrorism incidents have visible impact on the capital flows of developed countries of the world". However, authors detected different impact significance between FDI inflows and outflows of developed countries. An occurrence of terrorism in developed countries doesn't have strong impact on their FDI outflows. Therefore, it is evident that there couldn't be any visible, negative spillover effects because of a different geographical location of FDI destination. The occurrence of major or infamous terrorist attacks cause reduction of FDI inflows, security costs are being risen, weaker demand for products/services (especially in tourism and transportation sectors). It must be noted that impact of terrorism on FDI inflows and outflows is significantly weaker than the impact of economic indicators (GDP growth), natural disasters (hurricanes, earthquakes, floods etc.) and institutional factors (country's degree of capital account openness). Just like in the case of the impact of terrorism, the impact of country's level of capital account openness recorded different impacts of capital flows. An implementation of two-step GMM estimator of dynamic panel analysis, provided more non-bias and objective scientific results. The presented model can be methodologically upgraded and, depending on the objectives and interests of interested scientists and professionals, it can be upgraded with other variables of the model. Developed countries of the world represent relevant and vital source of FDI. These countries are influenced by various types of factors. From the economic perspective, there is an existence of intensified competition (developing Asian countries). If we observe natural disasters as a factor, its negative impacts become more frequent and more destructive not only for country's population and infrastructure but for their capital flows. The consequences of political tensions (like wars, riots etc.) have strong influence on capital flows of developed countries. Developed countries of the world should be more aware of security problems and relationship between terrorism and capital flows. Authors recommend that developed countries systematically invest in national defense to prevent or minimize potential costs from terrorist activities. This activity requires creation of national strategies which will neutralize or minimize any occurrence of security or economic crisis. Terrorism stimulates increased security measures and control which represent costs for developed countries. Moreover, terrorism proved to deteriorate foreign trade activities which result with decline of the trade volume. An occurrence of stricter security measures after the terrorist attacks in the USA (September 11) reflected negatively on the world trade flows. The countries receiving FDI should anticipate changes brought about by the increase in their political risk. The growth of political risk because of the geopolitical crisis in these countries

adversely affects investment plans of FDI holders and causes a slowdown in the growth of global economy. Negative consequences of terrorist incidents don't stimulate investor's motivation which proved to be essential factor of FDI flows. Overall impact of terrorist incidents may be significant because, for example, fearful foreign FDI investors redirect their funds to other countries. However, it must be pointed out that, in some cases, terrorism activities could affect positively on FDI activities (manufacture of gun and armory). The application of the results of this research may contribute to a clearer perception of the impacts of terrorism on FDI inflows and outflows. Ignoring the possibilities of occurrence of terrorist activities have a long-term negative impact on the development of a country. In sum, authors limited the investigation under the criterion of developed countries of the world (UN World Economic Situation Prospects Report). Therefore, the findings of the present study could be different from other groups of chosen countries (developing and undeveloped countries of the world). Depending on research goals of interested researches, business and regulators, it is possible to include additional explanatory variables like military expenses, inflation, trade openness, infrastructure, political stability etc. Implemented the model can be estimated by alternative econometric methods and the results can be compared.However, these drawbacks do not influence the significance of the research findings.

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APPENDIX

Table A1: Results of the System Two-Step GMM Estimator (inward and outward FDI)

Model 31: 2-step dynamic panel, using 518 observations
Included 35 cross-sectional units
Time-series length: minimum 7, maximum 14
Including equations in levels
H-matrix as per Ox/DPD
Dependent variable: LNFDIPCinwardstock
Asymptotic standard errors

	Coefficient	Std. Error	z	p-value	
LNFDIPCinw(-1)	0,723686	0,0119842	60,39	<0,0001	***
const	0,199837	0,0868201	2,302	0,0213	**
Kaopen	0,00755836	0,00572324	1,321	0,1866	
Incidents	−0,00152372	0,000414243	−3,678	0,0002	***
Disasters	−0,0134141	0,00293386	−4,572	<0,0001	***
LNGDPpc	0,243016	0,0154328	15,75	<0,0001	***

Sum squared resid 51,42977 S.E. of regression 0,316937

Number of instruments = 124
Test for AR(1) errors: z = -2,90837 [0,0036]
Test for AR(2) errors: z = -1,29508 [0,1953]
Sargan over-identification test: Chi-square(118) = 34,6841 [1,0000]
Wald (joint) test: Chi-square(5) = 16891,5 [0,0000]

Model 30: 2-step dynamic panel, using 516 observations
Included 35 cross-sectional units
Time-series length: minimum 7, maximum 14
Including equations in levels
H-matrix as per Ox/DPD
Dependent variable: LNFDIPCoutwardstock
Asymptotic standard errors

	Coefficient	Std. Error	z	p-value	
LNFDIPCout(-1)	0,669763	0,0164873	40,62	<0,0001	***
const	−4,84173	0,218591	−22,15	<0,0001	***
Kaopen	0,0267862	0,00802801	3,337	0,0008	***
Incidents	0,000322894	0,000460820	0,7007	0,4835	
Disasters	−0,0101781	0,00107775	−9,444	<0,0001	***
LNGDPpc	0,762484	0,0345005	22,10	<0,0001	***

Sum squared resid	85,87350	S.E. of regression	0,410341

Number of instruments = 124
Test for AR(1) errors: z = -2,51333 [0,0120]
Test for AR(2) errors: z = -1,00313 [0,3158]
Sargan over-identification test: Chi-square(118) = 34,3296 [1,0000]
Wald (joint) test: Chi-square(5) = 90954,3 [0,0000]