Analysis on Determinants of Foreign Direct Investment and its Capacity as a Source of Economic Growth for the European Countries in Transition

Bachelor Thesis

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Abstract

This thesis aims to explain and interpret the determinants of Inward Foreign Direct Investment attractiveness in transition countries in Europe, i.e. countries in transition from central/planned economy to market economy. These countries are located in Central and Eastern Europe (CEE) and South Eastern Europe (SEU). For the purpose of this paper CEE is used as an abbreviator, which includes both groups. The CEE countries used in the analysis are Albania, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia (FYROM), Montenegro, Romania, Poland, Serbia, Slovak Republic, Slovenia and Ukraine, which makes a total target group of sixteen countries. For the deeper analysis of the topic a comprehensive literature research and a database creation were undertaken and the respective results were evaluated.

The information research is divided into two sections. The first one is a comprehensive literature review about previous analyses in the field of FDI in transition countries. In the process of research, I found significant amount of previous literature on the topic (both about determinants and effects of FDI) and discussed it in this section. The results of the reviewed studies, however, are highly controversial.

The second section represents gathering of numerical data from numerous sources, custom variable creation and consequential creation of database, which I used for my own empirical analysis (regression analysis) and hypothesis testing on FDI’s determinants in the transition countries. The results confirm the developed hypothesis, which is mainly based on the Standard gravity model and the OLI paradigm, and states that FDI is determined to a large extent by the recipient country’s market size, the distance from developed and big capital markets and the wide range of macroeconomic indicators (Fiscal stability, Unemployment, Inflation, National Savings, etc.). The period of this study is twenty years (from 1992 to 2012) and it includes sixteen of the above mentioned transition countries from Central and Eastern Europe (CEE). The findings of this thesis can be beneficial for both MNEs, which need to decide where to invest, and national governmental institutions, which are responsible for the policymaking process.

Keywords: FDI, determinants of FDI, FDI attractiveness, Location of FDI, countries from Central and Eastern Europe(CEE), transition economies, Gravity model in respect of FDI, OLI paradigm, Product Life-Cycle
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1. Introduction

The countries of Central and Eastern Europe have made tremendous transformation in economic sense since 1989 by moving from planned economy to free market economy. This transition process made these nations face enormous challenges along the way. In the beginning of the transition most of the post-socialistic countries were capital scarce, which made them privatize state-owned companies in order to stabilize their economy and external debt. For the reason that the level of national savings in those countries was extremely low (Schrooten et al., 2002), they had to attract investments from abroad. This made Foreign Direct Investment a direct contributor and catalyst for the much needed economic change.

The most cited definition of Foreign Direct Investment is given by OCED (OECD Factbook 2013: Economic, Environmental and Social Statistics): “FDI is defined as cross-border investment by resident entity in one economy with the objective of obtaining a lasting interest in an enterprise resident in another county. (…) Ownership of at least 10% of the voting power is the basic criterion used.” I am using the term FDI as defined by OECD throughout the whole paper. Besides, FDI takes place in the cases when a multinational enterprise (MNE) conducts acquisition of foreign company, joint venture, Greenfield investment or merger and acquirement of at least 10% voting power in the new enterprise.

The topic and the literature on the determinants and effects of FDI have been reviewed many times by economists and the results of their studies are controversial. Based on those studies and considering the process of disappearance of trade barriers nowadays, which are negatively correlated with FDI (Motta and Norman, 1996), I assume that FDI is indivisible part of 21st century economy. Therefore a deep analysis of its causes and effects is essential in order to comprehend completely the economic mechanisms and events of today, in particular, which factors can determine FDI.

Studies on the effect of FDI have concluded that FDI have both positive and negative effects on recipient countries’ economic growth. On one hand, the positive effects of FDI inflows can be in form of technology transfer (Borensztein, 1998), i.e. latest and innovative technologies are brought in the CEE countries by MNEs in order to achieve the lowest cost of production. Moreover, knowledge transfers are also to be considered: MNEs spend huge amounts of their budgets for further education and professional development of their workforce abroad, because educated workforce is a pre-condition for the effectiveness of the mentioned new technologies. In addition, those educated workers can later be used by domestic firms. However, those external effects of FDI can hardly be monetized. Nonetheless, it is widely believed that FDI triggers positive effects on the productivity of the host countries. Although the positive effect is mainly in form of technology implementation and educating the workforce (know-how), policymakers
believe that attracting MNEs leads also to development of new processes and products in the country. According to Solow Swan’s model increased productivity (in form of technological progress) will have positive impact on the economic growth (in form of GDP).

On the other hand, early studies on the subject such as Prebisch (1968) state that the positive effect of FDI is reduced to minimum by the fact that huge part of the benefits, for example financial profits, are transferred back to the multinational corporations’ (MNEs) home countries. Bacha (1974) and Saltz (1992) also found a negative relationship between FDI and receiving countries’ growth. One important critique of their analysis is that they did not succeed in quantifying the positive effects of knowledge spillovers, i.e. know-how which MNE bring to the host countries.

Considering the possible effects of FDI on the host country’s economic development, it is important to analyze what are the determinants of FDI. An example of such an analysis is the model developed by Mundell (1957), which incorporates FDI into the neoclassical economic framework. He states that capital is moved from capital abundant countries to capital scarce countries until the return of investment is equalized, which suggests that MNEs’ (as direct source for FDI) decision, whether to invest in a particular country, is based mainly on comparison between the after-tax profits in all the potential host countries. In other words MNEs are investing in the location with the highest return on investment (ROI). According to the Dunning’s (2001) “Ownership, Location and Internalization” (OLI) model and Tinbergen’s (1962) gravity model in relation to FDI and its determinants, the return on investment can be influenced by several factors, namely market size, macroeconomic indicators, geographical position, etc. Those factors, as possible influencers on FDI, are used in the empirical analysis later in the paper.

For the purpose of this paper, I am investigating the role of Inward FDI Stock in the countries of Central and Eastern Europe. In the analysis Inward FDI stock is used instead of FDI inflow. The reason for this is that due to the fact that FDI stock level represents the value of the reserves and capital (including retained profits) in a country, an increase in its value means higher involvement of the multinational enterprise in the host country. An analysis of FDI inflow can be biased because there is that type of capital movements, called “hot money”, which can be explained with the following example: A lot of capital investments were going towards Asia before the Asian crisis of 1997, which sought high short-term return on investment. However, once the economic situation worsened, investors withdrew their capital at once, which led to collapse of host countries’ currencies and their external debt skyrocketed (Wade, 1998; Baily, 2000). That is the reason why I decided to investigate the stock level. In other words, it has higher probability to trigger long-run positive effects on the economy in form of knowledge spillovers (know-how), higher level of technological development, horizontal
and vertical integration with domestic producers. High overall level of FDI stock also indicates higher commitment of MNEs in the host markets as a whole.

Furthermore, a theoretical framework, called Product Life Cycle theory (Vernon) also explains the need for FDI: capital flows to developed countries are needed for innovation, and to developing countries for mass production, processes implementation as well as efficiency improvements. By definition CEE countries are developing countries, so the capital inflows in form of FDI are used mainly for new production technologies, which reduce overall cost and help the MNE to compete on price, for example: mass manufacturing. This proves to some extent the conclusion made in the previous paragraph that higher FDI stock means higher long-term involvement of the MNEs in the host country.

The structure of this thesis is as follows: the next section explains the main research question of the thesis. In order to provide a better understanding of the topic, a literature review is conducted in the third part of the paper and its outcomes are discussed. Resulting from the findings made in the literature review, a research methodology is developed and explained in section four. A theory design and hypotheses are formed in the fifth section of the paper as a first step of this research methodology. Based on the literature review and the hypotheses built, in the sixth section, I explain the process of data collection, which is used for creating a database for the target group of sixteen countries (Albania, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia (FYROM), Montenegro, Romania, Poland, Serbia, Slovak Republic, Slovenia and Ukraine) for a period of twenty years (1992-2012). Besides the gathered public available data, an additional custom variable has been created, based on economic geography theory, which measures the weighted distance from a country in transition to sixteen already developed capitals market from Europe plus Russia and Turkey. The gathered information is explained in details in this section.

In the seventh section a hypothesis test is conducted through regression analysis. Overall two regression analyses in regards to inwards FDI stock in transition countries are conducted. On one hand, the first regression explains if there is a statistically significant relationship between FDI and set of macroeconomic indicators, custom variables for distance and EU membership. On the other hand, the second regression explains if there is statistically significant relationship between FDI and the same factors, but in the case they are lagged in time with one year. In the same section a discussion about the achieved results of the regression is present. In section eight possible delimitations connected with the study are stated. The ninth section presents this thesis’s contribution to theory and possible political implications, connected with foreign direct investment. The last sections are conclusion on the work done in the thesis, followed by acknowledgements and references.
2. Aims and research questions

The goal of this paper is to investigate whether there is a statistically significant relationship between a set of macroeconomic factors shown in Table 1, membership in the European Union, geographical distance from big markets and the Inwards FDI stock in countries of CEE in transition. If there is correlation between them, I am going to discuss how much of the percentage change in FDI can be explained by each of the variable included. This purpose defines the research as explanatory, which by definition is a study looking at correlations between variables and explaining the reasons behind. In order to achieve the set goal, I analyze the database on FDI using regression analysis, which consequently has become the base of a summary on the topic how the countries in CEE can form their governmental policies in order to attract more or respectively less FDI, depending on what their aim is.

There are two research questions in the paper, which can be formulated as following:

- What are the determinants and how they influence the stock of Inward Foreign Direct Investment in the countries in transition from Central and Eastern Europe?
- Is there a possibility of inverse causality between the Inward Foreign Direct Investment and the GDP in countries in transition from Central and Eastern Europe?

The first question will be answered through empirical analysis, while the second will be discussed within the framework of the literature review.
3. Literature review

The aim of the literature review is to summarize what is already known for the topic of FDI, its determinants and its effect on GDP in post-socialistic countries. Based on the findings in this section, in the sixth section I will create a database with variables, which are previously found or discussed as significant determinants of inward FDI or inward FDI stock.

3.1. What creates the demand for FDI, why is it important?

First of all, it is essential to investigate why FDI is needed and if it is of considerable importance. A specific explanation about the need for FDI can be found in Vernon’s Product Life-Cycle theory (1966), which states that new products are developed in the rich and technologically advanced markets and are mass produced in less developed countries. This statement formulates the demand for FDI as capital movements to developed countries for new product studies, and then to developing countries for introduction of technologies for cheap mass manufacturing. Thus, this theory acknowledges the need and the importance of FDI both for developed and developing countries. From the PLC theory can be concluded that countries trying to attract FDI need to sustain macroeconomic stability in terms of control of the inflation and governmental deficits as well as conduct governmental policies that reduce the restrictions for imports and exports of capital, goods and services.

3.2. Previous analysis of FDI’s cause and effects

3.2.1 FDI effect on economic development (GDP)

Many authors have discussed the possible effect of FDI on the GDP growth in countries in transition in numerous studies. However, their results are not unambiguous. On one hand, studies by Lunn (1980), Schnieder et al. (1985) confirm that FDI contribution to GDP is positive, either direct or through externalities. Those positive externalities are in form of technology transfer, know-how and introduction of good practices. Additionally, more recent studies such as the one conducted by Campos and Kinoshita (2002), who investigated twenty five countries in transition, prove significant positive effect on GDP caused by FDI in those markets.

On the other hand, early studies on the subject such as Prebisch (1968) and Bacha (1974) respectively support the view that positive effects of FDI for the host country are reduced tremendously by the transfer of the benefits to MNE’s home country in form of profit transfer. They also share the opinion that FDI correlates negatively with host country GDP growth. Their views are supported by later researchers – Wang (1990) and Balasubramanyam et al. (1996), who investigated the developing countries in particular. Contrary to the neoclassical growth framework, they also found a negative
relationship between FDI and GDP growth in developing countries. By the same token, Alfredo et al. (2002) defend their hypothesis, which states that “under insufficiently developed capital markets”, such as those in CEE transition countries, FDI has negative impact on GDP.

Some studies in the field take a neutral position and state that FDI inflows do not influence GDP, when looked independently from other factors (Carkovic et al., 2002).

Since the literature review shows very high degree of inconsistency in the findings of independent researchers in different time periods, a collection of data on FDI and GDP for the countries included in the analysis and an independent analysis of the figures is crucial in order this paper to reach its aim and conclude whether FDI’s determinants can be found. In addition, FDI’s impact on the economic growth for the countries in CEE is to be discussed.

3.2.2 Determinants of FDI in transition countries of CEE

Early studies on the topic only partially explain the cause of FDI. Hymer (1972) proposed that “direct investments are capital movements associated with the international operations of the firms”. His study is followed by Kojima (1976) theory of international trade and its variation by Helpman et al. (1985). It is believed that those international operations are profit seeking ventures, which profit is determined by complex panel of factors. However, neither what determines FDI nor its effects on economic growth are clearly stated in those early studies.

Additional arguments about what determines FDI can be found in Dunning’s OLI paradigm (1980), where he formulates the equation FDI = Ownership + Location + Internalization advantages. Since Ownership and Internalization are classified as firm specific advantages, they vary widely from one MNE to another; therefore they are not to be analyzed in this paper. In contrast, location advantage is classified as a country specific advantage, and it can influence the decision whether MNEs will invest in the target group of this paper i.e. CEE countries. Location advantages are divided in three classes: Economic, Political and Social (cultural). The first category explains the relationship between macroeconomic factors and FDI, i.e. GDP, unemployment level, governmental deficit, scope of the market, etc. The second category includes specific policies for promoting FDI such as lowering trade barriers, membership in trade organizations, patent compliance and liberalization of the market. The third category focuses on the physical distance between host country and MNE’s home country, general population’s position about MNEs, language and cultural barriers. Dunning’s eclectic OLI paradigm has been discussed and developed numerous times by economists later on, including by Williamson (1981), Casson (1987) and Ethier et al. (1991, 1996). However, different researchers did not come to mutual agreement, if FDI
should be defined by different variable’s contemporary value or time-lagged value. To illustrate, if FDI in year \( t \) is determined by macroeconomic indicators in year \( t \) or by macroeconomic indicators in year \( (t-1) \), where the time-lagged variable accounts for the effect of past economic performance on the dependent variable analyzed.

To continue with, market size is cited as the most important argument in the decision for FDI flows by several authors: Barrel et al. (1999), Haufler et al. (1999), Yeaple (2001) and Chakrabarti (2003). They found significant relationship between host countries market size (GDP) and the amount of FDI inflow. Their findings are consistent and logical for FDI, if it is mainly focused on production and sale in host country’s market, but do not explain how GDP influences export-led FDI.

The theoretical framework of the already discussed OLI model gives theoretical support to the explanation of FDI determinants by the gravity model, which was developed by Tinbergen (1962) and Poyhonen (1663). It introduces the gravity equation

\[
F_{ij} = G \frac{M_i M_j}{D_{ij}}
\]

which states that the amount of FDI between two countries is function of their respective market size and the physical distance between them. The gravity equation indicates that country’s market size has positive effect on FDI flows, while distance has negative.

Recently the gravity model has been extensively used for analysis of both FDI inflows and outflows, in yearly and total stock level. Hengel (2010) used the standard gravity model approach in his paper “Determinants of FDI location in South East Europe (SEE)” for his OECD report on FDI in transition countries. He found statistically significant relationship between market size, distance and the amount of inward FDI.

A gravity model was also used for analysis of outward FDI by Buch et al. (2003) in the paper “Determinants of German FDI: New evidence from Micro-Data”. The authors also came across with a correlation between FDI flows and host country’s market size, distance from Germany, social and language differences.

4. Methodology
The already discussed critical review of the literature, where primary sources, such as reports and other theses, as well as secondary sources (journals, governmental publications, etc.) were used plays the role of a foundation on which the further research is built. The review contributed to the more detailed awareness of the subject and at the same time refined the directions of the research.

Based on the outcomes of the literature review, I designed my research in the following way. First of all, the philosophy of research positivism was selected for the purpose of underpinning the study as a whole (Saunders et al. 2009). This philosophy claims that the reality is objective and everything can be examined in measurable parameters.
The principles of positivism were chosen because it is the most common starting point of a quantitative study, which I am determined to conduct. They also directed the approach of the research process.

In this thesis the applied approach consists of creating hypotheses and testing them in such a way that the results for the chosen sample can be statistically generalized. The approach is known as deductive and relies mainly on numerical data. Therefore, I based the study on regression as an analytical method and chose as an appropriate strategy the archival research (data collection) in order to be able to make use of already existing records and figures, related to the variables selected. In addition, I also created a custom variable, which was a result of data collection and further calculations. Last but not least, this research paper is rather in the longitudinal time-horizon because only by looking at a relatively long period of time, I am able to notice trends and screen the development of the problem.

After the research question and strategies had been clarified and consequently the data had been collected, the regression itself was conducted as a type of empirical analysis through the specialized statistical software SPSS. So the statistical results are precise and reliable.

By the same token, each research methods should be critically analysed on their reliability and validity (Finn et al. 2000). In the case of this thesis, the reliability is ensured through the strictly structure methodology and the trustworthy sources of information. Moreover, the range of validity is satisfactory given the fact that the statistical test (regression) gives results, related exactly to the original intention. It provides outcomes that are indicative for which of the selected determinants impact the FDI. Certainly not all the possible variables have been examined and this is going to be further discussed in the section Limitations.

Further details and more particular examples on the methods applied are going to be given throughout the following sections since the research design and the results are interdependent and should not be completely separated.

5. Hypothesis formulation

Based on the conclusions made in the literature review, a hypothesis is formed to analyze which variables (see Table 1.) have significant impact on FDI and can be classified as determinants of FDI or not. Following the conclusions made in the third section of the paper and applying the methods explained in the fourth, a set of variables is formed in order to analyze their impact on inward FDI stock, or whether inward FDI stock has impact on economic growth in GDP sense. In the following sections FDI is used for short of Inward FDI stock.
The economic justification and methodology in this section is similar to those used in the article of Seric (2011), where the author uses the gravity model: $F_{ij} = G \frac{M_i M_j}{D_{ij}}$.

A similar approach can also be found in Bellek et al., (2010). Moreover, analysis of this type can be found in the paper "Determinants of FDI location in South East Europe (SEE)" By Erin Hengel (year), OECD Directorate for Fiscal and Enterprise.

In my thesis I use similar methodology for undertaking an investigation on the important question if a relationship between FDI and different macroeconomic indicators exists. For this purpose I include several different variables, which cannot be found in the above mentioned analyzes in order to achieve better explanatory results.

By definition FDI stock increases, when a foreign enterprise decides to enter the county. This decision is driven mainly by after-tax profits in the country, which should be higher than in all of the alternative locations. The analysis and hypotheses are formed around the assumption that all the independent variables can and possibly will affect the possible after-tax profit of the MNEs.
The assumptions from the standard gravity model, OLI paradigm and Vernon’s Product Life-Cycle theory lead to formulation of statistical hypothesis. In the case of this thesis the null hypothesis states that a relationship between FDI and the independent variables is not present. In the following two sections, a database is created and a regression is conducted based on those hypotheses.

5.1. Hypothesis one

H₀: There is not any statistically significant* relationship (correlation), between the variable FDI and the chosen macroeconomic indicators and distance (presented as independent variables).

H₁: There is a statistically significant relationship (correlation), between the variable FDI and the chosen macroeconomic indicators and distance.

In the statistical analysis a significance level of α=5% is used, which means that for rejection of the null-hypothesis, the p-value of the regression must be lower than 0.05. However, previous analysis on the topic showed that FDI’s determinants can be lagged, i.e. FDI stock level can be affected by the value of the variables in time t-1., so a second hypothesis is formed.

5.2. Hypothesis two

H₀: There is no statistically significant relationship between FDI and the other variables lagged with one year.

H₁: There is statistically significant relationship between FDI and the other variables with one year.

Based on the second hypothesis, a second independent regression analysis is run. While the first one aims to explain FDI stock with contemporary independent variables, the second one has the purpose to explain FDI stock with one year lagged independent variables. The regression mathematical models, created after the regressions have been run, are going to look like:

For contemporary variables:

\[ FDI_{it} = \beta_0 + \beta_1 GC_{it} + \beta_2 G_{it} + \beta_3 CSD_{it} + \beta_4 MC_{it} + \beta_5 EU_{it} + \beta_6 U_{it} + \beta_7 I_{it} + \beta_8 NS_{it} + \beta_9 DI_i + \beta_{10} SID_{it} + \beta_{11} OPEN_{it} + \beta_{12} GDP_{it} + \beta_{13} GR_{it} + \epsilon_{it} \]

For lagged variables:

\[ FDI_{it} = \beta_0 + \beta_1 GC_{it-1} + \beta_2 G_{it-1} + \beta_3 CSD_{it-1} + \beta_4 MC_{it-1} + \beta_5 EU_{it-1} + \beta_6 U_{it-1} + \beta_7 I_{it-1} + \beta_8 NS_{it-1} + \beta_9 DI_i + \beta_{10} SID_{it-1} + \beta_{11} OPEN_{it-1} + \beta_{12} GDP_{it-1} + \beta_{13} GR_{it-1} + \epsilon_{it} \]
For the purpose of the analysis time dummies are introduced for each year of the study period, i.e. twenty time dummies, which account for possible effect of the economic cycles on the dependent variable.

5. 3. Reverse causality problem as possible delimitation

Based on the conclusion, drawn from the literature, that there is possibility of reverse causality between FDI and GDP (and its growth rate), it is important to notice that the results of the analysis can be slightly biased, because according to the previous literature on the topic, a cross-positive correlation can be expected between FDI and GDP. Example of such papers are those of Balasubramanyam (1996), Borensztein (1998), Carcovic (2002) and Apergis (2008), where the authors are investigating the effect of FDI on economic growth and GDP. Here as a possible suggestion for further analysis on the topic of FDI I would like to mention that a detailed investigation about the reverse causality problem is an advisable step in the research process.

6. Database creation

The data collected and created in this section is mainly used for the regression analysis in section seven for the purpose of answering the main research question of this thesis.

Since the analysis target group is CEE countries in transition, the sample consists of sixteen countries from the mentioned location. The countries investigated are Albania, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia (FYROM), Montenegro, Romania, Poland, Serbia, Slovak Republic, Slovenia and Ukraine. The time period of the study is twenty years - from 1992 to 2012

6.1. FDI and GDP data collection

According to early neoclassical growth theorists FDI can be seen as direct capital inflow to a country, which increases the stock of capital and theoretically should have positive impact on the country’s GDP growth. Contrary to this belief, making use of the reverse causality between FDI and GDP, the gravity model states that higher market size (high GDP level) attracts more FDI. Consequently to this contradiction, a problem called reverse causality (whether GDP has influence on FDI or FDI influences GDP) can arise and it is going to be briefly discussed further in the Limitations sections of the paper. Following the hypothesis which states that the relationship between FDI and GDP is highly likely, data has been collected on both FDI and GDP for each year and country for the investigated period.

The data on both GDP and FDI has been collected from World Bank’s World Development Indicators database. For purpose of further analysis (regression) both
variables are converted to constant year 2000 USD and then converted to natural logarithms of the number.

6.2. Custom variable

As mentioned above, there is a certain set of variables with possible impact on FDI and therefore on economic growth, which is going to be closely analyzed in this paper. The first important variable to be closely examined is based on geographic location. First of all, several theories about a country’s positioning on the map and the consequent impact on that given country’s FDI and GDP have been investigated. Hence, theoretical reasoning for the analysis can be found in Dunning’s OLI paradigm and in the simple gravity model, which states that location can have significant influence on MNEs decisions where abroad to invest. Those theories are in the framework of Economic Geography – a field that recently has been attracting continuously more and more the attention of contemporary economists. Neoclassical location theories, based largely on Weber’s approach to geographical location and its impact on the economic development, have also been applied in the study.

For the purposes of a quantitative analysis, a custom variable called “Distance” has been created. It is based on country’s distance from large markets (both from import and export perspective). The economic reasoning for the correlation between distance from big and developed capital markets does not only imply that “closer distance means cheaper transport and less communication costs”, but it extends to the field of behavioral economics, where it is stated that the geographic position of a country influences the lifestyle and mindset of the population, because its citizens are under the constant impact of the neighbor countries’ mindsets. As a consequence of the mentioned factors, a conclusion can be drawn that a country in transition, which is closer to already developed and rich country, e.g. countries of Western Europe, has more perspectives for economic growth in terms of GDP and respectively attracts more FDI.

Since the FDI to the countries in transition is mainly from already developed capital markets, more specifically most Western European countries, and not between the countries in transition themselves, two separate pools of countries are subject to analysis - 1st: the countries in transition and 2nd: countries with already developed capital markets. The second group includes Russia and Turkey, as well. The reasoning behind this is that, on one hand, the Russian Federation is a main source for industry raw materials, such as natural gas, oil, coal and various metals for most CEE countries. On the other hand, Turkey is one of the main trade partners of the countries in South-Eastern Europe (SEE). An empirical proof of this statement is Bulgaria\(^1\) with 10 % of its

\(^1\) National Statistical Institute of Bulgaria, Statistical Reference book 2013
exports (20 billion € in total) in 2012 towards Turkey, whereas on the Import side 20.7% of all imported goods to Bulgaria (roughly 25 billion € in total) are coming from Russia (as stated above imports are mainly in form of raw materials). In the rest of the SEE countries (Romania, Serbia, Montenegro, Albania and Ukraine) the percentages trade with Turkey and Russia is also identical, therefore it is not reasonable to exclude Russia and Turkey as factors from the second group.

The mathematical expression of the created custom variable will be Distance_\text{i} = \ln \left( \sum_{i=1}^{18} (X_{ij} \times Y_j) \right), Where X_i = Distance from Country_i to Country_j, and Y_j = weight of country_j, which is calculated by Y_j = \frac{GDP_j}{Total\ GDP}, Total GDP is total sum of all GDP of countries in the second group i.e. “j”.

In the sample countries in group “i” are Albania, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Romania, Poland, Serbia, Slovak Republic, Slovenia And Ukraine.

On the other side countries in group “I” are Germany, France, United Kingdom, Russia, Italy, Spain, Turkey, Netherlands, Switzerland, Sweden, Norway, Belgium, Austria, Denmark, Finland, Greece, Portugal and Ireland.

The data for GDP is collected from the World Bank WDI report for 2012 and the distance is measured using a website, specifically established for calculating distances between countries. The complete dataset together with indications on the calculation process are displayed in Table 2. on page 15.

6.3. Macroeconomic indicators

The Dunning’s OLI paradigm, in particular “Economic Location advantages in economic aspect”, says that MNEs as possible investors should and probably do evaluate the macroeconomic factors of a country in order to take a justified decision if that country (as a possible recipient of FDI) can sustain its growth and fiscal policies. Analyzing the topic of economic location advantage point of view leads me to the conclusion that variables such as unemployment, cash surplus divided by cash deficit in percentage of GDP, gross capital formation and gross national savings should be included in the regression model for FDI determinants.

The second aspect of “Location advantages” in OLI model is the political aspect. It includes membership in trade organizations or agreements, liberalization of the markets, policies aiming to attract FDI, etc. Variables possibly correlated with FDI in political location advantage are EU membership, market capitalization of listed companies, share of service, agriculture and industry in percentage of GDP and share of imports and exports in percentage of GDP terms. Following the conclusions drawn in this section of the paper, a set of variables has been created. (Table 1. Page 9)
The data collected is for the countries in the CEE target group mentioned previously in this section. Overall eighteen variables are put into the database, where three (Share of Service, Shared of Industry and Share of Agriculture) are merged into one: SIA (Share of Service divided by the sum of Industry and Agriculture), other two (Share of Imports and Exports as percentage of GDP) are also merged into one: OPEN (sum of those variables), and the other thirteen variables are left independent.

From the gravity model point of view the variables GDP, GDP growth as proxies for market size are expected to have positive effect on GDP, while the custom variable Distance is expected to have negative.

On one hand, according to Dunning’s model inflation and unemployment are expected to have negative relationship with FDI as factors, which account for the macroeconomic condition of a country. For the same reason a positive change in CSD, GCF and MC are expected to result in positive change in FDI. All those variables have impact on the economic location advantage, which means that MNEs benefit from any recipient country. On the other hand, as political location advantages EU and OPEN should be positively correlated with FDI, since a more open and member country allows broader perspectives and fewer restrictions on MNE production, import and export strategies. In addition, in such a country the risk of “sudden” trade barriers such as tariffs and quotas is considerably reduced. Last but not least, according to a UNCTAD\textsuperscript{2} report most FDI is directed towards the service sector, so if the variable SIA’s value goes up so is expected for FDI.

Given the fact that the time period of the study is twenty years and it includes sixteen transition countries with eighteen different variables explaining various aspects of the economic environment, the end result is data matrix, which consists of approximately 5760 statistical units. However, datum is only a close approximation because due to lack of reliable data sources, some statistical units, mainly for countries in the former Yugoslav Republic, are left blank.

\textsuperscript{2} United Nations Conference on Trade and Development
Table 2. Custom variable calculation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
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<td>65.0</td>
<td>98.0</td>
<td>2.5</td>
</tr>
<tr>
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<td>260.0</td>
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<td>100.0</td>
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<td>75.0</td>
<td>95.0</td>
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<td>45.0</td>
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<td>59.0</td>
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<td>15.0</td>
<td>39.0</td>
<td>25.0</td>
</tr>
</tbody>
</table>
7. Regression results and discussion

This section’s aim is to answer the main research question of the thesis:

- What are the determinants and how they influence the stock of Inward Foreign Direct Investment in the countries in transition from Central and Eastern Europe?

7.1. Descriptive Statistics

In order to do so, first I will present descriptive statistics about the data I collected in Table 3.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI</td>
<td>322</td>
<td>3.33</td>
<td>12.19</td>
<td>8.6095</td>
<td>1.83133</td>
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<tr>
<td>GCF</td>
<td>317</td>
<td>5.20</td>
<td>41.20</td>
<td>23.5785</td>
<td>5.88495</td>
</tr>
<tr>
<td>GDP_g</td>
<td>322</td>
<td>-32.10</td>
<td>13.30</td>
<td>2.3376</td>
<td>6.32090</td>
</tr>
<tr>
<td>CSD</td>
<td>313</td>
<td>-16.90</td>
<td>3.60</td>
<td>-1.6754</td>
<td>2.82543</td>
</tr>
<tr>
<td>MC</td>
<td>260</td>
<td>.00</td>
<td>111.20</td>
<td>18.4831</td>
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</tr>
<tr>
<td>EU</td>
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<td>.00</td>
<td>1.00</td>
<td>.2530</td>
<td>.43537</td>
</tr>
<tr>
<td>U</td>
<td>293</td>
<td>3.18</td>
<td>26.50</td>
<td>11.6458</td>
<td>4.45338</td>
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<tr>
<td>I</td>
<td>300</td>
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<td>.17275</td>
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<td>SIA</td>
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<td>.22</td>
<td>3.18</td>
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<td>.48811</td>
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<td>OPEN</td>
<td>316</td>
<td>40.80</td>
<td>186.40</td>
<td>104.2203</td>
<td>32.24429</td>
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<td>GDP</td>
<td>320</td>
<td>6.33</td>
<td>13.09</td>
<td>10.0140</td>
<td>1.44278</td>
</tr>
</tbody>
</table>

Table 3. Descriptive statistics

The following aspects, which can be derived from Table 3., are important to emphasize on. First, it is interesting to notice that Market capitalization of listed companies vary highly: from 0% to 111% of the respective countries’ GDPs. Another point is the relatively high Unemployment rate throughout the sample size, with mean 11%, min of 3.18% and max of 26.5%. Percentage of national savings, Openness of the economy (% Exports plus % Imports of GDP) and GDP also varies widely from one country to another.

Looking at the overall maximum and minimum values, it is obvious that there are not any extreme values (outliers) in the sample except for Inflation. This can be explained with the economic transition and crash of national currencies in several of the target...
group countries in the period 1991 to 1996. Extreme outliers (for instance 3334.8% inflation in Ukraine for 1993) are to be removed from the analysis in order not to distract and bias the results.

7.2. Correlations

After the analysis of the descriptive statistics’ results has been run and the detected outliers have been removed, a regression analysis is run in order to answer the main two research questions of this paper and therefore evaluate the hypotheses from the previous section.

To start with, the correlations coefficients between the independent and the dependent variables are present in Table 4. and Table 5.(on the following page), which respectively account for contemporary and time lagged model. A valuable observation from those two tables is that in both contemporary and time lagged effect model a statistically significant correlation is found between FDI and each independent variable. Each variable is correlated within 99% confidence interval (CI), except for the National Savings variable, which is correlated within 95% CI.

<table>
<thead>
<tr>
<th></th>
<th>FDI</th>
<th>GCF</th>
<th>GDP_g</th>
<th>CSD</th>
<th>MC</th>
<th>EU</th>
<th>U</th>
<th>I</th>
<th>GR</th>
<th>NS</th>
<th>Dist.</th>
<th>SIA</th>
<th>OPEN</th>
<th>GDP</th>
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<tr>
<td>FDI</td>
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<tr>
<td><strong>Pearson Correlation</strong></td>
<td><strong>1</strong></td>
<td><strong>.291</strong></td>
<td><strong>.146</strong></td>
<td><strong>-2.43</strong></td>
<td><strong>.287</strong></td>
<td><strong>.578</strong></td>
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<td>.000</td>
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<td>.000</td>
<td>.000</td>
<td>.000</td>
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<td>303</td>
<td>322</td>
<td>291</td>
<td>312</td>
<td>316</td>
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</tbody>
</table>

Table 4. Correlations for contemporary model

** means the variable is statistically significant at 0.01 level (2-tailed)
* means the variable is statistically significant at 0.05 level (2-tailed)

<table>
<thead>
<tr>
<th></th>
<th>FDI</th>
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<th>GDP_g</th>
<th>CSD</th>
<th>MC</th>
<th>EU</th>
<th>I</th>
<th>GR</th>
<th>NS</th>
<th>Dist.</th>
<th>U</th>
<th>SIA</th>
<th>OEP</th>
<th>GDP</th>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pearson Correlation</strong></td>
<td><strong>1</strong></td>
<td><strong>.310</strong></td>
<td><strong>.276</strong></td>
<td><strong>-.266</strong></td>
<td><strong>.304</strong></td>
<td><strong>.582</strong></td>
<td><strong>-.492</strong></td>
<td><strong>.546</strong></td>
<td><strong>.140</strong></td>
<td><strong>-.432</strong></td>
<td><strong>-.309</strong></td>
<td><strong>.442</strong></td>
<td><strong>.324</strong></td>
<td><strong>.642</strong></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
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<td>.000</td>
<td>.000</td>
<td>.000</td>
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<td>247</td>
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<td>292</td>
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<td>294</td>
<td>321</td>
<td>283</td>
<td>301</td>
<td>312</td>
<td>312</td>
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</tbody>
</table>

Table 5. Correlations for time lagged model

** means the variable is statistically significant at 0.01 level (2-tailed)
* means the variable is statistically significant at 0.05 level (2-tailed)
7.3. Contemporary variable effect regression

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.910</td>
<td>.829</td>
<td>.797</td>
<td>.6258</td>
</tr>
</tbody>
</table>

Table 6. Contemporary model summary

The results in the two tables above show that the model is statistically significant; while the finding that the adjusted $R^2$ equals to 0.797 indicates the sufficiency of the regression model to explain 80% of the cases.

Table 7. Contemporary model ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>$F$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>325.357</td>
<td>32</td>
<td>10.167</td>
<td>25.980</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>67.312</td>
<td>172</td>
<td>.391</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>392.669</td>
<td>204</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8. Presents the regression coefficients for the contemporary model and it is to be used for the results discussion in section 6.5.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>19.357</td>
<td>.003</td>
<td>.200</td>
<td>.000</td>
</tr>
<tr>
<td>GCF</td>
<td>.052</td>
<td>.013</td>
<td></td>
<td>.000</td>
</tr>
<tr>
<td>GDP_g</td>
<td>-.005</td>
<td>.018</td>
<td>-.016</td>
<td>.757</td>
</tr>
<tr>
<td>CSD</td>
<td>-.052</td>
<td>.022</td>
<td>-.101</td>
<td>.021</td>
</tr>
<tr>
<td>MC</td>
<td>.001</td>
<td>.005</td>
<td>.008</td>
<td>.881</td>
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<tr>
<td>EU</td>
<td>.097</td>
<td>.173</td>
<td>.032</td>
<td>.577</td>
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<tr>
<td>U</td>
<td>.039</td>
<td>.016</td>
<td>.123</td>
<td>.016</td>
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<tr>
<td>I</td>
<td>.047</td>
<td>.066</td>
<td>.036</td>
<td>.479</td>
</tr>
<tr>
<td>NS</td>
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<td>.009</td>
<td>-.130</td>
<td>.001</td>
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<td>Distance</td>
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<td>.337</td>
<td>-.302</td>
<td>.000</td>
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<td>SIA</td>
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<td>OPEN</td>
<td>.013</td>
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<td>GDP</td>
<td>.536</td>
<td>.061</td>
<td>.535</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 8. Contemporary model regression coefficients
7.4. Time lagged variable effect regression

The results from the regression with time lagged variables suggest statistically significant regression with adjusted $R^2 = 0.783$, which means that the model explains 78.3% of the cases.

Table 11. presents the regression coefficients for the one year time-lagged model and it is to be used for the results discussion in section 6.5.

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.903*</td>
<td>.816</td>
<td>.783</td>
<td>.61759</td>
</tr>
</tbody>
</table>

Table 9. Lagged model summary

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>ANOVA*</th>
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<tr>
<td></td>
<td>Model 1</td>
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<tr>
<td>Regression</td>
<td>291.318</td>
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<tr>
<td>Residual</td>
<td>65.604</td>
</tr>
<tr>
<td>Total</td>
<td>356.922</td>
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</tbody>
</table>

Table 10. Lagged model ANOVA

<table>
<thead>
<tr>
<th>Coefficients*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Model</td>
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<td></td>
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<td>-------</td>
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<tr>
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</tr>
<tr>
<td>GCF</td>
</tr>
<tr>
<td>GDP_g</td>
</tr>
<tr>
<td>CSD</td>
</tr>
<tr>
<td>MC</td>
</tr>
<tr>
<td>EU</td>
</tr>
<tr>
<td>I</td>
</tr>
<tr>
<td>NS</td>
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<tr>
<td>Distance</td>
</tr>
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<td>U</td>
</tr>
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<td>SIA</td>
</tr>
<tr>
<td>OPEN</td>
</tr>
<tr>
<td>GDP</td>
</tr>
</tbody>
</table>

Table 11. Lagged model regression coefficients
7.5. Result discussion
The analysis found that the adjusted $R^2$ equals to 0.797 and 0.783 respectively for contemporary and time lagged variables (Table 6 and Table 9), which indicates that both models have high explanatory power for FDI's determinants.

To commence with, the contemporary regression analysis found six variables (GCF, Distance, SIA, NS, OPEN and GDP) to be significant within 99% confidence interval. Other two variables were found significant within 95% confidence interval (CI): U and CSD. (Table 8.)

On the other hand, the one year lagged regression analysis found seven variables to be significant within 99% confidence interval ($p=0.01$), namely: GCF, Distance, SIA, NS, OPEN, GDP and U, i.e. the same results were achieved through the both regressions with the only one exception of U (Unemployment). The one year lagged regression confirmed that Unemployment is also significant within 99% CI ($p=0.01$) instead of 95% CI ($p=0.05$). This leaves only the variable CSD significant at 95% CI with $p=0.05$. (Table 11.)

For both regressions four variables were found insignificant – namely GDP_g, MC, EU and I. (Table 8., Table 11.)

GDP growth’s insignificance can be justified by the previously introduced time dummies: in other words GDP growth captures economic cycle effect, which is common across all countries in the sample. Hence, it does not have effect on FDI.

EU membership’s insignificance can be explained with the relatively small sample of countries being members across the study time period. In detail eight countries (Czech Republic, Hungary, Latvia, Lithuania, Estonia, Poland, Romania, Slovakia and Slovenia) joined EU in 2004, two (Bulgaria and Romania) joined in 2007 and one (Croatia) joined in 2013: which year it outside the time interval of the study.

This leaves two insignificant variables – Inflation and Market Capitalization of listed companies. First, inflation’s insignificance can be explained with bias in the sample, due to the fact that, the 90th's (the first ten years of the economic transition) inflation in the countries of CEE was extremely unstable, and varied highly across the years and the different countries. Second, the insignificance of Market Capitalization of listed companies can be attained to the low level of development in capital market’s aspect in studied countries.

According the standard gravity model, it is expected that market size in form of GDP has significant positive impact on FDI accumulation, while distance has strong negative relationship with FDI in both contemporary and time-lagged regression models. The results state this undoubtedly: market size in form of GDP has highest positive impact in
both models with coefficient of 0.536 and 0.529 respectively, while distance from
developed and big markets has the highest negative impact in both models with
coefficient of -2.251 and -2.139 respectively. Those results corresponds and confirms to
a large extent the findings of Hengel (year) and Bellak et al., (2010), and account for the
conclusion that the gravity model can precisely (and to a large extent) explain the
change in FDI with just two variables: market size (GDP) and distance (physical
distance between countries, weighted for the relative market size) proxy variables.

National savings have negative impact on FDI in both models effect (coefficient of
-0.031 and -0.030 respectively). This finding is backed by Mehic et al (2013) as well as
Schrooten et al (2002), where in the latter the author states that “domestic savings and
foreign capital are operating as substitutes”, and therefore an increase in national
savings level might decrease FDI.

The above explicated regressions can be mathematically formulated as:

For contemporary variables:

\[
FDI_{it} = 19.357 + 0.052 \times GC_{it} - 0.005 \times GDP_{gt} - 0.052 \times CSD_{it} + 0.001 \times MC_{it} + 0.097 \\
\times EU_{it} + 0.039 \times U_{it} + 0.047 \times I_{it} - 0.031 \times NS_{it} - 2.251 \times DI_{i} - 0.537 \times SIA_{it} \\
+ 0.013 \times OPEN_{it} + 0.536 \times GDP_{it} + \varepsilon_{it}
\]

For lagged variables:

\[
FDI_{it} = 18.537 + 0.054 \times GC_{it} - 0.005 \times GDP_{gt} - 0.054 \times CSD_{it} + 0.001 \times MC_{it} + 0.194 \\
\times EU_{it} + 0.048 \times U_{it} + 0.083 \times I_{it} - 0.030 \times NS_{it} - 2.139 \times DI_{i} - 0.613 \times SIA_{it} \\
+ 0.012 \times OPEN_{it} + 0.529 \times GDP_{it} + \varepsilon_{it}
\]

The interpretation of the coefficients is the following: an one unit increase in GDP in a
given year results in a point increase in FDI of a 0.536 or a 0.547 for the contemporary
and the time lagged model respectively, given that all the other independent variables
are remaining constant. The same rule is certainly present for each variable in both
models, with the respective coefficient change.

Even though it is self-apparent that the two equations are very similar to each other,
there is a slight difference in the results related to the impact of EU membership,
Inflation level and Share of services divided by the sum of share of industry and
agriculture as percentage of GDP. Assuming that reliable data is present, the
contemporary model provides more comprehensive explanation of the determinants of
FDI in transition countries; and according to the conducted analysis,, it is more accurate
because its adjusted $R^2$ (0.797) is a higher than the adjusted $R^2$ (0.783) of the time-lagged model.

Regardless of that higher accuracy of the contemporary model, the time-lagged model is more likely to be applied, since a retrospective data can be found more easily and it has less degree of uncertainty than the contemporary data for a given year.

Based on the results in this section, the null hypothesis can be rejected for both hypothesis one and hypothesis two. Therefore the independent variables included in this analysis have statistically significant impact on FDI, both if substituted with contemporary values or with one-year time lagged values.

To summarize the results of the regression analysis, FDI’s statistically significant determinants are found to be Gross Capital Formation, Cash Surplus/Deficit, National savings, Distance from big or developed markets, Unemployment, Share of service divided by the sum of share of agriculture and industry, Share of Import plus Share of exports and Gross Domestic Product. The results will be summarized in the next table.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Expected effect</th>
<th>Effect (contemporary model)</th>
<th>Effect (time lagged model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>Negative</td>
<td>Positive*</td>
<td>Positive*</td>
</tr>
<tr>
<td>U</td>
<td>Negative</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>CSD</td>
<td>Positive</td>
<td>Negative</td>
<td>Negative</td>
</tr>
<tr>
<td>GDP</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>GDP growth</td>
<td>Positive</td>
<td>Negative*</td>
<td>Negative*</td>
</tr>
<tr>
<td>GCF</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>NS</td>
<td>Negative</td>
<td>Negative</td>
<td>Negative</td>
</tr>
<tr>
<td>EU</td>
<td>Positive</td>
<td>Positive*</td>
<td>Positive*</td>
</tr>
<tr>
<td>MC</td>
<td>Positive</td>
<td>Positive*</td>
<td>Positive*</td>
</tr>
<tr>
<td>SIA</td>
<td>Positive</td>
<td>Negative</td>
<td>Negative</td>
</tr>
<tr>
<td>OPEN</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>Distance</td>
<td>Negative</td>
<td>Negative</td>
<td>Negative</td>
</tr>
</tbody>
</table>

Table 12. Independent variable’s correlation with FDI

In Table 12, the variables, which are found not statistically significant, are marker with *.

Those variables are: Inflation GDP growth, EU membership (as proxy for membership in trade organizations) and Market Capitalization of listed companies (as proxy for developed capital markets).

The analysis above excludes GR (Governmental Revenue), due to the fact that it was found highly insignificant (p=0.942), and according to this result, it can potentially affect the outcome of the analysis in negative way.
8. Limitations

This thesis has several limitations. First of all, a number of variables have missing values in the dataset. Apparently during the times of economic transition not all the examined countries have led a detailed record on their macroeconomic indicators. The missing values are mainly from the countries of the former Yugoslav Republic (Albania, Croatia, FYROM and Serbia).

Second possible limitation is the fact that my thesis could have also included a proxy for labor, capital or total factor productivity either in form of $(USD) value of the output per hour per worker or as another measurement. The reason for the lack of productivity based variable is that such data is either not reliable or not publicly available. As a recommendation for future research on the topic, I would suggest a reliable estimation indicator which measures productivity to be created, and consequently included in the empirical analysis.

Third possible limitation is connected with CEE countries membership in trade agreements, alliances and etc. (e.g. EU membership). In my thesis, due to the relatively small sample size of EU members in the period of the study, a statistically significant variable about trade organizations membership was not found. I would like to emphasize that if a more in-depth analysis about trade organization membership (TOM) or trade agreements participation (TAP) is conducted, an additional reliable determinant (based on TOM/TAP) for FDI is highly likely to be found.

Another detail not investigated in this paper is the possible effect of different national policies aiming to attract FDI. Appropriate examples of such policies are the tax-breaks for MNEs investing in particular location; governmental regulations, which do not restrict profit transfer to MNE’s home country; governments providing land or buildings at prices lower than the respective market value, etc. However, such policies are highly individual for each country, if not region, and they are almost impossible to monetize reliably. Hence, a comparison between them and including such policies in a regression variable is not conducted.

This thesis can stand as ground for a future, more complex investigation on FDI's determinants in CEE transition countries, where trade organization membership, variable for factor productivity, possible corruption index and broader set of variables are included. The result of a possible future study might give more insight on the topic, and provide even better explanation for FDI’s determinants.

Last but not least, a detailed research can be conducted based on the possible problem for reverse causality between FDI and GDP. Its results may give more insight on the topic investigated and stand as group for finding complete set for FDI determinants, not only in CEE, but in general.
9. Contribution to theory

This thesis’s aim was to define the determinants for Foreign Direct Investment in the transition countries of Central and Eastern Europe. Variables were included as proxies for Market Size, Distance and Macroeconomic conditions (see Table 1., p. 9 ) The theoretical framework, based on a standard gravity model and OLI paradigm, suggested that FDI can be defined by the mentioned list of variables. Consequently, a hypothesis was developed, and the following regression analysis rejected the null hypothesis and hence found the variables to have statistically significant impact on FDI (see Table 12., p. 22).

The main result of this thesis is the confirmation with high certainty (significance level of 0.00) that the standard gravity model and the OLI paradigm, if used together, can describe the FDI’s determinants to a large extent ($R^2=80\%$; $R^2=78\%)$. However, a better examination of the determinants of FDI is achieved by the contemporary values of the variables. Nonetheless, if such information is not present, usage of historical data (data from the previous year) can also give a satisfactory result without compromising the explanatory power of the model by more than two percent.

This above mentioned analysis results, as an independent empirical study, can be used as as confirmation of several previous analysis on the topic on FDI in countries in transition such as those conducted by Haufler (1999), Rutkowski (2006), Hengel (2010), Seric (2011) and Derado (2013).

9.1. Policy considerations

The results of my analysis can be used as solid theoretical framework and conclusions based on this analysis can be beneficial for national governments, which struggle to attract FDI, albeit do not give direct suggestions for political reforms in any country. For instance, the empirical analysis concluded that several macroeconomic stability indicators can influence MNEs’ decision-making process, whether to invest in a country or not; therefore policies for controlling those indicators can be implemented. On top of that, economy openness (in terms of Imports plus Exports as percentage of GDP) is concluded to have a positive impact on FDI stock level, so if national governments want to increase FDI in their country, they should embrace policies, which lead the economy to higher level of openness and internationalization and consecutively attract more FDI.
10. Conclusion

To sum up, this thesis achieved its two main goals: to identify key determinants for Foreign Direct Investment in transition countries of Central and Eastern Europe and to discuss a possible cross-dependence (reverse causality) between FDI and GDP.

Firstly, a literature review was conducted, where previous analysis on the topic of FDI was discussed and put into perspective. Based on the findings of the literature review and applying several relevant theories (Product-Life Cycle, OLI paradigm and standard gravity model), I came to the conclusion that FDI is important catalyst for economic growth and its determinants should be investigated in more detail.

Therefore, a data set was created with sixteen different variables, following a certain type of methodology. Among the variables there were proxies for market size, macroeconomic performance, distance from developed capital markets and economy openness. Based on the dataset two empirical regression analyses were conducted. The first one explained FDI’s determinants with contemporary value of the variables, while the second regression explained FDI’s determinants with one year time-lagged variables. Both regressions gave similar results and proved that FDI can be significantly determined ($R^2=0.80; 0.78; p=0;0$) by two group of variables: first (1) Unemployment, Gross Domestic Product (GDP), Gross Capital Formation and Share of Exports + Imports (as % of GDP); and second (2) Cash Surplus/Cash Deficit, National Savings, Share of Service/Sum of Share of Industry + Share of Agriculture (as % of GDP) and Distance from big and developed capital markets. The first group is positively correlated with FDI, while the second - negatively. Furthermore, four additional variables: Inflation, Gross Domestic Product growth, EU membership and Market Capitalization of listed companies were investigated and found to have no significant effect on FDI.

The second question, namely the reverse causality problem between FDI and GDP, was also discussed in the Literature review and in the Limitations section and a conclusion was drawn that more in-depth analysis on the phenomenon, based on the access to more comprehensive and reliable data, is needed in order that a better explanation is provided. In addition, in the Limitations section of the study a few suggestions for future research and more in-depth investigation on the topic were given, which accomplished the detailed research on FDI.

In conclusion, this study achieved its goals by looking at the general topic from many perspectives and even managed up to certain degree to shed light on a key factor such as the determinants of FDI. In this line of thinking, this thesis, as stated in the theory contribution section, is a sufficient source of information for many parties, such as national governments and MNEs, and at the same time has a value as a starting point of another study since the topic of FDI needs further investigation.
11. Acknowledgements
To Assistant professor Ina Charlotte Jäkel, a great supervisor. I would like to thank her for the invaluable feedback, timely replies and constructive critique.

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To my family, who instilled a strong sense for intellectual development in me, and have supported my trough all circumstances.

I sincerely hope this thesis meets the standards of the above mentioned people.

12. References


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