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BACHELOR THESIS

Determinants of FDI Location across European Countries.

Role of economic and non-economic factors in decision-making by means
of econometric analysis of panel data for 1995-2010.

Author: **Martina Brázdová**

Supervisor: **doc. Ing. Vladimír Benáček, CSc.**

Academic Year: **2012/2013**

Declaration of Authorship

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Prague, July 22, 2013

Signature

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Abstract

This thesis provides an insight into factors that determine FDI inflows. Our focus is on FDI inflows directed to European countries and we study the FDI phenomena both from theoretical and practical view. We extend the literature that highlights the importance of FDI-institution link, and hypothesise that countries with better institutional quality should attract more foreign direct investments. This is in accord with expectation that good institutions create better investment environment in terms of lower costs of doing business and lower risk. The main purpose of this thesis is to complement previous studies that have covered this topic, but did not account for years of financial crisis. The key part analyses panel data for 33 European economies in the period from 1995 to 2010. A model of FDI determinants is constructed and estimated using panel data estimation techniques. The empirical part has revealed that even though some of the institutional variables are significant, they remain rather additional in explaining FDI flows; whereas the traditional economic variables are clearly significant. Our results are intuitively consistent with theoretical expectations and show that market growth, low trade restrictions, good infrastructure and low labour costs are key FDI drivers. Other important factors are socioeconomic conditions and democratic accountability.

Keywords

FDI; inflow; capital; institutions

Author's e-mail

ma.brazdova@gmail.com

Supervisor's e-mail

benacekv@fsv.cuni.cz

Abstrakt

Tato práce nahlíží na faktory, které ovlivňují příliv přímých zahraničních investic (PZI). Zajímali jsme se o toky PZI směřovaných do evropských států a zkoumali jsme fenomén PZI jak po teoretické, tak praktické stránce. Touto prací rozšiřujeme literaturu, jež se zabývá vztahem mezi přímými zahraničními investicemi a vlivem institucí. Naše hypotéza je, že země s vyspělým institucionálním zázemím přitahují více zahraničních investic, což je v souladu s očekáváním, že dobré instituce vytváří lepší podmínky k investování. Zejména co se týká nižších nákladů spojených s podnikáním a nižšího rizika. Hlavním cílem práce je doplnit předchozí studie, které se tématem zabývaly, ale nezahrnuly do dat období finanční krize. Klíčová část práce analyzuje panelová data pro 33 evropských zemí mezi lety 1995 až 2010. Sestavili jsme model determinantů PZI a následně ho odhadli metodami vhodnými pro panelová data. Empirická část odhalila, že přestože jsou některé institucionální proměnné signifikantní, zůstávají spíše doplňkovými faktory. Naopak tradiční ekonomické proměnné jsou jasně signifikantní. Naše závěry jsou intuitivně konzistentní s teoretickými předpoklady a ukazují, že růst trhu, nízké překážky v obchodování, dobrá infrastruktura a nízké náklady na mzdu jsou klíčovými faktory přílivu PZI. Dalšími důležitými faktory jsou socioekonomické podmínky a demokratická zodpovědnost.

Klíčová slova PZI; toky kapitálu; finanční kapitál; instituce

E-mail autora ma.brazdova@gmail.com

E-mail vedoucího práce benacekv@fsv.cuni.cz

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Acronyms

BOP	Balance of Payments
CEE	Central and Eastern Europe
ECB	European Central Bank
EU	European Union
FDI	Foreign Direct Investment
FE	Fixed Effects
FPI	Foreign Portfolio Investment
GDP at PPP	Gross Domestic Product at Purchasing Power Parity
GMM	Generalized Method of Moments
HCCME	Heteroscedasticity Consistent Covariance Matrix Estimator
ICRG	International Country Risk Guide
IMF	International Monetary Fund
IPA	Investment Promotion Agency
IPS	Im-Pesaran-Shin (unit root test)
ITRS	International Transactions Reporting System
LLC	Levin-Lin-Chu (unit root test)
M&A	Merger and Acquisition
MNC	Multinational Corporation
NPD	New Paradigm of Development
OECD	Organisation for Economic Cooperation and Development
OLI	Ownership, Location, Internationalisation
OLS	Ordinary Least Squares
PV	Present Value
PRS Group	Political Risk Services Group
QMLE	Quasi-Maximum Likelihood Estimate
R&D	Research and Development
RE	Random Effects
SPE	Special Purpose Entity
SE	Standard Error
UNCTAD	United Nations Conference on Trade and Development
VIF	Variance Inflation Factor
WIR	World Investment Report

Bachelor Thesis Proposal

Author: Martina Brázdová
Supervisor: doc. Ing. Vladimír Benáček, CSc.
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Proposed Topic:

Determinants of FDI Location across European Countries.

Role of economic and non-economic factors in decision-making by means of econometric analysis of panel data for 1995-2010.

Preliminary Scope of Work:

The aim of this thesis is to study in depth factors that influence inflow of foreign direct investments (FDI). The introductory theoretical part will describe the role of FDI in Economics and the ways of FDI measurement. An empirical part will follow. Panel data for approximately 35 European countries will be used in the research onto the factors that influence investors' decision-making and how they change in time. For this purpose, I will use both fixed and random effects. I will cluster all countries of the research interest into three subgroups so that they are consistent and will interpret the results accordingly. The thesis is linked to a study (Benáček, 2012) that dealt with the issue of FDI determinants for years 1995-2008. I will extend the study by using observations from years 2009 to 2010, modify the theoretical model used for testing and compare the results. Hence, the main contribution will be an evaluation of behavior of investors under the influence of economic crisis in years 2008-10.

Preliminary Outline:

1. Introduction
 - 1.1. The Role of FDI and Problems of Measurement
2. How Economics views FDI inflow
 - 2.1. FDI in the light of macroeconomic theory of investments
 - 2.2. Factors determining FDI, their division in qualitative and quantifiable
 - 2.3. Discussion of expected results
3. Empirical Part

- 3.1. Estimates for the whole group (time trend is taken into account)
- 3.2. Countries Clustering
- 3.3. Estimates for given groups using FE and RE
4. Conclusion
 - 4.1. Results Evaluation
5. References

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Introduction

Foreign direct investment (FDI) flows are widely perceived as an important dimension of international economic integration, and their economic significance and social impact are indisputable. The preliminary estimates of FDI figures for the year 2012 suggest that global FDI flows declined by 14% from 2011 and remain at about the same level as in 2010. Furthermore, OECD (2013) estimates that nearly a half of global FDI inflows in 2012 were hosted by only five countries (China, the United States of America, Brazil, the United Kingdom and France). Such a vast disproportion among the FDI beneficiaries makes us think deeper about factors in decision making of investors that determine where FDI is located.

The objective of this thesis is to evaluate the influence of economic and non-economic variables on investors' decisions. In search for the best investment appraisal, an investment project should be accepted when its present value (PV) of expected costs is exceeded by the PV of its expected benefits. To calculate the economic net present value of an investment project, the economic opportunity cost of capital for the country is often used as a discount rate. Traditionally, firm's economic motives for international expansion were at the heart of research on FDI. However, institutional rationales have gained ground in recent years, as well. Therefore, we model FDI determinants to European countries using both traditional economic variables, and institutional ones. Prior to conducting the empirical research, we familiarise the reader with theory behind FDI and issues associated with FDI measurement; a discussion of FDI determinants is also incorporated.

The thesis is structured in the following manner. In the first part, we provide an introduction to the topic as well as theoretical background. After the discussion of the forms of FDI, its financial life cycle and effects on both home and host countries, we focus on the measurement issues. As it is crucial to obtain reliable and accurate FDI flows data, we review current measurement concepts, and account for drawbacks that stem from unclear definitions or data unavailability. The second part explains the main motives that determine where FDI is directed. Location of international business activity and our understanding of FDI determinants have changed in the past decades. With

lower barriers to international trade, investment and migration, improvements in communication, and the emergence of new economic powerhouses, the business environment offers much more opportunities and pressure to internationalise. We divide the locational determinants into three groups: Policy Framework for FDI, Economic Determinants, and Business Institutional Facilitation. Special attention is paid to political risk and institutional framework. The empirical part is covered in the third part of the thesis and it presents the main own contributions of the author. Since we deal with panel data, we use appropriate panel data estimation techniques, i.e. pooled OLS, fixed and random effects. We apply the Breusch-Pagan test for RE presence and Hausman Specification test to determine the best approach. By using a crisis year dummy variable we account for the structural break period of financial crisis. Next, it is checked if the assumptions are not violated and the interpretation of our results follows. And finally, conclusion briefly summarizes the general content of the work and suggests possible extensions of the presented approaches.

1 The Role of FDI and Problems of Measurement

In recent decades the degree of international economic integration has greatly increased, mainly as a result of financial liberalisation and improvements in communication technologies. The rapid growth of international trade and capital mobility are two of the most striking features of **globalisation** (Sørensen and Whitta-Jacobsen, 2010). International capital can flow across countries in many channels, but the main ones are **foreign direct investments (FDI)**, **foreign portfolio investments (FPI)** and **loans**. Among these types of foreign investment flows, FDI stands out (Razin and Sadka, 2007) as it represents the most advanced, long-term and complex foreign market entry strategy. The world financial crisis revealed new features in determining factors of both FDI and export activities. Therefore, after this part, that presents a further overview of the topic and critically assesses recording practices of foreign direct investments, factors determining FDI inflow will be discussed.

1.1 *Introduction to the topic of Foreign Direct Investments*

Foreign direct investment is an internalisation strategy in which the firm establishes a physical presence abroad through ownership of productive assets such as capital, technology, labour, land, plant and equipment (Cavusgil, Knight and Riesenberger, 2008). What differentiates a foreign direct investment from other forms of investments is *the objective of establishing a **lasting interest** in a resident enterprise in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor* (OECD, 2008). According to many national and international standards, the evidence of the long-lasting relationship is direct or indirect ownership of **10% or more** of the voting power in a direct investment enterprise. Even though the ten per cent threshold is arguable, its strict application is recommended to ensure statistical consistency in collected data across countries. ECB (2004) classifies FDI into three components; those being **equity capital**, **reinvested earnings** and **other capital** associated with various inter-company debt operations. Equity in branches, and shares in subsidiaries and associates form the first component, i.e. equity capital. The next component, reinvested earnings, comprises of the offsetting entry to the direct investor's share of earnings not distributed as dividends

by subsidiaries or associates; and earnings of branches not remitted to the direct investor and which are recorded under 'investment income' (ECB, 2004). Finally, other capital consists of all financial operations between affiliated companies.

Besides the local presence and lasting interest mentioned earlier, there are some other key features that characterize FDI. For the firm, FDI requires substantial resource commitment and global scale efficiency (Cavusgil, Knight and Riesenberger, 2008). It also entails greater risk and uncertainty when compared with other entry modes. The investor is exposed to uncertainty in customer and political environment, and to interventions by local government, that may alter pricing policy, wages or hiring practices, not forgetting cultural and currency risk. Overall the degree of opportunity and risk associated with a foreign market, the size of the prospective market, availability and capabilities of partners in the market, and the urgency of expansion will all affect the final decision, whether or not to undertake an FDI.

1.1.1 Forms of FDI

FDI can take the form of a **greenfield investment** in a new facility, or a **merger** or an **acquisition** (M&A) with an existing local firm (Hill, 2010). The former means that a firm establishes a completely new operation in a foreign country. It invests in building a production plant, marketing subsidiary, or other facilities for its use there which implies a gradual market entry. Many governments offer incentives to encourage greenfield investments, because they create new jobs and production capacity, facilitate technology know-how transfer to locals (Cavusgil, Knight and Riesenberger, 2008), and linkages to the global market are also improved. Nevertheless, the other form of FDI, acquiring or merging with an existing firm in the foreign market, occurs more often. An acquisition refers to a direct investment where an existing company or facility is purchased (Cavusgil, Knight and Riesenberger, 2008), while a merger is a special type of an acquisition. A merger means that two companies join to form a new, larger company. As integrating operations on a relatively equal basis is easier for companies of a similar size, mergers are more common between them.

Multinational enterprises tend to favour M&As over greenfield investments. Their benefits include gaining access to existing assets, suppliers and customers, but

also to other strategic assets as brand loyalty, trademarks or patents. They are also faster to execute, and there is an immediate stream of revenue. Even though mergers and acquisitions are more common in general, the pattern of FDI differs markedly between developed and developing countries. In case of developing nations, only about one third of FDI is in the form of cross-border M&As (Hill, 2010), primarily thanks to fewer target firms to acquire.

Lastly, a specific form of an acquisition presented Estrin and Meyer (2001) and they term such investment **brownfield**. They suggest that the following definition is used: *a brownfield is a foreign acquisition undertaken as part of the establishment of a local operation. From the outset, its resources and capabilities are primarily provided by the investor, replacing most resources and capabilities of the acquired firm* (Estrin and Meyer, 2001, p.577). This strategy was especially relevant in the period of transition from centrally planned to market economy in Central and Eastern European countries. However, Estrin and Meyer (2011) question that the concept may also be relevant to other emerging countries such as Egypt and Vietnam, but systematically collected data are not available to prove this hypothesis.

1.1.2 FDI Financial Life Cycle

We will now focus on the time path of FDI into the host country that Brada and Tomšík (2003) characterize as the FDI financial life cycle. This is an important concept as both the volume of profits and their distribution between reinvested earnings and dividends change over time. A movement from an early stage of a foreign direct investment to a maturing one is clearly depicted in Figure A.1.

Irrespective of the entry mode, the foreign affiliate generates a loss or earns low profits in the early stage of FDI. Costs associated with starting up a greenfield investment might be sizeable and long lasting in this stage, and acquiring or merging with an enterprise in a target country often requires reorganisation and restructuring of the affiliate first. Hence, in both situations neither dividends are paid nor retained earnings are invested, as they do not exist. However, Brada and Tomšík (2003) argue, that this period of low profits may be very short or non-existent if the acquired or merged enterprise is profitable or can be easily reorganised to become such.

The second stage suggests that profit is generated as the affiliate begins to grow. In case of a merger or an acquisition, this is thanks to the enhanced competitiveness, whereas a greenfield investment is in the stage of starting its production. After all, profits that are generated are mainly reinvested to meet needs for additional investments to grow further. As time goes by, there is an increasing pressure from a parent company on the affiliate to generate dividend payments. The length of the second stage will in part depend on the size of the domestic market, which will determine for how long the affiliate can continue to expand its capacity, and on the attractiveness of alternative ways of financing the affiliate's expansion (Brada and Tomšík, 2003).

The last stage is where a larger share of profits is repatriated from the foreign affiliate. In this mature stage both profit margins and market shares have stabilised. Therefore, the parent company wishes to use the retained earnings to fund more dynamic investments elsewhere. However, strict tax laws and other profit repatriation policies negatively influence the extent of profits that are being taken back home. Some countries, for instance Canada, operate a hybrid system of international taxation (Smart, 2010), where tax treaty partner countries are exempt from domestic taxation, while repatriations from non-treaty countries are taxed. So, companies are in search of other, both legal and illegal, ways how to repatriate their profits. Patil (2012) explains that the underlying idea is to circumvent the restrictions on profit repatriation through innovative but legal ways. He gives several examples of legal methods of profit repatriation, and thus using re-invoicing centres, transfer pricing, royalty payments, or by leading and lagging payments between the parent company and the foreign subsidiary, based on the expected exchange rate movements.

Brada and Tomšík (2003) hypothesized in their study that *FDI reinvestment in developed, developing and transition economies follows a path over time that is similar in shape to that described in Figure A.1 but that the length of time needed to reach the various stages of the FDI financial life cycle or the propensity to reinvest profits at any stage of the FDI financial life cycle may differ between these three categories of host countries*. As their empirical results show, they verified the hypothesis. It means that we can use the FDI financial life cycle theory to explain more extensively the effects of FDI financial flows on countries' balance of payments, which will be discussed later in the text.

1.1.3 FDI Theories

The aim of this part is to shed light on theories of FDI. Any theory of foreign direct investments should address the following key questions, i.e. why companies decide to move abroad as direct investors, and why they do not favour other alternatives over FDI. Without making foreign direct investment commitments, companies can take part in international business via exporting or licencing. Only by examining limitations of the two, we can understand why FDI is preferred. Furthermore, FDI theories should explain how foreign investors can successfully compete with local firms, given their disadvantage of operating in an unfamiliar market (Buckley, 2012). In this part, we will introduce three complementary perspectives on the FDI phenomena.

The first approach considers other alternatives to FDI. Since the equity capital is tied up in the foreign market and the nature of the foreign direct investment is not easily reversible, firms may decide to follow rather a **sequential process in entering new markets**. This dynamic view was presented by Johanson and Vahlne (1977). They argued that by internationalising in stages, the firm gradually moves from a relatively low risk, but easily reversible export-oriented policy, to a higher risk, but less reversible strategy (Buckley, 2012) resulting in production in other countries. Consequently, the profit payoff should multiply.

The gradual approach presents a risk-minimising process that is depicted in Figure A.2. A firm that aspires to engage in an international business typically makes its initial moves in this direction by **exporting** to a foreign market (Buckley, 2012). Exporting is a means of reducing costs of market development, and even if investment is necessary in the future, exporting helps determine the nature and the size of the market (Behrman, 1969; cited in Johanson and Vahlne, 1977, p.25). Buckley (2012) lists among other advantages minimal capital requirements, low risk, and a steep learning curve effect with respect to supply and demand conditions, competition, channels of distribution, payment conventions, and the methods of foreign financial institutions. However, what makes firms often turn away from exporting strategy are trade barriers and transportation costs, associated especially with low value-to-weight ratio products and products that can be produced anywhere in the world. Thanks to these limitations, and as market develops, companies expand abroad. Warehouse

facilities are being established and the firm later establishes its own sales subsidiary and service facilities.

Another route towards establishing operations abroad is **licencing**. Hill (2010) defines licencing as granting a foreign entity (the licensee) the right to produce and sell the company's product in return for a royalty fee. Even though there are minimal investment requirements, corresponding cash flow might be relatively low, as well. Furthermore, it is difficult to control quality standards, and licencing agreement may reveal company's valuable technological know-how and create a competitor in the same market. The aforementioned drawbacks together with company's inability to use the full potential of its product in a foreign market make FDI preferable even though it is more costly and risky than the other two options.

The gradual approach is being challenged by two recent phenomena: the 'born-global firms' and 'emerging-country multinationals'. The former suggests that new small firms internationalise rapidly in their early stages of their development (Johnson, Whittington and Scholes, 2011). The latter also counts with quick moves through entry modes and it argues that companies develop unique capabilities in their home market and these need to be rolled out quickly before competitors catch up (e.g. Mexico's Cemex).

The second perspective looks at patterns that FDI follows concerning **timing and location decision**. It can be observed that companies in the same industry tend to undertake FDI at about the same time and they direct their FDI activities to certain locations (Hill, 2010). In this area a lot about **strategic behaviour** can be explained by Knickerbocker (1973) who analysed the relationship between FDI and firms' behaviour in oligopolistic industries. He suggested that an imitative behaviour pattern calls for an immediate response to decisions of rivals. The Research roundup (Knickerbocker, 1973) showed that 46% of the new investments in industries and countries analysed were clustered in three-year periods, and 75% within seven-year periods. Although Knickerbocker's theory helps to explain the interdependence between oligopolies and the subsequent imitative behaviour, it fails to address the reason why companies undertake FDI rather than pursue other alternatives.

Certain locations are favoured by investors and Vernon's **product life cycle** theory tries to explain this pattern. The idea is that the same companies that pioneer a product in their home markets (Hill, 2010) later decide to undertake FDI in other advanced economies to meet the local demand. Once the product is standardised, the production is shifted to developing countries in consequence of price and cost pressures. These steps happen at particular stages in the product life cycle. The logics described can be generally observed, but the shortcoming of this theory is that it fails to identify when it becomes more profitable to invest abroad (Hill, 2010). Sufficient demand abroad does not necessarily mean that FDI will be the most profitable option.

The third perspective that was presented by John Dunning provides the most comprehensive approach as it combines and takes only the best aspects of other theories to create a single one. It is known as **eclectic paradigm** and it specifies three conditions that determine whether or not a company will internationalise via FDI (Cavusgil, Knight and Riesenberger, 2008). These conditions¹ include ownership-specific, location-specific and internationalisation advantages. Possession of ownership-specific advantages over local firms is one of the keys for a successful entry and business conduct in a foreign market. Managerial skills, trademarks or other intangible assets are just some of the examples of ownership-specific advantages. Nevertheless, these advantages need to be unique to the firm and not easily transferable to other companies. Only then they represent the firm's competitive advantage that can be built upon. The other set of advantages, i.e. the location-specific ones, refers to the comparative advantages that are present in individual foreign countries. Some examples include natural resources, highly skilled or low-cost labour, inexpensive capital, and favourable government interventions. As Cavusgil, Knight and Riesenberger (2008) state, there must be a location-specific advantage present for FDI to succeed; otherwise companies would use exporting to enter new markets. So, the idea is that at least some location-specific advantages in conjunction with ownership-specific advantages often require FDI in the target country. Internationalisation advantages supplement the other two sets of advantages. They arise from internalising foreign-based manufacturing, distribution, or other stages in the value chain. Hence, the company needs to make a decision if it should transfer its ownership-specific advantages across the borders internally, within

¹ That is why eclectic paradigm is referred to as an OLI approach, as well.

its own organisation (Cavusgil, Knight and Riesenberger, 2008); or utilise rather external partners.

The three perspectives described here represent the major FDI theories. However, there are as many theories as there are opinions on underlying rationales for overseas expansion. Even though the eclectic theory has gained the most support, some critics argue that the concept of internationalisation alone is sufficient to explain multinational activity and the theory of internationalisation is the theory of FDI (Buckley, 2012).

1.1.4 Effects of FDI

Since FDI combines not only aspects of international trade in goods and services, but also of international financial flows (Razin and Sadka, 2007), there are both micro-level and macro-finance studies that analyse FDI. Microeconomic studies focus on market imperfections and firm-specific advantages, whereas macro-finance literature studies aggregate flows based on the mode of entry or mode of finance. Hence, both micro- and macroeconomic impact of FDI can be observed. Moreover, the effects may be seen either from a home (source) country or a host (receiving) country perspective. We will apply this approach and discuss the home country effects first.

The effects of FDI on a home country are both positive and negative. There are three interlinked areas that are being discussed in this respect; these are the effects on employment, the balance of payments, and the production interactions between foreign and domestic operations of a multinational corporation (MNC). As far as the effects on employment are concerned, worries arise when FDI is seen as a substitute for domestic production (Hill, 2010). This stems from increasing home-country unemployment, and depending on the situation in the home labour market, serious concerns about export of jobs may arise. On the contrary, when the foreign subsidiary creates demand for home-country exports (Hill, 2010), the effect on employment is positive. In addition to that, the home country's balance of payments improves thanks to the increased volume of exports. Another way in which FDI can benefit the home country's balance of payments is through repatriation of profits, i.e. through the inward flow of foreign earnings. This effect usually offsets the initial outflow of capital that is required for financing the FDI.

The current account of the home country's balance of payments suffers when FDI substitutes direct exports or it is undertaken in order to serve the domestic market from a low-cost production location (Hill, 2010).

Production interactions occur because the MNC's home country operations are largely affected by FDI (Kokko, 2002). As Kokko (2002) puts it, a common question in this context is if the establishment of a foreign affiliate substitutes for home exports or increases home exports of components and intermediate goods used by the foreign affiliates. Evidence from Sweden has been extensively discussed in this respect, because multinationals play a significant role there. Even though their production is located outside of Sweden from more than 60 per cent, Kokko (2002) states that they account for about a third of Swedish employment, two-thirds of exports, and three-quarters of the economy's total research and development (R&D) spending. A study by Jordan and Vahlne (1981; cited in Kokko, 2002, p.153) concluded that FDI has positive effects on Swedish exports and employment as a result of increased foreign market shares and exports of intermediate products. They based the results on an assumption that export survival rates² are for standardized products low and range between 2 to 8 per cents. Related studies come to very similar results. In situations where alternatives to FDI would have caused much lower foreign market shares, FDI can be seen complementary to exports and employment, with low substitution effects. However, Kokko (2002) suggests that structural effects of FDI that influence what countries produce and export might be more important than the impact on how much is actually being produced and exported.

The same approach as above can be applied to the analysis of effects on receiving (host) countries. Some effects of inward FDI may be seen as a flip side of the home country ones. Hill (2010) lists among the main benefits resource transfer, employment and balance of payments effects, and effects on competition and economic growth boost. Particularly relevant in this respect is study by Lipsey (2002) that discusses how wages, productivity, exports, and the introduction of new industries are affected by FDI inflow. Lipsey (2002) pointed out that the presence of multinationals brings along an increase in wage level, because higher wages are almost always paid by

² Kokko (2002) explains export survival rates as the fractions of the affiliates' market share that could have been served by home exports.

foreign-owned companies, and promotion of host country exports and linkages to the outside world. The latter describes how host economies transform from being exporters of raw material and food to being exporters of manufactures (Lipsey, 2002), sometimes even high-tech products. This is mainly thanks to the effect of resource transfer, i.e. the use of technology, management knowledge and capital that would not be available otherwise. There are also costs that host countries need to face. They derive from adverse effects on competition within the host nation, the balance of payments, perceived loss of national sovereignty and autonomy (Hill, 2010).

Often discussed are also spillover effects caused by FDI to domestic firms in host countries. Although these effects are believed to have a positive impact, empirical studies often find rather conflicting evidence. What is being often analysed in this respect is the correlation between the productivity of domestic firms and their linkages with foreign affiliates (Havránek and Iršová, 2011). With regard to the production chain, the linkages are usually classified into **horizontal** (within-sector: from FDI to local competitors) and **vertical** (between-sector); where vertical linkages are further divided into **downstream** (backward: from FDI to local suppliers) and **upstream** (forward: from FDI to local buyers) (Havránek and Iršová, 2011, p.235). As it is suggested by Havránek and Iršová (2011), mostly data for only one economy are used to estimate the **FDI spillover regression** that is often a variation of the following model:

$$\begin{aligned} \ln Productivity_{ijt} = & e_0^h \cdot Horizontal_{jt} + e_0^b \cdot Backward_{jt} + \\ & + e_0^f \cdot Forward_{jt} + \alpha \cdot Controls_{ijt} + u_{ijt} \end{aligned} \quad (1.1)$$

The indices i , j , and t denote firm, sector, and time, respectively, and the variable *Controls* represents a vector of sector-specific or firm-specific control variables. Then, the explanatory variable *Horizontal* denotes the ratio of foreign presence in firm i 's own sector; the ratio of firm i 's output sold to foreign affiliates is what *Backward* variable denominates; while the explanatory variable *Forward* is the ratio of firm i 's inputs purchased from foreign affiliates (Havránek and Iršová, 2011). As the explanatory variables are ratios and the explained variable is in a logarithmic form, the estimates of e_0^x where $x = h, b, f$ can be interpreted as semi-elasticities, taking the following form

$$e_0^x = \frac{\% \Delta \text{ in productivity}}{\text{percentage point } \Delta \text{ in foreign presence}}$$

Systematic analyses of both horizontal and vertical spillover effects provide Havránek and Iršová (2010, 2011, 2013) by means of meta-analysis³. In their article on vertical spillovers, Havránek and Iršová (2010) concluded that the underlying spillover to suppliers is positive and economically significant, whereas the spillover to buyers is insignificant. Furthermore, they suggest that greater spillovers are generated by investors from remote countries where technological advantages over local firms are slender. The reasoning is that such investors tend to prefer using local inputs to home imports as their quality is comparable. Havránek and Iršová (2010) also argue that greater spillovers are received by countries that have underdeveloped financial systems and are open to international trade. According to the results of Havránek and Iršová (2013), the horizontal spillovers are on average zero, but their sign and magnitude depend systematically on the characteristics of the domestic economy and foreign investors.

Lastly, FDI is also discussed in conjunction with the environment (Bora, 2002) and international property rights (Maskus, 2002). Even though the evidence is not conclusive, these areas should be definitely a subject of further research.

1.2 *Measurement Issues*

Obtaining reliable, accurate, comprehensive and comparable FDI data is crucial both for economic analysis and policy making. FDI statistics may offer a way how to measure the level and extent of globalisation (Bellak, 1998), and economic growth. Therefore, current measurement concepts and their state of the art will be reviewed first. In this respect, Duce (2003) provides a detailed overview of methodological aspects related to FDI from the viewpoint of the Balance of Payments and the International Investment Position. Furthermore, Duce (2003) deals in her methodological note with issues related to limited availability of sectoral breakdown data, and unclear FDI

³ The process or technique of synthesizing research results by using various statistical methods to retrieve, select, and combine results from previous separate but related studies (The Free Dictionary, 2013).

definitions. Hence, drawbacks that need to be accounted for will be discussed later in the text.

1.2.1 Methods of Data Collection

Methods of collecting FDI data vary greatly. IMF (1995), UNCTAD (2005) and Zhan (2006) classify these methods into three major categories, those being the balance of payments (BOP), administrative, and survey one. The **balance of payments** approach uses data primarily from foreign exchange records of the central bank (Zhan, 2006). This information is collected using a foreign exchange system called the International Transactions Reporting System (ITRS). Assuming countries use this method for compiling their BOP statistics, its usage avoids the expense of developing alternative collections (IMF, 2005) as banking records are readily available. However, only cash transactions are measured, meaning that only capital which crosses its borders and not reinvested earnings are accounted for (UNCTAD, 2012). Together with no sectoral breakdown, this obviously influences the level of detail and precision. Hence, the ITRS should not be relied on as the primary and sole source of FDI data information.

Other potential sources of FDI-related data include country's **administrative sources** such as investment promotion agencies (IPAs), tax revenue offices, security exchange offices and national statistical authorities (UNCTAD, 2005). This information emerges as a by-product of the approval process (IMF, 1995) for investment projects. Despite easy availability underperformance of projects' funding and time lag in records make this data imprecise.

The **enterprise survey** approach provides the best information out of the three ones. Each enterprise surveyed unfolds its complete recording of foreign direct transactions and stocks of investment (IMF, 1995) which makes the data suitable for analytical purposes. The only limitations associated with this method are potential costs incurred and difficulty of keeping track of all enterprises with foreign investments that are to be surveyed.

Apart from the above mentioned sources FDI data may be provided by partner country statistics, newspapers or journals. Yet these sources are rather a supplement to the ones discussed above and cannot provide comprehensive information by themselves.

1.2.2 FDI Flows versus FDI Stock versus FDI Income

As we discuss FDI data, it is essential to differentiate between the flow, the stock of FDI and FDI income. The **flow of FDI** refers to the amount of FDI undertaken over a given time period (Hill, 2010). The timeframe for reporting FDI data is normally a year. However, discrepancies also arise here as some countries compile data using a calendar year as a measure (Zhan, 2006). Others may use a fiscal year which usually spans from March to February. FDI flows can be further classified as **FDI inflows** and **FDI outflows**, meaning FDI flows into the host economy and out of the home economy, respectively. Their difference indicates country's position either as a net FDI capital exporter or importer.

The **stock of FDI** (or FDI position) refers to the total accumulated value of foreign-owned assets at a given time (Hill, 2010). FDI stock data may be calculated in two ways. Some countries might employ the method of adding up the time series of FDI flows data generated by BOP system (Zhan, 2006). However, historical cost figures do not reflect the present day value and this makes the data inaccurate as exchange rate fluctuation, inflation and depreciation are not accounted for. We may pose a question here as to what currency one should use to measure FDI flows so that their statistics are completely objective. The second way is to collect the FDI stocks by enterprise surveys. As suggested in the previous part concerned with methods of FDI data collection, surveys provide us with complete stock recording because companies record yearly revisited values that show the actual, not historical value. While FDI flow data are usually collected through the central bank, FDI stock data are derived from company surveys (UNCTAD, 2012). Zhan (2006) suggests that using multiple sources to collect data enables cross-checking of values, but many countries suffer from discrepancies between cumulative stocks and flows statistics. One cannot expect that FDI flows match FDI stocks mainly as a result of not including reinvested earnings into FDI flows statistics. Other adjustments like rescheduling or cancellation of loans or debt-equity swaps (Eurostat Glossary, 2012) cause further discrepancies. As far as other

adjustments are concerned, Duce (2003) explains them partially by the use of different sources to compile both statistics. Table 1 shows FDI stocks change during a period and is defined in home country currency (Bellak, 1998). In a nutshell, Duce (2003) summarizes the difference between the stock at the beginning of the year and its value at year-end as follows.

$$\begin{aligned} & \text{Position at the end of the period} = \\ & \text{Position at the beginning of the period} + \text{FDI flows} + \text{price changes} + \\ & \text{exchange rate changes} + \text{other adjustments} \end{aligned}$$

Table 1: FDI Stocks: Change during a Period

FDI Stock Year t	Capital Flows		Valuation Adjustments		FDI Stock Year $t+1$
Book Value Beginning of Year	→				Book Value End of Year
Equity	Reinvested Earnings	Intercompany debt	Exchange rate changes due to price changes or changes in terms of trade	Other changes	
	Positive	Outflows/inflows negative, if inflows > outflows	Negative, if the home country currency appreciates against the host country currency and vice versa	e.g. differences in book value and sales value	

Source: Adapted from Bellak (1998)

FDI income data are closely linked to the stocks of investments (OECD, 2012). According to OECD (2010) definition, direct investment income comprises income on equity and income on debt accruing to a direct investor resident in one economy from the ownership of direct investment capital in an enterprise in another economy. The information on FDI income can be found in the current account of a country's balance of payments. To analyse the productivity of the investment, the rate of return on the total funds invested is calculated. FDI income data are used in the calculation as follows.

$$FDI \text{ Rate of Return} = \frac{FDI \text{ Income of Year } t}{\text{Stock of FDI at the End of Year } t - 1}$$

1.2.3 FDI Statistics Compilers

Thanks to the existence of international standards in reporting FDI, analysts can compare data from different compilers and identify national deviations from the standard (Mahoney, 2008). There are several international organisations that are acknowledged as FDI statistics standard setters. Among them are the Organisation for Economic Cooperation and Development (OECD), the International Monetary Fund (IMF), Eurostat, the European Central Bank (ECB) and the United Nations Conference on Trade and Development, abbreviated UNCTAD.

OECD's *Benchmark Definition of Foreign Direct Investment* is often referred to as the world standard of FDI statistics. Although the new fourth edition was completed in 2008, reporting countries still relate their statistics to the previous version. A joint OECD-Eurostat questionnaire is used to collect the FDI statistics which results in consistent dataset of these two organisations. The IMF and the ECB use balance of payments data for their statistics. The IMF's *Balance of Payments Manual, Fifth Edition* is also widely used for FDI classification and is fully compatible with both *Benchmark Definition* and the general economic concepts set out in the United Nation's *System of National Accounts* (Mahoney, 2008). The main discrepancies in data occur due to the revisions' timing. In this instance, UNCTAD data are in a number of cases different due to adjustments (OECD, 2012).

1.2.4 Data Limitations

There have been already mentioned some limitations in obtaining FDI data earlier in the text. A brief overview of the main issues will be provided in this part. Even though countries follow international standards in reporting their FDI statistics, their data need not be comparable thanks to national differences in FDI definitions, and inconsistencies may occur. It is assumed that a relationship between two countries should be the same no matter if measured by one country or the other. Hence, the

difference between total FDI inflows reported by recipient countries and total FDI outflows reported by source countries (Zhan, 2006) should equal zero. Nevertheless, this **bilateral symmetry** rarely holds (Mahoney, 2008). So, only by understanding and detecting deviations from international standards we can better identify impact of these discrepancies.

Analysing FDI statistics can lead to misguided results if we are unaware of the concept of **Special Purpose Entities** (SPEs). OECD *Benchmark Definition* (2008) describes SPEs as *all legal entities that have little or no employment, or operations, or physical presence in the jurisdiction in which they are created by their parent enterprises which are typically located in other jurisdictions (economies)*. The reason why they are created is that they offer taxation, regulatory and confidentiality benefits (OECD, 2008). Moreover, they are relatively cheap to create and maintain. Since such investments have no real immediate impact on the recipient economy in respect of job creation or increased productivity, and are considered by many analysts as overstatement of FDI statistics, the new *Benchmark Definition* (2008) suggests a new approach to SPEs recording. OECD (2008) recommends that compilers exclude SPEs resident in their economies when presenting FDI statistics on a directional basis⁴ and provide separate information on SPEs resident transactions and positions. There are different types of SPEs that include holding companies, shell companies, shelf companies or financing subsidiaries. Different approach to SPEs is also applied among European Union member states. EU-27 aggregates include SPEs while not all countries' national statistics do so. Consequently, EU-27 aggregates are not simply the sum of national figures as Eurostat (2012) notes.

Table A.1, adopted from World Investment Report (WIR, 2012), shows that both Luxembourg and the Netherlands are an excellent example to demonstrate to what an extent countries can observe artificially high FDI statistics. The report presents also **FDI Attraction Index** that ranks countries by the FDI they receive in absolute terms and relative to their economic size (WIR, 2012). Alongside Luxembourg there are Hong Kong, Belgium and Singapore among top performers. They attract investment largely owing to their fiscal or corporate governance regimes (tax havens and countries that

⁴ Presentation of the FDI data on a directional basis reflects the direction of influence by the direct investor underlying the direct investment: inward or outward direct investment (OECD, 2008).

allow SPEs or other corporate governance structures favoured by investors), according to WIR (2012). Nevertheless, such investments have little impact in terms of local value added or employment, and we need to be careful when interpreting and using such statistics for benchmarking.

There are often cases when effects of FDI on productivity are measured and compared. However, such ratios are not always very conclusive. Both Christl (2007), and Geršl and Hlaváček (2007) refer to **cream skimming** or **cherry picking** phenomenon, respectively. When analysing such ratios one needs to be aware of the fact that investing firms tend to pick and take over the most productive companies, leaving less efficient plants to domestic owners (Christl, 2007). Therefore, effects of FDI on productivity can be overstated in some cases.

When conducting an empirical analysis using FDI data, problems might arise as some countries report **negative FDI values or missing ones** in their statistics. Consequently, data logarithmisation cannot be used. If any of the three FDI components, i.e. equity capital, reinvested earnings or intra-company loans, are negative and not offset by positive amounts of the remaining components, FDI values are negative. Negative values in transactions may indicate disinvestment in assets or discharges of liabilities (OECD, 2012). In case of equity, the disinvestment in assets means that a part of equity held in a direct investment enterprise is sold by the investor to a third party, while the discharge of liabilities suggests buying back shares and reducing associated liability. Omissions and missing data might occur, as well.

Nevertheless, there are several ways how to address these problems. Busse and Hefeker (2007) offer using a transformation to tackle the problem of negative or zero values. They transform the FDI values using the following formula:

$$y = \ln(x + \sqrt{x^2 + 1}) \quad (1.2)$$

By employing this method, they maintain the sign of x . The values of x pass from a linear scale at small absolute values to a logarithmic scale at large values (Busse and Hefeker, 2007). As it is a well-known fact derived from the properties of natural logarithms, the transformation $\ln(Y) = A \cdot \ln(X)$ is a transformation of a power function $Y = X^A$ (used for instance in Cobb-Douglas model) related to the changes of X

in time. The coefficient A is after the logarithmic transformation interpreted as an elasticity coefficient for %Y (where Y is the value of FDI) to percentage change in X, making this a significant interpretation asset. The initial model is in this case $Y = (x + \sqrt{x^2 + 1})^A$ which needs to be stressed. Even though the model may be estimated using logarithmic values, subsequent interpretation as an elasticity model cannot be applied. It is clear that the weights of X will be biased in favour of higher values (both positive and negative), which needs to be further treated and tested.

Similar approach apply Bénassy-Quéré, Coupet and Mayer (2007) in their study when they estimate a gravity equation for bilateral FDI stocks using $\ln(a + FDI)$ instead of $\ln(FDI)$, setting $a = 0.3$. This is a value of the first decile of the distribution of strictly positive values of FDI. The same authors argue that if they used $a = 1$, the distribution of FDI would be substantially compressed. An alternative method to avoid the selection bias and to circumvent the problem with zero values in gravity equations is the Poisson QMLE proposed by Santos Silva and Tenreyro for trade in goods (2006; cited in Bénassy-Quéré, Coupet and Mayer, 2007).

Tun, Azman-Saini and Law (2012) also realise that FDI inflows are highly volatile and some observations are missing, hence their study uses panels based on five-year averages (1981-1985, 1986-1990, ..., 2001-2005) to handle the problem of missing values. This approach then enables to eliminate the business cycle effect. According to Zhan (2006) countries may also resort to the second-best or third-best solutions like annualising partially available data, and using mirror statistics.

The list of aforementioned limitations represents the major issues. Now, the determinants affecting FDI inflow will be discussed in the next part.

2 FDI Determinants and Political Risk Assessment

Having roughly 200 countries around the world, it is neither cost effective nor sensible for foreign direct investors to target them all. Hence, only a handful of markets that offer the best prospects should be delineated. This part will examine what criteria should be considered for country screening, and what determinants drive FDI inflow. Location of international business activity, as well as our understanding of its determinants, has changed in the past decades. Dunning (2006) recognizes the events that followed the election of the Thatcher government in the UK and the Reagan administration in the US as the main development rethinking incentives. Globalisation, technological advances, the emergence of new economic players, as well as a new focus on the role of institutions are enumerated by Dunning (2008a) among the main triggers for change. Research on FDI determinants has increasingly pointed to the significance of institutional- and governance-related variables (Dunning, 2008a); hence special attention will be paid to the role of institutions, and country risk analysis.

2.1 *FDI Location Determinants*

Referring back to the eclectic, or OLI, paradigm, FDI takes place when ownership-specific, locational and internationalisation advantages coexist (see Table A.2). Unlike ownership and internationalisation advantages, which are firm-specific characteristics, locational advantages are external to firms (Resmini, 2007). As a consequence, governments can be in control of these advantages and directly influence the magnitude of FDI inflows. Hence, this part will focus on the L-advantages of the OLI paradigm and review the host country determinants of foreign direct investments.

Thanks to the international context, the potential of locational sources of advantage is of great importance. As it is expressed by Johnson, Whittington and Scholes (2011), a foreign entrant must possess significant competitive advantages to overcome considerable disadvantages relative to existing home competitors. Some locations offer companies sustained competitive advantages more than others. As a result, companies often use Michael Porter's four-pointed diamond framework to find out to what an extent they may build on home-based advantages to create competitive

advantage in relation to others. **Porter's Diamond** suggests that there are four interacting determinants of locational advantage: local factor conditions; home demand conditions; local related and supporting industries; and local firm strategy, industry structure and rivalry (Johnson, Whittington and Scholes, 2011). These determinants of national competitive advantage use also governments if they aim to increase their competitive advantage. However, the sources of advantage do not necessarily need to be purely domestic. In addition to exploiting particular locational advantages (often in the company's home country), companies may make use of international value network and source advantages overseas (Johnson, Whittington and Scholes, 2011) where the activities are performed in a more effective and efficient way.

When assessing the relative importance of the location determinants, four aspects of investments have to be bore in mind: *the motive for investment* (e.g. resource-seeking or market-seeking FDI), *the type of investment* (e.g. new or sequential FDI), *the sector of investment* (e.g. services or manufacturing), and *the size of investors* (small and medium-sized MNCs or large MNCs) (WIR, 1998). Furthermore, some determinants may change over time as the domestic and international economic environment evolves. Table A.3 provides us with a graphic overview of host country determinants of FDI that will be discussed in more depth now.

2.1.1 Policy Framework for FDI

As Resmini (2007) outlines, locational advantages do not indispensably arise spontaneously, but they are created through appropriate policies that are crucial for attracting FDI. Obviously, there would be no FDI activity if countries did not allow foreign direct investors to enter their market. So, the direction of FDI policies affects the openness of a country towards FDI. Open policies are basically intended to induce FDI, but the inducement may not be taken; while restrictive policies can effectively close the door to FDI (WIR, 1998). An example of Central and Eastern European (CEE) countries clearly points out to the importance of country openness as a locational determinant. The stock of FDI in the CEE region increased from less than \$200 million in 1985 and less than \$3 billion in 1990; to \$66 billion by the end of 1997 (WIR, 1998). This result is attributed to a rapid change of the legal frameworks and the consequent

shift from a situation where FDI was extremely restricted to a situation where potential host countries now actively compete for FDI inflows (Johnson, 2006).

The core FDI policies consist of rules and regulations governing the entry and operations of foreign investors, but they also encompass the standards of treatment accorded to them, and the functioning of the markets within which they operate (WIR, 1998). Thanks to the speed of liberalisation of FDI policies, the value of these core policies as tools to influence locational decisions becomes less pronounced (WIR, 1998). However, there are other policies that WIR (1998) names outer-ring policies and that extend the scope of FDI policy framework. Broadly speaking, these policies can be divided into macroeconomic and macro-organisational ones. The macroeconomic policies are predominantly monetary and fiscal; and they affect taxes and exchange rates. The macro-organisational ones affect then patterns of resource allocation, as well as the structure and organization of economic activities (WIR, 1998). In general, they influence both the quantity and quality of received FDI, and they have an impact on the industry structure, the extent of R&D and human resource development, competition, labour market, and infrastructure among other things.

2.1.2 Economic Determinants

As we see from Table A.3, economic determinants are divided into market-seeking, resource-seeking, efficiency-seeking and asset-seeking ones. This part will give an overview of the traditional economic determinants, and suggest what **proxy variables** are commonly used in econometric studies. Loosely speaking, a proxy variable is something that is related to the unobserved variable that we would like to control for in our analysis (Wooldridge, 2009). We can illustrate this by using the following model with two independent variables, where one of which is unobserved:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2^* + u \quad (2.1)$$

If we assume that data for y and x_1 are available, and there is a proxy variable x_2 for an unobserved explanatory variable x_2^* , we require that there is a relationship between these two as follows:

$$x_2^* = \delta_0 + \delta_2 x_2 + v_2 \quad (2.2)$$

where v_2 is an error due to the fact that x_2^* and x_2 are not exactly related. We assume then that the expected value of u , given all the variables, is zero, and the error v_2 is uncorrelated with x_1 and x_2 .

The first and one of the historically most important FDI determinants is the presence of **natural resources**. Yet the presence itself is not sufficient for FDI to arise; only when resource-abundant countries lack the large amounts of capital typically required for resource extraction, or do not have the technical skills needed to extract or sell raw materials, FDI occurs (WIR, 1998). Natural resource abundance is still an important determinant of FDI inflow in countries like Azerbaijan, Kazakhstan, Russia or some African countries (e.g. Shiells, 2003). However, its importance is declining and recent studies show that institutional quality matters more for development (Brunnschweiler, 2008). Poelhekke and van der Ploeg (2010) studied the importance of subsoil assets as a determinant of FDI and their results confirmed what Sachs and Warner (1995) once named the **curse of natural resources**. The curse of natural resources is the observation that countries rich in natural resources tend to perform badly as there is a lack of positive externalities coming from natural resource sectors, compared to manufacturing. Hence, as presented by Sachs and Warner (1995) resource abundance has a negative impact on aggregate FDI and economic growth. Muhlum et al (2006; cited in Poelhekke and van der Ploeg, 2010) agree that in countries with bad rule of law natural resource dependence harms growth prospects; but they suggests that the curse turns out to be a blessing one in countries with good institutions. As the value of natural resources and minerals is difficult to estimate, proxy variables need to be used. Two common proxy variables for the presence of natural resources are: exploitation of resources, which is a value of fuels and ores exports; and agricultural potential, that is measured by availability of arable land (WIR, 2012).

The next set of determinants corresponds with the need of companies to increase their market share or gain access to new markets. **Market size** and **market growth** are the relevant economic determinants in this respect. A larger host market size can not only accommodate more firms, but it is also more appealing for would-be foreign investors producing tradable products since the economies of scale and scope are more likely to be captured (Culem, 1988). Investments by both domestic and foreign

producers are also stimulated by growing demand that is associated with high growth rates. Most studies of host country determinants of FDI (e.g. Culem, 1988 and Brenton et al, 1999) showed a significant positive effect of both market size and market growth on the volume of FDI inflows. There are several proxy variables that may be used to quantify market attractiveness. Market size is commonly measured by gross domestic product at purchasing power parity (GDP at PPP). Growth potential of the market is then approximated by real GDP growth rate; and spending power by GDP at purchasing power parity per capita (WIR, 2012).

Labour costs and labour availability are other important FDI determinants for companies seeking greater efficiency in producing labour intensive products. By availability we mean not only abundance but also low costs relative to productivity (WIR, 1998). The evidence of effects of abundant and cheap labour is often mixed. Bevan and Estrin (2004) found that unit labour costs are negative and significant in European transition countries, indicating that FDI flows are greater to locations with relatively lower unit labour costs, independent of distance or host country size. As Benáček et al (2012) suggest, this is compatible with the Heckscher-Ohlin paradigm of comparative advantage. However, some studies find that average labour costs are an insignificant determinant of FDI. Benáček et al (2000) conclude that the importance of labour related coefficients seems to depend largely on the purpose of the investment, factor mix endowments and the level of development of the host country; some investors will have a greater appreciation of the **quality of human capital** instead. Unit labour cost is frequently approximated by hourly compensation and labour productivity; the quality of human capital is often measured either by the primary- or secondary-school enrolment rate, or life expectancy.

The fourth key economic determinant of the attractiveness of an economy for FDI, that the Inward FDI Potential Index captures (WIR, 2012), is the **presence of FDI-enabling infrastructure**. Studies by Kok and Ersoy (2009), and Sekkat and Varoudakis (2004) acknowledged the significantly positive impact of infrastructure on inward FDI. These studies argue that markets with good level of public goods are more attractive for potential investors as it is easier to operate in such environment. As a result the costs of doing business there are lowered. Infrastructure includes communication, transit and energy systems. Telecommunication infrastructure is commonly approximated by the

number of telephone lines per a hundred inhabitants, or by the number of fixed broadband Internet subscribers per a hundred inhabitants (WIR, 2012). Transportation infrastructure might be approximated by the road density, the percentage of paved roads, the number of kilometres of rail lines, or by the liner shipping connectivity index (WIR, 2012). Electric power consumption is then a proxy for the energy infrastructure.

As the World Investment Report (WIR, 1998) suggests, satisfying or possessing at least one of the principal economic determinants may no longer be sufficient for a host country to be successful in the highly competitive world market for FDI. The investors seek markets that offer a combination of the aforementioned determinants together with well-functioning institutions.

2.1.3 Business Institutional Facilitation

The third category of host-country determinants are business facilitation measures for foreign companies. Some examples of such measures are investment promotion efforts, improvements in amenities, measures that reduce the “hassle costs” of doing business (e.g. costs related to corruption and administrative efficiency), after-investment services and the provision of incentives to foreign investors (WIR, 1998). As the policy openness towards FDI is greater and greater, the importance of these institutional measures that go beyond the policy liberalisation has increased; they have become pervasive and more sophisticated by targeting desired potential investors. Once a decision has been made to undertake FDI in a given region or a given country, these incentives may influence the precise choice of location within the region or country (WIR, 1998). In the next part, we focus more on the role of institutions in decision making of foreign direct investors and assess political risk in international business.

2.2 *Political Risk in International Business*

There are different types of risk in international business and political risk is one of the four major ones (see Figure A.3). It is also known as country risk and it refers to the exposure to potential loss or adverse effects on company operations and profitability caused by developments in a country’s political and/or legal environments (Cavusgil, Knight and Riesenberger, 2008, p.160). The most widely accepted definition says that

political risk concerns the effects of non-economic variables on business transactions that are undertaken abroad (Clark, 2002). Benáček et al (2012) define political risk as risk associated with socio-political institutions and governance that can be associated with exposure to losses imputable to man-made institutional constraints, leading to a bias in the resource allocation. Referring back to Figure A.3, there are two potential sources of country risk. Business interests might be harmed by either political or legislative actions or their combination, even though this was not necessarily their intention. Hence, countries need to be aware of consequences that strict laws or inadequate law enforcement can unintentionally bring along (e.g. poor intellectual property law enforcement in developing countries).

Political risk can barely ever be accurately forecasted as the reality is often too complex. However, its analysis can help us reduce some of the uncertainty that affects business transactions. There are several methods and techniques that can be used to assess the extent of political risk. First, comparative techniques may be applied. These techniques use a set of relevant parameters to compare all countries or their subset and the comparison itself can be achieved either through an ordinal rating system or a mapping exercise on a two-axis space (Clark, 2002). The next technique that may be employed is an analytical one. As against the comparative technique, it focuses on one country at a time only, and encompasses the following approaches: special report, probabilistic, sociological and expert systems ones⁵. The third technique that is used for political risk estimation is an econometric one. Compared to the previously discussed techniques, this one is completely objective, but it mainly concentrates on debt default and rescheduling only. It assumes that certain economic indicators (e.g. growth rates, debt ratios, current account balance) have predictable value and the most popular econometric techniques have been discriminant analysis and logit models (Clark, 2002).

Generally speaking, country risk will always be present, but it is its nature and intensity that change over time and from country to country. As Hill (2010) claims, political risk tends to be greater in countries experiencing social unrest and disorder; or where the underlying nature of society increases the likelihood of social unrest⁶.

⁵ For more details on these approaches see Clark (2002, p.273-277).

⁶ By the expression social unrest we mean strikes, demonstrations, terrorism, violent conflicts etc.

2.3 *Role of Institutions*

According to the standard neoclassical theory and as Lucas (1990) explicated in his paper, capital should flow from rich to poor countries. The idea is such, that if marginal product of capital is higher in less productive, i.e. poorer economies, and if trade in capital good is free and competitive, new investment will occur only in poorer economies (Lucas, 1990). According to Lucas (1990), this will continue to be true until capital-labour ratios, and hence wages and capital returns, are equalized. The reasoning is based on the law of diminishing returns and on the presumption that the levels of capital per worker are lower in developing countries. However, this is far from reality and we observe rather a lack of capital flows from rich to poor countries. Therefore, this observation has become commonly known as the **Lucas Paradox**⁷. Theoretical explanations of Lucas Paradox often include cross-country differences, in fundamentals affecting productivity, and capital market imperfections (Alfaro et al, 2008). Yet several studies suggest that institutional underdevelopment can explain a significant part of Lucas Paradox (Papaioannou, 2009). The study conducted by Alfaro et al (2008) showed that during 1970–2000, low institutional quality was the leading explanation why FDI flows remained concentrated in developed nations. Papaioannou (2009) presents us with a corresponding view when he makes a case for institutional underdevelopment (political risk) to be the key explanatory factor of the lack of foreign financing in the developing and underdeveloped world.

Dunning (2006) incorporates the role of institutions in affecting competitiveness of firms and the development strategies of countries in what he calls **New Paradigm of Development** (NPD). NPD reflects on changes of heart in development studies since 1970s and mid-1990s specifically. Furthermore, Dunning (2006) examines the implications of the NPD and he introduces the concept of institutional assets into the eclectic, or OLI, paradigm of international production. His thoughts are captured in Table A.4. We perceive this inclusion of political and institutional stability as an important move that will result in more studies that will model not only general economic phenomena of FDI inflows, but also institutional quality as one of the core FDI determinants.

⁷ See also Razin and Sadka (2007, pp.61-62)

Speaking about institutional variables, we differentiate between formal and informal institutions. **Formal institutions** include judicial, economic rules and contracts that are created through official channels and communicated and enforced through state agencies; whereas **informal institutions** are socially shared values, usually unwritten, that are created, communicated and enforced outside officially sanctioned channels (Helmke and Levitsky, 2006; cited in Seyoum, 2011, p.918). The literature on institutions can be divided into three main categories. First, there are studies focused on the phenomenon of institutional change; then the variations in institutional quality between countries are investigated as well as the factors responsible for these differences as Seyoum (2011) suggests. Thirdly, the relationship between institutional quality and economic performance is addressed (Seyoum, 2011). Our study comes under the third category as we examine the relationship between quality of institutions and FDI inflow. The empirical part that follows evaluates the role of institutions in decision making of investors across European countries.

3 Empirical Part

The purpose of the empirical part is to establish what role both institutions and traditional economic factors play in determining FDI inflow. In the light of growing interest in assessing the relationship between FDI and institutions, there are cogent arguments to believe that a sound institutional environment should attract more FDI. Institutions affect economic activities as they have an impact on transaction costs and production costs. However, the impact of institutions on foreign direct investors goes beyond these aspects, because the investors are often exposed to direct and indirect hazard⁸. Given the importance of well-functioning institutions, it is no wonder that the focus of foreign direct investors has shifted from traditional locational advantages to so called creative location advantages that incorporate knowledge-based assets and institutions (Ali, Fiess and MacDonald, 2010). We examine the extent of economic and noneconomic factors on levels of FDI inflows across 33 European countries using panel data from 1995 to 2010. Since our dataset contains the break period data ranging from 2008 to 2010, we need to account for structural break in our analysis, as well.

This part is structured as follows: First, literature review will present us with previous works that have spotted and homed in the role of economic and noneconomic factors in determining FDI inflows. Consecutively, data set and variables used in the regression will be described as well as panel data estimation techniques. Last but not least the results will be commented and conclusions will be drawn from them.

3.1 *Literature Review*

As FDI flows have grown significantly since the 1990s and emerging market economies have become increasingly interested in attracting a greater share of FDI, the literature on FDI has also evolved largely, placing more emphasis on the notion of political risk. Our study is a follow up on especially four previous research studies that have examined risk associated with governance and socio-political institutions. First and

⁸ Direct hazard describe Ali, Fiess and MacDonald (2010) as opportunistic behaviour of country's government, e.g. appropriation of some of the returns to FDI or even nationalisation of them. The same authors portray indirect hazard in terms of the relation between local government and local competitors. As local competitors have better access to the political process, they may persuade government to favour them over foreign investors.

foremost, a recent study by Benáček et al (2012) empirically tests the extent to which actual and perceived risk factors associated with investments influence decisions to undertake FDI across 32 European countries in the period from 1995 to 2008. The study uses panel regression techniques in two specifications to reflect the 2-stage decision making of investors; i.e. first decide the location of an investment and then the amount. Hypotheses are tested on a group as a whole and also on 3 subgroups of countries that are clustered based on the EU membership history to account for different levels of economic development within the group. Their results showed that decision patterns to make an investment vary among the groups and are dependent on institutional and economic maturity. Nevertheless, political risk, monetary discipline, low regulation, effective government and good education variables are highly significant in most of the country groupings and have positive effect on FDI inflow (Benáček et al, 2012). Benáček et al (2012) emphasise the importance of institutions, social governance and political risk as indisputable factors in FDI determination and suggest that models that omit this FDI aspect would be subject to higher estimation bias and would fail to recognise the plentiful policy dependence of FDI inflows.

The linkages among political risk, institutions and FDI are explored in a paper by Busse and Hefeker (2007), as well. They focus on identifying those aspects of political risk that matter most for MNCs. The cross-country analysis of 83 developing countries over 20 years (1984-2003) reveals that only 3 indicators for political risk and institutions (government stability, religious tensions and democratic accountability) are closely associated with FDI (Busse and Hefeker, 2007). However, when they use the Arellano-Bond GMM dynamic estimator, government stability, internal and external conflicts, law and order, ethnic tensions, bureaucratic quality, and to a lesser extent corruption and democratic accountability are important FDI inflow determinants.

The impact of institutions on FDI inflow in the whole economy as well as at the sector level was subject to analysis by Ali, Fiess and MacDonald (2010). According to their study across 69 developing countries, institutions are robust predictor of FDI and the most significant institutional aspects are linked to property rights which they approximate using a combination of 2 components of International Country Risk Guide (ICRG), thus Investment Profile index and Law and Order index. They propose that if property rights security is controlled for, other institutional variables, that do not fully

capture the status of property rights protection, lose their significance (Ali, Fiess and MacDonald, 2010). They also find a significant impact of institutions in all sectors, i.e. primary, manufacturing and services.

A paper by Tun, Azman-Saini and Law (2012) employs generalized method-of-moment panel estimator to address some of the weaknesses encountered in the previous literature (Ali, Fiess and MacDonald, 2010; Busse and Hefeker, 2007) on FDI-institution link. Data from 77 countries over the period of 1981-2005 are used to study the indirect effects that institution may bring via FDI inflows. The tested hypothesis is that countries with better institutional quality should be able to attract more investment because well-functioning institutions improve productivity prospect, reduce the cost of doing business and uncertainty. The results of Tun, Azman-Saini and Law (2012) study underline that institutional quality improvements are critical pre-conditions to attract FDI inflows. Furthermore, the study showed that human capital and trade openness are other important determinants while market size and infrastructure quality proved not to be significant FDI determinants.

3.2 Dataset and Model Description

This study aims to explain the impact of institutional related variables on the extent of FDI inflows across European economies. It uses dataset for 33 European countries that spans from 1995 to 2010 which suggests 528 observations⁹. The full list of countries employed in this study is given in the Table 2 below.

Table 2: List of Countries used in this study

Albania	Estonia	Italy	Republic of Moldova
Austria	Finland	Latvia	Romania
Belarus	France	Lithuania	Slovakia
Bulgaria	Germany	Malta	Slovenia
Croatia	Greece	Netherlands	Spain
Cyprus	Hungary	Norway	Sweden
Czech Republic	Iceland	Poland	Switzerland
Denmark	Ireland	Portugal	Ukraine
			UK

⁹ Some institutional variable values were missing for a few countries in years 1995-98. Since the time series proved to be very stable over time, we added these observations and used 1999 values.

The main purpose of this study is to complement previous studies that have covered this topic, but did not account for the years of financial crisis. The cross section of countries embraces all European geographic regions and all levels of economic and institutional development, ranging from countries with well-established institutions to ones where there is a need for an improvement in this respect. When the membership in the European Union is concerned, there are old EU member states as well as newly accessed and candidate countries.

We have collected data that reflect both macroeconomic environment as well as institutional situation. The dependent variable is in our case FDI inflow as a percentage of GDP. FDI is scaled by GDP to account for the size of the economy and to remove the effect of differences in the country size. The data on FDI were taken from UNCTAD database while the other economic variables come from World Bank and Euromonitor databases. The data that take into account political risk and institutional framework are obtained from the Researcher's Dataset on International Country Risk Guide (ICRG) provided by The Political Risk Services (PRS) Group. The traditional macroeconomic variables that we use to determine FDI inflows are as follows:

- **GDP annual growth rate**

This is a proxy for market growth and potential. High growth rates may signal high investment returns and consequently further (foreign) investment may emerge (Busse and Hefeker, 2007). This may be well explicated by Linder hypothesis. According to the Linder hypothesis for FDI, firms are likely to serve destinations that have a similar demand composition to their home market via FDI. If demand composition comports with the level and distribution of income (Engel's law), then FDI flows may be especially intense among countries that are at a similar stage of development (Fajgelbaum, Grossman, and Helpman, 2013, p.2). So, we assume a positive effect on FDI inflows. However, we need to be careful in our analysis since high growth rates might be caused by FDI and this would suggest endogeneity problem (Carkovic and Levine, 2005; cited in Busse and Hefeker, 2007).

- **Population size**

We use the logarithm of population size to measure the market size. Again, we expect a positive effect of market size on FDI inflow, because larger market provides higher demand for products.

- **Trade openness**

Trade openness is employed here to quantify trade restrictions. This variable is a ratio of the sum of exports and imports to GDP. As it is suggested by Asiedu (2002), the impact is dependent on the type of FDI. Horizontal (or market-seeking) FDI may be positively influenced by higher trade restrictions, i.e. lower ratio of trade openness. The underlying reason is that investors are attracted by tariff jumping opportunity. This is the case when foreign investors desire to serve local markets, but the local markets are protected by high tariffs or it may be otherwise difficult to import there. On the contrary, vertical (or efficiency-seeking) FDI are attracted rather by open economies as the investors engage in export-orientated activities and higher trade barriers would cause increased transaction costs associated with exporting (Asiedu, 2002). We assume that there are rather efficiency-seeking motives for investors in Europe and thus the relation should be positive.

- **Telecommunication Infrastructure**

Good infrastructure improves the ease of doing business in a country and increases the productivity of investments, so we assume that there is a positive relationship between the number of telephone lines per a thousand inhabitants and FDI inflows. An ideal proxy variable of infrastructure development should capture both the availability and reliability of infrastructure. Obviously, it is of little use to investors if infrastructure is not reliable. However, there is no such measure of infrastructure reliability (e.g. a number of times phone lines are down); so we use the number of telephones per 1,000 inhabitants as a proxy to measure the impact of infrastructure development, even though it is not perfect.

- **Labour Cost**

To reflect the cost of labour, we use the logarithmic form of labour costs in manufacturing per hour in US dollars. These data are from Euromonitor database, in current prices and use year-on-year exchange rates. As suggested earlier, we assume that there are rather efficiency-seeking motives among investors; this implies an inverse relationship between the level of FDI and cost of labour. This view is corresponding to David Ricardo's theory of comparative advantage that is based on the labour theory of value. If the Ricardian theory is redefined in terms of opportunity costs, then a country has a comparative advantage in production of goods and services if it can produce them at a lower opportunity cost than in other countries.

The variables that account for political risk and institutional quality are taken from ICRG dataset. The Political Risk Rating includes 12 political risk components that cover both political and social attributes. For the purpose of easier interpretation, we rescale these variables so that they all range from 0 to 12, with higher numbers indicating better institutional development and less risk. Moreover, we use a dummy variable EU to identify if a country is a member of the European Union (EU) and we consider quality of education, as well. All 12 PRS indicators are closely related by various degrees since they assess political risk and institutions from different points of view (Busse and Hefeker, 2007). The institutional variables are summarized in Table 3. We expect that there is a positive effect of all institutional variables on FDI inflow.

Table 3: List of Noneconomic Variables

Name	Variable	Description	Source
<i>Econ</i>	External Conflict	Risk to the incumbent government from foreign action; 3 subcomponents: war, cross-border conflict and foreign pressures.	The PRS Group
<i>Icon</i>	Internal Conflict	Political violence assessment and its impact on governance; 3 subcomponents: civil war/coup threat, terrorism/political violence and civil disorder.	The PRS Group
<i>Corr</i>	Corruption	An assessment of corruption in the political system; more concerned with insidious sorts of corruption, e.g. nepotism, secret party funding, or 'favour-for-favour'.	The PRS Group
<i>BurQual</i>	Bureaucracy Quality	A measure of quality of bureaucracy and institutional strength.	The PRS Group
<i>Gov</i>	Government Stability	It identifies the government's ability to carry out its declared programme(s) and its ability to stay in office.	The PRS Group
<i>Dem</i>	Democratic Accountability	Government responsiveness to its people.	The PRS Group
<i>Mil</i>	Military in Politics	Military involvement in politics.	The PRS Group
<i>Soc</i>	Socio-economic conditions	Socio-economic pressures at work in society; sum of 3 subcomponents: unemployment, consumer confidence and poverty.	The PRS Group
<i>Eth</i>	Ethnic tensions	Degree of tension associated with racial, nationality or language division within a given country.	The PRS Group

<i>Rel</i>	Religious tensions	The desire of a single religious group to dominate governance	The PRS Group
<i>Invest</i>	Investment Profile	It is a sum of 3 subcomponents: Contract Viability/Expropriation Profits Repatriation, Payment Delays	The PRS Group
<i>Law</i>	Law and Order	It is used to quantify the strength and impartiality of legal system and popular observance of law.	The PRS Group
<i>EU</i>	EU membership	Dummy variable. 1 if a country is a member state, 0 otherwise.	
<i>Educ</i>	Education Index	Expected and mean years of schooling.	Human Development Report Office Calculations

We use the following model to investigate the impact of institutions on FDI inflow:

$$FDI_{it} = \alpha + \beta \cdot ECONV'_{it} + \delta \cdot INST'_{it} + \varepsilon_{it} \quad \begin{array}{l} i = 1, \dots, N \\ t = 1, \dots, T \end{array} \quad (3.1)$$

where i is used to denote the 33 European countries and time is denoted by t . FDI is our dependent variable expressed as a percentage share of FDI net inflows to GDP; α is a scalar; β is $K \times 1$ and $ECONV_{it}$ is the it th observation on K economic variables described earlier in the text; δ is $L \times 1$ and $INST_{it}$ is the it th observation on L institutional variables; we utilize a one-way error component model for the disturbances with

$$\varepsilon_{it} = a_i + v_{it}$$

where a_i is unobservable, country-specific effect, and v_{it} denotes the remainder disturbance.

3.3 Estimation method

Throughout the empirical part we will utilise data analysis and statistical software Stata. Our data is strongly balanced with 528 observations.

3.3.1 Panel Unit Root Tests

As we want to avoid spurious regression, we conduct **unit root tests** in our panel dataset first. Macroeconomic variables are often subject to unit root tests, so we test stationarity of these variables. In general, we consider an autoregressive model

$$y_{it} = a_{it} + \rho_i \cdot y_{it-1} + \varepsilon_{it} \quad (3.2)$$

where $i = 1, \dots, N$ is an index for the panels (in our case 33 countries), $t = 1, \dots, T$ is a time index, a_{it} represents the deterministic part of the model and ε_{it} is a zero mean error term. The null hypothesis that tests for the presence of unit root is generally in the following form:

$$H_0: \rho = 1 \quad \text{Non-stationary, unit root process}$$

Against the alternative

$$H_A: \rho < 1 \quad \text{Variable follows a trend stationary process}$$

In case the unit root is absent, the series fluctuates around a constant long-run mean and this implies that the series has a finite variance which does not depend on time (Glynn, Perera and Verma, 2007). We use Levin-Lin-Chu (LLC) unit root test and Im-Pesaran-Shin (IPS) unit root test with time trend to find out if our panel data contain unit root. The LLC test assumes that all panels have the same autoregressive parameter. Hence, we test

$$H_0: \rho_i = 1 \text{ for all } i \text{ against } H_A: \rho_i < 1$$

The LLC test requires that the panels are strongly balanced which our data fulfil. To account for the major limitation of the LLC, i.e. the assumption that all panels have the same value of ρ , we run the IPS test. It relaxes the assumption of a common rho and instead allows each panel to have its own ρ_i (Stata, 2010). The null hypothesis is that all panels have a unit root while the alternative hypothesis is that the fraction of panels that are stationary is nonzero. This allows some (but not all) of the panels to possess unit roots under the alternative hypothesis (Stata, 2010). The results for both tests are shown in Table 4.

Table 4: Panel Unit Root Test

Variable	FDI	GDPg	Trade	ILab
LLC	[-4.6898] (0.0000)	[-5.8994] (0.0000)	[-5.7079] (0.0000)	[-9.0030] (0.0000)

We report adjusted t^* in square brackets and p-value in round brackets

IPS	[-2.7442]	[-2.9537]	[-2.2760]	[-1.8654]
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We report t-bar statistic in square brackets and 1% critical value for fixed $N=16$ with trend is -2.460

Source: Author's estimation

The tests have confirmed that unit root is not present in all tested variables. The results of IPS test run on the labour cost variable suggest that there might be a unit root. However, as $N \rightarrow \infty$, the p-value (0.0066) suggests the absence of unit root.

3.3.2 Pooled OLS

We use in the first place pooled OLS model to get familiar with the nature of our data. Pooled OLS is a simple and quick method, but has several drawbacks. It does not take advantage of cross section and time series nature of our data as the individual countries are simply pooled with no provision for individual country or time differences (Adkins and Hill, 2011). Moreover, we need to assume¹⁰ that the variance of the error term is constant (homoscedasticity) and the composite error ε_{it} is uncorrelated with $ECONV'_{it}$ and $INST'_{it}$. If the explanatory variables and the unobserved effect a_i are correlated, then the pooled OLS estimator is biased and inconsistent. In case that the explanatory variables in all time periods and a_i are uncorrelated, we still need to have in mind that the pooled OLS test statistics and standard errors are generally invalid. The error terms for each individual country may show an inter-correlation within the cluster of observations specific to the individual country (Adkins and Hill, 2011, p.445). To relax the usual assumption of zero error correlation over time, we write for the same individual country that $cov(\varepsilon_{it}, \varepsilon_{is}) = \psi_{it}$. This alternative assumption also relaxes the assumption of homoscedasticity (Adkins and Hill, 2011), because when $t = s$ $cov(\varepsilon_{it}, \varepsilon_{it}) = var(\varepsilon_{it}, \varepsilon_{it}) = \psi_{it}$. This means that the error variance can be different in different time periods, but it is constant over individual countries. Under these assumptions the least square estimator is unbiased and consistent, but the usual least square estimator variance formulas no longer hold (Adkins and Hill, 2011, p.445). Therefore, we need to calculate clustered robust standard errors.

The estimated model is following:

¹⁰ See the full list of assumptions in Wooldridge (2009).

$$\begin{aligned}
FDI_{it} = & \alpha + \beta_1 \cdot GDPg_{it} + \beta_2 \cdot lPop_{it} + \beta_3 \cdot Trade_{it} + \beta_4 \cdot Tel_{it} + \beta_5 \cdot lLab_{it} + \delta_1 \\
& \cdot ECon_{it} + \delta_2 \cdot ICon_{it} + \delta_3 \cdot Corr_{it} + \delta_4 \cdot BurQual_{it} + \delta_5 \cdot Gov_{it} + \delta_6 \\
& \cdot Dem_{it} + \delta_7 \cdot Mil_{it} + \delta_8 \cdot Soc_{it} + \delta_9 \cdot Eth_{it} + \delta_{10} \cdot Rel_{it} + \delta_{11} \\
& \cdot Law_{it} + \delta_{12} \cdot Inv_{it} + \delta_{13} \cdot EU_{it} + \delta_{14} \cdot Educ_{it} + \varepsilon_{it}
\end{aligned}$$

$$i = 1, \dots, 33 \quad t = 1995, \dots, 2010 \text{ and } \varepsilon_{it} = a_i + v_{it} \quad (3.3)$$

Table A.5 shows a comparison between pooled OLS estimates with no correction and clustered robust standard errors (SE), respectively. Compared to the incorrect SE in the second column, the clustered robust SE in the third column are slightly larger. We also include estimates of a regression that takes into consideration only traditional economic variables in the first column.

Now, to see if the assumption of no perfect collinearity holds, we generate a pairwise correlation matrix and calculate a variance inflation factor (VIF). Multicollinearity describes a situation when the explanatory variables are linearly dependent and/or perfectly correlated. The closer to one the value of pairwise correlation is, the more likely it is that multicollinearity is present. The highest value obtained from the correlation matrix is between *lLab* and *BurQual* (0.8223) and *lLab* and *Soc* (0.8146). The values of VIF in Table A.6 show that *lLab* is the variable with the greatest value of a VIF equal to 8.22. This means that the standard errors are larger by a factor of 8.22 than they would be otherwise if there were no inter-correlations between the predictor of interest and the remaining predictor variables included in the multiple regression analysis (How2stats, 2013). If there was no correlation at all, then all VIFs would be equal to one, which is the lower bound of a VIF. There is no upper bound, so there are various recommendations as to the acceptable level of a VIF. The most common one is either the value of 5 or 10. Fattah (2013) suggests that if there are two or more variables that have a VIF around or greater than 5, one of these variables must be removed from the regression model. To do this, we remove *lLab* ($VIF = 8.22$) and *BurQual* ($VIF = 5.75$) individually, and select the regression equation that explains more variance (higher R^2). In our case we drop the variable *BurQual*. The new estimates and VIFs are presented in Tables A.5 and A.6.

3.3.3 Fixed Effects Model

The nature of panel data suggests that we cannot assume that our observations are independently distributed across time (Wooldridge, 2009). For this reason, we will apply fixed (FE) and random (RE) effects panel data estimation techniques where, by selecting the estimation segments (and the structure of dummies in the FE estimation) by countries, the time series of the data are dominant in determining the coefficients. The fixed effects model allows for differences in the intercept parameter for each individual (Adkins and Hill, 2011). The model looks as follows:

$$\begin{aligned}
 FDI_{it} = & \alpha_i + \beta_1 \cdot GDPg_{it} + \beta_2 \cdot lPop_{it} + \beta_3 \cdot Trade_{it} + \beta_4 \cdot Tel_{it} + \beta_5 \cdot lLab_{it} + \delta_1 \\
 & \cdot Econ_{it} + \delta_2 \cdot ICon_{it} + \delta_3 \cdot Corr_{it} + \delta_4 \cdot Gov_{it} + \delta_5 \cdot Dem_{it} + \delta_6 \\
 & \cdot Mil_{it} + \delta_7 \cdot Soc_{it} + \delta_8 \cdot Eth_{it} + \delta_9 \cdot Rel_{it} + \delta_{10} \cdot Law_{it} + \delta_{11} \\
 & \cdot Inv_{it} + \delta_{12} \cdot Educ_{it} + v_{it}
 \end{aligned}$$

$$i = 1, \dots, 33 \quad t = 1995, \dots, 2010 \quad (3.4)$$

In this model the intercept includes subscript i , which means that it is country specific and time invariant. Therefore, we introduce one intercept parameter for each country and create 33 new indicator variables such as

$$D_{1i} = \begin{cases} 1 & i = 1 \\ 0 & otherwise \end{cases} \quad D_{2i} = \begin{cases} 1 & i = 2 \\ 0 & otherwise \end{cases} \quad D_{3i} = \begin{cases} 1 & i = 3 \\ 0 & otherwise \end{cases}$$

These indicator variables can be added to the regression model as additional variables and the model is then called the least squares dummy variable model. Since our $N = 33$ is rather large, it is more convenient to use a transformation that removes the unobserved effect α_i . By subtracting the averages (bar notation) from the actual values, we get the equation that can be estimated by OLS.

$$\begin{aligned}
 y_{it} - \bar{y}_i = & \beta_1 \cdot (x_{1it} - \bar{x}_{1i}) + \dots + \beta_5 \cdot (x_{5it} - \bar{x}_{5i}) + \dots + \delta_{12} \cdot (x_{12it} - \bar{x}_{12i}) \\
 & + (v_{it} - \bar{v}_i)
 \end{aligned}$$

$$i = 1, \dots, N \quad t = 1, \dots, T \quad (3.5)$$

The FE model does not work for constant variables as they are removed together with the unobserved effect during the transformation. Hence, we do not include EU variable in the regression since it is for some countries constant over time.

3.3.4 Random Effects Model

If we think that a_i is uncorrelated with x_i , it is better to use the random effects estimator (Wooldridge, 2009), because elimination of a_i in the FE model results then in inefficient estimators. The assumptions¹¹ for RE are the same as the ones for FE with an additional assumption, that the unobserved effect a_i is uncorrelated with each explanatory variable, i.e. $cov(X_{it}, a_i) = 0$. This suggests that there are specific factors for each individual (country or year) that affect FDI inflow, but are not related to independent variables. The model's parameters are estimated by feasible generalised least squares. The following transformed equation is to be estimated:

$$y_{it} - \lambda \bar{y}_i = \alpha(1 - \lambda) + \beta_1 \cdot (x_{1it} - \lambda \bar{x}_{1i}) + \dots + \beta_5 \cdot (x_{5it} - \lambda \bar{x}_{5i}) + \dots + \delta_{12} \cdot (x_{12it} - \lambda \bar{x}_{12i}) + (\varepsilon_{it} - \lambda \bar{\varepsilon}_i)$$

$$i = 1, \dots, N \quad t = 1, \dots, T \quad \varepsilon_{it} = a_i + v_{it} \quad (3.6)$$

$$\lambda = 1 - \left[\frac{\sigma_v^2}{\sigma_v^2 + T\sigma_a^2} \right]^{\frac{1}{2}} \quad \text{where } \sigma_a^2 = Var(a_i) \quad \text{and } \sigma_v^2 = Var(v_{it})$$

The averages are denoted with a bar and the equation itself contains quasi-demeaned data on each variable, where only a λ -fraction of the mean is subtracted. How big the fraction is, depends on σ_a^2 , σ_v^2 and the number of time periods T . The parameter λ is never known in practice, but it may always be estimated (Wooldridge, 2009). Provided that the RE assumptions hold, the estimator is consistent, but it is not unbiased.

3.3.5 The Breusch-Pagan Test for RE presence

Now, it is important to determine which method provides us with a more efficient and consistent estimator. To do this, we test for the presence of RE using Lagrange Multiplier test developed by Breusch and Pagan. This test is used to compare RE and pooled OLS model with the null hypothesis that variance across countries is zero, or in other words that there are no random effects (Sedik, 2012). Significant p-value (0.0159) less than 0.05 enables us to reject the null hypothesis and therefore conclude that random effects are present.

¹¹ See the full list in Wooldridge (2009).

3.3.6 Hausman Specification Test

When we compare the FE and RE estimates, we basically test for the correlation between the a_i and the regressors x_{it} , assuming that the idiosyncratic errors and explanatory variables are uncorrelated across all time periods (Wooldridge, 2009). This test is known as Hausman test and its underlying idea is that under the null hypothesis both estimators are consistent (but only RE is asymptotically more efficient) while under the alternative hypothesis only FE is still consistent. The chi-square statistic comparing all 17 coefficients (equation 3.4) with p-value 0.1588 leads us to a conclusion that we fail to reject the null hypothesis. This means that the RE estimator is preferred to the FE one, because it is more efficient.

3.3.7 Structural Break

To tackle the structural break that occurs in our model, we may use either the Chow test or use a dummy variable method. The period of financial crisis occurs in our data set (years 2008-2010) and we need to account for it and test stability of our results. The Chow test uses F-statistic to compare restricted and unrestricted models. Its main limitation is that the break point needs to be established and thus known. We may assume that it is the year 2008. However, there are quite a few lagged effects and we prefer to use a crisis dummy variable instead. We include in our RE model (all explanatory variables apart from the *BurQual* variable) a dummy variable equal to one for years 2008-2010, setting years 1995-2007 as a base.

In the panel data context, it is necessary to decide how to build the link for structural changes across different series (Liao, 2008). A new econometric approach to structural break offers Liao (2008) who releases the assumption that different series change their structure at exactly the same time, i.e. the conventional common-break assumption. This new approach for estimating and making inference about structural changes in panel data models, that is based on a Bayesian method (Liao, 2008), belongs to an advanced technique. Therefore, we will stay only with the results from a dummy variable analysis and leave the advanced structural break analysis as a subject to further research.

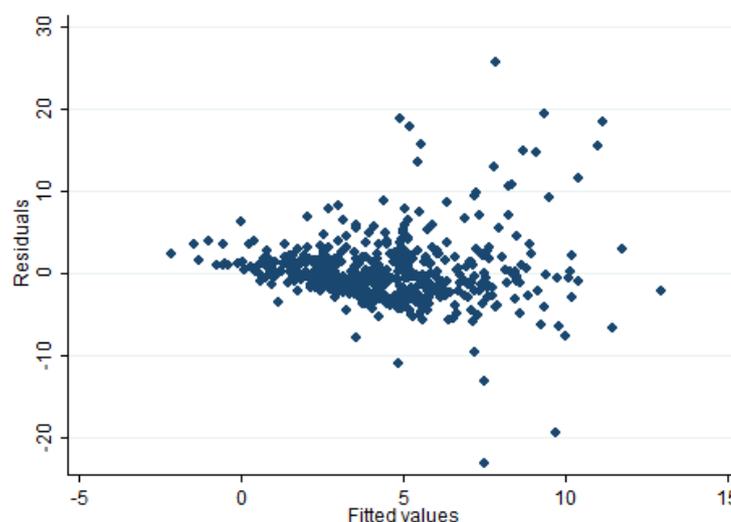
3.4 Research Results

This section will present results of the empirical part. We will focus mainly on the sign and significance of our estimates. Prior to the discussion of the results we will check whether the assumptions for our model hold.

3.4.1 Assumptions

It is essential to examine the assumptions in order to see if our estimates are reliable and conclusive. First of all, we check for linearity in parameters. This assumption means, that the mutual relationship between FDI, our dependent variable, and all independent variables should be linear. Figure A.4 shows the relationship between FDI and GDP growth variable. The two lines that represent a linear and a quadratic prediction coincide, which suggests that the linearity assumption holds. The same approach would be taken to other twosomes. Next, we assume we have a random sample, and that multicollinearity is not present. Earlier in the part 3.3.2 we utilised a pairwise correlation matrix and VIF to detect multicollinearity. As a precaution we omitted *BurQual* variable from our model, so we may conclude that multicollinearity does not pose a problem.

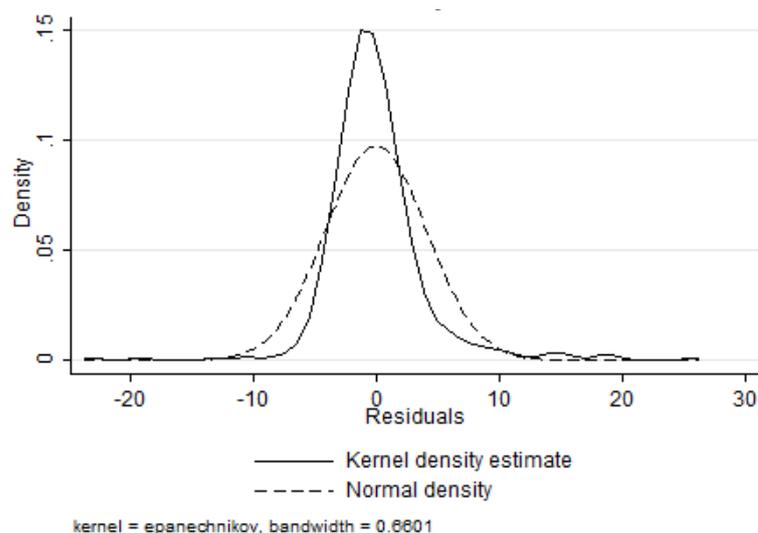
In the next step, we want to detect if some observations have a larger variance than others, i.e. if heteroscedasticity is present. There are a number of graphical and statistical ways to detect heteroscedasticity. Figure 1 depicts a residual versus fitted values plot. Since the function *rvfplot* is restricted to use only after *regress* or *anova*, we estimate our RE model in Table 5 using pooled OLS and make inference based on that. Judging from the Figure 1, there is a slight tendency to heteroscedastic behavior, because the residual variance is not constant. There are several tests with the null hypothesis of homoscedasticity that have been proposed. Adkins and Hill (2011) suggest that two of them are particularly simple to do and useful – the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity, and White test. Both tests are based on Lagrange multipliers and their results suggest heteroscedasticity. The Breusch-Pagan test leads us to the rejection of the null hypothesis of homoscedasticity (p-value of 0.0000), and the same is truth for the White test (p-value 0.0047).

Figure 1: Residuals vs. Fitted Values Plot

Source: Author's estimation

The best way to correct for the bias in standard errors is to use heteroscedastic consistent SEs. These robust SEs are obtained from the heteroscedasticity consistent covariance matrix estimator (HCCME) that was proposed by Huber and rediscovered by White (Adkins and Lee, 2011). The HCCME SEs are referred to as White's or Huber/White standard errors. These SEs are comparable with the clustered robust standard errors in Table A.5 that we used in part 3.3.2.

The next assumption that is to be verified is the one of no serial correlation. The Wooldridge test for autocorrelation in panel data makes us reject the null hypothesis of no first-order correlation (p-value 0.0078). This means that our estimates are less efficient, yet they remain consistent. The RE estimator is not unbiased unless we know λ . To test normality we may use either graphical or numerical methods. Thus, we may draw a stem-and-leaf plot, scatterplot, box-plot, histogram, probability-probability (P-P) plot, or quantile-quantile (Q-Q) plot. Alternatively, we may compute the Shapiro-Wilk, Shapiro-Francia, or Skewness/Kurtosis tests. Thanks to using the Kernel density plot (see Figure 2) and Shapiro-Wilk W test for normal data (p-value 0.00000) we may conclude that the residuals are not normally distributed. As mentioned earlier, this means that our estimates are less efficient.

Figure 2: Kernel Density Estimate

Source: Author's estimation

3.4.2 Results Interpretation

In this section we present our results that are summarized in Table 5. Based on the Hausman specification test, we use the RE estimator that is consistent and asymptotically more efficient than the FE one. Due to the presence of heteroscedasticity, our estimates include heteroscedasticity robust standard errors, often referred to as White's or Huber/White SEs. The between R^2 of 62.95% is fairly good and our results seem convincing. Therefore, our inference based on these results should be valid.

GDP growth: As far as the traditional economic variables are concerned, GDP growth, trade openness and telecommunication infrastructure have a positive significant relationship to FDI inflow. This is in accord with our prediction that the effect of market growth, low trade restrictions and good infrastructure should be positive. High growth rates attract further (foreign) investment, and this may be well explained by important but often underestimated Linder theory. So far, works related to the Linder hypothesis have focused solely on explaining trade patterns. Yet global design of FDI and international capital flows may be better understood thanks to the key forces in this approach. Based on our results, a growth of GDP by one percentage point causes FDI scaled by GDP to grow by 0.15 percentage points.

Table 5: Results - Random Effects Model

Number of obs.	= 528	R-squared:	
Number of groups	= 33	Within	= 0.1088
Obs. per Group	= 16	between	= 0.6295
Wald chi2(19)	= 594.37	overall	= 0.2321
Prob > chi2	= 0.0000		

<i>FDI</i>	Coefficient	SE	p-value
<i>GDPg</i>	.1547021	.0456582	0.001***
<i>IPop</i>	-.1824466	.247628	0.461
<i>Trade</i>	.0465575	.0122229	0.000***
<i>Tel</i>	.0067156	.0034547	0.052*
<i>ILab</i>	-1.075678	.5810424	0.064*
<i>Econ</i>	-.065119	.364007	0.858
<i>Icon</i>	.11118	.2767979	0.688
<i>Corr</i>	-.2146515	.1371887	0.118
<i>Gov</i>	-.117986	.1606095	0.463
<i>Dem</i>	.5213158	.1528433	0.001***
<i>Mil</i>	-.0059523	.2621162	0.982
<i>Soc</i>	.5683278	.214893	0.008***
<i>Eth</i>	-.018901	.157651	0.905
<i>Rel</i>	.0574083	.1627137	0.724
<i>Invest</i>	-.0514613	.2129741	0.809
<i>Law</i>	-.1485113	.2891056	0.607
<i>EU</i>	.0051729	.0052348	0.323
<i>Educ</i>	-.0641354	.0446572	0.151
<i>Crisis</i>	-.4281177	.5010824	0.393
<i>Intercept</i>	.9175671	5.656353	0.871

***, **, * imply significance at 1, 5 and 10% level, respectively.

Source: Author's estimation

Trade ratio variable: This is a measure of openness, and implies that greater liberalisation of trade sector is an important factor in determining FDI inflows. The degree of trade openness indicates the degree of dependence of host country on effects of comparative advantage and thus the dependence on specialisation. It is also likely to have an impact on flows of international capital in terms of risk-return relationship. In other words, the risk-return relationship indicates that long-term investment commitment is less attractive in countries where tariff and non-tariff barriers on investments are imposed and where problems arise in repatriating profits. This view is based on the transaction cost theory that presumes that a low transaction cost environment generates financial incentives (higher return on investment) for both domestic and foreign players in supplying large irreversible investment like FDI

(Adhikary, 2011). As Edwards (1992; cited in Adhikary, 2011) proposed, the higher the degree of trade openness, the faster the country can grow thanks to absorbing new technologies at a faster rate than a country with a lower degree of openness. Hence, investors seek markets with greater degree of competition where effectiveness is enhanced by imports. Our results show that when the trade ratio increases by one, then the level of FDI/GDP is increased by 0.047 percentage points. The positive impact of trade openness and a negative sign of labour costs suggest rather efficiency-seeking motives among investors. The inverse relationship of labour costs and FDI inflow may be explicated by similar level of efficiency across European countries. Hence, workers that maintain the wage-productivity relation the lowest induce inward FDI.

Infrastructure: Approximated here by the number of telephone lines per a thousand inhabitants, positively affects FDI inflow as it is easier to run business in an environment with a sound infrastructure network. The *Tel* variable represents the availability to introduce and work with modern electronic technologies, which is also an aspect of the human capital. Yet this proxy variable does not say anything about reliability of these technologies. We may summarize that an increase of one telephone line per a thousand inhabitants positively influences FDI inflow by 0.0067 percentage points and investors are attracted to places with developed infrastructure.

Population: The coefficient on population is surprisingly negative, but it is statistically insignificant at conventional levels. It means that market size does not really matter for attracting FDI in Europe.

Institutions: Even though we expected positive signs of all institutional variables, there are a few institutional variables with a negative relation to FDI inflow. However, these are not statistically significant at any conventional levels. As our results outline, very important FDI predictors are socioeconomic conditions (*Soc* variable) and democratic accountability (*Dem* variable). The *Soc* variable assesses socioeconomic pressures at work in society that could potentially constrain government action or fuel social dissatisfaction. The risk rating is a sum of three subcomponents (poverty, unemployment and consumer confidence), and countries that score high are translated as very low risk. Therefore, an increase in the rating by one point should cause FDI to grow by 0.57 percentage points. A very similar effect suggests an increase in the

democratic accountability index where an increase by one point results in a 0.52 percentage point growth of FDI/GDP. The *Dem* variable measures government responsiveness to its people and highest points signal less risk that is associated with alternating democracy type of governance. A very common view that EU membership attracts inward FDI was not confirmed by our data. We found a positive relationship, but it is not significant. Surprisingly, the education quality index proved not to be a significant FDI predictor and the corruption index either. Overall, we have pointed out that even though some of the institutional variables are significant, they remain rather additional in explaining FDI flows; whereas the traditional economic variables are clearly significant.

Last but not least, the crisis year dummy variable captures the period-specific effect. As one would presume, the effect of crisis on FDI flows is negative. Nonetheless, this variable is not statistically significant either. It goes without saying that the global economy has changed. In 2007, the amount of money firms invested abroad totalled 2 trillion USD (The Economist, 2013), and FDI into Europe lead the world. Yet the world financial crisis dramatically reduced investments. As the global economy was on the mend and slowly recovered, investments improved too, but not in the same way, with profound differences (The Economist, 2013). Inward investments in Latin America and Asia grew fast and soon exceeded their pre-crisis height. On the contrary, investments into Europe and North America remain stunted, even though they mostly expanded. Uncertainty over the Euro and Europe's economies decimated inward investment last year (The Economist, 2013). Despite these uncertainties, we believe that investors are being wooed back thanks to strong fundamental strengths – stability, skills, structure and shoppers – Europe possesses.

Conclusion

The purpose of this thesis was to study FDI and determinants that affect where FDI is located. FDI distribution across countries is definitely not uniform or linearly correlated to the number of inhabitants or the GDP. Some countries are preferred by investors and receive systematically more FDI than others. Our focus was on FDI inflows directed to European countries and we studied the FDI phenomena both from theoretical and practical view. The first part introduced key issues related to the topic, such as components and forms of FDI, the time path of FDI into a host country, and FDI theories. The effects of FDI were described from home (source) and host (receiving) country perspective and we included a discussion of spillover effects, as well. In the section devoted to measurement issues, we classified three methods of collecting FDI (BOP, administrative and survey approach). We recognised that the main data limitations stem from revisions' timing, adjustments, SPE treatment, omissions, and negative and missing data. Several ways how to address these problems were suggested.

The second part discussed the L-advantages of the OLI paradigm and reviewed those criteria that are considered for country screening, and that influence FDI inflow. Some determinants may change over time as domestic and international economic environment evolves. This is reflected in the direction of research on FDI determinants, as well. The research is increasingly pointing out significance of institutional- and governance-related variables. Institutional underdevelopment can also explain a significant part of Lucas Paradox, i.e. the observation that capital does not primarily flow from rich to poor countries as one would in theory expect.

Based on the theoretical background provided in the first two parts, we defined and estimated the model of FDI determinants. We modified the model suggested by Benáček et al (2012) and used a novel dataset. The theoretical assumptions of our model were thoroughly tested and we used the RE estimator based on the Hausman specification test. The empirical part revealed that even though some of the institutional variables are significant, they remain rather additional in explaining FDI flows; whereas the traditional economic variables are clearly significant. Our results were intuitively consistent with theoretical expectations. The effect of market growth, low trade

restrictions and good infrastructure proved to be positive and significant; hence, our results suggest that investors seek markets with growth prospects, greater degree of competition and developed infrastructure. Furthermore, investors search for markets with lower labour costs, so countries with lower wage-productivity relation enhance their competitiveness. Surprisingly, market size and EU membership are not important FDI predictors. As our results outline, very important FDI predictors are socioeconomic conditions and democratic accountability. As for the crisis year dummy, its effect is negative yet not significant. On the whole, we believe that Europe will weather the economic uncertainties and investors will be wooed back also thanks to strong institutional fundamentals Europe possesses.

Own contribution of the author to economic research can be found in parts related to treating zero/missing FDI data, assessing the impact of institutions, and the use of independent variables in our study. Further, we provided a comprehensive overview of the topic and used relevant economic theory to explain rationales for FDI inflow. Contrary to the study by Benáček et al (2012), we did not employ two specifications of panel data to reflect the 2-stage decision making of investors, and we estimated the model as a panel. This study could be possibly extended by cluster analysis, and constructing and estimating the model for defined clusters as Benáček et al (2012) did. Our model does not consider the effect of the lagged value of FDI either. It may be expected that past FDI may cause further FDI inflow. Hence, next research should incorporate this and use a number of instrument variables to get reliable estimates. Next, Granger causality test could also extend the scope of this thesis as well as advanced techniques that release the conventional common-break assumption to tackle the structural break.

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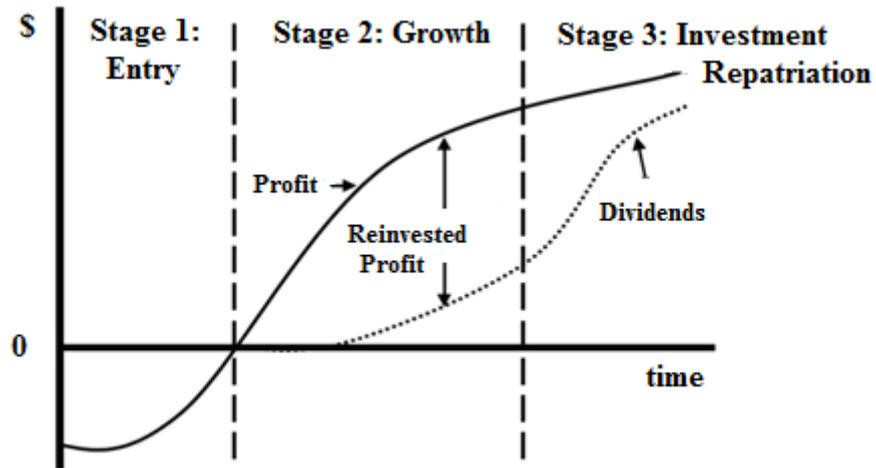
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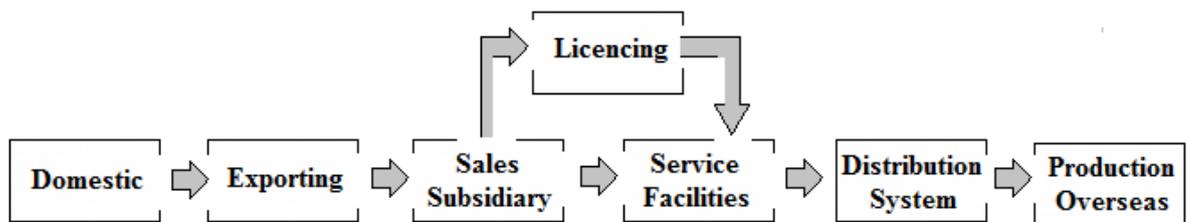
Appendix

Figure A.1: FDI Financial Life Cycle



Source: Adapted from Brada and Tomšik (2003)

Figure A.2: Typical Foreign Expansion Sequence



Source: Adapted from Buckley (2012)

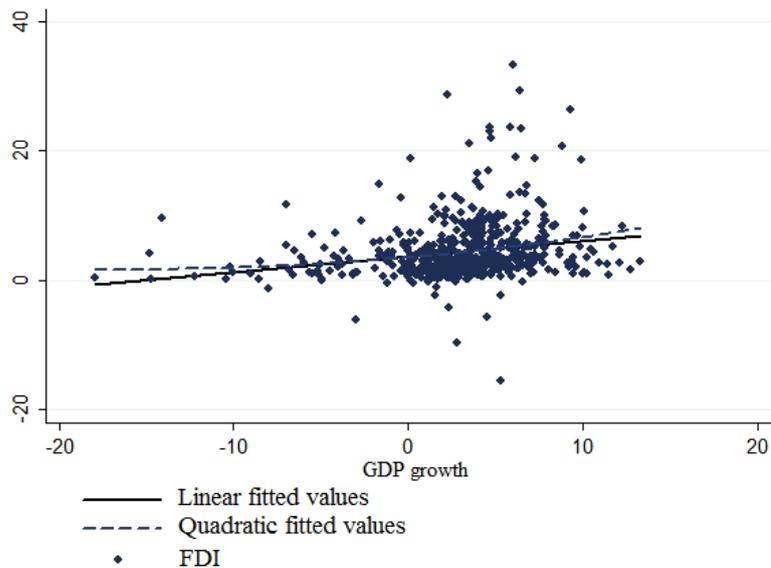
Figure A.3: Risk in International Business



Sources of Country Risk	
Political System	Legal System
<ul style="list-style-type: none"> • Government • Political parties • Legislative bodies • Lobbying groups • Trade unions • Other political institutions 	<p>Laws, regulations, and rules that aim to:</p> <ul style="list-style-type: none"> • Ensure order in commercial activities • Resolve disputes • Protect intellectual property • Tax economic output

Source: Adapted from Cavusgil, Knight and Riesenberger (2008)

Figure A.4: Linearity in Parameters



Source: Author's estimation

Table A.1: FDI stock in financial holding companies, 2009 (%)

Economy	Share in total	
	Inward	Outward
Cyprus	33	31
Denmark	22	18
France	9	6
Luxembourg	93	90
Netherlands	79	75
Argentina	2	-
Hong Kong, China	66	73
Singapore	34	-

Source: WIR (2012)

Table A.2: The Eclectic Paradigm of International Production

The OLI Framework	
1.	Ownership-specific advantages of an enterprise of one nationality over another <ul style="list-style-type: none"> • Capital • Technology • Management & organisation • Marketing • Synergistic economies
2.	Internalisation incentive advantages (i.e. to exploit or circumvent market failure) <ul style="list-style-type: none"> • To reduce transaction costs • To avoid or exploit Government intervention (quotas, price controls, tax differentials etc.) • To achieve synergistic economies • To control supplies of inputs • To control market outlets
3.	Location specific variables <ul style="list-style-type: none"> • Political stability • Government policies • Investment incentives and disincentives • Infrastructure • Institutional framework (commercial, legal, bureaucratic) • Cheap and skilled labour • Market size and growth • Macroeconomic conditions • Natural resources

Source: Adapted from Dunning (1993) and Mooya (2003)

Table A.3: Host Country Determinants of FDI

Host Country Determinants	Type of FDI by Motives of Multinational Enterprises	Investing Firm Perspective
<p>I. Policy framework for FDI</p> <ul style="list-style-type: none"> • Economic, political and social stability • Rules regarding entry and operations • Standards of treatment of foreign affiliates • Policies on functioning and structure of markets (especially competition and M&A policies) • International agreements on FDI • Privatization policy • Trade policy (tariffs and NTBs) and coherence of FDI and trade policies • Tax policy • Industrial/Regional policies 	Market-Seeking (Horizontal)	<ul style="list-style-type: none"> • Market size and per capita income • Market growth • Access to regional and global markets • Country-specific consumer preferences • Structure of markets • Opportunities for branding • Competences of local suppliers
<p>II. Economic determinants ←</p>	Resource-Seeking	<ul style="list-style-type: none"> • Land and building costs rents and rates • Cost of raw materials, components, parts • Low-cost unskilled labour • Availability and cost of skilled labour
<p>III. Business institutional facilitation</p> <ul style="list-style-type: none"> • Investment incentives and promotion schemes • High quality institutions (e.g. innovation systems, property right protection) • Social amenities (bilingual schools, quality of life, etc.) • Pre- and post-investment services • Good infrastructure and support services, e.g. banking, legal accountancy services • Social capital; economic morality • Region-based clusters & network promotion 	Efficiency-Seeking (Vertical)	<ul style="list-style-type: none"> • Cost of resources (see above) and other input costs, e.g. transport and communication • Membership of a regional integration agreement conducive to promoting a more cost-effective inter-country division of labour
	Asset-Seeking	<ul style="list-style-type: none"> • Technological, innovatory and other created assets • Physical infrastructure (ports, roads, power, telecommunications) • Macro-innovatory, entrepreneurial & educational capacity/environment • Clustering, networking, learning opportunities

Source: Adapted from UNCTAD (1998) and Dunning (2008b)

Table A.4: Incorporating Institutional Assets into the Eclectic (OLI) Paradigm

	O Corporate governance	L Social Capital	I Organizational/relational
INSTITUTIONS			
FORMAL	External legislation/regulations Discipline of economic markets Corporate goals, internal command systems and incentive structures	Laws/regulations Discipline of political markets Rules-based incentives/standards Cross-border investment agreements	Contracts (e.g. inter-firm) Contracts (e.g. intra-firm)
INFORMAL	Codes/norms/conventions Country/corporate cultures Moral ecology/mindsets Pressures from competitors and special interest groups	Inherited social customs, traditions Foreign organizations as institution reshapers Motivating institutions, competitiveness Attitudes toward change and uncertainty	Covenants, codes, trust-based relations Institution-building through networks/clusters of firms Institutional/cultural distance
ENFORCEMENT/EMPOWERMENT MECHANISMS			
FORMAL	Sanctions/penalties (both external & internal to firms) Stakeholder action (consumers, investors, labour unions, civil society)	Sanctions, penalties, policies Quality of public organizations Collective learning (in shaping and implementing institutions)	Penalties for breaking contracts Strikes, lock-outs, high labour turnover Education/training
INFORMAL	Moral suasion Loss, or gain, of status/recognition Retaliatory options Build up/decline of relational assets (e.g. trust, reciprocity, etc.)	Belief systems Tradition (e.g. pride/shame) Demonstrations, active participation in policy making organizations Societal guidance/ moral suasion Social safety nets	No repeat transactions Guilt, shame External economies arising from networks/alliances, e.g. learning benefits
INSTITUTIONAL DYSFUNCTION			
	Dishonest accounting practices, fraud and other corporate malfeasance Lack of transparency Inadequate institutional framework	Crime, corruption, flaws in justice system Inability to cope with technological or institutional change	Lack of good intra or inter-corporate relations. Failure of alliances, codes, lack of transparency/honesty etc.

Source: Adapted from Dunning (2006)

Table A.5: Pooled OLS

Name	Pooled OLS Only Econ. Variables	Pooled OLS No correction	Pooled OLS Clustered robust SE	Pooled OLS After VIF
<i>Intercept</i>	4.119439 [2.99613] (0.170)	1.256224 [4.939092] (0.799)	1.256224 [5.160537] (0.809)	1.630493 [5.073409] (0.750)
<i>GDPg</i>	.1686371*** [.0489438] (0.001)	0.1793235*** [0.0493053] (0.000)	0.1793235*** [.0457426] (0.000)	.1743134*** [.0436464] (0.000)
<i>IPop</i>	-.350297** [.1579847] (0.027)	-.1858679 [.1823775] (0.309)	-.1858679 [.2454247] (0.454)	-.1700128 [.2417655] (0.487)
<i>Trade</i>	.0412913*** [.0064652] (0.000)	.0442519*** [.0077872] (0.000)	.0442519*** [.009658] (0.000)	.0439765*** [.0098979] (0.000)
<i>Tel</i>	.005115** [.0021062] (0.015)	.0082313*** [.0023313] (0.000)	.0082313** [.003145] (0.013)	.0080784** [.0031874] (0.016)
<i>ILab</i>	-.4158489 [.2746548] (0.131)	-1.38011*** [.4402552] (0.002)	-1.38011** [.5257928] (0.013)	-1.483556*** [.5065839] (0.006)
<i>ECon</i>		-.1165099 [.2263293] (0.607)	-.1165099 [.3434471] (0.737)	-.1137356 [.3402661] (0.740)
<i>Icon</i>		.1253527 [.2258741] (0.579)	.1253527 [.2841888] (0.662)	.1173395 [.2841298] (0.682)
<i>Corr</i>		-.080911 [.1259026] (0.521)	-.080911 [.1227234] (0.514)	-.1105918 [.1057384] (0.303)
<i>BurQual</i>		-.1313753 [.1500259] (0.382)	-.1313753 [.1449026] (0.371)	
<i>Gov</i>		-.2155451 [.1642973] (0.190)	-.2155451 [.1633167] (0.196)	-.221755 [.1655587] (0.190)
<i>Dem</i>		.6001446*** [.142296] (0.000)	.6001446*** [.1463392] (0.000)	.5714493*** [.1532604] (0.001)
<i>Mil</i>		-.1145431 [.2424425] (0.637)	-.1145431 [.2512813] (0.652)	-.1465863 [.2532387] (0.567)
<i>Soc</i>		.4889052*** [.1742548] (0.005)	.4889052** [.2071824] (0.025)	.4777086** [.2026029] (0.025)
<i>Eth</i>		.0110374 [.1092161] (0.920)	.0110374 [.1471566] (0.941)	.0160629 [.1478405] (0.914)
<i>Rel</i>		-.0472301 [.1708188] (0.782)	-.0472301 [.1734475] (0.787)	-.0597224 [.1649727] (0.720)
<i>Invest</i>		.0452553	.0452553	.0255721

		[.1427922] (0.751)	[.2179332] (0.837)	[.2057304] (0.902)
<i>Law</i>		-.0346541 [.1729593] (0.841)	-.0346541 [.2769491] (0.901)	-.0705352 [.2655379] (0.792)
<i>EU</i>		.0033187 [.0095565] (0.729)	.0033187 [.0052911] (0.535)	.0037551 [.0050594] (0.463)
<i>Educ</i>		-.0542557 [.0366681] (0.140)	-.0542557 [.0416422] (0.202)	-.0522842 [.0414192] (0.216)
R^2	0.1728	0.2373	0.2374	0.2363
<i>Adj-R²</i>	0.1648	0.2089		

In squared brackets are SEs

In parentheses are p-values; ***, **, * imply significance at 1, 5 and 10% level, respectively.

Source: Author's estimations

Table A.6: Variance Inflation Factor

<i>Variable</i>	<i>VIF</i>	<i>VIF new</i>
<i>lLab</i>	8.22	7.63
<i>BurQual</i>	5.75	-
<i>Soc</i>	4.48	4.46
<i>Tel</i>	3.85	3.83
<i>Mil</i>	3.29	3.22
<i>Corr</i>	3.21	2.98
<i>Law</i>	3.08	2.91
<i>Inv</i>	2.98	2.91
<i>Educ</i>	2.19	2.19
<i>Trade</i>	2.11	2.11
<i>Dem</i>	2.11	2.00
<i>Icon</i>	1.98	1.97
<i>lPop</i>	1.87	1.85
<i>Econ</i>	1.75	1.75
<i>Eth</i>	1.60	1.60
<i>Gov</i>	1.47	1.46
<i>Rel</i>	1.45	1.44
<i>EU</i>	1.19	1.19
<i>GDPg</i>	1.15	1.13
Mean VIF	2.83	2.59

Source: Author's estimations