Determinants of Foreign Direct Investments (FDIs) in Central and Eastern European Countries (CEECs) and Turkey

Burçak Polat

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Prof. Dr. Serhan Çiftçioğlu
Acting Director

I certify that this thesis satisfies the requirements as a thesis for the degree of Doctor of Philosophy in Economics.

Prof. Dr. Mehmet Balcılar
Chair, Department of Economics

We certify that we have read this thesis and that in our opinion it is fully adequate in scope and quality as a thesis for the degree of Doctor of Philosophy in Economics.

Assoc. Prof. Dr. Cem Eşref Payaslıoğlu
Supervisor

Examining Committee

1. Prof. Dr. Ali Hakan Büyüklü
2. Prof. Dr. Nuri Yıldırım
3. Assoc. Prof. Dr. Cem Eşref Payaslıoğlu
4. Assoc. Prof. Dr. Vedat Yorucu
5. Asst. Prof. Dr. Kemal Bağzıbağı

ABSTRACT

Foreign Direct Investment (FDI) is the major driver for the globalization of the international economy and a stimulus and essential for the national economic growth of the countries. In this sense, international trade and FDI flows stand out as the fastest growing economic activities in the global environment over the last two decades.

As isolated transition countries, Central and Eastern European Countries (CEECs) and Turkey have lagged behind their Western European counterparts. Hence, the process of integration into the European Union (EU) and liberalization of their trade and payment regimes since the 1990s have been paramount economic objectives for these countries. Accordingly, the perception of FDI changed to become an essential engine for the process of economic, political, and social transformation and integration into the EU. Despite the acceleration of FDI policies aimed at converting Turkey and the CEE region into an ideal destination for future investments, the distribution of FDI across countries is still uneven and disparate in terms of both level and growth. Thus, main objective of this thesis is to provide a detailed examination of the FDIs with respect to their determinants into the Turkey and CEECs.

In conclusion, we have proved that FDI inflows into Turkey are responsive to the sector specific variables such as turnover indices and energy prices whereas they are unresponsive to the exchange rate level and its volatility. Furthermore, we have confirmed for the first time that the main determinants of FDI components such as;

equity capital, reinvested earnings and company loans into the CEECs and Turkey vary with respect to each component's unique requirements.

As a result, policy recommendations of this study to the FDI policy makers are to treat the total FDI as multidimensional rather than monolithic and to adjust the policy variables properly based on the desired volume of each component inflow.

Keywords: Foreign Direct Investment, Exchange rate volatility, Manufacturing sector, Equity capital, Reinvested earnings, Intra-company loans.

ÖZ

Doğrudan Yabancı Yatırımlar (DYY), dünya ekonomilerin küreselleşmesinde en önemli belirleyici olmakla beraber, milli ekonomik büyümede de gerekli olup teşvik edici bir nitelik taşır. Dolayısıyla, uluslararası ticaret ve DYY'ler son 20 yılın en hızlı büyüyen küresel ekonomik aktivitesi olarak göze çarpmaktadır.

Ekonomik kalkınmada Batı Avrupa ülkelerinin çok gerisinde kalan, Doğu Avrupa Ülkeleri (DAÜ) ve Türkiye'nin en önemli ekonomik hedefleri arasında Avrupa Birliğine (AB) üyelik ve uluslararası ticaret ve ödeme sistemlerinin liberalleştirilmesi gelmektedir. Dolayısıyla, bu ülkeler 1990' lardan berri DYY'leri, AB'ne üyelik sürecinde en önemli araçlardan biri olarak görmeye başlamıştır. DAÜ ve Türkiye'yi ideal bir yatırım yeri olarak göstermek için uygulanan yeni DYY politikalarına rağmen bu ülkelerde DYY'lerin hem düzey hem de büyüme olarak bakıldığında adaletsiz ve dağınık olduğu görülmektedir. Bu tezin amacı, DAÜ ve Türkiye'ye gelen DYY'ların ana belirleyicilerini detaylı bir şekilde incelemek ve gelecekteki DYY politikalarına ışık tutmaktır.

Sonuç olarak, Türkiye'ye gelen DYY'lerin sektörel belirleyicilere ve enerji fiyatlarına duyarlıyken, döviz kuru ve kur oynaklığına duyarsız olduğu saptanmıştır. Bununla beraber, bu tezde, DAÜ ve Türkiye'ye gelen DYY'ların bileşenlerinin (öz sermaye, yabancı şirket kazançları ve şirketler arası borçlar) belirleyicilerinin her bir bileşenin kendi gereksinimlerine göre farklılıklar gösterdiği saptanmıştır.

Sonuç olarak, bu çalışma, DYY'larla alakalı politika yapıcılara DYY'ların bileşenlerini dikkate alarak, politik değişkenleri istenilen bileşeni çekecek şekilde uyarlamasını tavsiye etmektedir.

Anahtar Kelimeler: Doğrudan Yabancı Yatırımlar, Döviz Kuru Oynaklığı, İmalat Sektörü, Öz Sermaye, Yabancı şirket kazançları, Şirketler arası borçlar.

To My Brother, Mustafa

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey Fuller
AIC	Advisory Investor Council
ARCH	Autoregressive Conditional Heteroscedasticity
ARMA	Auto-Regressive Moving Average
BIT	Bilateral Investment Treaties
CEECs	Central and Eastern European Countries
CCIIC	Coordination Council for Improving the Investment Climate
CGARCH	Component Generalized Autoregressive Conditional Heteroskedasticity
CIS	Commonwealth of Independent States
CR	Country Risk
DYY	Doğrudan Yabancı Yatırımlar
EMBI	Emerging Markets Bond Index
EU	European Union
EÜAŞ	Elektirik Uretim A.Ş. (Turkey Electricity Production Inc.)
FDI	Foreign Direct Investment
FE	Fixed-Effect
FIAS	Foreign Investment Advisory Service
GARCH	Generalized Autoregressive Conditional Heteroscedasticity
GDP	Gross Domestic Product
GMM	Generalized Method of Moment
GNP	Gross National Product
IB	International Business
ICC	The International Chamber of Commerce
IMF	International Monetary Fund
LDC	Least Developed Countries

LM	Lagrange Multiplier
M&As	Mergers and Acquisitions
MNFs	Multi National Firms
MS-DR	Markow Switching Dynamic Regression
MSM	Markow Switching Model
OECD	Organization for Economic Co-operation and Development
PRS	Political Risk Service
RE	Random-Effect
RO	Real Options
SCRM	Supply Chain Risk Management
SEE	State Economic Enterprise
SME	Small and Medium-Sized Enterprises
TNCs	Transitional Corporations
UNCTAD	the United Nations Conference on Trade Development
US	United States
VIX	Volatility Index
XGS	Exports of Goods and Services

Chapter 1

INTRODUCTION

Foreign Direct Investment (FDI) simply means flows of capital between countries that provide control and ownership to foreign entities. It is well accepted that FDI is the major driver for the globalization of the international economy and a stimulus and essential for the national economic growth of host countries. In this sense, international trade and FDI flows stand out as the fastest growing economic activities in the global environment over the last two decades. As stated by Tataoğlu and Erdal (2002, p.21), "flows of FDI are contributing to build strong economic links between industrialized countries and developing countries, and also among developing countries." Although some economists have called attention to the possible costs of FDI inflows to host countries, most literature focuses on debates regarding their probable benefits that may neither occur in all cases nor occur in the same magnitude for both developing and developed economies. These debates generally emphasize the advantages of FDI inflows to developing countries so that they lead to economic development through creating new job opportunities, increasing exports, tax revenues, wages as well as the Gross Domestic Product (GDP) of host countries. Furthermore, many economists judge that technical and managerial skills are scarce resources in developing countries. Thus, FDI leads to break a crucial bottleneck by introducing critical human capital skills in the form of managers and technicians. In addition, new technology invested in the host country can boost the recipient country's production possibilities and may also have a spillover effect in the whole

economy. In short, FDI is regarded as a vital source of capital input in many countries, especially in emerging developing countries with regard to ensured contributions in the economic growth of a country. In this sense, given the economic consequences of FDI, it is not surprising that all countries around the world look for a way to attract it and to introduce new policies that please more investors. However, while some countries have been successful in attracting FDI inflows at a high rate, particularly developed ones, the developing and least developed countries (LDCs) have been suffering a lower number of FDIs for years. Yet, when the global trends are analyzed, it is clear that the volume of FDI flows to developing countries rose remarkably in the 1990s, particularly after 1995. This considerable recovery in FDI inflows into developing countries has been mainly on account of the rapid liberalization of national FDI laws in these countries, as they also understood the necessity of FDI for economic growth. The United Nations Conference on Trade Development (UNCTAD) World Investment Report (1995) remarked that, "of the 140 changes in FDI laws in 1999, 131 liberalized conditions for foreign investors; over the period 1991–1999, 94 percent of the 1,035 policy changes favored investors."

Therefore, the appropriate questions to ask are the followings: What are the major reasons underlying foreign investors seek a country to invest in? And, why do some countries enjoy high levels of FDI while others do not? Foreign investors come into a foreign market with the intention of return. But they are exposed to many types of risks such as financial, political, and economic risks. Most importantly, as long as the investors are optimistic about the investments conditions in a foreign market, they will invest their funds or reinvest their earnings into that market. Therefore,

improving the existing FDI policies or creating new ones that please more investors are the prominent goals of every government. Hence, the main objective of this thesis is to examine the potential determining factors of FDI in Turkey and Central and Eastern European Countries (CEECs).

There are several reasons for analyzing these countries rather than other developing or developed ones. First, Turkey is an unsaturated emerging market with rich natural resources and a low labor cost. In addition, the country is located at a vantage point in the middle of Europe, the Middle East, and Africa and commands attention with its current strong economic growth. The International Chamber of Commerce (ICC) named Turkey as an outstanding developing country with its strong economic structure in today's society. Second, attempts to improve investment climate in Turkey such as legalization of new FDI, Law 4875 along with the start of negotiations with council of the EU as a candidate of member state at the end of 2004 accelerated FDI inflows into Turkey since 2005. Third, as isolated transition countries, CEECs have lagged behind their Western European counterparts. Hence, the process of integration into the European Union (EU) and liberalization of their trade and payment regimes since the 1990s have been paramount economic objectives for these countries. Accordingly, the perception of FDI changed to become an essential engine for the process of economic, political, and social transformation and integration into the EU for both Turkey and CEECs. However, despite the acceleration of FDI policies aimed at converting Turkey and the CEE region into an ideal destination for future investments, the distribution of FDI across countries is still uneven and disparate in terms of both level and growth. Hence, a

detailed examination of the FDIs with respect to their determinants would provide important insights into future policy formation.

1.1 Objective of the Study

The objective of this thesis is to analyze the determining factors of the FDI inflows into Turkey and the CEECs. By doing so, three different articles have been written with a more in-depth emphasis on Turkey.

On the one hand, in the FDI literature, FDI is perceived as a long-term process and should therefore rely more on economic fundamentals, such as growth, institutional quality, skill abundance, and so on. On the other hand, FDI can be quite heterogeneous as well and may vary with the mode of entry into the foreign market. Foreign investors may enter a market with different modes of FDI compatible with their balance of costs and benefits. Two well-known components are cross-border Mergers and Acquisitions (M&As) and Greenfield investment. In cases where the FDI inflow is concentrated over a short period of time (e.g., in the form of M&As such as the purchase of shares of large companies or the acquisition of a newly privatized state company), rather than a Greenfield investment (e.g., building a factory from scratch), FDI in the form of M&As may be more responsive to short-term financial indicators than FDI in the form of a Greenfield investment. An analysis of recent FDI inflows into Turkey reveals that M&A activities have been incrementally increasing and predicted to rise in the coming years. Our main motivation in the first article covered by chapter three is therefore centered on the FDI inflows in the form of cross-border M&As, which are assumed to be characterized by short term intervals (one or two months) and quite sensitive to short-term financial indicators, especially to the those that first come to mind: the

exchange rate level and its volatility. Therefore, the main objective of the chapter three is to examine the impact of the exchange rate level and its volatility on FDI inflows using short-term observations (monthly) to be able to capture the volatility in the real exchange rate.

After a detailed examination of the impact of exchange rate level and its volatility on total FDI inflows in Turkey, at the second stage, study goes one step further. And, FDI inflows in Turkey are investigated with respect to its sectoral determinants. Most of the previous works overwhelmingly focused their attention on the firm-specific and locational factors in determining FDI. However, Dunning's (1998) "ownership–location–internalization" (OLI) paradigm claimed that firm-specific and locational factors vary across industries and sub-sectors as well. Thus, the motivation of the second article covered by chapter four results from Dunning's paradigm and aims to seek the major determinants of the disaggregated FDI inflows into the sub-sectors of manufacturing in Turkey separately to avoid a distorted empirical prediction concerning the total FDI, which is greatly neglected in the FDI literature.

Finally, the thesis concludes with the third article which is covered by chapter five. An analysis of previous FDI works reveals that most of them focused their attention to the explanatory variables rather than questioning the nature of FDI. However, FDI consists of three main components (new equity, reinvested earnings, and intercompany debt flows). On the one hand, each component has its own determining factor, meaning that these components may react differently to the same set of macroeconomic variables and risks in the market; on the other hand, there might be correlation to some degree among each component. The regarding of total FDI and its components as independent of each other is obviously invalidated by the mere fact

that the components sum up to the aggregate. It can be argued that a company decides where to set up an affiliate in the first step (location decision), then it decides how much to invest (investment decision), and finally how to finance investment. It means that the choice of financing structure (the equity-retained earnings-loans mix) is constrained by the amount of investment decided in the second step. According to this view, the various components of FDI inflows are substitutes, e.g. high values of reinvested earnings reduce the need for intercompany loans. On the other hand, the components of FDI inflows can be regarded as complements. The inflow of equity capital may be followed by internal borrowings if a multinational active in many countries uses it subsidiaries to shift profits and exploit interest tax shields. The interdependence of the components of FDI inflows calls for simultaneous estimates of their determinants. Instead of running a separate regression for each FDI component, the system of simultaneous equations should be estimated. The use of instrumental variables is required to obtain consistent estimates. Thus, the main objective of the chapter five is to examine in detail the component structure of the total FDIs with respect to their determinants in the CEECs, including Turkey and some transition countries for the period between 2003 and 2011 within the framework of a simultaneous equation model.

1.2 Research Questions

There are several research questions aimed to be answered in the thesis. We grouped the research questions based on the three articles.

First Article, Ch.3

- Are FDI inflows in the form of M&As responsive to the short-term financial indicators such as the real exchange rate and its volatility in Turkey?

- How does exchange rate uncertainty in the market affect M&As' activities in Turkey?
- Do foreign investors hedge against the exchange rate risk in the market?
- Does global risk appetite have any effect on FDI inflows into Turkey?

Second Article, Ch. 4

- What are the major determinants of the total FDI into the manufacturing sub-sectors of Turkey?
- Does the Country Risk (CR) index of Turkey have any role in determining FDI in the manufacturing sub-sectors?
- Does the CR index of the parent country (U.S.) have any role in determining FDI in the manufacturing sub-sectors?
- Do Turkey's financial, economic, and political risks play any role in determining the total FDI in the manufacturing sub-sectors?
- Do financial risk, economic risk and political risks of the parent country, (U.S.) play any role in determining total FDI into the manufacturing sub-sectors?
- Does the new investment incentive system introduced in 2009 work out for FDI in the manufacturing sub-sectors?
- Do energy prices have any effect on the FDI inflows into the manufacturing sub-sectors of Turkey?

Third Article, Ch.5

- What are the main factors determining the FDI component inflows into the CEECs including Turkey and some transition countries?

- What are the major determinants of each FDI component in these countries?
- Are there any differences among components in terms of reacting to the same set of macroeconomic factors and risks in the market?
- How do the CR of the host country and home country (USA and EU area) affect each component in these countries separately?
- Do each FDI component inflows respond to the same set of explanatory variables in the same magnitude?
- Do FDI component flows in the CEECs and Turkey are substitutes or complements for each other or independent of one another?
- Does global economic crisis have same effect on each FDI component in CEECs and Turkey?

1.3 Approach of the Study

Three different methodologies have been used that are compliant with the objectives of the study and data structure employed.

In chapter three, several steps constituted the methodology; first, the conditional volatility of Real Effective Exchange Rate (REX) was estimated from the generalized autoregressive conditional heteroscedasticity (GARCH 1, 1) specification and then included in the model. Then, all variables were tested for stationarity prior to the estimation. Second, a preliminary graphical analysis of some series revealed some structural breaks. Therefore, we found it convenient to investigate the issue of non-stationarity further within the framework of the unit root without structural break tests, since breaks in the series may distort the results to the extent that they exhibit a false non-stationarity. Finally, the Markov-switching dynamic regression (MS-DR) model was employed to capture the different behaviors

of FDI series (which are volatile for the time period of the study) in different states. The states (regimes) were classified into low-level (contraction) and high-level (expansion) categories.

In chapter four, consistent with the objectives of the study, we employed a balanced panel data model for a pool of 13 manufacturing sub-sectors to find out the main determinants of each manufacturing sub-component. Prior to the estimations, the Lagrange multiplier (LM) test and Hausman (1978) test were carried out to determine the existence of a random effect and to ascertain which model is superior to the other, respectively.

Furthermore, in chapter five, to estimate the impact of the determinants of the components of the total FDI in CEECs and transition countries for 2003–2011, we have employed dynamic panel generalized methods of moments (GMM). The interdependence of the components of FDI inflows calls for the system of simultaneous equations and the use of instrumental variables to obtain consistent estimates.

1.4 Outline of the Study

In the first stage, the study starts with the introduction in Chapter 1, which provides a brief summary about the objectives and approach of the thesis. In the second stage, Chapter 2 includes definitions, historical information about FDI inflows in Turkey and World and policies and laws aimed to improve investment climate in Turkey. In the third stage, Chapter 3 introduces the first article, the analysis of the impact of the short-term financial indicators: the exchange rate and its volatility on FDI inflows into Turkey. At the fourth stage, Chapter 4 describes the second article, the analysis

of the determinants of FDI in the manufacturing sub-sectors of Turkey. Finally, Chapter 5 presents estimations of the third article, the determinants of the FDI components separately into the CEECs including Turkey and some transition countries. Lastly, Chapter 6 concludes the study by summarizing the empirical findings with important insights into future policy formation.

Chapter 2

DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN TURKEY

2.1 Introduction

FDI simply refers to a movement of capital flows from one country to another by ensuring ownership and control to the foreign affiliate. It is well accepted that FDI is the major driver for the international economy's globalization and a stimulus that is essential for national economic growth of host countries. In this sense, international trade and FDI flows stand out as the fastest growing economic activities in the global environment over the last two decades. However, while multinational firms (MNFs) and FDI flows have become more important since the 1990s due to the role of FDI in the globalization of the international economy and national economic growth, Turkey has shown unsatisfactory performance in attracting FDI inflows for years. Erdilek (2005, p.8) noted, "Turkey's inward FDI performance has been disappointing for some time by all measures based on the UNCTAD data." Turkey's stock of FDI was merely 300 million USD in 1971, and it received annual FDI inflows of around 90 million until the 1980s, which turned out to be the lowest among all countries with similar growth rates. However, following the implementation of export-oriented policies in the mid-1980s, the shift from the protectionist trade regime to export-oriented economic liberalization gave some impetus to FDI inflows thereafter. Yet, in the 1990s, even when the global volume of FDI flows surpassed the volume of global trade, FDI inflows into Turkey still did not climb to a satisfactory level and

remained stagnant. The main reasons for this failure were economic and political uncertainties that started in the latter half of the 1980s, which culminated in the 2001 economic crisis. In fact, the period from 1987 to 2002 is seen as a "down the drain" period for the Turkish economy. FDI inflows started to increase gradually at the end of 2001 due to achievements of macroeconomic policies based on the agreements with the International Monetary Fund (IMF) and the World Bank following the 2001 crisis.

However, the real turning point of the FDI inflows is attributable to Law 4875, passed on June 5, 2003, this law replaced the old FDI regime, which was governed by Law 6224, dating back to 1954. In fact, this new FDI law 4875 was revolutionary in reversing the destiny of Turkey's sluggish performance in pulling foreign investors for years with several measures: First, it was generally applicable, therefore not restricted to a particular sector. Second, foreigners were allowed to own any property without any limitations. Third, previous minimum capital and performance limit requirements were abolished. Fourth, non-resident investors' right to appeal for international arbitration was officially recognized. Finally, foreign investors had access to full exchange convertibility in their capital and earnings.

Following the inception of this new law, FDI inflows showed a sharp rise in 2005, attained 20.2 billion USD in 2006 and, with a sustained increase, hit the peak level of 22 billion USD in 2007.[1] However, with the global propagation of the adverse effects of the real estate property market's collapse and the ensuing bankruptcy of many large institutions in the United States, the crisis took its toll on FDI flows worldwide.

[1] New FDI law 4875 has accelerated the privatization period in Turkey since 2005. Thus, growth in the privatization may also account for the higher FDI inflows in Turkey.

Following a parallel trend to the developments outside, FDI flows to Turkey dropped to 19.5 billion USD in 2008 and, with an even bigger fall in 2009, down to about 8.4 billion USD.

As a countermeasure to the aggravating impact of the global crisis, the new investment incentive system was promptly introduced by the Council of Ministers on July 16, 2009, replacing the former investment incentive system dated August 28, 2006. Within the framework of the new investment system, foreign investors were encouraged to invest in Turkey by benefiting from favorable tax and administrative treatment to foreign companies based on regional and sectoral levels. Along with existing measures under the former incentive system, such as customs duty exemptions, value-added tax exemptions, and interest support for loans to foreign investors from banks, other new incentives directed to foreign investors, such as tax reductions, insurance premium support based on employees' minimum wages, and the allocation of investment locations were put into effect by the Turkish government on both the regional and sectoral levels. Consequently, the incentives proved to be effective and FDI inflows started to increase once more in 2010 and then much more in 2011 and 2012.

2.2 The Definition of Foreign Direct Investment

FDI is an investment carried out by a company located in one country, into a company or entity settled in another country. However, it differs substantially from foreign portfolio investment, which also involves capital movement but not ownership or control, and that kind of capital flow is called "financial capital" rather than "real capital" by economists. FDI can be carried out in different ways such as setting up a subsidiary or associate company in the foreign country, acquiring shares

of an overseas company or through a merger or joint venture. Countries differ in terms of their threshold value for ownership of a foreign equity, which can be shown as evidence of FDI relations. However, Organization for Economic Co-operation and Development (OECD) defines the accepted threshold for a FDI relationship as 10%. That means that foreign investors must have at least 10% of the voting stock of the invested company. Thus, FDI provides the investing foreign company a significant degree of influence and control over the invested host company. When a firm owns 10% of a foreign company's equity, the former is called a parent enterprise (investor) and the latter a foreign affiliate. The third edition of the OECD Benchmark also defines FDI, consistent with the IMF Balance of Payments Manual, fifth edition, as follows:

"Foreign direct investment reflects the objective of obtaining a lasting interest by a resident entity in one economy (direct investor) in an entity resident of an economy other than that of investor (direct investment enterprise). The lasting interest implies the existence of a long-term relationship between the direct investor and the enterprise and a significant degree of influence on the management of enterprise. Direct investment involves both the initial transaction between the two entities and all subsequent capital transactions between them and among affiliated enterprises, both incorporated and unincorporated." (1990, p.7)

With regard to the Foreign Direct Investments Report of Republic of Turkey Ministry of Economy, defines FDI, which is also consistent with international standards, as follows:

"The net amount of cross-border transfers by companies based in Turkey which are classified as equity capital or other capital in Central Bank of The Republic of Turkey's balance of payment statistics and transfers for acquisitions of real estate by foreigners." (2011, p. 8)

The components of FDI are equity capital, reinvested earnings, and other capital (intra company loans). Reinvested earnings can be defined as the investors' earnings because of their share in a host company's equity that is not distributed as dividends

by affiliates. Intra company loans involve the affiliates' borrowing from investor companies; this usually occurs without asking for the money to be returned. Theories related to FDI outflows and inflows suggest that FDI can take place for two reasons. First, foreign investors invest in a host country just to utilize the low cost of production, such as low labor wages or low taxes applied in a host country. These kinds of investments are generally export-oriented and called vertical FDI. The other reason for FDI outflows is that foreign investors may want to expand their operations and improve logistics in another country and want to produce just for this local market. This type of FDI is called horizontal FDI; it is market-oriented and replaces the exports to the host country from the home country.

2.3 The Determinants of Foreign Direct Investment

Two economic and political factors are mainly responsible for attracting FDI inflows into host countries. These are economic and political push factors and pull factors. Push factors in general represent the international conjuncture in the world and home country-specific factors that motivate and push a country to invest in other countries. For example, Calvo et al. (1996) categorized the factors that encourage FDI inflows into developing countries in his study as "push" or "pull" factors. There are also similar classifications of incentive factors as those on the demand or supply side in the literature. Moreover, many economists defend the importance of push factors in determining the volume of FDI inflows into host countries, while others defend the significance of pull factors, which represent the host country locational factors or host county specific factors (economic, political or financial factors) that lead investors to shift FDI. As a result of globalization, countries have begun to get closer to each other globally and have lost the independence of deciding on economic policies without consideration of the rest of the world. Thus, flows of foreign capital

become easier from one country to another in the global world. Koyuncu (2010) stated in his study that capital flows became the most important event in the world economy after the 1990s because of the rapid changes in the political environment and improvements in technological developments in international markets. Not only do the changing macroeconomic factors around the world affect FDI outflows, but home country-specific factors also lead to FDI outflows. Since firms exporting in developed countries have the opportunity to obtain information about foreign markets (prospective host countries) with regard to political and economic situations or regulations and policies being implemented, they are encouraged to shift their capital into prospective countries that offer better investment environments.

From a general perspective, as Dunning (1977, 1993) suggested, there are three primary motivations for FDI outflows, which are foreign market-seeking FDI, efficiency (cost reduction)-seeking FDI, and resource-seeking FDI. Based on this framework, researchers have analyzed motivators of FDI outflows in both developed and developing countries. For example, Kayam (2009) investigated the home country factors that encourage FDI outflows for 65 developing and transition countries for the 2000–2006 periods. Finally, she concluded that small market size, trade conditions, costs of production, and local business conditions within the home country are the major push factors that cause FDI outflows. Moreover, Buckley et al. (2007) examined the determinants of Chinese FDI outflows. They found that Chinese FDI outflows are highly correlated with political risks experienced in the country, cultural proximity with the host country, and the host country's natural resources endowments. On the other hand, Tolentino (2008) examined the relationships between home country-specific macroeconomic factors and FDI outflows of China

and India for the period between 1982 and 2006. He had an interesting conclusion, arguing that country-specific factors of China such as the interest rate, openness to international trade, income per capita, human capital, technological capability, exchange rate, and exchange rate volatility do not have a significant effect on FDI outflows in China, while India's technological capability results in FDI outflows in India. In short, push factors related to home country-specific factors are external factors for investors, and they represent the supply side of FDI inflows into host counties. In other words, home country-specific factors are the other side of the coin perceived by MNFs and should also be considered when determining the significant factors affecting FDI inflows and adopting policies to pull them into the host country.

2.3.1 Push Factors

Push factors generally mean the changing economic conditions alongside of home country-specific factors in the outside world such as global economic crisis that causes FDI flows to shift from one country to another. The rapid increase experienced in FDI flows in the 1990s and ensuing years were substantiated by the economic liberalization of developing countries around the world in the early 1990s. Two main types of push factors are debated intensely in the literature: zone trade alliances, and low interest rates and diminished profitability in developed economies.

2.3.1.1 Zone Trade Alliances

Bilateral investment alliances affect FDI flows in two ways. First, they help both countries to overcome or decrease production distortions and expand the market size to improve the investment environments. Second, countries go into bilateral investment alliances in order to overcome the problems faced in the case of protection by tariffs. In other words, countries sign bilateral investment treaties to

overcome the problems faced regarding international trade and investments and to increase their market potential. Turkey has signed Bilateral Investment Treaties (BITs) with 82 countries to improve its investment conditions. The significance of BITs was highlighted in the report of the Under Secretariat of Treasury (2010, p.70) as follows: "The main purpose of Turkey's bilateral investment treaties (BITs) are to increase the bilateral flows of capital and technology, and protect investments of international investors in the framework of the legal system of the host contracting state."

2.3.1.2 Low Interest Rates and Diminished Profitability in Developed Economies

Difference in international markets' interest rates is one of the major reasons FDI flows shift from developed countries to developing countries. Romer (1993) has examined the convergence of countries to the steady-state level of capital, and noted that the rate of return on capital is lower for countries that have more capital per worker. That is to say, as a country develops and reaches a higher steady-state level of capital, interest rates decrease in that developed country, which creates incentives for capital to flow from developed countries to developing countries as in the case of Turkey, Brazil and China). As Calvo et al. (1996) stated in their study examining the inflows of capital for developing countries, lower interest rates experienced in the 1990s in the developed countries like the U.S. have attracted investors to the high-investment yields and improved the economic prospects of Asian and Latin American economies.

2.3.2 Pull Factors

On the other hand, pull factors are formed by the internal dynamics of a host economy in which FDI flows have shifted. One of the most important determinants of FDI inflows into host country is the Gross National Product (GNP) or GDP, which

serves as a proxy for the market size in the host country or home country. In the literature, studies undertaken by Campa (1993), Tokunbo and Lloyd (2009), Dunning (1973), Erdal and Tataoğlu (2002), Dumludağ (2008) and Eşiyok (2011) emphasized the importance of market size for FDI inflows, and these studies suggest a positive relationship between market size and FDI. Incentives for foreign investors to invest abroad may be the inadequate domestic demand in the home country. Thus, it is generally expected that there is a negative relationship between FDI and the market size of the home country, but a positive relationship between the market size of the host country and FDI inflows. Ellahi (2011) has investigated the importance of the market size of the host country in determining the amount of FDI inflows. He stated that "developed countries possess the largest share of FDI as compared to developing due to their extensive markets." On the other hand, if the market size of a home country is larger, then there will be more firms in the home country that are more capable of carrying out their operations abroad. So the market size of the home country is also positively related to the FDI inflows into the host country. As mentioned before, foreign investors also invest abroad in order to produce and supply an unsaturated host market, and thus the market size of the host country can be seen as a new market opportunity for foreign investors.

GDP per capita is also another determinant of FDI. It can be seen as indicator of local consumers' purchasing power. It also measures the productivity of labor. In general, a positive relationship is expected between FDI inflows and GDP per capita, since it encourages FDI inflows into a host country. But GDP per capita is also an indicator of labor cost. A high labor cost discourages FDI inflows. Therefore, the expected effect of GDP per capita on FDI is undetermined.

The cost of borrowing can also play an important role in the amount of FDI inflows into a country. If a foreign entity borrows funds to support its production operations in a host country, the expected relationship between the interest rate and FDI is negative. But if the foreign entity borrows funds in the home country instead of the host country, a lower cost of borrowing in the home country will lead to more FDI inflows into the host country. Tokunbo and Lloyd (2009) showed that the interest rate in the host country is the main determinant of FDI inflows into Nigeria. Another indicator of the amount of FDI inflows is the current account balance of a host country. Deterioration in the current account balance causes a host country's currency to depreciate, leads to movements in the exchange rate, and consequently causes inflation in the economy. It also measures the strength of a host country's currency. Thus, the relationship between current account deficit and FDI inflows is expected to be negative. Several researchers have also pointed out the importance of a host country's openness to FDI. Since FDI is an important part of globalization, it is generally assumed that a country that is more open attracts more FDI inflows due to providing a basis for export-oriented foreign investors in the host country.

Other important determinants of FDI inflows are the institutional factors which are examined by Dumludag (2007). She pointed out in her study that while macroeconomic factors such as market size, growth rate, and GDP per capita are critical determinants for FDI inflows, institutional factors such as a low level of corruption, government stability, political and economic stability, property rights, and efficiency of justice also have a critical impact on FDI inflows to host countries.

Investment incentives given to foreign investors are also economic factors that lead FDI inflows to shift from one country to another. Özağ (1994), and Kar and Tatlısöz

(2007) have argued in their research that investment incentives are one of the most important determinants of FDI inflows into Turkey along with GDP. Despite this, Hazman (2010) proved the existence of no double causality relationship between FDI inflows and investment incentive certificates for the period 1980–2007 by employing the Toda Yamamato Causality Test. She reasoned this was the insufficiency of investment incentives applied to improve the FDI environment Turkey since the 1980s. Moreover, most studies have also emphasized the role of the infrastructure of a host country in determining the amounts of FDI inflow. Erdal and Tataolu (2002), Eşiyok (2011), Berkoz and Turk (2005), Deichmann et al. (2003) have all suggested a positive relationship between a host country's improved infrastructure and FDI inflows.

The labor cost also impacts the volume of FDI inflows to a host country. Many works in the literature concerning the effect of labor cost accounted for higher FDI inflows into the host country. Since the aim of foreign investors is to gain profits in their investments abroad, it is generally assumed that a lower labor cost positively affects the FDI inflows to a host country. For example, Kar and Tatlısoz (2007) argued that a 1% increase in the labor cost causes FDI inflows to decrease by 3.3763%. Furthermore, Kaya and Yılmaz (2003) stated in their study that the labor cost is the main determinant of FDI inflows to Turkey along with GDP per person for the period of 1970–2000. However, there are also conflicting results with regard to the effect of labor costs in the literature. For example, the study carried out by Eşiyok (2011) departs from those undertaken by Halıcıoglu (2001), Kara and Tatlısoz (2008) and Kaya and Yılmaz (2003) such that he argued a positive relationship rather than a negative relationship between FDI and labor cost for FDI inflows for the period of

1982–2007. Eşiyok's (2011) different findings may be the outcome of horizontal FDI preponderated in Turkey. Since the aim of horizontal FDI is not to utilize the lower cost of the host country, the main aim is to supply to the unsaturated market, unlike vertical FDI, which aims to lower the resource cost. Thus the effect of the labor cost on FDI may vary based on the type of FDI inflows into the host country.

Another indicator of the lower cost for foreign investors is corporate taxes. It is well known that foreign companies, particularly those that are large scale, choose to invest in countries that apply lower corporate taxes. Therefore, lower corporate taxes can be seen as an indicator of a higher volume of FDI inflows into a host country.

Another prominent determinant of FDI along with the labor cost can be regarded as human capital, which is the main determinant of the quality and skill of labor in a host country. It is generally expected that there is a positive relationship between FDI inflows and highly educated and skilled labor since it simplifies the production process for foreign investors. For example, Nonnemberg and Mendonça (2004) found that the level of schooling is an important incentive for FDI inflows into the 38 developing countries they examined between 1975 and 2000. However, this relationship may turn out to be negative, as the highly educated labor force demands higher wages, which also means a higher cost for foreign investors. Several empirical studies have also found no relation between FDI inflows and human capital. For example, Karagoz (2007) could not find any causality between FDI inflows to Turkey and human capital for the period of 1970–2005. Therefore, the real effect of human capital of a host country on FDI inflows is complex.

Another important determinant of FDI inflows into a host country is the structural reforms that take place in the country. Karagoz (2007) found that periods in which the government enacts structural reforms are breaking points that may have an expected positive or negative impact on FDI in a host country. When examining the FDI inflows into Turkey over the time, they increased significantly when export-oriented policies took place after 1980; this was felt acutely when structural reform emerged as the Justice and Development (AK) party's effort regarding Law 4875 in 2003 to improve FDI environment in Turkey caused a sharp increase in FDI inflows in Turkey, starting in 2005.

Additionally, the importance of the capital stock of a home country in influencing FDI inflows can be mentioned here. It is generally expected that countries with a strong capital structure provide a basis for investment diversity and so have a greater chance to carry out their investment in foreign markets. Hence, the expected effects of capital stock of a home country on FDI inflows into a host country are positive. Karagoz (2007) also touched on this issue and stated that countries that attract high volumes of FDI inflows are generally those that have a weak capital stock structure.

Most of the works concerning the effect of determinants of FDI also called attention to the effect of net international reserves on FDI inflows into Turkey. International net reserves can be seen as a tool that compensates for the balance of payment deficits and provides stability for a host country's foreign exchange rate. As such, a positive relationship is generally expected between net international reserves and FDI inflows. For example, Kar and Tatlısöz (2007) and Kaya and Yılmaz (2003) found a positive relationship between FDI and international reserves in the host

country such that Kaya and Yılmaz (2003) claimed that a 1% increase in international net reserves causes FDI inflows to increase by about 1.027%.

The effect of the exchange rate and its volatility on FDI inflows is also ambiguous and undetermined. Many studies suggest that the depreciation of host countries' currency encourages the amount of FDI inflows. For example, Froot and Stein (1991), Kaya and Yılmaz (2003), Vergil and Çeştepe (2005), and Kar and Talısöz (2008) have suggested that that exchange rate depreciation increases the competitiveness of host countries in the international market, meanwhile reducing the prices and resource cost in the host market. So, export-oriented foreign investors choose to invest in a country whose domestic currency depreciates against foreign currency. However, some of the studies also defend the positive relationship between them. The rationality behind this view is that FDI can be carried out by a foreign entity with the intention of producing for the local market instead of producing for the international market in the host country. Thus, an appreciation of the host country's currency increases the purchasing power of domestic households, which also leads to higher domestic demand. So, according to advocators of this view, there is a positive relationship between the appreciation of currency and FDI inflows, as shown by Dhakal et al. (2010) and MacDermott (2008). With respect to the effect of exchange rate uncertainty on FDI inflows, there are also conflicting results in the literature. Some researchers have found a positive and others a negative relationship, and still others claim there is no relation at all between these variables.

2.4 Foreign Direct Investment Inflows Worldwide

FDI is perceived as a bridge between both developed and developing countries for the integration and globalization of the international economy. Although FDI

originated in the 19th century, it is accepted that these kinds of investments started to appear after World War II, particularly in the 1950s. While the ratio of world FDI stocks to world GDP was 5% in the 1980s, this ratio increased to 16% in 1999. There were 7000 MNFs for 15 developed countries at the end of 1960s, and this increased to 40,000 at the end of the 1990s. Although FDIs have their source in the globalization of the international market, they are also recognized as a push factor for the globalization of the world economies. For example, the FDI stocks around the world reached 3.5 trillion dollars in 1997 and most importantly, the sales realized by the MNFs that invested in other host countries was 40 times lower than the world exports realized in the same year.

With respect to the UNCTAD world investment report issued in the year of 2000, while FDIs around the world comprised 202 billion dollars, they rose quickly in 1991 and 1992 and reached 1.075 billion dollars in 1999 and a record level 1.271 billion dollars in 2000 before falling 700 billion dollars in 2001 as a consequence of restrictions in cross-border M&As between industrial countries. IMF (2003) stated that worldwide, the value of cross-border M&A declined from a record 1100 billion dollars in 2000 to about 600 billion dollars in 2001. Although FDI realized globally showed an average rise by about a 24% yearly rate between 1986 and 1990, a sharp increase was felt at the end of the 1990s, particularly in the last three years before 2000; this caused world FDI inflows to increase by a 6.3% average yearly rate, which is more than previous years between 1990 and 2000. FDI inflows into developing countries grew at an average yearly rate of 23%, but declined by 13% in 2001 and reached 215 billion dollars. As the FDI movements mostly occurred between developed countries that generally export capital in the 1980s, developing

countries also started to participate in these capital movements in the 1990s. It is generally accepted that the participation of developing countries in capital flows in the 1990s and incremental interest in later years was due to the loan crisis that took place at the end of the 1990s in developing countries and, depending upon this loan crisis, the inability of these countries to manage their liabilities to repay their loans. Thereby, as a result of this crisis, developing countries put into practice different policies that encourage FDI in their countries.

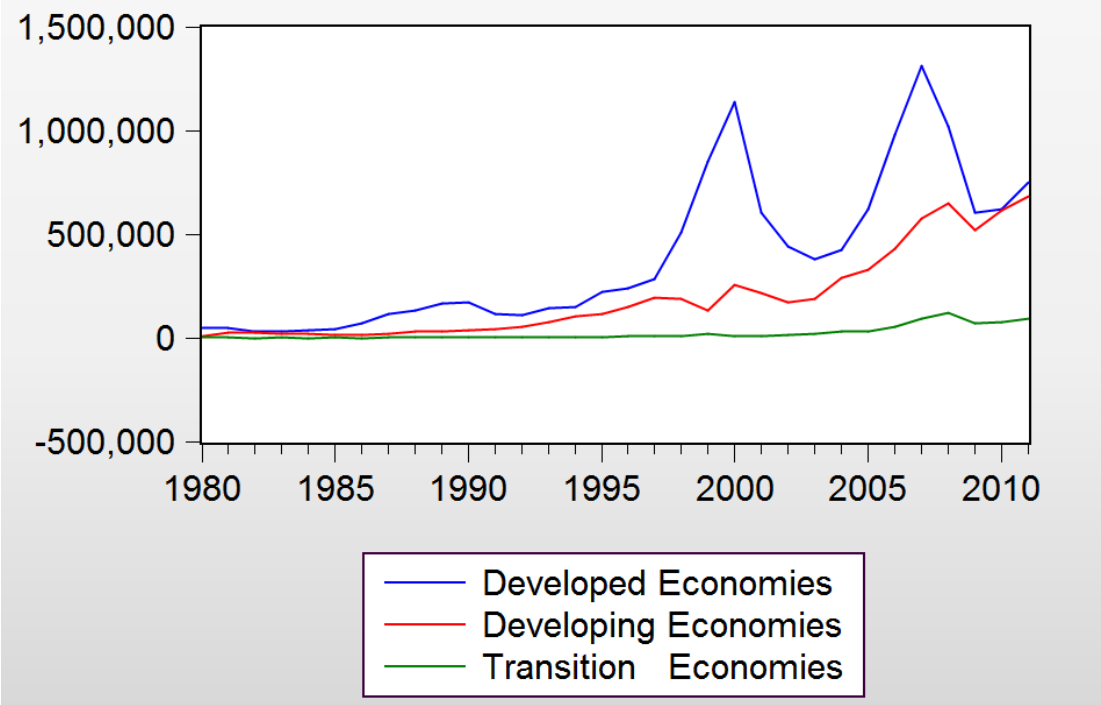

Figure 1. World FDI Inflows between 1980 and 2011.
Source: Derived from the UNCTAD Statistics. (www.unctad.org)

As seen in Figure 1, global FDI inflows around the world started to increase sharply at the end of the 1990s because of higher FDI inflows into developing countries. Developing countries received about 1,115 billion dollars by 1997, 1,238 billion by 1998, and 1,596 billion dollars by 1999. A sharp increase in 1997, 1998 and 1999 caused global FDI inflows to increase gradually until 2000. While developed countries received 81% of global FDI inflows in 1990, they gave their shares rein to

developing countries so that the share of developed countries receiving global FDI decreased until 1994. As developing countries received about 18.4% of FDI inflows, this rose to about 41.1% in 1994, but in later years at the end of the 2000s, it decreased slowly and reached the former rate of 18.9%. The U.S. was the first country receiving most of the global FDI inflows in the 1990s as well in the 1980s. The FDI inflows increased by 48% in 1999 with respect to previous years. Following the U.S., England, Sweden, China, and France have also demonstrated a strong structure to pull most of the FDI inflows worldwide in the same year. On the other hand, Turkey is counted as 54th in pulling capital flows into the country by about 817 billion dollar in 1999.

As the UNCTAD World Investment Report (2005) pointed out, the increases and improvements experienced in the global FDI inflows in the 1990s started to deteriorate at the end of 2000 and significantly decreased by 41% in 2001, 13% in 2002, and 12% in 2003. These significant declines were particularly felt in the EU, where FDI fell by 36% and reached its lowest level since 1996. There was a significant recovery seen in the receivable global FDI in 2004. That year, FDI flows into the U.S. rose for the first time since 2000, to more than three times their 2003 level, (UNCTAD, World Investment Report, 2005). The U.K. was the country that received the second highest FDI inflows in 2004. Developing countries enjoyed a 40% increase in FDI inflows in the same year so that their share in global FDI inflows increased to 36%, which was the highest since 1997. The UNCTAD World Investment Report (2005) stated that

> "Greenfield investments are the main drivers of recovery experienced in 2004, since developing countries and transition economies obtained more Greenfield investments than developed countries and received more FDI through Greenfield projects than through M&As."

There are also other factors such as macro, micro, and institutional factors that led to the recovery of the slowdowns in global FDI flows between 2001 and 2003. For example, world economic growth reached 5.1%, which is the highest growth rate since the mid-1980s. And, as an institutional factor, the liberalization of FDI in real estate also attracted a significant amount of FDI inflow so that FDI in real estate grew rapidly in 2004. A micro factor, the rise in the price of some raw materials such as petroleum and gas, led foreign investors to invest in other countries that have them. In the following years, global FDI inflows rose gradually and accelerated in 2006 for all developing countries, developed countries, and transition economies of South East Europe and the commonwealth of independent states (CIS). The UNCTAD World Investment Report (2007) stated that global FDI inflows grew in 2006 by 1,306 billion dollars, which is the second highest level ever recorded and were 38% higher than in 2005, approaching the peak of 1,411 billion dollars reached in 2000. Global FDI inflows continued to rise and reached a record level at1.833 billion dollars in 2007, which is the higher than first record level reached in 2000.

According to the UNCTAD World Investment Report (2008), the world financial and credit crisis that began in late 2007 did not significantly impact global FDI inflows in 2007, but it created uncertainties and risks for the future global FDI inflows. However, the global economic crisis that began in late 2007 in the U.S. sub-prime mortgage market caused a liquidity crisis in the money and debt market for developed countries and slowed down the M&A business in 2008. FDI inflows into developed countries comprised 1.248 billion dollars, 33% more than 2006. Along with the U.S., which is the largest host country, the U.K., France, and the Netherlands were the most attractive host countries that received the largest portion

of FDI inflows in 2007. Beyond that, FDI inflows into developing countries approached to a new record level of 500 billion dollars and increased by 21% in that year. Least developed countries even received 13 billion dollars of FDI inflows alone and experienced a 4% increase in FDI inflows, which is higher than previous years. But, as a result of the 2007 global economic crisis, the inflows of global FDI deteriorated in 2008 and early 2009 and fell by 14% in 2008 to 1,697 billion dollars and continued to decline in the first half of 2009. However, developing and transition countries' share of FDI inflows increased by 43% in that year, close to the record share received in 1982 and 2004, which also indicates the increasing importance of these countries as host countries in FDI during the global crisis. The diminishing FDI inflows were first seen in developed countries, which experienced a 29% reduction in their flows in 2008. On the other hand, inflows into developing countries and the transition economies of SEE and CIS continued increasing to 17% and 26%, respectively in that year. Nevertheless, these two groups of countries have also been affected by the crisis as a result of the economic downturn in main export markets and experienced a significant decline in their FDI inflows in 2009. The UNCTAD World Investment Report (2009) explained how the economic crisis felt by almost all economies worldwide has had a negative impact on FDI in two ways:

> "Because of the reduced access to finances, it has affected firms' capacity to invest, while their propensity to invest has been affected by gloomy economic and market prospects and heightened risk perceptions."

Overall, FDI inflows hit bottom for all major groups of economies such as developed, developing, and transition economies in 2009. Following their 2008 fall, FDI inflows into developed countries have fell even more sharply in 2009 and reduced by 44%. On the other hand, developing countries that managed to survive in

2008 also had a significant reduction in FDI inflows in 2009. The estimated decline in inflows into developing countries was about 24% in the same year after experiencing six years of continuous growth. However, they still did better than developed countries in that year and the following years. Moreover, the recovery of global FDI inflows for developing countries is expected to be quicker than developed countries due to these economies' growth and reform as well as their openness to global FDI and international production in 2010 and subsequent years. Almost half of global FDI inflows tended to go into developing and transition economies in 2009. According to the UNCTAD Global ranking of the largest FDI recipients, three developing countries and transition economies ranked among the six largest FDI recipients in 2009. Along with China, which is second most favorable destination for FDI inflows, a number of the EU countries appeared in these rankings. In addition, the UNCTAD World Investment Prospects Survey 2010–2012 pointed out that seeing the developed countries as an ideal destinations to invest has decreased over the past few years and is likely to go on to do so in the near future. According to the UNCTAD World Investment Report (2011), global FDI inflows increased modestly in 2010 and reached 1.24 trillion dollars, which is 5% higher than the previous year. This modest improvement in the inflows was the result of the tendency toward foreign investments to be made into the developing countries and for the first time, developing countries captured more than half of the global FDI inflows in that year. FDI inflows into developing countries increased by about 12% and reached 574 billion dollars in 2010. The main aims of transitional corporations (TNCs) investing in developing countries are to lower costs and to remain competitive in the international market. According to the UNCTAD Global ranking of the largest FDI recipients in 2010, half of the 20 largest host countries receiving FDI inflows were

from developing and transition economies, and at the same time, three of the top 5 largest host countries were developing countries. However, patterns of FDI inflows in 2010 were not changed, and with a modest growth in 2010, the uneven distribution of FDI has been still experienced among regions and within regions. Some of the poorest regions still saw a decline in FDI inflows. On the other hand, both developed countries and transition economies could not manage to attract a significant amount of FDI inflows, and inflows into these countries declined that year. Following 2010, global inward FDI stocks continued to rise in 2011 and grew by 3% so that they approached 20.4 trillion dollars. They also showed a 16% increase from the previous year, 2010. Arise in global FDI inflows was common for all major groups of economies, namely developing, developed, and transition economies. FDI inflows into developing countries grew by about 12% and approached a record level of 777 billion dollars; FDI inflows into developing countries reached to a new record level of 684 billion dollars due to TNCs' increased interest in Greenfield projects. FDI inflows into transition economies also continued to grow and were responsible for 6% of global FDI inflows. Again, developing countries absorbed almost half of the global FDI inflows in 2011. The rise in FDI inflows into developing countries was a result of investments in Asia, Latin America, and the Caribbean. Conversely, Africa, which has the greatest number of least developed countries (LDCs) and West Asia continued to have a decline in FDI inflows. Further, FDI inflows into developed countries also grew by 21% and reached 748 billion dollars. However, the growth was a result of cross-border M&As by foreign TNCs instead of Greenfield projects, which are the major mode of entry for FDI inflows into developing countries. Following the global economic crisis, developed countries also initiated industrial and corporate restructuring and created new opportunities for FDI inflows. Overall,

the UNCTAD World Investment Report (2012) estimated that the world FDI flows will rise moderately in 2012, to about 1.6 trillion dollars.

2.5 Turkey's Foreign Direct Investment Performance over Time

International trade and FDI flows stand out as the fastest growing economic activities in the global environment over the last two decades. Goods exports reached 9.1 trillion dollars, while service exports reached 1.5 trillion dollars in 2004 around the world. Global FDI flows were 8.9 trillion in 2004, while they were only 1.77 trillion dollars in 1990. While the importance of multinational firms and FDI flows became more of an issue for two decades, Turkey could not succeed in attracting FDI inflows into the country. Turkey's stock of FDI was just 300 million USD in 1971, and it received annual FDI inflows of 90 million USD until 1980. When compared to Turkey's performance attracting FDI inflows with other comparable countries that have similar GDP growth, it is obvious that Turkey was unsuccessful in receiving FDI inflows. As Erdilek (2005, p.8) stated in his study, "Turkeys' inward FDI performance has been disappointing by all measures based on UNCTAD data." After the implementation of export-oriented policies in the mid-1980s, the Turkish economy shifted from a protectionist trade regime to export-oriented economic liberalization, and then FDI inflows started to increase rapidly in this period. However, in the 1990s, when the global FDI flows exceeded the growth in world trade, FDI inflows did not increase much and remained stagnant in Turkey. The average FDI stock was not more than 1 million dollars between 1990 and 2004. The main reason behind the failure was economic and political uncertainties that started in the latter half of the 1980s and continued until the 2001 economic crises. The years between 1987 and 2002 are particularly seen as a "down the drain" period for the Turkish economy. Most multinational companies did not shift their investments

into Turkey; some even stopped their operations in Turkey between these periods. As a result, Turkey was exposed to low GDP growth and high inflation and experienced the gravest economic crisis. After the 2001 economic crisis, Turkey faced incremental external and public debts. As a country being on the edge of the cliff, politicians accepted the policies that IMF proposed in order to improve the economic conditions in Turkey. Turkey began IMF's supported three-year economic stabilization and structural reform program at the end of 1999. The aim of this program was not to open up FDI inflows into the Turkey. As a consequence of IMF support, for the first time, Turkey made it to the top 25 countries (ranked 23rd between Malaysia and Argentina) in A.T. Kearney's annual FDI Confidence Index (Erdilek, 2005). In November 2000, an agreement signed with IMF and the Government of Turkey but both parties have violated the agreement due to some political controversy in February 2001. In March 2001, however, Turkey continued to get support from IMF and the World Bank for its economy on a knife-edge facing default. Turkey was encouraged to improve its FDI environment by the support of IMF as a part of the stipulation for IMF financial aid. This pressure initially came as a result of the involvement of the Foreign Investment Advisory Service (FIAS), a joint service of the International Finance Corporation and The World Bank, in October 2000 in Turkey as part of the World Bank Group's 2001 and 2003 Country Assistance Strategy for Turkey. The World Bank Group's 2001–2003 Country Assistance Strategy pointed out the importance of FDI repeatedly and highlighted the role of FIAS in upgrading the FDI conditions in Turkey. FIAS 2001b based upon FIAS 2001a investigated the Turkeys' administrative barriers to investment according to different criteria. It was Turkeys' most intensive and comprehensive study of the FDI regime and environment comprised of surveys and interviews. FIAS

2001b (June 2001) coped with a number of issues such as employment of both foreign and domestic labor forces, registration and reporting of companies, intellectual and industrial property rights, taxation, location and operation of foreign investors, and the trade and customs regime in Turkey. Based upon the study of FIAS 2001b, there is a need for an official action plan for broad-based support and monitoring of improvements as the plan is carried out. The two FIAS studies (FIAS 2001b and FIAS 2001a) helped the government to ensure the principle of the recent changes in Turkeys' FDI environment and policies. Just after a congress was held in September 2001 to negotiate FIAS 2001a at the Turkish Treasury, Turkey broadcasted a program to improve the investment environment in Turkey in November 2001. In order to implement the program, government and private sector representatives joined together and formed the Coordination Council for Improving the Investment Climate (CCIIC) to improve investment conditions in Turkey. Turkey has started implementing policies creating a concomitant environment for domestic and foreign investors by CCIIC since 2001. Subsequently, the CCIIC generated the Advisory Investor Council (AIC) composed of presidents of 15 foreign subsidiaries, such as Toyota, Hyundai, Siemens, Daimler-Chrysler, and Citigroup. The AIC planned to hold its first meeting in July 2002, but because the collapse of government coalition; it could not make its first meeting.

In short, Turkey could not take vital action to improve the FDI inflows under the previous Government of Turkey, a coalition of three parties, until November 2002. Tentative decisions made by the previous government were motivated solely by foreign pressures. The government had to respond to these foreign pressures gradually, due to experiencing one economic crisis after another and needing foreign

support to get out of default. Inward FDI was not the goal of the previous government; it was not seen as a way to improve the FDI environment in Turkey. The major goal was just to survive and prevent the country from economic collapse.

Macroeconomic policies such as monetary policy and fiscal policy implemented based on the agreement between Government of Turkey and IMF after the 2001 crisis went into effect, and inflation and real interest rates declined to some degree. Turkey started to have a stable GDP growth trend in that period. Following the 2001 crisis, Turkey had a single-party government (the AK party) that realized the significance of FDI inflows for the national economic growth and as part of international globalization in November 2002. The program of the AK party was in favor of FDI inflows (AK Party, 2003a and AK party, 2003b).

This new government's operational goals were not just to please the IMF and World Bank; they also reformed their operational principles (Under secretariat of Treasury, 2003a) by considering the CCIIC. The most important attainment of the AK party was the legalization of the new FDI, Law 4875 on June 5, 2003, in replacement of the old FDI law, called Law 6224, which had been enforced since 1954 and was in replacement of the second FDI law in Turkey called Law 5821 called the Law to Encourage Foreign Capital Investment, dating back to 1951. The first law under the Republic of Turkey to address the issue of FDI was Law 5583 in 1950. Since it was sufficient to secure foreign transfers but necessitates very restrictive conditions, Law 5821 was replaced instead of 5583. But both 5821 and 5583 were not successful in attracting FDI inflows into Turkey. In 1954, Law 6224, entitled the Law to Encourage Foreign Capital, was enacted by the support of a U.S. expert. This new law removed the restrictive conditions included in both Laws 5583 and 5821.

Although, the title of 6224 mentioned “encouraging” foreign capital, it did not include vital incentives to attract FDI inflows. Law 4875 was replaced by Law 6224, which is called a liberal law and a crucial step toward changing the investment environment and encouraging FDI inflows into the country. The legislation of a new FDI law added a new dimension to the FDI environment in Turkey. According to this new FDI law, FDI is not restricted in any sectors and the new law extinguishes the old minimum capital limit, allows foreigners to own any property with no barriers, and it does not require any performance limit to invest in Turkey and takes into account foreign investors’ right to international arbitration, provides foreign investors with full convertibility in their transfers of capital and earnings. Moreover, after the achievement of macroeconomic policies following the 2001 crisis, the Council of the EU made the decision to start negotiating with the Turkey as a candidate of a member state at the end of 2004. The EU’s vote in the name of Turkey attracted foreign investors to invest in Turkey that current year. FDI inflows reached 9.7billion dollars in 2005 and accounted for almost 2.8% of Turkey’s GNP.

According to the UNCTAD data, Turkey became the 9th country to pull FDI inflows among other developing countries such as China, Mexico, Brazil, Russia, Bermuda, the United Arab Emirates, Colombia, and the Cayman Islands. In 2005 and 2006, FDI has increased rapidly; resulting from the privatization of companies in Turkey, and most of the FDI was in the form of M&As in 2005 and 2006. After the global economic crisis got off the ground in 2008 and continued to be felt in 2009, FDI inflows started to decrease in Turkey. In parallel with the global economic crisis, the new incentive system was effectuated by The Council of Ministers on July of 2009. With this new incentive system, foreign investors were encouraged to invest in

Turkey with comprehensive regional and sectoral support provided by the government. In other words, this new incentive system gave favorable tax and administrative treatment to foreign companies based on regional and sectoral levels. On the other hand, after the AK party took over, five AIC meetings were put into practice and the sixth one was held on June 2010 under the chair of Prime Minister Recep Tayip Erdoğan in Istanbul. The members of AIC stated that "Turkey attracted a record level of FDI before the crisis, the risks caused by global economic turmoil were managed well, and the plans related to fiscal rule were appreciated" (Under secretariat of Treasury, 2010). The outcomes of the AIC were also evaluated by the CCIIC and other related institutions and government achievements were reported in AIC Progress Reports. Moreover, Turkey also signed Bilateral Investment Treatments with the countries that have strong investment relationships with Turkey or have the potential in this sense to increase the capital flows and technology and protect foreign investors in the framework of the legal system of the host contracting state. The BITS were signed among 82 countries and remain the fundamental agreements that accelerate and facilitate FDI inflows into Turkey.

As mentioned above, Turkey could not receive its deserving share from accelerated the FDIs in 1990s. And, although macroeconomic policies applied after the 2001 crisis and efforts of the AK party to improve the FDI environment successfully circumvented barriers to inflows into the country, FDI inflows before 2005 were not sufficient to contribute to the national growth of Turkey. Although negotiations between Turkey and the EU as a candidate member may increase Turkey's attractiveness as a destination to invest in, it is not sufficient to make Turkey a more

attractive destination than countries that are already members or close to becoming members of the EU.

2.6 Innovations Introduced by Investment Law 4875

Law 6224, called the Law to Encourage Foreign Capital, was enacted to replace law 5821 in 1954, as noted previously. Although it extracted all restrictive conditions included in both Laws 5583 and 5821 legislated respectively in 1950 and 1951, it was a fairly liberal law when compared with the legislation regarding FDI of some OECD countries to address the issue of the foreign investment environment in a host country. It could neither manage to attract a high volume of foreign investment inflows nor to attract foreign investors to invest in Turkeys' emerging market. In fact, the name of Law 6224 was created from the main objectives and incentives of government such as "free transfer" and "national treatment" to increase the FDI inflows into the country. However, the structure of the FDI environment is rapidly changing in the globalized world and creates new identifications, notions and applications so that Law 6224 no longer meets all of the current expectations of both investors and Turkey. Finally, there was an urgent need for a new updated legislation regarding FDI policy in Turkey.

The new law, Law 4875, is a kind of "legal guide" to inform both international investors with regard to their obligations or rights in Turkey and policymakers regarding the evolution of the FDI environment overtime. The importance of Law 4875 stems from the major elements of the liberal investment environment in Turkey. It can also be seen as a representative of the nation's attitude that shows a willingness to improve the FDI conditions worldwide by formulating a new law with

radical and contemporary transitions. The radical changes in this new law are listed below.

- Both “foreign investors” and “FDI” are defined again in this new law by considering the international standards to explain the work frame of Foreign Investment Law.
- With this new law, a new role was given to the Under Secretariat of Treasury to collect and evaluate any FDI data in Turkey and form an FDI policy for Turkey. So, law 4875 changes the old FDI approval and screening system to a notification, monitoring, and registration system.
- This new law secures foreign investors by giving them the same rights as local investors. All permits given to foreign investors by the General Directorate of Foreign Investment are cancelled. Finally, all procedures for opening up a company with foreign capital are identical to local companies. All responsibilities and duties of both foreign and local investors are the same, disregarding the type of capital formation.
- It provides national treatment for foreign investors as a main rule of the FDI policy of Turkey.
- It grants full convertibility for transferring earnings and capital. Transfer of profits, dividends, proceeds from sales and licenses, administrative and similar agreements, and interest income from foreign loans, banks, or financial institutions are clearly explained in the law.
- It allows foreign laborers to be employed in companies with foreign capital by taking into account the importance of foreign personnel to foreign investors.

- For the compromise of the controversies occurred from investment agreements is subject to private law, and disagreements appeared from contracts and conditions signed with the administration can be solved by providing foreign investors a local courts or foreign investors have the right to solve disputes by applying international arbitration.
- The new law does not restrict FDI inflows into any sectors; they are allowed to come from any country to any sectors in the country.
- In order to accept FDI inflows, there are no any performance requirements that foreign investors have to achieve to operate their businesses in Turkey.
- The most radical decision in this new law is the minimum capital limit required to invest in Turkey. The old capital limit to invest in Turkey was 50,000 USD, and this was eliminated in the new law.
- Foreign investors are permitted to have any property in Turkey with no restrictions.

2.7 Innovations Introduced by the New Investment Incentive System on July 16, 2009

The new investment incentive system enacted by the Council of Ministers on July 16, 2009 in replacement of the old investment incentive system enacted on August 28, 2006 had important implementations that are crucial for improving the investment environment in Turkey. While the old investment incentive system only provided customs duty exemption, value-added tax exemption, and interest support, the new investment incentive system provides more favorable support for both foreign and domestic investors. According to this new system, other incentives that

benefit investors such as tax reductions, insurance premium support, and allocations of investment locations are provided by the Turkish government.

- **Customs Duty Exemption:** All investment goods as part of investment incentive certificates approved by the Under Secretariat of the Republic of Turkey are subject to customs duty exemption.
- **Value-Added Exemption:** All machines and equipment bought internationally or domestically are subject to value-added exemption.
- **Insurance Premium Support:** Insurance premiums of employees subjected to minimum wages are covered by the government. However, the duration of coverage depends on the regional classification.
- **Tax Reduction:** Both domestic and foreign investors are provided with tax reductions on regional bases. These tax reductions contain both corporation taxes and income taxes.
- **Interest Support:** All investors are provided with interest support from banks on regional bases for their loans for at least one year.
- **Allocation of Investment Location**: For both large-scale investments and other investments that will utilize the new incentive system, the investment location can be allocated by the government.

2.8 Foreign Direct Investment Inflows into Turkey

The ratio of FDI inflows into gross capital asset investments in Turkey remained constant at about 2% throughout the years. Although FDI inflows increased in the mid-1880s, this climb was not impressive, as much of the world incorporating in other developing countries was much more successful than Turkey in obtaining FDI inflows. This increase in FDI inflows in the mid-1980s was due to a shift in Turkey from being a protectionist trade regime to an export-oriented liberalized economy.

However, FDI inflows into Turkey from 1980 to 1984 were nearly zero, due to the fact that Turkey had huge trade isolation because of the war in Cyprus. This is evidence that political stability is important for foreign investors.

After those trade isolations lifted, FDI inwards into Turkey started to increase very quickly and approached 1 billion USD in 1990. In particular, trade liberalization in financial markets by the government in 1985 encouraged more foreign investors, and IFC liberalization in 1989 improved FDI inflows more and more until 1996. But after 1996, Turkey could not utilize FDI inflows because of economic and political uncertainties in Turkey until 2002. Moreover, in that year, the government collapsed, which reduced the confidence of foreign investors. Therefore, in the 1990s, at the end of 1989, global FDI flows accelerated around the world, but FDI inflows into Turkey were stable from the 1990s till 2001. The banking crisis in 2000 further reduced the confidence of foreign investors about Turkey.

As mentioned before regarding Turkeys' FDI performance over time, FDI inflows started to increase gradually at the end of 2001 due to achievements in macroeconomic policies based on the agreements with the IMF and World Bank after the 2001 crisis, the efforts of the new government to improve the investment environment since 2002, the approval of Turkey as an EU candidate in 1999, and the start of negotiations for seeing Turkey as a member state in 2005, at the end of 2004. Overall, the ratio of FDI inflows to gross capital asset investments jumped to 11% in 2001 from 2%. This jump in the ratio was due to the agreement of a multinational company for the purchase of three mobile telephone licenses in Turkey.

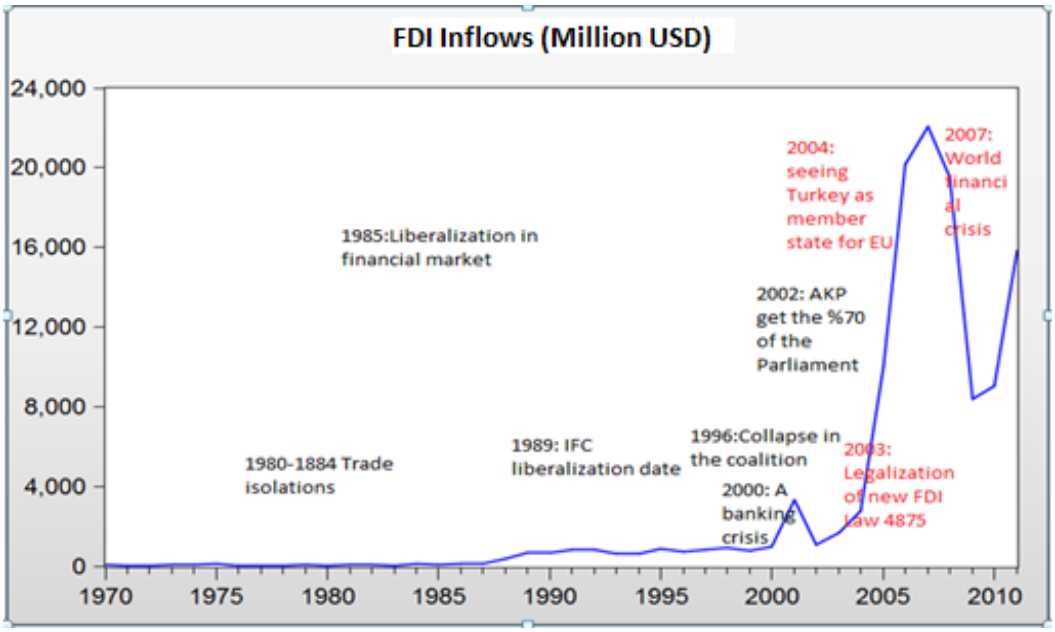

Figure 2. FDI inflows into Turkey from 1970 to 2011.
Source: Derived from the UNCTAD Statistics. (www.unctad.org)

Figure 2 shows that in 2005, FDI inflows increased from 1.4 billion to 100 billion USD. This jump in 2005 was on account of the start of negotiations with the EU to see Turkey as a full candidate in the integration and election process at the end of 2004. Because the expectations of foreign investors with regard to Turkey's membership in the EU increased, they shifted their investments into Turkey as a form of M&As. In addition to the expectation of Turkey being a member of the EU accelerating FDI inflows into Turkey in 2005, it is also assumed that the legalization of new FDI Law 4875 in June 2003, in replacement of the old FDI law, Law 6224, showed its effect on FDI inflows in 2005. Overall, FDI inflows continued to increase and reached about 20.2 billion USD in 2006 and a maximum level about 22 billion USD in 2007. In parallel with this success, Turkey has been ranked 16th among the countries that attract the highest FDI inflows, ranked 51st among countries with the highest FDI outflows, and ranked 27th among countries that have the highest FDI stocks by the UNCTAD World Investment Report published in 2007. The global economic crisis hit at the end of 2007 and was particularly felt by all countries in

September of 2008. The reason behind this global economic crisis was assumed to be the depreciation of the real estate property market, suddenly causing many large institutions in the U.S. to go bankrupt. As a result, FDI inflows started to decrease in Turkey, reached about 19.5 billion USD in 2008, and reduced considerably in 2009 to 8.4 billion USD. The Under secretariat of Treasury (2010) stated that the global economic and financial crisis that started in 2008 and had a global effect in 2009, transformed in 2010. When looking at FDI data in Figure 2, it is clear that FDI inflows increased to 9 billion USD in 2010 from 8.4 billion USD in 2009 and continued to increase in 2011 gradually. According to Central Bank of Turkey data, FDI inflows in 2011 were about 15.9 billion USD. The Prime Minister of the Republic of Turkey, Recep Tayip Erdoğan, announced this as an achievement of their FDI policies instituted in 2002. President Erdoğan stated that the global economic world crisis started in 2008 and felt by most countries worldwide in 2009 did not have any negative effect on Turkey, while other developing countries had reductions in FDI inflows. Moreover, Turkey was planning to attract FDI inflows of 16–20 billion USD at the end of 2012 by depending on economic, political and financial structures around the world.

On the other hand, the main source of FDI inflows come from the European countries, North America, and the Gulf countries for the period in which FDI inflows show a sharp rise between 2005 and 2011. As Figure 3 illustrates, although FDI inflows mainly come from the EU countries for the examined period in this study, they show a gradually decreasing pattern between 2006 and 2010. Interestingly, when FDI inflows were at their peak level in 2007, FDI inflows from the EU into Turkey fell gradually and then even more sharply after the world economic crisis in

2008, but they increased after 2010. In spite of a falling pattern of FDI from Europe, EU countries are the main source of FDI inflows into Turkey for 2005 and 2011. For example, according to the Under Secretariat of Treasury, FDI inflows from the EU to Turkey counted as 4.9 billion USD, which was 75.1% of total inflows in 2010. In addition, FDI inflows from the U.S. had a sharp increase in 2006 and 2007 when FDI inflows were at their peak level in Turkey, but after 2008 all FDI inflows from major home countries experienced a sharp decrease due to the global economic crisis.

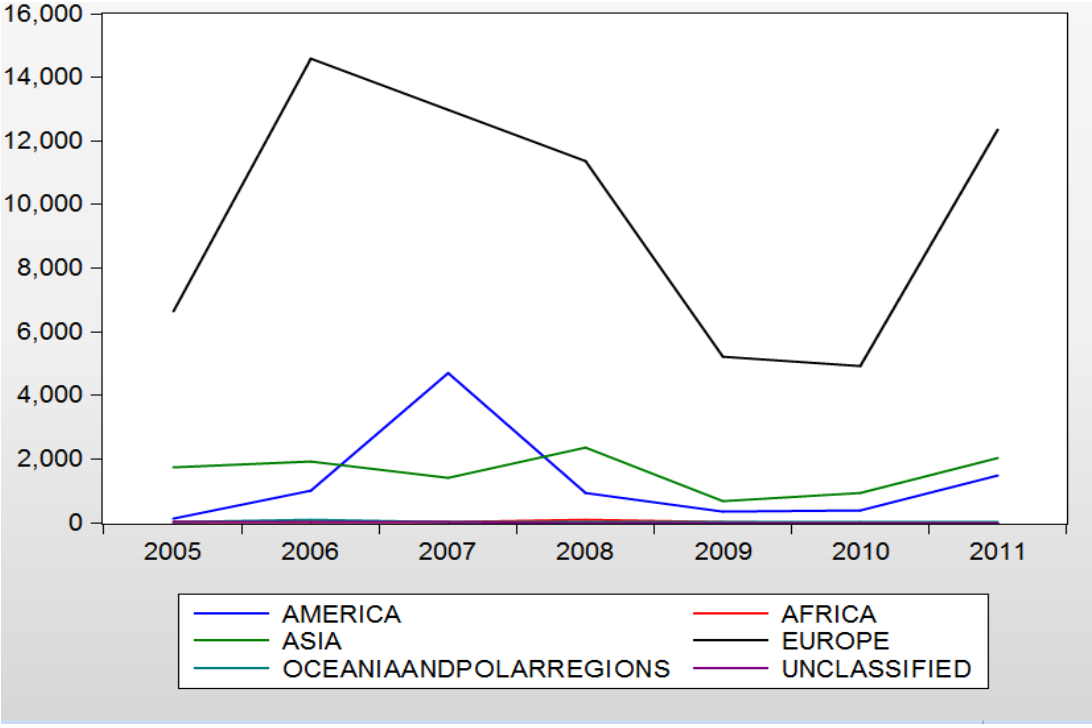

Figure 3. Geographical breakdown of FDI inflows (Millions USD).
Source: Derived from the Central Bank of Republic of Turkey Statistics.
(www.tcmb.gov.tr)

2.9 Turkeys' Performance in Attracting FDI Relative to Its Competitors

In order to interpret Turkey's performance in respect to attracting FDI, it is crucial to compare Turkey with countries that have similar GDP growth (market size) and are

located in similar regions. One of most the important determinants of FDI flows is distance, as Goldberg and Grosse (1994) stated that distance matters in attracting FDI inflows and there is a negative relationship between them. There are also major differences in the countries in terms of their national economies; thus, when comparing FDI inflows into Turkey, these differences should be taken into account. As a result, Turkeys' poor performance in attracting FDI inflows throughout the years is evident when compared with its main three competitors, Poland, Hungary, and the Czech Republic. As seen from Figure 3, these countries have not have any difficulty in attracting FDI inflows into their countries since the 1990s due to their shift from a socialist economic system to a free market economy. The ratio of FDI to gross fixed capital investments in Hungary was seen as 38% in the period between 1995 and 1999. However, Hungary gave rein to the Czech Republic overtime in terms of ranking, and the Czech Republic attracted 3.1 billion USD in the period of 1995–1999 and increased FDI inflows more in 2000–2004 by receiving 5.1 billion USD. When looking at the ratio of FDI inflows to GNP, it was 1% for Turkey, except in 2001, while it was 6.5% in the Czech Republic, 8.2% in Hungary, and 3.8% in Poland between 1995 and 2004. These countries have had excellent success in attracting FDI inflows since the 1990s and have been satisfied with the amount of FDI inflows into their countries.

As Figure 4 shows, Turkey had the poorest performance with respect to its three competitors from the 1990s until 2005. While these three competitors enjoyed high levels of FDI inflows in the 1990s, Turkey could not manage to attract FDI inflows into country. However, when FDI inflows suddenly increased in 2005 as a result of Law 4875 in 2003 in Turkey, Turkey's performance in attracting FDI inflows

surpassed the Czech Republic and Hungary. However, Poland also showed a sharp increase in FDI inflows in 2005. Therefore, as seen from the figure, both Turkey and Poland showed a similar FDI trend in 2005. However, FDI inflows fell in all countries due to the world economic crisis beginning at the end of 2007 and affected all countries in 2009.

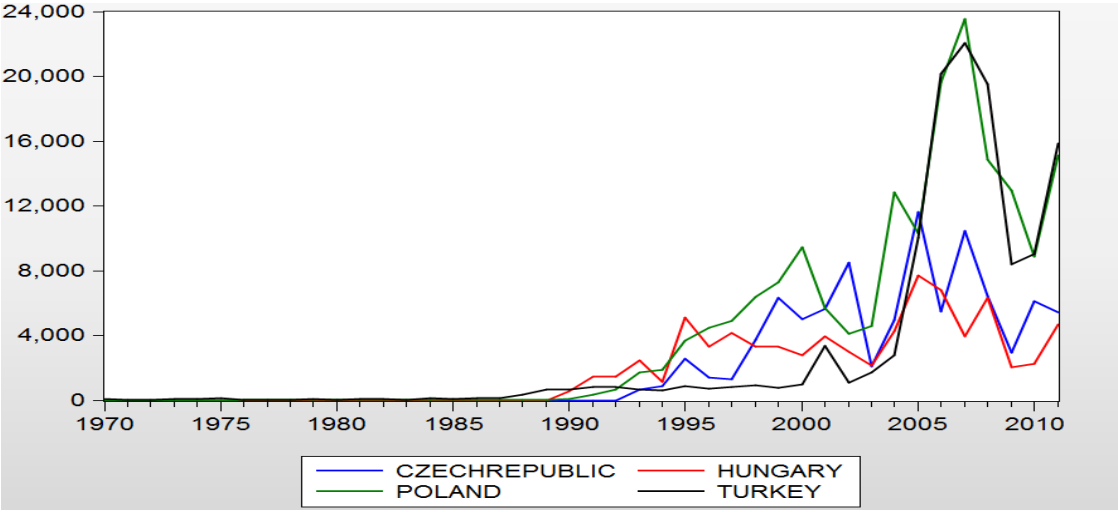

Figure 4. Comparison of FDI inflows into Turkey with its three main competitors
Source: Derived from the UNCTAD Statistics. (www.unctad.org)

Chapter 3

EXCHANGE RATE UNCERTAINTY AND FOREIGN DIRECT INVESTMENT: THE CASE OF TURKEY

3.1 Introduction

Since the 1990s, multinational firms have gained importance, and the identification of possible determinants of FDI flows has become precedence for many developing nations, due to the role of FDI in the globalization of the international economy and in national economic growth. An analysis of global trends shows that the volume of FDI flows to developing countries rose remarkably during the 1990s, particularly after 1995. This considerable increase in FDI into developing countries has been attributed largely to the rapid liberalization of national FDI laws in these countries, which has occurred as a response to shifting perceptions of FDI. The United Nations Conference on Trade and Development (UNCTAD) World Investment Report (1995) underlined that "of the 140 changes in FDI laws in 1999, 131 liberalized conditions for foreign investors and over the period 1991–1999, 94 per cent of the 1,035 policy changes were in favor of non-resident investors."

Despite the growing interest in FDI inflows, substantial uncertainty exists regarding what stimulates foreign investors to operate in foreign markets. One point of view favored in academic circles suggests that, unlike other international financial flows, FDI is a long-term process. Therefore, it should rely more on economic fundamentals, such as growth, institutional quality, and skill abundance.

However, FDI can be quite heterogeneous as well, and it may vary with the mode of entry into the foreign market. Foreign investors may enter a market with different modes of FDI, compatible with their balances of costs and benefits. Two well-known components of FDI are cross-border mergers and acquisitions (M&As) and Greenfield investments. In cases in which FDI inflows are concentrated over a short period of time (e.g., in the form of M&As, such as the purchase of shares of big companies or the acquisition of newly privatized state companies, rather than through greenfield investments, such as the building of a factory from scratch), FDIs in the form of M&As may be more responsive to short-term financial indicators. Two prominent indicators are exchange rate movements and volatility. In fact, Aminian et al. (2005) stated, "There are reasons to believe that M&A activity is sensitive to financial factors and particularly to exchange rate considerations."

An Under secretariat of Treasury, General Directorate of Foreign Investment Report (2007) underlined that "Cross-border M&A activities were an important share of the FDI inflows in the Turkish economy and the ratio of the total volume of the cross-border M&A transactions to that of FDI flows was 64% in 2007 when FDI inflows were at their peak level." Therefore, Turkey is defined as a favored market for M&A activities, and non-resident investments are predicted to rise in coming years. Moreover, according to the international consulting firm Ernst & Young, this type of transaction has reached record levels, with 264 such transactions in Turkey in 2011. According to Ernst & Young's 2011 Mergers and Acquisitions Report, the volume of transactions was realized at nearly USD$14 billion. At this point, the increase in the acquisitions of Small and Medium-sized Enterprises (SMEs) drew particular

attention, due to the upsurge in transactions involving these businesses. The research results indicate that the interest in SMEs will continue in the years to come.

Our main motivation in this study concerns the M&A component of FDI inflows, which are assumed to be characterized by short time intervals (i.e., one or two months). At this point, one can easily argue that not all M&A are necessarily short-term; for instance, the payments associated with the sale of Telsim—a major telecommunications conglomerate—were made in installments. Since these were spread over a long time span, the monthly FDI data for 2006, for example, can only partially reflect the installments. Moreover, publicly available FDI data are aggregate data, involving short- and longer-term M&As, as well as other forms of investment. Therefore, one may question the relevance of the sensitivity of publically available data to various factors of the short-term component of FDI.

Our counterview is twofold. First, shares, not only in this mode of investment, but also in acquisitions of SMEs (which can generally be realized in shorter time frames) have been increasing. In this case, it is safe to focus on the shorter-term (monthly) inflow of FDI. Second, it is an established fact that exchange rate fluctuations, particularly volatility, are observed with rather high frequency data.

Therefore, the main objective of this study is to examine, within the framework of an econometric model, the impact of the exchange rate level and its volatility on FDI inflows, using monthly observations for the period from January 2004 to May 2014. A set of selected control variables associated with both internal and external conditions is also included to ensure the robustness of the results.

This study differs significantly from previous ones in the literature in three respects. First, the timeframe considers the aftermath of the new FDI Law 4875, introduced in June 2003, which accounts for the recent acceleration of FDI inflows into Turkey. Second, since the potential effect of exchange rate uncertainty, represented here by real exchange rate (ReR) volatility, can best be captured with high-frequency data, monthly observations are used. Third, due to the occurrence of both favorable and unfavorable events within this period, combined with monthly structural breaks, inherent nonlinearity is very likely; therefore, we employ a nonlinear framework that can accommodate asymmetry in the swings of FDI inflows. In this respect, a two-state Markov Switching Dynamic Regression (MS-DR) appears to be the most suitable technique for capturing the different dynamics associated with each regime.

3.2 Literature review

3.2.1 Exchange rate level and FDI

Aliber (1970) was the first person to explore the relationship between financial factors and FDI. He contributed to the literature by introducing the foreign exchange rate concept in FDI. According to his logic, countries using a hard currency attempt to influence inward FDI from countries using a weak currency. His hypothesis, known as the "Aliber hypothesis" in the literature, suggested that the existence of different types of cash flow causes the presence of FDI. However, Aliber's argument was not popular until the 1990s. Contemporary literature about the effect of exchange rate movements on FDI flows started with the assumption of perfect capital mobility in the world after the 1990s. Several other hypotheses have been put forward to explain how FDI flows respond to variations in the level of the exchange rate. One of them is the so-called wealth position hypothesis, according to which FDI is related to the foreign exchange market through the effect of changes in the

exchange rate level on the relative wealth of both the home and host countries. In accordance with this hypothesis, Froot and Stein (1991) revealed the role of the exchange rate level in the amount of FDI inflow into the host country. They investigated different types of FDI inflows to the U.S. at the sectoral level and then claimed that the depreciation of the dollar in the host country led to the augmentation of the volume of inward FDI, due to the decreased investment cost and increased wealth of investors. In particular, they found a strongly negative relationship between the exchange rate level and FDI inward into manufacturing industries.

The second hypothesis with regard to the impact of changes in the exchange rate level on FDI flows is known in the literature as the relative labor cost hypothesis. According to this hypothesis, the depreciation of the host currency encourages more FDI inflow due to the lowering of day-to-day production costs, and attracts more foreign investors. Consistent with this hypothesis, Cushman (1985, 1988) argued that a real depreciation of the host currency leads to more FDI inflows because it lowers wages as well as production costs in that country. On the contrary, Campa (1993) put forward a different idea and explained the other aspect of the correlation between the exchange rate level and inward FDI. According to him, multinational firms demand for profits in the local market, and if they are hopeful about future profitability, they will increase their investment in that market. Therefore, Campa's model shows that an appreciation of the host country's currency will increase inward FDI. However, on balance, the existing literature seems to support the hypothesis that the depreciation of the host country's currency increases the volume of FDI inflows. For example, Cushman (1985), Kiyato and Urata (2004), Xing (2006), Takagi and Shi (2011), and Sharifi-Renani and Mirfatah (2012) all reached a similar conclusion.

On the other hand, some researchers have suggested the existence of a negative relationship between the exchange rate level and the FDI in the host country. Some studies, such as the empirical works of Dhakal et al. (2010) and MacDermott (2008), have argued that a weak currency discourages a large volume of FDI inflows into the host country. Furthermore, several empirical studies, such as those of Goldberg and Kolstad (1995), Vita and Abbott (2008), and Dorantes and Pozo (2010), have not supported that any relationship exists between these variables.

In short, it can easily be argued that the effect of the exchange rate level on FDI inflows or outflows is ambiguous, and the empirical results are conflicting, with some claiming a positive relationship, others a negative relationship, and others no relationship at all.

3.2.2 Exchange rate volatility and FDI

With respect to the effect of exchange rate uncertainty on FDI, two kinds of hypotheses have been debated in the literature: production flexibility and risk aversion approaches. The former argues that a positive relationship between exchange rate volatility and inwards FDI can be expected in situations where the foreign investors' main motivation is to diversify the production location, thus creating the option of production flexibility rather than exporting abroad or re-exporting to the home country. The main assumption in the production flexibility argument is that producers have the flexibility to adjust variable factors following price variability as a result of movements in the exchange rate, so that they are encouraged to invest more in the host country as the exchange rate level of that country rises.

Lahiri and Mesa (2004), for example, conducted a study investigating the impact of both the host and home countries' exchange rate volatilities on the local content requirement of FDI inflows in a third country with an oligopolistic market. They found that if foreign firms are endogenous, that is, if foreign investors do not invest in the host country with the intention to export, the host country's exchange rate volatility affects the FDI inflows positively, and this creates competition in the host market. Furthermore, the studies of Chowdhury and Wheeler (2008), Dhakal et al. (2010), and Ellahi (2011) are all consistent with study of Cushman (1985), who argued that higher exchange rate uncertainty may lead to FDI becoming a substitute for exporting.

The risk aversion approach, on the other hand, suggests that there is a possible negative relationship between exchange rate volatility and FDI inflows, due to foreign investors' uncertainty about the costs and benefits of making irreversible investments in the host country. As Ruiz and Pozo (2008, p.415) stated, "if the purpose of FDI were either to serve other markets or bring production back to the home country, a negative relationship between FDI and exchange rate uncertainty would be likely to arise."

Among the huge body of empirical studies supporting this argument, one can cite Kiyota and Urata (2002), who investigated the relationships between exchange rate volatility and FDI flows from the United States and Japan to their partner countries. They found that the volatility observed in the exchange rate negatively affected the FDI from both countries. Dorantes and Pozo's (2010) study was distinctive in the sense that they employed an error-correction model and took conditional variance. However, ultimately, their finding was no different from that of Kiyota and Urata

(2002) with respect to the impact of exchange rate uncertainty on FDI inflows for the United States. Another study worth mentioning here is that of Ruiz and Pozo (2008), who analyzed the impact of exchange rate uncertainty on U.S. foreign direct investment in seven Latin American countries. They also decomposed uncertainty into temporary (short-term) and permanent (long-term) components by employing component generalized autoregressive conditional heteroskedasticity (CGARCH) estimation. They concluded that exchange rate uncertainty negatively affected FDI inflows to Latin America from the United States. They also considered the timing aspect of uncertainty in the exchange rate and argued that permanent exchange rate uncertainty deters FDI inflows more than transitionary uncertainty does. Moreover, Xing (2006), MacDermott (2008), Ogunleye (2008), Vita and Abbott (2008), Cavallari and Addona (2012), and Sharifi-Renan and Mirfatah (2012) all concluded that exchange rate volatility negatively affects FDI in the host country.

On the other hand, quite a few studies have failed to uncover any relation whatsoever between these two variables. For example, Gorg and Wakelin (2002), Tokunbo and Lloyd (2009), Furceri and Borelli (2008), Crowley and Lee (2010), and Chaudhary et al. (2012) did not find any significant relation between exchange rate uncertainty and FDI.

Despite the many studies about the relationships between the exchange rate as well as its volatility and outward/inward FDI, the controversy persists about the real impact of the exchange rate level and its volatility on FDI inflows, based on empirical evidence from previous studies.

3.2.3 Brief review of the literature regarding Turkey

Studies pertaining to the impact of the exchange rate level and its volatility on FDI in Turkey are rather limited in number compared to those focusing on the impact of FDI on exports, economic growth, and employment. Of the several studies in this field, some have arrived at mixed results. While many of these works suggest the existence of a negative relationship between FDI inflows and the exchange rate level, such as Kaya and Yılmaz (2003), Vergil and Çeştepe (2005), and Kar and Tatlısöz (2007), the studies of Halıcıoğlu (2001), Karagöz (2007), and Koyuncu (2010) found no significant relationship. As for the effect of exchange rate volatility on FDI, there have also been conflicting results. While some researchers have found a negative relationship between these variables, such as Erdal and Tataoğlu (2002), others have supported a positive relationship, such as Eşiyok (2011). Nevertheless, other studies, such as those of Vergil and Çeştepe (2005) and Sekmen (2007), have failed to uncover any significant effect.

3.3 Data and methodology

3.3.1 Data

Monthly realized FDI inflows between January 2004 and May 2014, as well as the level of real effective exchange rate (REX), were obtained from the Central Bank of the Republic of Turkey data dissemination server (http://www.tcmb.gov.tr). The conditional volatility of REX was estimated from the generalized autoregressive conditional heteroskedasticity (GARCH 1, 1) specification. Thus, while REX and its estimated volatility were the main variables, we also introduced a set of control variables, including the indices of inflation, transportation, communication, and real sector business confidence, taken from the source above. The three-month Euribor rate was taken from the European Central Bank (http://www.ecb.int). The remaining control variables, including the emerging market bond index (EMBI) and the volatility index (VIX) were sourced from the Global Financial Data

(https://www.globalfinancialdata.com) and the Thomson Reuters (http://thomsonreuters.com/) data dissemination servers, respectively. A dummy variable, intended to capture the effect of the investment incentive system introduced in 2009, was also included in the model. The definitions of the variables and expected signs of the coefficients are explained below.

The **real effective exchange rate** (RER) is calculated simply as the nominal exchange rate, $e_{i,d}$ multiplied by the ratio of the domestic price level, PPI_d to the foreign price level, PPI_f. On the other hand, the real effective exchange rate (REX_t) is found by taking the weighted geometric average of the real exchange rate, shown mathematically as $REX_t = \prod_{i=1}^{N} \left[e_{i,d} \frac{PPI_d}{PPI_f} \right]^{W_i}$, where N refers to the number of countries in the analysis and w_i refers to weight of country i in Turkey's REX index. Based on this equation, a decline in REX_t can be interpreted as a real depreciation of the exchange rate, while an increase implies a real appreciation of the exchange rate.

The **volatility of the real effective exchange rate** is the predicted conditional variance of the REX_t, estimated from an AR (1)-GARCH (1, 1) specification with a Gaussian distribution and included in our model as the main explanatory variable to be tested.

To ensure the robustness of the results, we have to consider the intrinsic characteristics of the period of study, which covers a relatively short time span and is subject to various internal and external conditions. Consequently, we identified several variables that may be associated with these conditions.

Our rationale for considering **policy interest rate** stems from the fact that FDI inflows into Turkey from EU countries amounted to USD$4.9 billion in 2010, nearing 75.1% of total inflows into Turkey (Under secretariat of Treasury, 2011). Therefore, the three-month Euribor (Euro Interbank Borrowing Rate) rate, as the policy interest rate representing the cost of borrowing for investors in the source country, can be considered an important control variable, acting as a push factor in our model.

The strong linkage between macroeconomic fundamentals and FDI inflows has led us to consider **inflation** as an indicator of macroeconomic stability in Turkey; therefore, we included it as an internal control variable in our model.

The **real sector business confidence index** is an economic tendency survey that includes questions about private firms' expectations for production, demand, investments, sales, employment, capacity utilization, and inflation, both today and in the future. We assumed that this variable would convey extensive information on the state of the investment climate in the host country.

The **transportation and communication expenditure index by households** in Turkey is taken as a proxy variable to represent the infrastructure conditions in the host country, due to the expected strong linkage between FDI and infrastructure.

The **emerging markets bond index (EMBI**) is an benchmark index which assess the profitability of international government bonds published by emerging market countries which are regarded as sovereign (i.e., issued in something rather than the local currency). Since the composition of inward capital inflows to Turkey have been

changing, implying a substitution among different types of flows, a higher EMBI might be an indicator of foreign investors' tendency to substitute portfolio investments for direct investments, which reflect higher portfolio returns. Therefore, the EMBI was included to measure the impact of this variable on the choice of capital structure in the country.

The **Chicago Board of Exchange Standard & Poor's Volatility Index (VIX)** is an index that shows investor's expectations of future market volatility using the implied volatilities of a wide range of S&P 500 Index options. Values higher than 30 imply a large amount of volatility and, therefore, higher uncertainty for investors, while values lower than 20 corresponds to lower risk and stress in the market. If alternative (i.e., emerging markets) are viewed as substitutes to developed economies' markets, the rise in value could trigger capital outflows towards these emerging markets. If, on the other hand, emerging markets are viewed as complements, rising volatility might lead to sudden stops and even trigger reversals in capital flows due to concern about the probable magnifying impact of propagation on alternative markets. Therefore, we have included VIX as an important push factor to capture the role of global risk appetite, if any, on FDI inflows.

The **agglomeration effect**, which refers to previous investors' experiments with doing business in a host country, provides valuable information to new investors. One proxy for the agglomeration effect is a measure of lagged FDI inflows, which was included in the model as a control variable.

We also included a **dummy variable to account for July 2009 measures**. A new incentive system, including various new implementations to improve investment

conditions in Turkey, came into effect on July 16, 2009. Subsequently, the implementation of new, additional reinforcements began on sectoral and regional bases. Therefore, it is appropriate to include, as the last control variable, a dummy variable that takes the value of 1 after July 16, 2009, and 0 in previous years to capture the effect of the new incentive system on FDI inflows.

The expected signs of the coefficients for monthly FDI inflows for the examined period are summarized in Table 1.

Table 1. Expected signs of coefficients.

Variable	Effect	Factor
REX	+/-	Internal
Conditional volatility	+/-	Internal
Policy interest rate (Euribor)	+/-	External
Inflation	-	Internal
Confidence index	+	Internal
Transport and comm. index	+	Internal
EMBI	-	External
VIX	+/-	External
Agglomeration effect	+	Internal
Dummy variable for 2009 measure	+	Internal

Note. Central variables of interest are shown in bold, whereas control variables are shown in italics.

All variables need to be tested for stationarity prior to the estimation, since inferences based on non-stationary variables under conventional distributional assumptions will not be valid. Graphical inspection of some of the series points to a trend and a constant, while some have only a constant, and still others have neither. Therefore, we used three versions of the Augmented Dickey-Fuller (ADF) test. It is important to note that nonlinearities in some of the series, caused by structural breaks associated with both favorable and adverse domestic and external events, may weaken the power of conventional unit root test by implying false non-stationarity.

Consequently, these tests will need to be supplemented with unit-root tests, which allow for structural breaks.

A problem that arises in conventional unit root tests concerns the optimal number of lags of the dependent variable. To overcome this issue, we employed two simple rules of thumb widely suggested in the literature. First, considering the frequency of data (i.e., monthly), we start with 12 lags and then apply the information criterion rule to determine the final number of lags. In other words, the number of lags that minimizes the value information criterion (here, Schwarz Information) is the number chosen during the test.

Table 2. Estimation results of ADF unit root test.

Variable	**Test Statistic**	**Specification**	**1%Sign. Level**	**5%Sign. Level**
Trans. comm. İndex	−2.29 (0)	(c , t)	−4.03	−3.44
VIX	−3.00 (0)	(c , t)	−4.03	−3.44
REX	−3.05*(1)	c	−3.48	−2.88
FDI	−2.89*(4)	c	−3.48	−2.88
Confidence index	−2.54 (1)	c	−3.48	−2.88
EMBI	−3.63** (4)	c	−3.48	−2.88
Policy interest rate	−1.17 (1)	c	−3.48	−2.88
Inflation	−5.51** (0)	−	−2.58	−1.94
Condition. volatility	− 5.60** (0)	c	−3.48	−2.88

Note: (c, t) = constant and trend; c = constant only; - = none. ** = significant at 1%,* = significant at 5%. SIC-selected lag in parentheses.

The EMBI and inflation series are clearly stationary, as the null of the unit root is rejected at the 1% level. The REX and FDI series can be considered stationary at the 5% level, while the remaining series are non-stationary. On the other hand, preliminary graphical analyses of FDI, the confidence index, the policy interest rate, REX, and VIX series revealed some structural breaks. Therefore, we found it convenient to investigate the issue of non-stationarity further, within the framework

of the unit root tests under structural break, since breaks in the series may distort the results to the extent of exhibiting a false non-stationarity. The Lee-Strazicich unit root test, with two allowable breaks, was applied to the FDI inflows and to the REX and VIX series, while the Zivot-Andrews unit root test, with one break, was used for the confidence index and the policy interest rate, since these latter two exhibit a single sharp downturn, corresponding to the start of the global crisis period. The results of the tests are reported in Tables 3 and 4.

Table 3. Zivot-Andrews unit root test results.

Variable	**Breakpoint Test Statistics**	**Sig. Level 1%**	**Sig. Level 5%**
Confidence index	−3.9803	−5.34	−4.8
Policy interest rate	−5.1919	−5.34	−4.8

Table 4. Lee-Strazicich unit root test results.

Variables	**Lee-Strazichich Test Statistics**	**Critical Values (5%)**
REX	−6.7987	−5.67
FDI inflows	−8.0837	−5.74
VIX	−6.0025	−5.67

As Table 3 shows, the absolute value of the Zivot-Andrews test statistic is lower than the critical value for the confidence index, suggesting that there is no structural break in the series. Hence, the series can be made stationary only by taking first differences. However, the policy interest rate variable is significant at a 5% significance level, implying a false non-stationary in the series, which, therefore, requires no transformation. On the other hand, Table 4 shows that the absolute values of the Lee-Strazicich test statistics are larger than the critical values for the FDI, REX, and VIX variables, suggesting a pseudo-non-stationarity due to the structural breaks in the series.

3.3.2 Conditional measure of volatility

We employed a GARCH specification to estimate the volatility associated with the REX for Turkey. Thus, first, we formulated an appropriate GARCH model (Bollerslev, 1986), with mean equation (1) as an AR (p) specification and conditional variance equation (2) as GARCH (m, s). The model can be written as follows:

$$REX_t = \delta_0 + \sum_{i=1}^{p} \delta_i REX_{t-i} + \varepsilon_t , \quad (1)$$

$$\sigma^2{}_t = \alpha_0 + \sum_{i=1}^{m} \alpha_i \varepsilon^2{}_{t-i} + \sum_{j=1}^{s} \beta_j \sigma^2{}_{t-j} \quad (2)$$

Among several variants of auto-regressive moving average (ARMA) specifications, following the traditional Box and Jenkins (1976) methodology, the AR (1)-GARCH (1,1) under the Gaussian distribution was found to give the best fit on the basis of convergence criteria and several post-estimation diagnostic tests. The estimation results are presented in Table 5.

Table 5. Estimation results of GARCH (1 1) model

	Coefficients	**Std. Error**	**Probability**
Const. of mean	113.4239	2.7648	0.0000**
AR (1)	0.892796	0.0434	0.0000**
Const. of variance	2.896340	1.5834	0.0700
ARCH (α)	0.107985	0.1425	0.4503
GARCH (β)	0.540846	0.1489	0.0004**
Q(10)=9.89714 (0.3588)		Q²(10)=3.72155 (0.8813)	

Note. ** denotes 1% significance level.

A significant GARCH effect is evidenced by the low p-value of 0.0004 in the REX for Turkey, whereas the Autoregressive Conditional Heteroskedasticity (ARCH) term in the model seems to be non-significant, with a high P-value of 0.4503. Finally, the Box and Pierce statistics of $\tilde{\varepsilon}_t$ (standardized residuals) can be used to check the adequacy of the mean equation, while those of $\tilde{\varepsilon}_t^2$ can be used to test the

adequacy of the variance equation. As the Q (10) and Q^2 (10) statistics indicate, the AR (1)-GARCH (1, 1) model adequately captures the volatility by producing a white noise series for the residual and squared residual series.

The conditional volatility (H) predicted from the above estimation is shown in Figure 5. We observed that the conditional variance exhibited periodic ups and downs over time, which were particularly pronounced during the period from 2008 to 2009, due to the lingering effects of the global economic crisis, which began at the end of 2007 in the United States and was felt in most developed and developing countries in 2009.

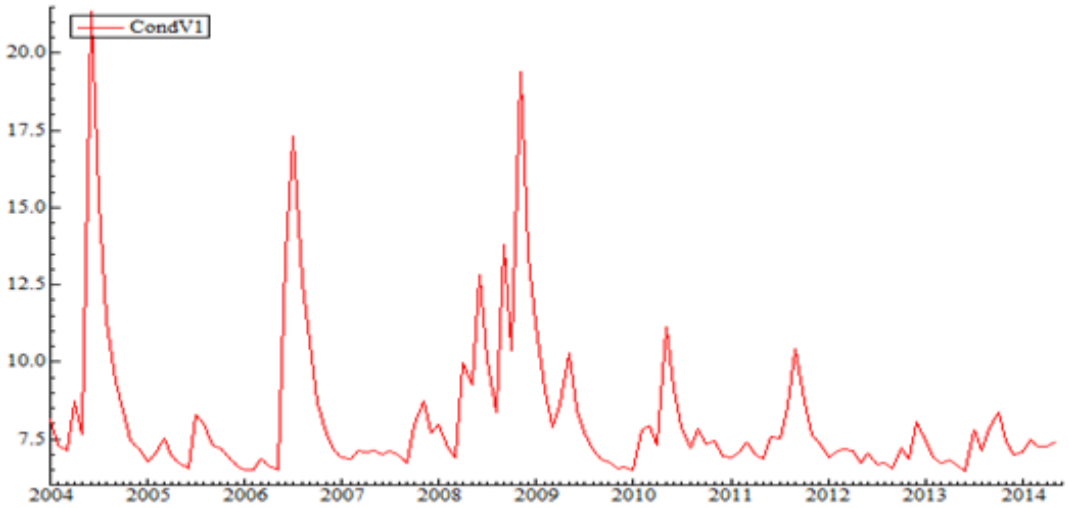

Figure 5. Volatility of Turkey's real effective exchange rate between 2004 and 2014.

3.3.3 Econometric methodology

A central theme of this paper is the impact of the RER level and its volatility, alongside some other determining factors, on *monthly* inflows of FDI for the period between February 2004 and May 2014, following the passage of FDI Law 4875 in 2003. As seen in Figure 6, FDI inflows into Turkey remained very low for several

years before Law 4875 took full effect. In 2005, the FDI flows jumped up and showed a fluctuating pattern with higher spikes until 2009, when they lost momentum. The measures taken in 2009 resulted in substantial success in regaining the lost momentum from 2010, showing once more a surging pattern with relatively lower spikes than those seen after FDI Law 4875. Nevertheless, FDI inflows slowed down again at the end of 2012, reverting back to their initial low levels.

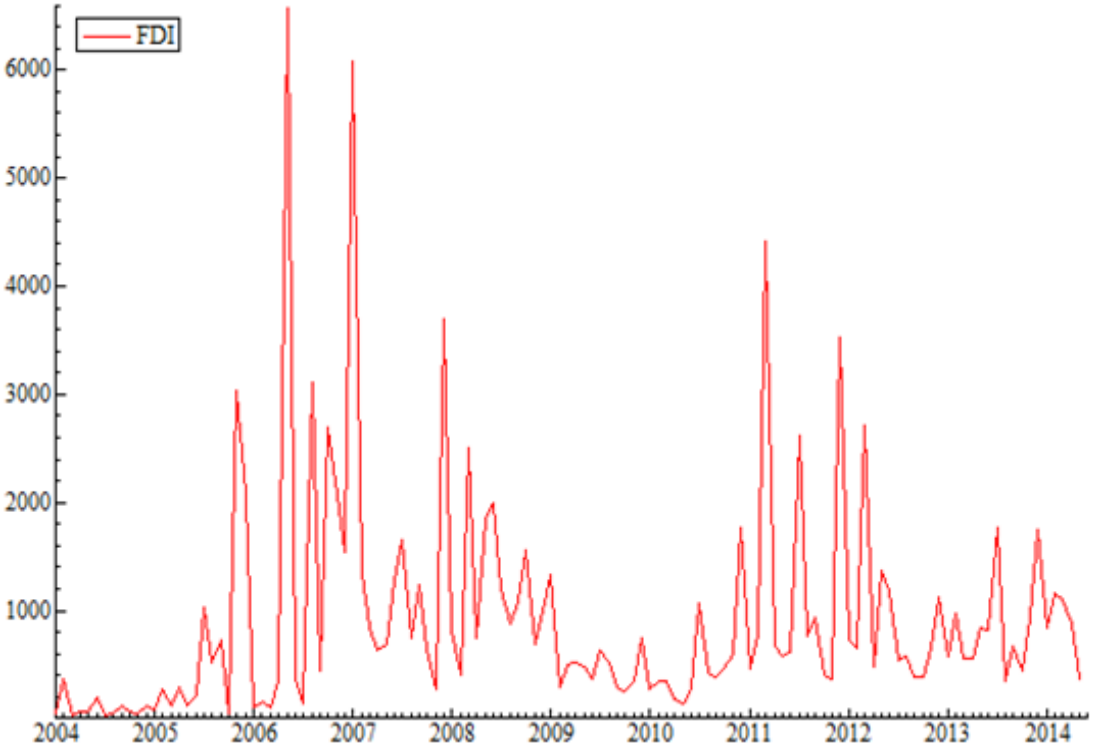

Figure 6. Monthly FDI inflows (Million USD) 2004:01 to 2014:05

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Many financial and economic time series exhibit changes over time in terms of their mean values or volatilities or in the relationships between current and previous values. If the behavior of a series changes during a period of time before reverting to its original behavior or switching to yet another behavior, this is described as a "regime switch" or "regime shift." Regime switching models allow some part of the model to depend on the state of the economy (the "regime"). For example, the mean

or variance of a model can be allowed to change between recessions and expansions.[2]

Our specification is based on the Markov switching model (MSM), which is appropriate when a series is thought to be exposed to shifts from one type of behavior to another and back again, but in which the forcing variable that leads to the transitions in regime or the regime shifts is unobservable. The MSM is appropriate if the series is nonlinear and can be split into two or more states (regimes), so that the specification within each regime is linear, while the model is globally nonlinear. Thus, the objective of the MSM is to allow for different behaviors in different states of nature, while simultaneously estimating the time at which a transition from one state to another occurs.

The MSM assumes that the data are sampled from a mixture of normal distributions, called states. These are not directly observable, but they can be estimated using a maximum likelihood method. Given the initial values of all parameters and using nonlinear updating rules, the estimates and smoothed probabilities for each state can be obtained. What the two states *are* remains unknown until the estimations are performed.

Since the universe of possible occurrences is split into m states of the world, denoted as s_i, $i = 1.....,\mathrm{m}$ corresponds to m regimes. In this study, we assumed that $\mathrm{m} = 2$. Therefore, if $s_t = 1$, the process is in regime 0, and if $s_t = 2$, the process is in regime 1

[2]There are several types of switching models, such as self-exciting threshold autoregressions (SETAR; Tong, 1990); smooth-transition models, such as LSTAR (Terasvirta, 1994); and the Markov switching model (Hamilton, 1989).

at time t. The unobserved random variable s_t follows a Markov chain, defined by transition probabilities between the M states:

$$p_{i/j} = p\left[s_{t+1} = i \middle| s_t = j\right],\ i, j = 1, \ldots\ldots M \tag{3}$$

Thus, the probability of moving from state j in one period to state i in the next period depends only on the previous state. Since the system must be in one of the m states, we have the following:

$$\sum_{i=1}^{m} p_{i|j} = 1 \tag{4}$$

The MS-DR model can capture the different behaviors of FDI series in different states. The states (regimes) are classified into low-level (contraction) and high-level (expansion) categories. The former is denoted as regime 0, and the latter as regime 1. The MS-DR used to explore the impact of exchange rate uncertainty on movements of FDI in Turkey can be written simply as follows:

$$FDI_t = \beta_o(s_t) + \sum_{i=1}^{n} \beta_i X_{it} + u_t \text{ And, } u_t \sim N\left[0, \sigma^2(s_t)\right] \tag{5}$$

Where FDI_t, s_t, X_t and u_t represent the FDI at time *t*, the state (regime), the explanatory variables, and the residual term, respectively. Here, the parameters of β_0 and σ^2 refer to the state-dependent intercept and the residual variance, which can also be made state-dependent (heteroskedastic). Thus, we formulated a model with two states.

3.4 Empirical results

The likelihood of the MSM can be evaluated efficiently using the filtering procedure of Hamilton (1990), followed by the smoothing algorithm of Kim (1994). The log-

likelihood, which, as a function of the parameters of the equation above, as well as of the transition probabilities $p_{i|j,}$ can then be maximized, subject to the constraint that the probabilities lie between 0 and 1 and sum to unity. In order to account for the effects of potential factors other than REX and its volatility, we specified a larger model, encompassing the REX and the volatility, plus a set of chosen control variables described above, and labeled it MS-DR1. Then, using a general-to-specific approach, we transformed the model into a parsimonious one by imposing zero coefficient restrictions for the control variables insignificant to explain FDI inflows in MS-DR1. We then repeated the estimation for the restricted model, labeled as MS-DR2. The transportation and communication and real sector confidence indices are represented in their differenced forms to make them stationary. Both models, with regime 0 representing low FDI flows and regime 1 high FDI inflows, converged quickly, and the results are reported in Table 6. Estimated coefficients of the variables appearing in both models are quite close in terms of magnitude and sign. On the other hand, neither of the models presented any confirmation of the impact of REX and volatility on FDI inflows.

Table 6. Results of the Markov switching dynamic regression model.

	MS-DR1	**MS-DR2**
Constant	−0.1063	−0.1086
(regime 0)	(0.6724)	(0.5268)
Constant	1.4602*	1.5910 *
(regime 1)	(0.7441)	(0.6170)
Real effective exchange rate	−0.0007	−0.0003
	(0.0051)	(0.0047)
Conditional volatility	−0.0162	−0.0200
	(0.0125)	(0.0116)
Policy interest rate	0.2199**	0.2125**
	(0.0581)	(0.0461)
Dummy for 2009 measure	0.5789 * *	0.5639**
	(0.1486)	(0.1162)
Inflation	−0.0707*	−0.0724*
	(0.0337)	(0.0308)
Confidence index	0.7674	−
	(0.7238)	−

Transport and comm. İndex	−0.6616	−
	(1.761)	
Agglomeration effect	0.0668**	0.0676**
	(0.02749)	(0.0246)
EMBI	-3.6^{e}-005	−
	(0.0006)	
VIX	0.0091*	0.0093*
	(0.0042)	(0.0030)
Variance	0.2216**	0.2321**
(regime 0)	(0.0244)	(0.02470)
Variance	1.4538 **	1.4724**
(regime 1)	(0.1824)	(0.1931)
Log likelihood	−99.2584	−97.7465
AIC	1.93711	1.8612
Linearity Test (Ch^2)	140.48[0.0000]**	147.44 [0.0000]**

Note: ** denotes the 1% significance level, whereas * denotes the 5% significance level. The standard errors of the coefficients are in parentheses. The control variables are shown in italics. All data set are measured in Million USD.

We have strong evidence of state-dependent heteroscedasticity of residuals, as confirmed by highly significant variance terms across the regimes in both models. The linearity assumption under the null is also rejected in both larger and restricted models. Since the second model is nested in the first, one can proceed to check whether the loss of information caused by the elimination of certain control variables will be statistically significant. To this end, we began with the general-to-specific test. The results are reported in Table 7. Ideally, the parsimonious model, with 13 parameters (as opposed to 16 in the larger model) should have lower values for all three information criteria (SC, HQ, and AIC). However, this is not exactly the case here so using the chi-square test; we clearly fail to reject the restrictions imposed on the larger model, thus favoring a more parsimonious, restricted model.

Table 7. Model reduction test results.

Model	T	P	log-likelihood	SC	HQ	AIC
MS-DR1	119	16	−99.2584	2.3108	2.0888	1.9371
MS-DR2	119	13	−97.7465	2.1649	2.2452	2.1583
MS-DR3	119	8	−116.3897	2.2774	2.1665	2.0986
MS-DR1 −> MS-DR2: $Chi^2(3)$= 1.4215 (0.7005)						
MS-DR2 −> MS-DR3: $Chi^2(5)$= 37.286 (0.0000)**						

Note: MS-DR1 and MS-DR2 are unrestricted and restricted models, respectively; T = number of observations; p = coefficients; p-values in parentheses; ** = significant at the 1% level.

At this point, one might wish to proceed with a further reduction in order to test the validity of a smaller model (shown above as MS-DR3), in which coefficients of all remaining control variables are restricted to zero. With the null of the validity of the restrictions easily rejected at 1%, as expected, the chi-square test with five degrees of freedom does not support a specification with REX and volatility included as only explanatory variables. Since further reduction is not statistically informative, we remain with the parsimonious MS-DR2 specification.

Returning to the MS-DR2 model, we did not see any evidence of the conditional volatility of REX significantly driving the FDI inflows, nor did the level of the REX, which is often considered to be a measure of competitiveness, have any impact on the incoming direct investment. However, five control variables (i.e., the three-month Euribor rate, the dummy variable accounting for the new investment incentive system in 2009, inflation, the volatility index (to measure global appetite on flows), and the agglomeration effect) were found to have strong and highly significant effects on FDI inflows during the timeframe of the study. As expected, the three-month Euribor rate, which refers to the cost of financing investments in the parent country, was positively correlated with FDI inflows into Turkey. In other words, a relative increase in the interest rate in the source country pushed foreign investors to direct their investments into Turkey in order to benefit from the lower cost of

borrowing. Again, as expected, the introduction of the new investment incentive system in 2009 is another explanatory variable that accounts for higher FDI inflows during this period. On the other hand, we observed a strong negative relationship between the inflation level and FDI flows, which means that, as inflation increases, investors are less willing to invest in Turkey to avoid risks associated with the distorted macro-economic indicators. Meanwhile, we have statistically proven the positive impact of both the VIX and the agglomeration effect variables on FDI inflows during the study period. One possible explanation of positive impact of VIX on FDI flows might be that foreign investors are risk averse. When risk-averse investors panic, their horizons shorten, and they no longer care about long-term growth potentials in making their investment choices. Hence, as expected for increases in the VIX, the propensity of foreign investors to invest in Turkey is high, to avoid a volatile market structure at home in the short run. Moreover, again as expected, when the agglomeration effect is high, it becomes one of the dominant drivers of FDI inflows into Turkey. The intuition is that, when investors are panicked about short-run home market structures, the diffusion of information from experienced investors to new investors accelerates and induces new investors to favor Turkey in their investment decisions.

On the other hand, the constant was found to have a positive and significant effect in explaining high FDI inflows (regime 1), while it was found to be non-significant in determining low FDI inflows (regime 0). Moreover, the variances in both regimes were determined to be significant, illustrating once more that the MS-DR model was the best fit for this kind of non-linear data.

Table 8. Transition probabilities between regimes.

	Regime 0, t	**Regime 1, t**
Regime 0, t+1	0.75340	0.73105
Regime 1, t+1	0.24660	0.26895

Table 8 exhibits the transition probabilities between the two regimes (regimes 0 and 1). Since the current state is regime 0 at time *t*, the probability of remaining in regime 0 at time *t*+1 is 0.753, on average, whereas, if the current state is regime 1 at time *t*, the probability of remaining in regime 1 at time *t*+1 is 0.268, on average. In other words, the probability of staying in regime 0 with a relatively low level of FDI inflows is higher (by about 48%) than the probability of staying in regime 1, in which FDI inflows are large. Furthermore, the probability of switching from regime 0 to regime 1 when the current state of FDI is regime 0 at time *t* is about 24%, whereas the probability of switching from regime 1 to regime 0 when the current state of FDI is regime 1 at time *t* is about 73%. Put differently, there is a 73% probability of moving from regime 1 (corresponding to high FDI inflows) to regime 0 (corresponding to low FDI inflows), but it is much harder to move out of regime 0. Therefore, one may assume that the cumulative effect of any shock in the system (in the MS-DR equation) to Turkish FDI inflows is persistent in regime 0, while the FDI response to the shock(s) is temporary in regime 1. It may be necessary to perceive the time duration (i.e., regime classification) of the smoothed probabilities through the transition probabilities.

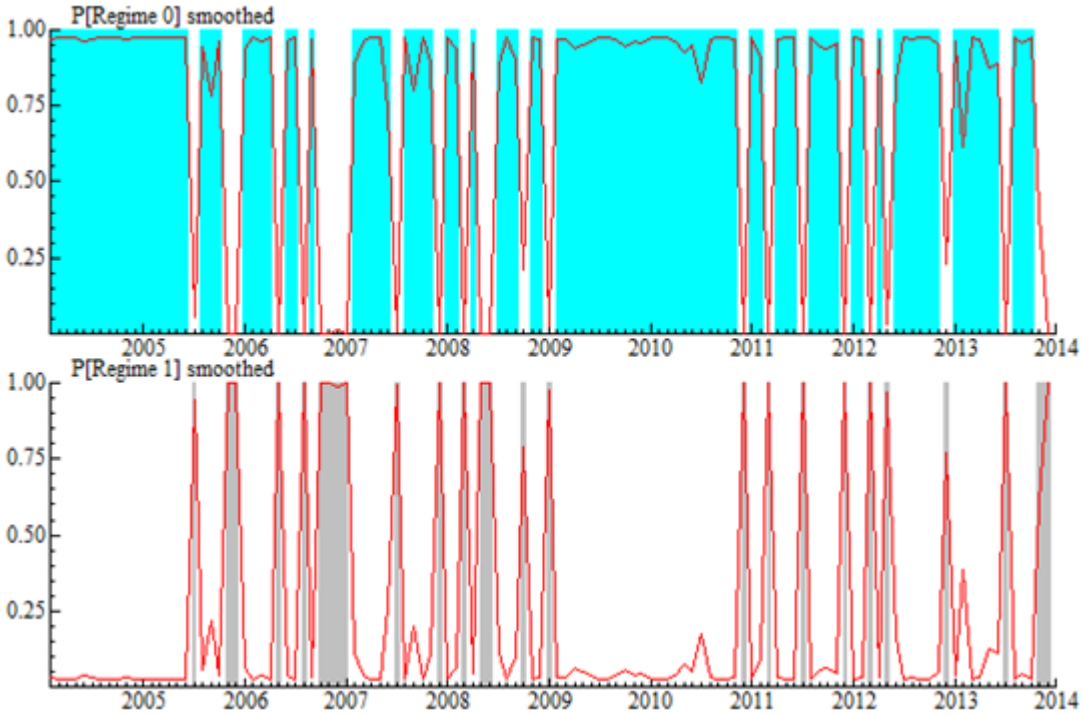

Figure 7. Probabilities of regime 0 and regime 1, smoothed from the MS-DR

Figure 7 gives the smoothed probabilities of regime 0 and regime 1 for the MS-DR model. Regime 0 dominates for about 17 months between February 2004 and June 2005, 22 months between February 2009 and November 2010, and another 6 months between the dates of June to November 2012 and January to November 2013. On the other hand, regime 1 dominates for about four months between October 2006 and January 2007, with the probability of about two months between the dates of November to December 2005, May to June 2008, and November to December 2013. Moreover, while the duration of regime 0 is 93 months, with an average duration of 4.65 months, the duration of regime 1 is 26 months, with an average duration of 1.30 months. This tells us that the low FDI inflows dominate for the time period of the study.

At this stage, one may need to understand the economic motives corresponding to the regime 0 classifications in particular. The period from February 2004 to June 2005

for regime 0 may denote the global economic crisis that erupted because of the application of a low interest rate policy promoting household consumption by the United States and the United Kingdom. This political tool recreated the inflation phenomenon in developed countries and affected all countries, including Turkey, in terms of receivable FDI flows. The other period (February 2009 to November 2010) for regime 0 may have resulted from the global financial crisis (stemming from the collapse of the real estate market, which caused the sudden bankruptcy of many large institutions in the United States). Another contractionary period between the dates of June to November 2012 and January to November 2013 for regime 0 may tell us that the impact of the 2008 global crisis on incoming FDI flows lasted longer than expected, despite the precautions taken to counter these negative effects. On the other hand, the observed high volume of FDI inflows between 2005 and the middle of 2008 may have evolved from the passage of FDI Law 4875 in 2003, which was aimed at promoting FDI inflows into Turkey.

Further, diagnostic tests were conducted to ensure the adequacy of the model for explaining the dependent variable and to capture the different dynamics in different states. The results of the diagnostic tests are reported below in Table 9.

Table 9. Results of descriptive statistics for scaled residuals.

	Distribution	**Statistics**	**Probability**
Normality test	Ch^2	4.9001	0.0863
ARCH 1-1 test	$F(1,79)$	0.2673	0.6062
Portmanteau (36)	$Ch^2(35)$	31.434	0.6410

The tests indicate that the normality assumption of the residuals from the model cannot be rejected and that the models do not exhibit any volatility or serial

correlation, missed as evidenced by the low value of the ARCH and Portmanteau tests and their associated high probability values. Therefore, we decided that the model is adequate to describe the dependent variable and to capture the movements of series in different states. In addition to the descriptive statistics of scaled residuals, we had already observed from Table 6 that the null of linearity of MS-DR was rejected at the 1% level, thus confirming once more that the MS-DR model is the best fit for this kind of data.

The forecasting of the MS-DR model was carried out at the final stage. This may be considered the leading guide for policy makers in their decision-making process concerning FDI in Turkey (Figure 8).

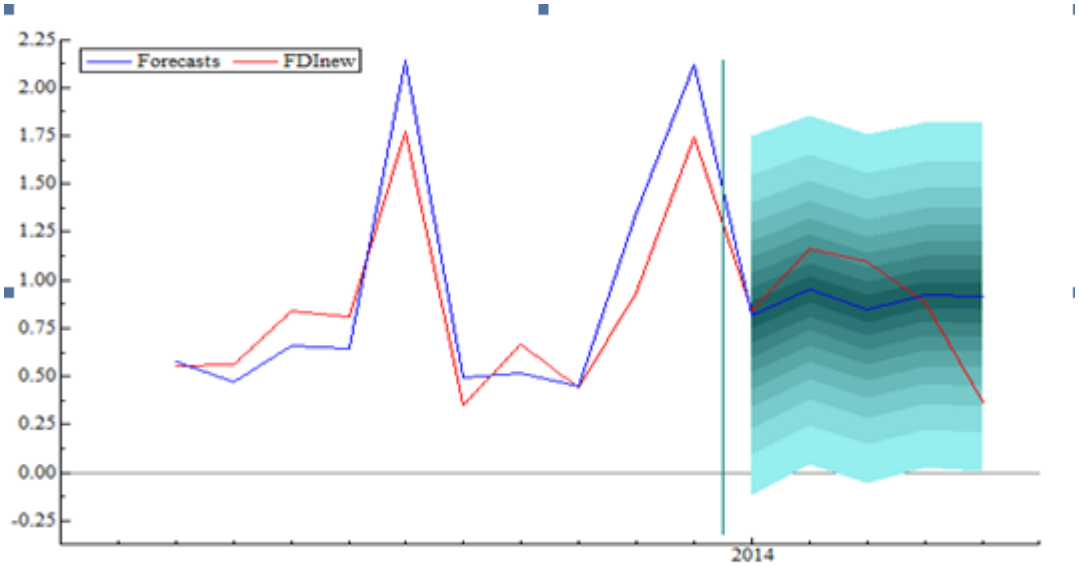

Figure 8. Forecast values for the period from January 2014 to May 2014 (scaled values in billions of USD).

Five observations from the end of the sample have been withheld in order to assess the forecast performance of our model. We observe that falling FDI inflows are predicted to eventually stabilize slightly below $1 billion and to sustain at this level.

Contrary to the expectations of the Turkish government, there is no predicted recovery for the short horizon. Overall, we do not have any single point lying outside the forecast error band. Moreover, we have adequately captured the movements of the forecasted values and the actual values of FDI flows with a minimal gap. Hence, the forecasts perform well, on average. An important implication of Figure 8 is that the impact of 2008 global crisis on incoming FDI flows seems to be persistent, so that outlooks for flows do not foresee any reversal of this decrease in FDI inflows.

3.5 Summary and concluding remarks

The overwhelming majority of the papers focusing on the determinants of FDI have tended to favor the proposition that FDI is a long-term process; thus, economic fundamentals, such as growth, institutional quality, and skill abundance, should be major determining factors. Consequently, the proponents of this approach have tended to view short-term exchange rate fluctuations as either totally ineffective or of little importance. In this context, as far as Turkey is concerned, monthly FDI data certainly do not reflect actual FDI inflows. Since FDI commitments are affirmed long prior to actual cash flows, monthly fluctuations in the exchange rate would fail to influence pre-determined installments.

However, as Wang et al. (2013) stated, "FDI is far from monolithic but encompasses many different types of investment activities. There are four major modes of FDI – M&A, joint venture, new plants and other FDI – and each has its own unique characteristics, advantages and disadvantages." For example, contrary to the three other modes of FDI, M&A FDI provides a competitive advantage to the acquiring firm by accelerating its attaining to the firm-specific ownership advantages (e.g.

royalty or company brand) of the other firm *immediately*. Thus, M&A FDI may be one of the quickest modes of entry into a foreign market.

There are good reasons for investigating the factors to which M&A activity is particularly sensitive, given the importance of this type of investment (among other forms of FDI) in Turkey. Many previous studies have suggested that financial factors, particularly exchange rate considerations, rank highly among the influential effects. For instance, Aminian et al. (2005, p.3) stated the following:

> "Currency collapse and large exchange rate depreciation make foreign investment more profitable or, to put it differently, a relatively stronger home currency leads to a higher level of M&A activity and an increase in the wealth of the target and acquirer's shareholders around M&A announcements. Second, to the extent that exchange rate uncertainty has deleterious effects on foreign investment, monetary integration or, at least, deep financial markets could enhance economic growth and give incentive to investment abroad."

Indeed, we observed the existence of strong volatility, captured by a significant GARCH effect, corresponding particularly to the 2008-2009 global crisis period. Some occasional fluctuations were also indicated in the form of sharp spikes throughout the sample, though these should be considered one-shot (i.e., short-lived) surges.

On the other hand, we failed to find any evidence supporting the effects of the RER level or its volatility on monthly FDI inflows for the period from January 2004 to May 2014. The empirical evidence here suggests that, although the adverse effects that occurred in the aftermath of the financial collapse might have caused drastic reversals of FDI inflows, a similar upsurge in volatility in the same period cannot account for this trend alone. We maintain that foreign investors may have hedged against exchange rate risks to avoid uncertainties in the market. Instead, with regard to the impact of global risk appetite on FDI flows, we have found a similar result

supporting the idea of Nier et al. (2014), claiming that "when the VIX is high (that is, in periods of global financial stress) the VIX becomes the dominant driver of capital flows to emerging markets, leading to indiscriminate outflows as the importance of fundamental factors, including growth differentials and levels of public debt, diminishes." Accordingly, we attributed the positive impact of the VIX on FDI flows in Turkey to the impatience of foreign investors to avoid high volatile risks. Driven by panic caused by a rising VIX, risk-averse investors' horizons shortened. Consequently, they changed their investment choices in favor of emerging markets in the short run. Additionally, we found evidence that the impacts of the 2009 measures, decreasing inflation, and the agglomeration effect can be listed among the pull factors, whereas the policy interest rate in the region, sending the most FDI, could similarly be a strong push factor in driving FDI inwards into Turkey

Chapter 4

DETERMINANTS OF FDI INFLOWS TO TURKEY: A SECTORAL APPROACH

4.1 Introduction

International trade and FDI flows have stood out as the fastest-growing economic activities in the global environment in the last two decades. A critical analysis of the global FDI flows data issued by the UNCTAD (2008) announced that global FDI inflows have increased gradually over the years and reached a peak level of $1.833 billion in 2007, with a 30% increase. Despite the growing interest in FDI inflows, the major reasons behind foreign investors seeking a country in which to invest and the uneven spatial distribution of FDI across countries remain unknown in both the theoretical and the empirical international business (IB) literature. Moreover, an analysis of the FDI literature reveals that most of the previous works have concentrated on firm-specific and locational factors in determining FDI. However, the "ownership–location–internalization" (OLI) paradigm developed by Dunning (1998) indicated the significance of industry characteristic differentials in determining FDI, and Dunning (2000, p.165) stated from Dunning's OLI paradigm:

> "it may be hypothesized that some sectors, e.g., the oil and pharmaceutical sectors, are likely to generate more FDI than others, e.g., the iron and steel or aircraft sectors, because the characteristics of the former generate more unique O advantages, and/or because their locational needs favor production outside of their home countries, and/or because the net benefits of internalizing cross-border intermediate product markets are greater."

As it appears from Dunning's OLI paradigm, firm-specific and locational factors vary across industries and sub-sectors. Accordingly, this research is built explicitly on Dunning's OLI paradigm. Furthermore, the main objective of this study is to seek the major determinants of the FDI inflows into the sub-sectors of manufacturing in Turkey separately for the period between 2007- 2012.

We contribute to the literature in several respects. First, to our knowledge, we are the first to examine the determining factors of FDI in the manufacturing sub-sectors in Turkey simultaneously by employing the panel data technique. Second, even though the dependence of FDI on energy prices is vitally essential, there are few studies emphasizing its significance. Given the significance of energy prices in the FDI literature, according to our knowledge, this study is first in its field. Third, with appropriate data, we are able to show that FDI in manufacturing sub-sectors responds to sector-specific variables and risks in the market of the host country (Turkey) and the home country (the US).

4.2 Sectoral Breakdown of FDI Inflows into Turkey

As it appears from both Table 10 and Figure 9, the analysis of the sectoral distribution of FDI inflows into Turkey reveals that the service industry is the main sector in terms of receiving the most FDI inflows into the country between 2003 and 2012. Following the service sector, the manufacturing and energy sectors (electricity, gas, and water supply) received the highest FDI inflows between these years.

Table 10. Sectoral Distribution of FDI Inflows, 2003–2012 (Millions of USD)

Sectors / Years	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**
Manufacturing	347	206	865	1,70	4,131	3,97	1,64	923	3,57	4,39
Construction	8	2	81	215	287	337	209	314	301	1,45
Financial intermediation	54	127	3,8	6,95	11,71	6,13	817	1,62	5,88	1,44
Electricity, gas, and water supply	87	63	2	1,16	567	1,05	2,15	1,82	4,24	924
Health and social work	3	0	26	71	176	147	105	112	231	545
Administrative and support service activities	0	0	17	30	2	25	6	0	47	242
Wholesale and retail trade	177	36	78	456	234	2,08	390	435	709	219
Mining and quarrying	13	74	41	123	336	145	89	135	146	214
Real estate renting and business activities	0	1	216	79	448	453	210	241	300	179
Transportation and storage	0	6	21	453	679	96	230	182	223	131
Telecomm.	2	670	3,2	6,35	472	97	173	36	36	114

Source: Derived from the Central Bank of Republic of Turkey Statistics (www.tcmb.gov.tr**)**

As shown in Table 10, financial intermediation is the major sub-sector of the service industry that has attracted the most FDI inflows between these years. It has been increasing since 2005 as a result of the implementation of the new foreign investment law, 4875; the EU's negotiation for accession, and the good performance of the Turkish financial sector recently. Growing interest in Turkey as an appropriate investment destination led FDI inflows to reach a peak level, 11,717 million USD in

2007. However, a sharp drop in 2009 took place, from 6,136 million to 817 million USD, due to the 2007 global financial crisis. As the second-largest sector, manufacturing has also attracted a good amount of FDI inflows into the country. It has been gradually increasing since 2005 and reached a peak level, 4,131 million USD, in 2007.In contrast with the service sector, the manufacturing sector continued to attract a good amount of FDI in spite of the financial crisis. FDI inflows into this sector constituted 1,642 million in 2009, and it was ranked as the largest sector of that year.

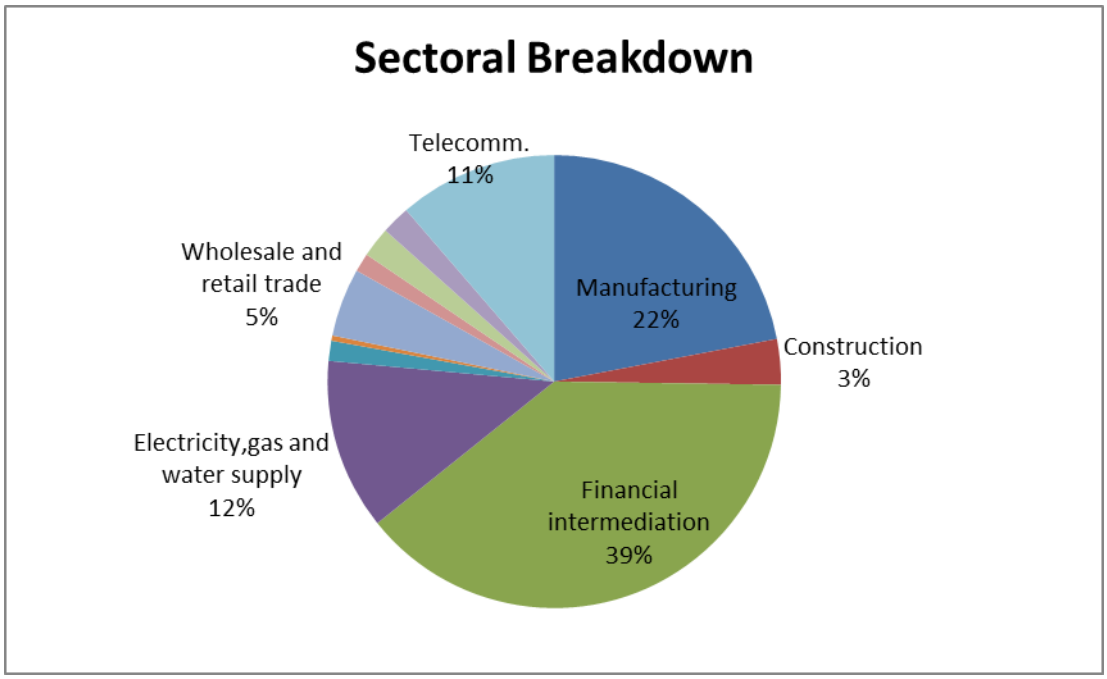

Figure 9. Sectoral breakdown of FDI inflows, 2003–2013 (in millions of USD).
Source: Data derived from the Republic of Turkey Prime Ministry Under secretariat of Treasury. http://www.treasury.gov.tr/

However, electricity and gas, and water supply ranked as the third-largest sector by a 12% share in total FDI between these years. The main reason for the greater FDI in this sector is attributed to the growing interest in renewable energy resources and relevant advantages provided by the new Electricity Market Law, 4628.Finally, the

telecommunications sector is the fourth-largest sector as a sub-sector of the service industry. This sector has ranked as the second-largest sector of 2006 and attracted 3,263 million USD in 2005 and 6,353 million in 2006.

4.3 Sectoral Determinants of FDI Inflows

Even though there is a huge body of literature investigating the factors that affect foreign capital, only a few studies have engaged in identifying the determinants of FDI at the sectoral level. In fact, the factors responsible for motivating foreign investors to invest in a country may vary by the type of industry. Hence, we divided the sectors into three groups: the primary, secondary, and tertiary sectors. Doing so enabled us to explain the industry-specific factors debated in the FDI literature.

4.3.1 Primary Sector

Since this type of investment is resource-driven, there are almost no empirical studies that have investigated the factors pulling FDI toward the primary sector in the host country. One of the handfuls of studies in the literature that can be mentioned here belongs to Walsh and Yu (2010), who argued that the relationship between the macroeconomic variables and the primary-sector FDI is minimal due to the nature of investments that are aimed to extract resources. They concluded that the primary sector is generally capital-intensive, such as mining and petroleum, rather than labor-intensive, and the output in this sector is priced in dollars rather than the domestic currency with little or no relation to the domestic financial system. Therefore, it is not surprising that the primary sector is not related to the macroeconomic variables such as production cost and labor cost in the host country. The other empirical study on this sector belongs to Nauwelaerts and Beveren (2005), who claimed that FDI directed toward the primary sector is mostly centered in the countries which are abundant in terms of natural resources.

4.3.2 Secondary and Tertiary Sectors

FDI inflows into the secondary and tertiary sectors show more linkages to macroeconomic and qualitative variables than FDI toward the primary sector. However, the secondary and tertiary sectors' responsiveness may vary according to each factor responsible for explaining FDI flows. Yeo et al. (2008, p.3) stated, "Most of FDI in service industry tends to be market-seeking, implying that the determinants of inward FDI in the service industry may differ from those in the manufacturing industry." Therefore, a quick summary of the differences between the two sectors is presented in terms of the possible impact of the explanatory variables that have been debated in the literature so far.

Market Size. The market size shows the demand side in the host market and is accepted as a key factor affecting FDI. But some researchers, like Yeo et al. (2008), have argued that the impact of the market size on FDI inflows may vary with the type of industry, requiring market-seeking FDI or resource-seeking FDI. They confirmed that the market size is a major determinant of FDI inflows into the Korean service sector rather than the manufacturing sector, since the service sector is mostly market-oriented rather than export-oriented. However, Awan, Khan, and Zaman (2011); Karim et al. (2003); and Xing (2006) also found a positive relationship between market size and FDI in the manufacturing sector because the foreign investors in this sector were also market-oriented rather than export-oriented.

Regulations. The legal restrictions associated with business activities comprising various taxes, regulations on trade like tariffs, incentive policies aimed to attract FDI, or sector-specific restrictions on foreign ownership and entry might be considered important determinants of FDI in the host country. However, since FDI policies are

generally sectoral in nature, sector-specific regulations may be much more important in explaining FDI flows than the host country's general policies. For example, Shapiro and Globerman (2003) stated that sector-specific policies or regulations deter FDI flows more than general policies, and the importance of these regulations may vary for each sector.

Political Stability. Most of the previous studies have argued that political uncertainty affects the overall FDI inflows negatively. However, this impact may vary in terms of its significance and its direction across sectors and sub-sectors. For example, Desbordes (2007) explained in his study of a sectoral analysis of the US's FDI in developing countries that political uncertainties regarding FDI are largely dependent on industry-specific characteristics. He claimed that FDI in both capital-intensive and vertically integrated industries is affected negatively by political instability based on two approaches: the real options (RO) approach and the supply chain risk management (SCRM) approach. However, labor-intensive industries and horizontally integrated industries are less affected by political uncertainties in the host country, since multinational firms (MNFs) can shift their production from one place to another in the case of a horizontally integrated industry and do not need to make irreversible investments in the case of a labor-intensive industry. In addition, Kundu and Contractor (1999) found that political stability, which is valid as a determinant for the manufacturing sector, is not valid for global hotel chains, which are among the world's largest service sectors.

Macroeconomic Stability. Since MNFs are subject to extra costs to ensure protection against risk occurring due to economic instability, macroeconomic stability can be regarded as another core factor that foreign firms take into

consideration when investing in a country. Most of the empirical studies have peroxided inflation as an indicator of economic stability in a host country since there is a strong positive linkage between these variables. Desbordes (2007) showed that FDI in vertically integrated industries deteriorates as a result of macroeconomic uncertainties more than FDI in horizontally integrated industries due to the inability of MNFs to sustain their operations in their home country because of an impediment to one stage of production located in the host country. He also argued that capital-intensive industries are much more exposed to macroeconomic risks than labor-intensive industries due to the nature of irreversible investing.

Labor Market Flexibility. Radulescu and Robson (2013, p.582) stated, "In the literature, flexibility refers to the ability of employers to adjust the level of employment in response to the changing economic conditions." Therefore, in principle, tight job protection through labor market regulations is generally thought to affect FDI inflows into a country negatively. However, empirical studies examining the impact of this explanatory variable on FDI suggest that this impact may vary in each sector to some extent based on the structure of these sectors. For example, while Javorcik and Spatareanu (2005) claimed that labor market flexibility is a more important factor in the service sector than in the manufacturing sector, Radulescu and Robson (2013) argued the opposite point of view.

Labor Cost and Quality. A lower labor cost is another motive for a certain level of foreign capital movement, particularly in labor-intensive industries that do not require highly educated employees. However, capital-intensive industries generally require a well-educated workforce rather than cheaper labor. For example, Liu, Daly, and Varua (2012) investigated the locational determinants of FDI in China by

dividing the manufacturing sector into two groups: low-tech and high-tech. They concluded that, while labor cost has a significant negative effect on the low-tech manufacturing sector, it does not play an important role in the high-tech manufacturing sector. Moreover, Yeo et al. (2008) concluded that labor cost is the major determinant of the Korean service sector, which is mostly labor-intensive.

Clusters. "Cluster" or "agglomeration" refers to the geographic proximity of groups of companies and associated institutions in a particular field, engaged with partnerships and integrations. Clusters are crucially important for potential future FDI since they are assumed to be a signal to foreign investors of a good business climate in the host country, to accelerate the diffusion of know-how and technology, to create economies of scale, and to generate a network for customers and suppliers. Therefore, the existence of an agglomeration increases the comparative advantage of a certain sector, and in doing so, will pull more FDI to that sector. For example, Gross et al. (2005) found that the existence of Japanese firms in the manufacturing sector of Europe pulled FDI in both the manufacturing and service sectors. Furthermore, Pelegrın and Bolance (2008) showed that, even though the agglomeration effect matters for the manufacturing sector of Spain, the degree of this effect may vary with the specific need of each industry, such that, while industries with a high degree of intra- and inter-industry connections are likely to be attracted to regions featuring the same industrial activity, cost-oriented industries are not affected significantly by the agglomeration effect. Moreover, Barrell and Pain (1999), Walsh and Yu (2010), Wheeler and Mody (1992), and Yeo et al. (2008) all found strong evidence of clustering effects on future potential FDI flows.

Real Effective Exchange Rate. The effect of the exchange rate level on FDI inflows varies across industries due to each industry's own specific characteristics. For example, the manufacturing sector is thought to be more closely related to exchange rate movements than the service sector, because FDI toward this sector is mostly export-oriented. For example, Walsh and Yu (2010) showed that, while a depreciated real effective exchange rate is good for the manufacturing sector, the opposite is true for the service sector. They substantiated this by stating that FDI is related to a low labor cost, which is also associated with a depreciated host currency, but the service sector is associated with higher wages and profits.

Exchange Rate Volatility. Uncertainty or fluctuations experienced in the exchange rate play a role in shaping the investment decision of MNFs. In other words, fluctuations in the host country's exchange rate create a risk factor for MNFs due to uncertainty about the future benefits and costs of irreversible investment projects and the flexibility of investment timing. But the sensitivity of FDI to exchange rate variations may differ across industries and sub-sectors. For example, most of the empirical studies have suggested that the manufacturing sector has a stronger reaction to exchange rate movements than non-manufacturing sectors. Since FDI in the manufacturing sector is mainly associated with importing capital and exporting production in the international market, whereas non-manufacturing sectors mostly aim to serve the domestic market, FDI in the manufacturing category is highly exposed to exchange rate uncertainties. For example, Aranyarat (2012) found that the FDI in each sector fluctuates to different degrees with the exchange rate risk, such that these differences emerge because of operational differences in the sectors.

Openness to Trade. In principle, an open economy is most likely to be linked to vertical FDI, since its main objective is to export production abroad or re-export production to the home country. Conversely, if MNFs intend to invest in a foreign market when there is a trade barrier that imposes a considerable cost on the firm, a high degree of openness may also have an undesired negative effect on horizontal FDI. In principle, FDI directed to the manufacturing sector is often export-oriented and, therefore, most likely to be affected by the openness index. However, this may not hold for FDI in the service sector, which is generally market-seeking. For example, Awan, Khan, and Zaman (2011) found that a high degree of openness is a key determinant of higher FDI inflows into the commodity-producing sector of Pakistan. Feng (2011) and Walsh and Yu (2010), however, showed that FDI in the service sector may also be positively related to the degree of openness to trade due to the greater liberalization of this sector.

Institutions. The quality of institutions also plays an important role in attracting foreign investors to direct their operations toward a foreign market. Countries with a low level of corruption and a high level of protection of property rights are preferred by MNFs due to the diminished risk and cost of conducting business. Moreover, poor governance is an indicator of low economic growth, which can be an unfavorable signal to foreigners regarding FDI activity. However, due to the lack of an appropriate proxy or reliable data material to represent the quality of institutions, empirical studies that relate FDI to the quality of institutions are scarce. Wei (2000) employed different measures of corruption, but concluded that corruption has a deterring effect on FDI inflows. The sectoral study by Iverson and Jonsson (2003) also emphasized the quality of institutions for FDI inflows. They also suggested that

the development of institutions creates an incentive for foreigners to establish technological linkages to improve their own firm-specific competencies, not only in the manufacturing sector, but also in the service sector.

4.4 Data and Methodology

4.4.1 Data

Dependent Variable

FDI inflows into the manufacturing sub-sectors were determined as our dependent variable. We obtained FDI inflow data for 13 sub-sectors of manufacturing from the *Central Bank of Republic of Turkey* data dissemination server (http://www.tcmb.gov.tr/). The classification of manufacturing sub-sectors as follows: food products, beverages and tobacco; textiles and textile products; leather and leather products; wood and wood products; pulp, paper, paper products and publishing and printing; coke-refined materials; rubber and plastic products; other non-metallic mineral products; basic metals and fabricated petroleum products and nuclear fuel; chemicals, basic pharmaceutical products and metal products; machinery and equipment not elsewhere classified (n.e.c.); computers, electronic-electrical and optical equipment; and transport.

Independent Variables

We determined the following to be the most important macroeconomic and sector-specific explanatory variables. While the country risk (CR) indices of Turkey and the US are determined to be macroeconomic risk factors of both the host and home countries in the analysis, the turnover indices of each sub-sector, energy prices, and tax rates on commercial profits are specified as the most important sector-specific explanatory variables in the manufacturing industry. Moreover, a dummy variable is included in the model to account for the 2009 investment incentive system. As

detailed below, the CR index is a composite of the financial, economic, and political risks that emerge in both host and home countries. The CR indices for Turkey and the US come from the Political Risk Service (PRS) Group's *International Country Risk Guide 2012* (http://www.prsgroup.com/). Furthermore, while the turnover index of each sub-sector is attained from the *Turkish Statistical Institute*'s data dissemination server (http://www.turkstat.gov.tr/), we obtained energy prices from the data dissemination server of the *Organization for Economic Co-operation and Development* (OECD) www.oecd.com . Additionally, tax rates levied on commercial profits are obtained from the World Bank (http://www.worldbank.org/). Definitions of data and expected signs of the coefficients are given below.

Country Risk Indices for Turkey and the US. The CR is a composite index of the financial risk, political risk, and economic risk indices of Turkey and the US for the period between 2007 and 2012. Due to the dominant share of FDI inflows into Turkey sourced from both the EU area and the US, we included the CR index of the US to account for risks originating in the home country. [See the study of Bilgili et al. (2012)]. At this point, one may question the exclusion of CR index EU from the model. The CR indices of both the USA and the EU area could not be employed together due to high correlation between the CR indices of these countries. This result is not surprising because the USA and EU are developed countries having similar CR rates. Overall, the data points of the CR index range from very high (00.0–49.5) to very low risk (80.0–100), which means that, as the points are lower, the risks are higher. In other words, the higher the value of the CR index, the lower the aggregated FDI risk for Turkey. Therefore, we expect that an increase in Turkey's index may have a positive effect on FDI inflows; however, the CR index of the US is expected to have a negative effect on FDI in Turkey.

Turnover Index of Manufacturing Sectors. The turnover index is calculated based on the Laspeyres index method (weighted) with a fixed base year (2005). The data used in the calculations of the index are derived from the Monthly Industry Production Questionnaire. Since the turnover index here is taken as a proxy for the profitability of each manufacturing sub-sector, a positive effect on FDI is expected.

Dummy Variable to Account for the July 2009 Measures. A new incentive system that includes a variety of new implementations to improve the investment conditions in Turkey came into effect on July 16, 2009. Based on this; new additional reinforcements have begun to be implemented on a sectoral and regional basis. According to the Under secretariat of Treasury, General Directorate of Foreign Investment (2009), "out of the total investment amount of USD 6.5 billion, USD 1.9 billion was evaluated within the scheme of Large Scale Projects (6 certificates) and 97% of the six incentive certificates was issued for manufacturing sector." Therefore, it will be appropriate to include a dummy variable that takes the value of 1 after July 16, 2009, and 0 for previous years in order to capture the effect of this new incentive system for FDI inflows in manufacturing sub-sectors. Since the main objective of this new incentive system is to improve the FDI inflows and reduce the aggravating effect of the global economic crisis, a positive impact of this variable on FDI is expected.

Energy Prices. Energy prices can be regarded as another prominent factor to explain movements in FDI flows into the manufacturing sub-sectors. Elektirik Üretimi Anonim Şirketi (EÜAŞ) (2011, p.10) reports, "total electricity production in Turkey by 2011 sourced mainly from natural gas by 44.7%, domestic coking coal by 18.2%, hydraulic resources by 22.8%, imported coking coal by 10%, fuel oil by 1.7% and

wind by 2.1% and finally geothermal and biogas by 0.5%." As it appears, the main contribution of electricity production comes from coking coal and natural gas by around 72.9%. Given the fact that electricity is the major input in total manufacturing industry and each sub-sector, the inclusion of the prices of coking coal and natural gas into the model is warranted. [See the study of Bilgili et al. (2012).]

Total tax rates (% of Commercial Profits). The World Bank defines total tax rates as "…the amount of taxes and mandatory contributions by businesses after accounting for allowable deductions and exemptions as a share of commercial profits. Taxes withheld (such as personal income tax) or collected and remitted to tax authorities (such as value added taxes, sales taxes or goods and service taxes) are excluded." Since higher tax rates on commercial profits are an extra cost factor reducing profitability for foreign investors, this type of tax can be regarded as among the principal determinants of FDI inflows in manufacturing industry. Thus, its inclusion in the model is warranted. [See the studies of Swenson (1994) and Hartman (1984).]

Table 11. Expected Signs of Coefficients

Variable	Effect
CR indices of Turkey	+
CR indices of the USA	-
Dummy for 2009 Measure	+
Manufacturing Turnover Indices	+
Tax Rates	-/+
Price of Coking Coal	-
Price of Natural Gas	-

4.4.2 Methodology

To estimate the determinants of disaggregated FDI into the sub-sectors of manufacturing industry in Turkey for 2007 and 2012, balanced panel data were

obtained from a pool of 13 manufacturing sub-sectors. The main reason for collecting a panel data set is generally to allow unobserved factors (here, sector-specific factors, denoted by a_i), to be correlated with the explanatory variables. In panel data analysis, unobserved factors are allowed to affect the dependent variable with the existence of two types. The first ones are those that are constant over time, and the others are those that change over time. Consider an unobserved effect model with k explanatory variables:

For each i,

$$y_{it} = \beta_1 x_{it1} + \beta_2 x_{it2} + ...\beta_k x_{itk} + a_i + u_{it}, t = 1, 2....., T.$$

Here the parameters of interest $\beta_k x_{itk}$ cannot be estimated by pooled OLS, because OLS assumes that a_i is uncorrelated with the explanatory variables. Therefore, the results will be biased and inconsistent with OLS and the resulting bias is called heterogeneity bias. However, there are two panel data models that are used to eliminate the problem of heterogeneity bias in pooled OLS. These are called fixed-effect transformation (FE) and random-effect (RE) models. We are able to eliminate the unobserved effect, a_i, from the equation and therefore the problem of heterogeneity bias by averaging the unobserved effect model over time for each i, by using the time demeaning on each explanatory variable and then subtracting it from the first equation. The aim of the fixed-effect transformation is to eliminate a_i since it is thought to be correlated with the explanatory variables. However, in the case of the random effect, this is not the case, such that a_i is assumed to be uncorrelated with each explanatory variable in all the periods. The superior side of the random effect

across the fixed effect is to allow us to include unobserved variables in the model that are constant over time.

Prior to the estimations, consistent with econometric theory, the Lagrange multiplier (LM) test and Hausman (1978) test are carried out to determine the existence of a random effect and to ascertain which model is superior to the other, respectively. The LM test is conducted to test for the presence of heterogeneity by testing the null hypothesis $H_0 = \sigma^2_a = 0$ against the alternative $H_1 = \sigma^2_a > 0$. If one rejects the null hypothesis, which means there is a random effect. Otherwise, failing to reject the null hypothesis implies that $a_i = 0$ for every sector and there are no sectoral differences and no heterogeneity to account for. On the other hand, to check for the presence of any correlation between the unobserved factors, a_i and regressors in the random effect, we can use the Hausman test. The idea underlying the Hausman test is that the estimators of both RE and FE are consistent and converge to the true parameters β_k in large samples, if there is no correlation between a_i and the explanatory variables x_{itk}. That is, in large samples, if we fail to reject the Hausman test, the RE and FE estimates are similar; otherwise, rejecting the Hausman test means that a_i is correlated with any x_{itk} and the random-effect estimator is inconsistent while the FE estimator remains consistent.

Overall, to capture the impact of determinants of FDI on each sector of industry, the model can be formulated as follows:

$$y_{it} = \beta_0 + \sum_{k=1}^{K} \beta_k x_{itk} + u_i + \varepsilon_{it}, \qquad \text{t=1, 2…T, i=1, 2…N (1)} \qquad (6)$$

where the i and t subscripts account for the sector and period indexes, while X_{itk} represents the set of explanatory variables described above and u_i and ε_i represent the unobserved sector-specific factors and random error term, respectively.

4.5 Empirical Results

Prior to the estimation, we must decide whether the pooled model across each sub-sector under the same slope and intercept assumption or a model allowing sector-specific effects is valid. Since the former implies that variance of the country-specific effect is zero under the null hypothesis, we first carry out the Lagrange Multiplier (LM) test (Breusch and Pagan, 1980) by adopting a random effects (RE) specification to determine the existence of an RE against no effect. Once the pooled model is rejected, we must choose between the fixed effects (FE) and RE specification by using the Hausman test. To implement this, the models are first estimated by FE and then by RE, and the results are stored in each turn. Under the null hypothesis, the RE is both efficient and consistent; otherwise, it is inconsistent. Thus, we rely on the test statistics of RE. The test statistics and p-values of RE results are presented in Table 12.

Table 12. Estimation Results

	Coef.	Std.Err.	Z	P>Z
Constant	34.09938	25.44837	1.34	0.180
Compturk	.3652115	.218395	1.67	0.094
Compusa	-.6936654	.2858596	-2.43	0.015**
Dummy for 2009	1.772729	.8187501	2.17	0.030*
Manturn	.0532919	.0200335	2.66	0.008**
Tax	-1.281503	.6307402	-2.03	0.042*
Price of Coking Coal	-.0241177	.0115289	-2.09	0.036*
Price of Natural Gas	.0426987	.0547439	0.78	0.435
LMTest Statistics	10.62 (0.0006)	**HausmanTest Statistics**	(0.29) (0.9999)	**Sample Size** 68

** denotes the 1% significance level, while * denotes the 5% significance level. While Compturk and Compusa denote the CR indices of Turkey and the USA respectively, Manturn represents the turnover indices of each sub-sector of the industry. Both dependent and independent variables are in US millions except indices.

As shown in Table 12, there are five explanatory variables significant in driving FDI in each sector. These are, namely, CR indices of the USA, turnover indices, the dummy for the 2009 measure, taxes, and the price of coking coal. All the variables have expected signs.

The CR indices of the US have a 1% significance level and a negative effect as well. As the confidence indices of the US increase, potential FDI inflows into each sector in Turkey decrease since foreign investors may feel much more confident about investing in the parent country. In other words, US investors are likely to hold their investments at home or draw back substantial ones when they are more optimistic about the home market. Conversely, US investors are unresponsive to the CR indices of Turkey. That means that US investors still see Turkey as an ideal destination for investment during times of contraction.

Furthermore, the turnover indices of each manufacturing sector are highly significant with a 1% significance level, and they also have the expected sign. Foreign investors

are much more likely to invest in the sector with a high turnover index. This result demonstrates that FDI movements into each industrial sector depend on the profitability degree of that sector.

Moreover, the dummy variable for the 2009 measure is again significant and has the expected sign. This result is not surprising in that the aim of the new investment incentive system of 2009 was to offer new implementations that please more investors at the sectoral and regional bases. Most of the emphasis was given to the manufacturing sector such that 97% of USD 1.9 billion of the Large Scale Projects was issued for that sector. Hence, a positive relationship between FDI and the 2009 measure, a prominent goal of the government, has been confirmed with this study.

Tax rates, which are a primary cost factor reducing profitability, are a significant and expected sign. That means foreign investors are sensitive to the taxes on profits, and they are likely to decrease investments in an industry to avoid higher tax payments. This result points out that investors in an industry are explicitly profit-oriented and they are less willing to move to the sectors with high tax payments.

Additionally, energy prices are the most prominent variables in explaining movements of FDI in an industry. The main inputs of electricity production come from coking coal and natural gas. Hence, given the dependence of the manufacturing sector on electricity, these are the most prominent energy prices to be correlated with FDI in the industry. According to the results, the price of coking coal is significant and has the expected negative sign. This means that, as the price of coking coal increases, investors are less willing to invest into the industry to avoid higher primary resource costs. This result again points out the fact that investors are mainly

profit-oriented and motivated by lower primary production costs. However, the price of natural gas is insignificant with an unexpected positive sign. One possible explanation of the unresponsiveness of investors to natural gas prices might be that the share of natural gas in the production of electricity and, therefore, demand gradually decreases over time. EÜAŞ (2011, p.9) reports that the share of the application of natural gas in the industrial electric sector decreased from 36.1 million m^3 to 32.4 million m^3 in 2009 and 31.6 million m^3 in 2010.

On the other hand, Tunç et al. (2007) noted that "Electricity production, transmission and distribution' sector is decomposed into 'thermal electricity' and 'electricity produced from renewable sources and distribution' by using shares of these types of electricity produced in Turkey in 1996". Thermal electricity production uses hard coal 33.8 TOE/TL and natural gas 7.9 TOE/TL whereas electricity production from renewable resources uses hard coal 1.8 TOE/TL and natural gas 4.4 TOE/TL. Owing to the fact that the recent contribution of electricity production comes from renewable energy sources rather than thermal electricity, one may expect that demand for hard coal and natural gas may decrease for coming years.

4.6 Summary and Concluding Remarks

In the last two decades, the cross-border activities of MNFs and the FDI concept have become a priority for both developed and developing countries due to their vital role in the globalization of international trade and national economic growth. Despite the growing interest in FDI, substantial uncertainty still exists regarding what stimulates foreign investors to operate in a foreign market. In addition, most of the previous studies have attributed the determinants of FDI to locational and firm-specific factors. However, these factors may vary across industries and their sub-

sectors. Therefore, this research was built explicitly on Dunning's OLI paradigm. Accordingly, the main objective of this study was to seek the major determinants of the FDI inflows into the sub-sectors of manufacturing in Turkey separately to avoid a distorted empirical prediction concerning the total FDI, which is greatly neglected in the FDI literature.

The novelty of this study is threefold: In the first place, the determinants of total FDI inflows into the manufacturing sub-sectors of Turkey were investigated for the first time. Second, the effect of unconventional push factor variables such as the CR indices of the US as well as country-specific CR indices is taken into consideration. Third, although the study of Bilgili et al. (2012) is the first in terms of looking for the correlation between FDI and energy prices in Turkey, they have failed to decompose the total industry into its sectors. Since energy prices are primary inputs of the manufacturing sector, a better way to capture the real effect on FDI is, therefore, to consider only the manufacturing sector. Inclusion of the service sector with different features may give misleading results. Hence, this study fills the gap in this field, and for the first time, the dependence of FDI on energy prices is analyzed for only the manufacturing industry.

Furthermore, there are several important implications of the findings. Despite the likelihood of potential reversals in FDI inflows during economic expansion times at home, foreign investors are unresponsive to the political, economic, and financial structure of Turkey. In other words, they disregard the risk in the host market. However, tax rates, energy prices, turnover indices, and the 2009 measure have the power to explain movements in the industry. These findings show that foreign investors are highly profit-oriented and motivated negatively by the primary cost

factors of production such as taxes and energy prices and positively with high turnover indices. Hence, the positive reaction of investors to the 2009 measure is not a surprise, which provides several implications such as tax reductions, custom duty exemptions, and a value-added exemption. Accordingly, this study's suggestion to FDI policymakers could be to improve or create new investment incentive programs that have the power to attract investors. Additional advice may be to re-regulate tax systems and the energy market and re-adjust energy prices to please existing and potential future investors.

Chapter 5

DETERMINANTS OF FDI IN CENTRAL AND EASTERN EUROPEAN COUNTRIES AND TURKEY: A COMPONENT-WISE STUDY

5.1 Introduction

International trade and FDI flows stand out as the fastest-growing economic activities in the global environment in the past two decades. A critical analysis of global FDI flow data issued by UNCTAD (2008) showed that global FDI inflows have increased gradually over time, reaching a peak level of $1,833 billion in 2007 (a 30% increase over 2006). Despite the growing interest in FDI inflows, the major reasons that foreign investors seek countries in which to invest and the uneven spatial distribution of FDI across countries still represent unanswered questions in both theoretical and empirical international business literature. An apparent consensus in the extant literature shows that previous studies have focused their attention primarily on independent explanatory variables, rather than on the nature of FDI. Hence, as Oseghale and Nwachukwu (2010, p.497) noted, "it is not surprising that FDI has been operationalized in prior literature as a monolithic variable rather than a multidimensional one."

FDI consists of three main components (new equity, reinvested earnings, and inter-company debt flows), such that FDI includes, not only initial transactions, but also subsequent equity and debt transactions. A distinctive feature of FDI is that

subsequent components of total FDI depend on the timing of the initial equity investment. That is, subsequent components of total FDI emerge over the long run. As Saloria and Brewer (2013, p.29) stated, "Differentiating between on-going intra-corporate flows and initial equity investments is especially important for countries with long-established foreign Multinational Corporations (MNCs) and high levels of FDI stocks." Hence, subsequent parts of total FDI are related mostly to the sustainability of an investment in a host country over the long run. The assumption of reinvested earnings as marginal investments in the host country implies a perception of higher reinvested earnings being a good signal of higher long-run confidence on the part of existing investors, while a repatriation of earnings may mean the reverse. Furthermore, as Saloria and Brewer (2013) point out, intra-company loans are most likely to be responsive to the operational needs of the affiliate (or parent) and to factors that encourage or discourage borrowing from the host country. Therefore, while reinvested earnings are likely to be responsive to the investment conditions of both the home country and the host country, intra-company loans are likely to be responsive to factors that facilitate borrowing opportunities from the host (or home) country. Each component has characteristic features and reacts differently to macroeconomic variables or risks in the market. This argument has been supported by Auerbach and Hassert (1993), Brewer (1993), Oseghale and Nwachukwu (2010), Wolff (2007), and Salorio and Brewer (2013). Lundan (2006, p.36) proposed a similar theory, noting that "reinvested earnings are the only major component of foreign investment position that originates in the host country, rather than being transferred from the home country."

Nevertheless, the perspective that total FDI and its components are independent of one another is invalidated by the mere fact that the components sum to the aggregate. It can be argued that a company first decides where to set up an affiliate (location decision), then decides how much to invest (investment decision), and finally chooses how to finance the investment. This means that the choice of financing structure (i.e., the equity-retained earnings-loans mix) is constrained by the amount of investment decided on in the second step. According to this view, the various components of FDI inflows are substitutes (for example, high values of reinvested earnings reduce the need for inter-company loans). On the other hand, the components of FDI inflows can also be regarded as complements. The inflow of equity capital may be followed by internal borrowings if a multinational active in many countries uses its subsidiaries to shift profits and exploit interest tax shields. A realistic approach, therefore, would consider the fact that FDI is structured using multidimensional components, each of which has intrinsic characteristics, but which are also interdependent on one another. This structure therefore, necessitates an empirical framework allowing the simultaneous treatment of determinants of FDI components, rather than their isolated study.

As isolated transition countries, Central and Eastern European countries (CEECs) have lagged behind their Western European counterparts. Hence, for these countries, integrating into the European Union (EU) and liberalizing trade and payment regimes have been paramount economic objectives since the 1990s. Since the perceptions of FDI have changed, such that people now see FDI as an essential engine for the processes of economic, political, and social transformation and integration into the EU, the past decade has witnessed remarkable growth in European- and US-

originated investments in these countries. However, despite the acceleration of FDI policies aimed at converting the CEE region into an ideal destination for future investments, the distribution of FDI across countries is still uneven and disparate in terms of both level and growth. Furthermore, substantial heterogeneity across CEECs can be observed with respect to the individual components of FDI. Hence, a detailed examination of the FDI component structure, particularly with respect to determinants, may provide important insights to inform future policy decisions.

The main objective of this study, therefore, is to investigate the major determinants of each FDI component flowing into each CEE and transition country between 2003 and 2011 within the framework of a simultaneous equation model. The paper's contribution can be elaborated as follows: First, we demonstrate that each part of the total FDI responds differently to macroeconomic variables and risks in the markets of the host countries and the source countries (i.e., EU countries and the US). Second, by employing a dynamic panel specification and, thus, addressing such issues as the persistence and endogeneity of the components, we are able to predict whether the component flows for individual countries are substitutes, complements, or independent of one other.

5.2 FDI Growth in the Transition Countries of the CEE Region

The last decade has witnessed remarkable FDI growth in CEECs and in non-CEE transitional countries. This growth has originated largely from Europe and the US and can be attributed to the integration of CEECs into the EU and the switching from protectionist trade regimes to export-oriented policies, which has eliminated barriers to FDI. However, despite the acceleration of FDI policies associated with the transition processes of these economies, the distribution of FDI across countries has

remained uneven and heterogeneous in terms of both level and growth. As shown in Figure 10, CEECs experienced a fivefold increase in FDI inflows between 2003 and 2008 (from USD 30 billion to USD 155 billion).

The Czech Republic, Hungary, and Poland, as three of the most vibrant CEE economies and previous members of the Central European Free Trade Area, have attracted a substantial volume of FDI. The steady and low level of risk in these countries has been among the principal sources of attraction for foreign investors.

Russia has attracted the highest level of FDI. Its FDI inflows rose from 8 billion USD in 2003 to more than 70 billion in 2008, with the bulk of investments coming from European countries. This success in attracting FDI is mainly attributable to the large size of the Russian market and the 6.7% growth in Russia's GDP (which reached almost 1 trillion USD in 2006) following the financial crisis of 1989. As the 10^{th}-largest economy in the world, Russia has also become the EU's third most essential trade partner and major energy supplier.

Kazakhstan, which lies outside the CEE region, has also succeeded in attracting significant FDI. Kazakhstan's success may be attributable to its macroeconomic stability and growth potential. Turkey, another non-member of the CEE group, slashed corporate tax rates to 20% from 30% and reduced the overall tax burden to around 32% from 37% in 2005 to boost FDI. This approach, implemented in combination with accompanying measures, has led to a remarkably successful outcome.

However, the 2007 global crisis had such a deteriorating impact on foreign investment in transition countries and the CEE region that investments slowed by 50% in 2009 compared with 2008. Moreover, the real estate sector, which is the top sector (along with that of extractive industries) in terms of attracting FDI in the region, diminished by 71% in 2009 compared with the previous year. This drastic fall is illustrated in Figure 10.

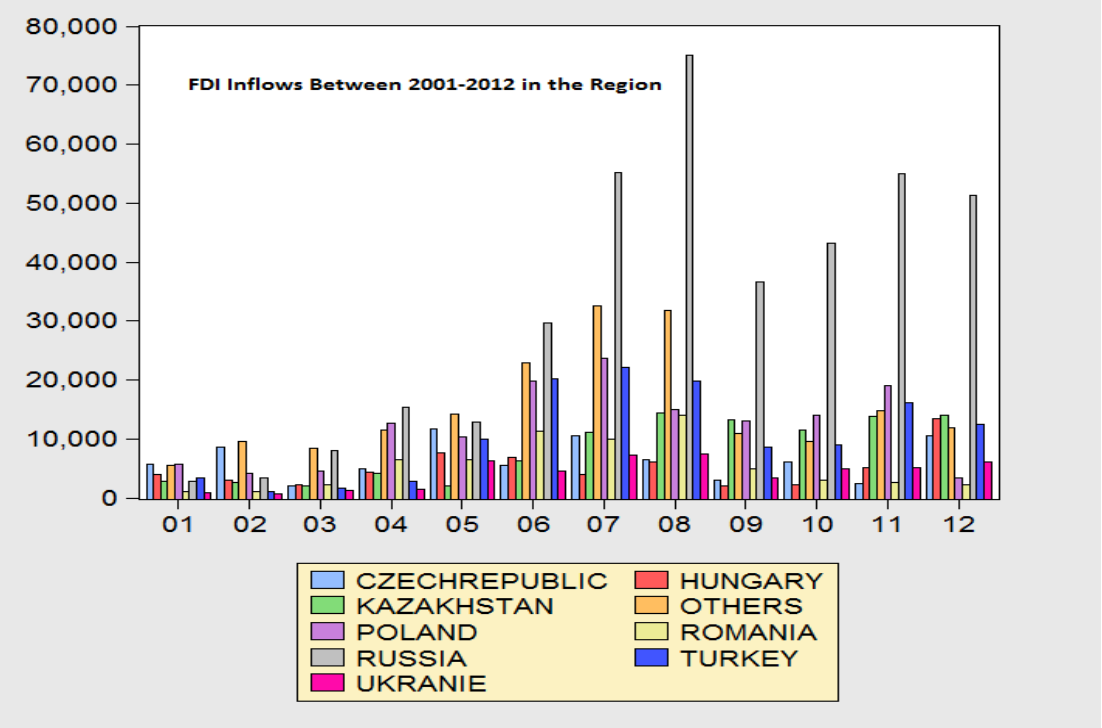

Figure 10. FDI inflows to transition countries and the CEE region between 2001 and 2012.
Source: Research Center International Economics
http://data.fiw.ac.at/FiwDat/FiwDatServlet.
Note: 'Others' represents CEECs that receive lesser volumes of FDI inflows than the countries shown in the figure. These CEECs are Albania, Croatia, Lithuania, Latvia, Slovenia, Slovakia, Bulgaria, Belarus, Estonia, and Moldova.

Figure 11 displays the FDI figures broken down by component for the 2001 to 2012 period. Although equity flows are generally expected to have the largest share of total FDI, other forms, such as reinvested earnings and intra-company loans, also constitute important proportions of total investment (albeit with varying degrees).

For instance, we can cite Russia (a leading country in the CEE region), Poland, Kazakhstan, Hungary, and the Czech Republic as part of that group with relatively larger reinvested earnings and inter-company loan components. At the other extreme, Kazakhstan stands out as the only country in which other capital dominates total investment flows. According to a survey by Ernst and Young (Attractiveness Survey, Russia, 2013):

> "There is a substantial gap between the perceptions of current and prospective investors. Those who are already working in Russia are more aware of the country's real investment climate and the efforts being made to improve it. They're also optimistic about the future of FDI in Russia."

Hence, reinvested earnings are the main contributor to the total FDI in Russia. Furthermore, Kazakhstan's higher share of other capital investments may result from the concentration of foreign capital in extractive industries, which require larger amounts of financial support in order to expand. The relatively low share of reinvested earnings and other capital investments in the total FDIs of the Ukraine, Turkey, and Romania may reflect declining investor confidence in investing conditions in these countries. Romania, for example, frequently could not even manage to prevent the repatriation of reinvested earnings, as evidenced by a net and substantial negative figure accumulated between 2001 and 2012.

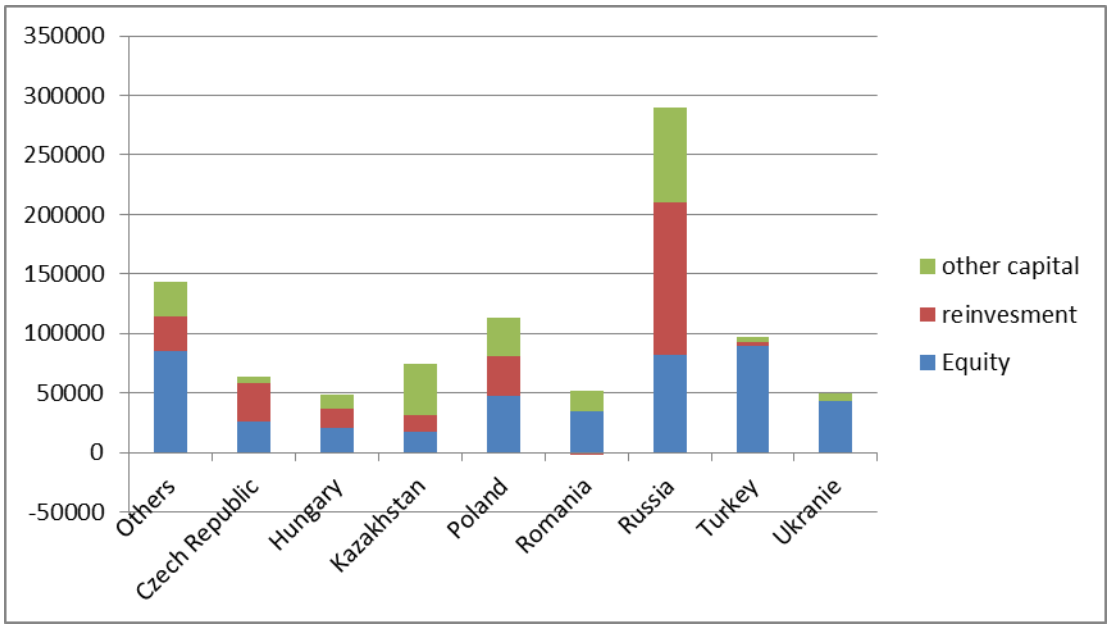

Figure 11. FDI inflows by component, 2001–2012.
Source: Research Center International Economics
http://data.fiw.ac.at/FiwDat/FiwDatServlet.
Note: 'Others' represents CEECs that receive lower levels of FDI inflows than the countries shown in the figure. These CEECs are Albania, Croatia, Lithuania, Latvia, Slovenia, Slovakia, Bulgaria, Belarus, Estonia, and Moldova.

5.3 Literature Review

One of the preeminent studies related to component-based FDI literature was conducted by Loree and Guisinger (1994), who examined the impacts of policy and non-policy variables on the equity capital of total U.S. FDI abroad. These authors concluded that investment incentives have a positive effect on equity capital, while performance requirements and host country tax rates have negative effects. Non-policy variables, such as infrastructure, political stability, cultural distance, and GDP per capita, also play a role in determining the level of U.S. equity capital abroad.

Perhaps one of the most outstanding analyses of total FDI and its individual components, which have contributed to a better understanding of the determining factors of FDI, was undertaken by Lundan (2006). She grouped six explanatory factors of reinvested earnings into three categories:

i) Those encouraging reinvestment: Factors associated with a favorable investment climate have a positive effect on foreign investors' decisions to hold their earnings in a host country. For example, a strong growth rate in a host country market and rising income levels in a given industry may signal new investment opportunities in the host market.

ii) Those encouraging repatriation: Movements in the exchange rate tend to have a deterring effect on repatriation, such that a depreciation of the host currency tends to discourage repatriation. Similarly, higher corporate tax rates in the host country are also expected to have a deterring effect on reinvested earnings and, consequently, to accelerate the repatriation of earnings.

iii) Agency consideration: Factors affecting a multinational corporation's (MNC's) decisions regarding the amounts of dividend payments may also encourage repatriation. For example, countries that have high market or political risks or that are culturally or institutionally different from the home country of the MNC are likely to cause high levels of repatriation.

Wolff (2007) also developed a unique study that estimated the effects of the corporate tax rates of both the home and the host countries on four bilateral FDI measures (total FDI, reinvested earnings, equity capital, and intra-company loans). He concluded that each component responds differently to the top statutory corporate tax rates of both the source and the host country. While the tax effects on equity earnings and other capital components are complicated and ambiguous, the effect of taxes on reinvested earnings is relatively straightforward. This implies that home country taxes have a direct effect on reinvested earnings, leading such earnings to be

held abroad rather than repatriated. In contrast, host country tax rates have a negative effect and cause a fall in reinvested earnings.

Oseghale and Nwachukwu (2010); Chakravarty and Xiang (2011); Salorio and Brewer (2013); and Taylor, Mahabir, Jagessar, and Cotton (2013) have also contributed to the field by analyzing FDI and its individual components separately. Oseghale and Nwachukwu (2010) empirically proved that good governance, market size, the market growth rate, the exchange rate, the quality of labor, and the profitability of existing operations are all positively correlated with reinvested earnings. Similarly, Chakravarty and Xiang (2011) concluded that access to external financing, property rights, the extent of private ownership, and a relative competitive advantage all have significant effects on the decisions of foreign investors concerning the level of earnings retained in a host country. In a recent paper, Taylor, Mahabir, Jagessar, and Cotton (2013) argued that, as the economic growth of a host country and the profitability of foreign firms increase, foreign investors tend to hold reinvested earnings in the country. In contrast, a depreciation of the host currency and an increase in the host country's government consumption seem to decrease the volume of reinvestments.

5.4 Data and Methodology

5.4.1 Data

The flows of total FDI components, such as equity capital, reinvested earnings, and intra-company loans (i.e., other capital), into 12 CEECs and 6 transition countries are defined as dependent variables in their respective equations. These data were drawn from the Research Center International Economics Database Retrieval Tool (http://data.fiw.ac.at/FiwDat/FiwDatServlet). The CEECs and transition countries

used in this study are Albania, the Czech Republic, Croatia, Hungary, Kazakhstan, Lithuania, Latvia, Poland, Romania, Slovenia, Slovakia, Bulgaria, Belarus, Estonia, Moldova, Russia, Turkey, and the Ukraine. All variables in level form are measured in millions of U.S. dollar, and their short definitions and data sources are provided below. Statistics on GDP, growth, taxes, exchange rates, tariff rates applied, openness, and lending interest rates came from the World Bank data dissemination server (www.worldbank.org). Data on capital controls were obtained from the International Monetary Fund's (IMF's) AREAR database. (www.imf.org).

Equity Capital. The IMF states that the term "equity capital" covers equity held in branches, shares (whether voting or non-voting) in subsidiaries and associates, and other capital contributions that constitute part of the capital of a direct investment enterprise (such as the provision of machinery by a direct investor to the direct investment enterprise).

Reinvested Earnings are the direct investors' shares (in proportion to equity held) of the undistributed earnings of a direct investment enterprise. Reinvested earnings are considered to be additional capital for direct investment enterprises. They are recorded as direct investment income, with an offsetting capital transaction.

Other Capital (Intra-company Loans). The IMF states that the designation of "other capital" covers the borrowing and lending of funds, including debt securities and trade credits, between direct investors and direct investment enterprises or between two direct investment enterprises located in different countries that share the same direct investor.

Trade Openness. The majority of studies, such as those by Kundu and Contractor (1999); Kimino, Driffield, and Saal (2012); and Desbordes (2007), have used the ratio of (Exports + Imports) to GDP as a measure of the degree of trade openness. This variable is likely to be an endogenous variable, which may be due to the role of subsidiaries in global value chains. The optimization of multinationals' production processes through the process of locating various stages across different sites may lead to a simultaneous increase in both the exports and the imports of a host country.

CR Index. The designation "country risk (CR) index" is defined as the composite index of the financial risk, political risk, and economic risk indices of 18 EECs for the period between 2003 and 2011. However, this term, which was constructed by the Political Risk Service (PRS) group (http://www.prsgroup.com/), might be a misnomer, since the data points of the CR index range from very high (00.0–49.5) to very low risk (80.0–100); that is, as the points grow lower, the risks grow higher. Therefore, one may also read CR index as a "confidence level" index. Due to the dominant share of FDI inflows into the EEC's coming from the EU and the US, we also consider the CR indices of the EU area and the U.S. in order to account for risks originating in the home countries. Our intuition is that adverse or favorable conditions in these source economies, which are captured by the values of these indices, will cause reversals or accelerations of the flows of FDI and its components.

Most studies use CR indices or ratings taken from different sources to capture the impact of political, economic, or financial risks on FDI flows (for examples, see the studies by Bilgili et al. (2012), Arbatli (2011), Janicki and Wunnava (2004), Carstensen and Toubal (2003), and Bevan and Estrin (2004)). However, this research is the first to measure the impacts of the CR indices of source countries (as global

push factors) and host countries (as pull factors) exclusively on FDI components in these countries.

Investment Profile. As the measure of a combination of factors that lie outside the conventional political, financial and economic risk components affecting investment in a host country, the term "investment profile" is defined by the PRS group as the amalgam of three components: Contract Viability/Expropriation, Profits Repatriation, and Payment Delays. In this respect, it may not be a perfect substitute for the host country CR index variable.

Lending Interest Rate The lending interest rate refers to the cost of borrowing to finance investments in the host market. Salorio and Brewer (2013) report that short-term and long-term intra-company loans are likely to be responsive to interest rates in the host county, such that higher interest rates may encourage investors to increase intra-company loans, while lower interest rates may lead investors to borrow in the host country instead (thereby decreasing intra-company loans).

Market Size. GDP is used as a proxy to account for the market size of each host country (see the studies of Bilgili et al. (2012), Campa (1993), Dumludağ (2009), Erdal and Tataoğlu (2002), Eşiyok (2011), and Tokunbo and Lloyd (2009)). A saturated local market and the subsequent weakening of local demand represent a primary driver for foreign investors to invest abroad. We suggest that a host country's market size will be particularly effective in driving equity component inflows into CEECs.

GDP Growth. The rate of growth in the GDP variable reflects the growth and development of an economy. Lundan (2006, p.40) stated, "The most obvious macro-level determinant of investment opportunities is the rate of growth in GDP." Accordingly, the GDP growth rate may be a good proxy to measure the impact of (un)favorable investment conditions, particularly on the reinvestment decisions of foreign investors in a host country.

Corporate Tax Rate. The primary reason for investors to invest abroad is to gain profit. Corporate taxes levied by a host country government obviously represent an extra cost, thus reducing the profit of a foreign affiliation in a host market. Lundan (2006) and Saloria and Brewer (2013) reported that the corporate tax rate is the one of the most important macro-economic determinants of reinvested earnings and intra-company loans.

Controls on Liquidation of Direct Investment. The IMF Compilation Guide (2014, p.78) defines controls on liquidation of direct investment as controls on "the transfer of principal, including initial capital and capital gains, of a foreign direct investment." Foreign investors' decisions to repatriate earnings and take out intra-company loans are likely dependent on any liquidity constraints on investments. Therefore, this control on FDI is included in order to measure the impact of such liquidity constraints on reinvested earnings and intra-company loans.

Controls on Direct Investment. The IMF Compilation Guide (2014, p.78) defines controls on direct investments as controls on "investments for the purpose of establishing lasting economic relations both abroad by residents and domestically by nonresidents." We have included this type of control on direct investment in order to

measure the impact of initial investment constraints on equity capital (i.e., initial capital, rather than subsequent, reinvested earnings or intra-company loans).

Controls on Financial Credits. The IMF Compilation Guide (2014, p.78) defines controls on financial credits as controls on "credits other than commercial credits granted by all residents, including banks, to nonresidents, or vice versa." Thus, this type of control is included in order to measure the impact on direct investments of the ability of foreign investors to borrow from a host market. Referring to the comment of Saloria and Brewer (2013) who argued the dependence of intra-company loans on borrowing opportunities, we incorporated this variable in order to determine the effect, if any, of this type of control on intra-company loans.

Tariff Rate. Legal restrictions associated with business activities, such as tariff rates levied by the government to regulate trade, may represent extra cost factors for investors in a host country. A higher tariff rate is likely to increase the costs of production for an investor whose intent is to import resources from the home market or from abroad. Thus, we have included this variable in order to measure the impact of higher tariff rates on equity capital in particular (which represents the initial capital and constitutes the majority of total FDI).

Official Exchange Rate. The official exchange rates of the transition and CEE countries in the study refer either to the exchange rates determined by national authorities or to the rates determined in legally sanctioned exchange markets. They are calculated as annual averages based on monthly averages (in local currency units relative to the U.S. dollar). Consequently, a decline in the exchange rate (FX_t) can be interpreted as an appreciation of the exchange rate, whereas an increase corresponds

to depreciation. An analysis of the FDI literature reveals mixed evidence regarding the impact of exchange rate levels on FDI inflows. For example, while Froot and Stein (1991) and Cushman (1985) claimed a negative correlation between FDI and exchange rate levels, Campa (1993) proposed the opposite. As far as reinvested earnings are concerned, however, one can safely assume a positive impact of FX_t appreciation on the funds remitted to a home country. Moreover, given that the latter can be seen as the opportunity cost of keeping funds in a host market, a negative correlation with reinvested earnings may be expected.

The expected impacts of the variables, which are considered separately for each FDI component based on economic theory, are summarized in Table 13, below.

Table 13. Expected Signs of Coefficients

Variable	Effect
Equity Capital	+/-
Reinvested Earnings	+/-
Other Capital	+/-
Openness	+
Host CR Indices	+/-
CR Indices of the EU Area and US	+/-
Investment Profile	+/-
Market Size	+
Lending Interest Rate	+
GDP Growth	+
Corporate tax rate	-
Controls on Liquidation of Direct Investment	-
Controls on Direct Investments	-
Controls on Financial Credit	-
FX	+/-
Tariff Rate	-

Note: The expected impacts of the variables are considered separately for each FDI component based on economic theory.

5.4.2 Methodology

A dynamic panel model typically can be formulated as $Y_{it} = \delta Y_{it-1} + \beta X'_{it} + u_{it}$ $(i = 1.....N; t = 1.....,T)$, where δ is a scalar, X'_{it} is a vector of explanatory variables with dimensions of $1*K$, and β is the vector of coefficients with $K*1$ elements. The lagged of the dependent variable, Y_{it-1} accounts for the persistency in the series and implies the dynamic process. We will assume that u_{it} follows a one-way error component model, shown as: $u_{it} = \eta_i + v_{it}$,

Here, η_i is a unit-specific and time-invariant random variable, which is independently and identically distributed with a zero mean and a constant variance. Consequently, it can be formulated as $\eta \sim IID(0, \sigma_\eta^2)$. The other component is both unit- and time-varying and obeys the following distribution: $v_{it} \sim IID(0, \sigma^2_v)$. The components are independent of one another and amongst themselves.

The basic problem stems from the inclusion of the lagged dependent variable. Since Y_{it} is a function of η_i, it immediately follows that $Y_{i,t-1}$ is also a function of η_i. Therefore, $Y_{i,t-1}$ which is also an explanatory variable, is correlated with the error term, thus violating the condition of the independence of regressors and the error term within the regression framework. The consequence of the violation leads to biased and inconsistent OLS estimators, even if the v_{it} are not serially correlated.

According to Nickell (1981), the fixed effects (FE) estimator can be used to wipe η_i thus apparently relieving the problem mentioned above. However, since this

estimator is based on an internal transformation, the result is $(Y_{i,t-1} - \bar{Y}_{j-1})$, where $\bar{Y}_{j-1} = \sum_{t=2}^{T} Y_{i,t-1} / (T-1)$, and the first term is still correlated with $(v_{it} - \bar{v}_i)$, even if the v_{it} are not serially correlated. This is because $Y_{i,t-1}$ is correlated with $\bar{v}_i$ by construction; the latter time average of the group j includes $v_{i,t-1}$, which is *de facto* correlated with $Y_{i,t-1}$. Moreover, v_{it} is correlated with $\bar{Y}_{j-1}$ because the latter average contains Y_{it}. These are the leading terms causing the correlation, and they are both of order T-1.

5.4.2.1 Arellano Bond Estimator

Arrellano and Bond (1991) argued that there might be a Generalized Method of Moment (GMM) procedure that is both unbiased and efficient. The main principle of this method is based on the utilization of the orthogonatility conditions that exist between lagged values of Y_{it} and the disturbance v_{it}.

To illustrate this idea, one can formulate a simple autoregressive model with no regressors:

$Y_{it} = \delta Y_{i,t-1} + u_{it}$ $(i = 1....., N; t = 1....., T)$, where $u_{it} = \eta_i + v_{it}$ with $\eta_i \sim IID(0, \sigma^2_{\eta})$ and $v_{it} \sim IID(0, \sigma^2_{v})$ independent of one another and amongst themselves. In order to get a consistent estimate of δ as $N \to \infty$ with a fixed T, we first differentiate the $Y_{it} = \delta Y_{i,t-1} + u_{it}$ to eliminate individual effects, such that $Y_{it} - Y_{i,t-1} = \delta(Y_{i,t-1} - Y_{i,t-2}) + (v_{it} - v_{i,t-1})$. The error term of this transformed equation is now of a moving average, or MA (1), type with a unit root. Let us reformulate the $Y_{it} = \delta Y_{i,t-1} + u_{it}$ when t=3, such that

$Y_{i3} - Y_{i2} = \delta(Y_{i2} - Y_{i1}) + (v_{i3} - v_{i2})$. In this case, Y_{i1} is a valid instrument, since $E(Y_{i1}(Y_{i2} - Y_{i1})) \neq 0$ (highly correlated with $Y_{i2} - Y_{i1}$, but uncorrelated with $v_{i3} - v_{i2}$, so that $E(Y_{i1}(v_{i3} - v_{i2})) \neq 0$. When we advanced the time index by 1, such that t=4, we observe:

$Y_{i4} - Y_{i3} = \delta(Y_{i3} - Y_{i2}) + (v_{i4} - v_{i3})$

In this case, we have one additional instrumental variable, Y_{i2}. Specifically, one can show that:

$E(Y_{i1}(v_{i4} - v_{i3})) = 0$ and $E(Y_{i2}(v_{i4} - v_{i3})) = 0$

So, we have two instrumental variables: Y_{i1} and Y_{i2}. One can easily generalize this by observing that, with each forward period, the addition of extra instruments become possible. Consequently, for period T, the set of valid instruments becomes $(Y_{i1}, Y_{i2}.....Y_{i,T-2})$.

On the other hand, we can formulate the variance-covariance matrix of the error term as

$E(\Delta v_i \Delta v_i^{'}) = \sigma^2{}_v G$, where $\Delta v_i^{'} = (v_{i3} - v_{i2}.....v_{iT} - v_{i,T-2})$ and:

$$G = \begin{bmatrix} 2 & -1 & 0 & . & . & . & 0 & 0 & 0 \\ -1 & 2 & -1 & . & . & . & 0 & 0 & 0 \\ 0 & -1 & 2 & . & . & . & 0 & 0 & 0 \\ . & . & . & . & & & . & . & . \\ . & . & . & & . & & . & . & . \\ . & . & . & & & . & . & . & . \\ 0 & 0 & 0 & . & . & . & 2 & -1 & 0 \\ 0 & 0 & 0 & . & . & . & -1 & 2 & -1 \\ 0 & 0 & 0 & . & . & . & 0 & -1 & 2 \end{bmatrix}_{(T-2)*(T-2)}$$

Then, we can define a matrix of instruments as follows:

$$W_i = \begin{bmatrix} [Y_{i1}] & . & . & . & . & . & . & . & . & 0 \\ & [Y_{i1,}Y_{i2}] & & & & & & & & \\ & & . & & & & & & & \\ & & & . & & & & & & \\ & & & & . & & & & & \\ & & & & & [Y_{i1} & Y_{i2} & . & . & Y_{i,T-2}] \end{bmatrix}$$

The resulting matrix of instruments is $W = \left[W_1^{'}.....W_N^{'}\right]^{'}$, and the moment equations are given by $E(W_i^{'}\Delta v_i) = 0$. Next, we take our original equation in vector form, $\Delta Y_t = \Delta Y_{t-1}\delta + \Delta v$ as follows:

$$\Delta Y = \begin{bmatrix} \Delta Y_3 \\ \Delta Y_4 \\ . \\ . \\ . \\ \Delta Y_T \end{bmatrix} \quad \text{And} \quad \Delta Y_{t-1} = \begin{bmatrix} \Delta Y_2 \\ \Delta Y_3 \\ . \\ . \\ . \\ \Delta Y_{T-1} \end{bmatrix}, \qquad v = \begin{bmatrix} \Delta v_3 \\ \Delta v_4 \\ . \\ . \\ . \\ \Delta v_T \end{bmatrix}$$

Now, we pre-multiply the above with the matrix of instruments, $W^{'}\Delta Y = W^{'}\Delta Y_{t-1}\delta + W^{'}\Delta v$ and perform Generalized Least Squares (GLS) on $W^{'}\Delta Y = W^{'}\Delta Y_{t-1}\delta + W^{'}\Delta v$, yielding:

$\hat{\delta}_1 = \left\{(\Delta Y_{t-1})^{'}W\left[W^{'}(I_N \otimes G)W\right]^{-1}W^{'}(\Delta Y_{t-1})\right\}^{-1} * \left\{(\Delta Y_{t-1})^{'}W\left[W^{'}(\Delta Y)\right]\right\}$, where $\otimes$ is the Kronecker product. The above estimator is also called an Arellando-Bond estimator.

5.4.2.2 Testing for Over-identification Restriction

The basic idea of the test for over-identification can be explained within the framework of the simple autoregressive model. Assume there are only four periods

(i.e., T=4). Then, Arellano-Bond (1991) gives us three moment conditions with which to identify one parameter:

$E\left[(Y_{i1}(u_{i3}-u_{i2})\right]=0$, First Condition

$E\left[(Y_{i1}(u_{i4}-u_{i3})\right]=0$, Second Condition

$E\left[(Y_{i2}(u_{i4}-u_{i3})\right]=0$, Third Condition

Any of these moments' conditions can be used to estimate δ . Once we pick up any of these three conditions, the remaining ones are over-identification restrictions.

For the general case, given by the moment conditions $E(W'_i\Delta v_i)=0$, with W_i defined as before, Arellano-Bond (1991) suggested the following Sargan Test for over-identifying restrictions:

$$m=\Delta\hat{v}'W\left[\sum_{i=1}^{N}W'_i(\Delta\hat{v}_i)(\Delta\hat{v}_i)'W_i\right]^{-1} \qquad W'(\Delta\hat{v})\sim X^2_{p-k-1}$$

Where p refers to the number of columns of W and $\Delta\hat{v}$ denotes the residuals from the Arellano-Bond estimator.

5.4.2.3 Model Specification

A dynamic panel model is specified separately for each FDI component, with i indexing countries and t indexing time. The superscripts denote the indexed equations; thus, for instance, $y^{(1)}$ represents the equity flows variable, while $y^{(2)}$ and $y^{(3)}$ refer to the reinvested earnings and loan component variables, respectively, expressed as follows:

$$y^{(1)}{}_{i,t} = \alpha_{0t}^{(1)} + \alpha^{(1)} y^{(1)}{}_{i,t-1} + \sum_{k=1}^{4} \beta_k^{(1)} Cr_{kit} + \sum_{k=1}^{7} \gamma_k^{(1)} X_{kit} + \sum_{k=1}^{3} \delta_k^{(1)} Z_{kit} + \eta_i + \nu_{i,t}$$

(7)

$$y^{(2)}{}_{i,t} = \alpha_{0t}^{(2)} + \alpha^{(2)} y^{(2)}{}_{i,t-1} + \alpha^{(1)} y^{(1)}{}_{i,t} + \alpha^{(3)} y^{(3)}{}_{i,t} + \sum_{k=1}^{4} \beta_k^{(2)} Cr_{ki,t} + \sum_{k=1}^{4} \gamma_k^{(2)} X_{ki,t} + \delta^{(2)} Z_{i,t} + \eta_i + \nu_{i,t}$$

(8)

$$y^{(3)}{}_{i,t} = \alpha_{0t}^{(3)} + \alpha^{(3)} y^{(3)}{}_{i,t-1} + \alpha^{(1)} y^{(1)}{}_{i,t} + \alpha^{(2)} y^{(2)}{}_{i,t} + \sum_{k=1}^{4} \beta_k^{(3)} Cr_{ki,t} + \sum_{k=1}^{6} \gamma_k^{(3)} X_{ki,t} + \sum_{k=1}^{2} \delta_k^{(3)} Z_{ki,t} + \eta_i + \nu_{i,t}$$

(9)

The second term following the time-varying α_{0t} in each equation is the lagged dependent variable. As stated earlier, equity capital inflows may be followed by local affiliates reinvesting their proceeds in the host market and/or by internal borrowings between local affiliates and their parent companies. Consequently, to account for the interdependence, following the dynamic terms in equations (8) and (9), we include the contemporaneous effects of the other two components. Also common to all component equations is the set of country risk (Cr) variables, such that summing up to four implies that the country risk indices of the host country, the EU area, the U.S., and the investment profile are included. X_k represents a set of macroeconomic variables that affect the FDI component. Since each equation may have both common and component-specific factors, the sum might vary from one equation to another. The equity component equation, for example, includes seven macroeconomic variables, while the reinvested earnings and loan equations have four and six, respectively. The justification for such a disparity across components is explained in the previous sections.

The equity component equation includes all types of capital control variables (Z_k): namely, direct investment (DI), liquidation of direct investment (LDI) and financial credit (FC). In contrast, reinvested earnings include only LDI, and intra-company loans include only LDI and FC. The remaining terms are composites of a time-invariant, country-specific error term and the random error component.

5.4.2.4 Application of Methodology to the Components

The Arellano and Bond (1991) (AB) method is generally considered the appropriate method of estimation for dynamic panel specification. There are at least two reasons for choosing this estimator. The first is to control for country-specific effects, which cannot be done using country-specific dummies due to the dynamic structure of the regression equation. Second, the estimator is capable of handling the simultaneity bias associated with the possible endogeneity of some of the explanatory variables. They argued that there might be a generalized method of moment (GMM) procedure that is both unbiased and efficient. The main principle of this method is based on the utilization of the orthogonality conditions that exist between lagged values of y_{it} and the disturbance v_{it}. The method proceeds in several steps.

To eliminate the country effect, the model is converted to first differences. The resulting equation for the equity component, for example, is:

$$\Delta y^{(1)}_{i,t} = \alpha^{(1)} \Delta y^{(1)}_{i,t-1} + \sum_{k=1}^{4} \beta_k^{(1)} \Delta Cr_{kit} + \sum_{k=1}^{7} \gamma_k^{(1)} \Delta X_{kit} + \sum_{k=1}^{3} \delta_k^{(1)} \Delta Z_{kit} + \lambda_t + u_{i,t} \qquad (10)$$

where $\Delta y_{it} = y_{it} - y_{i,t-1}$ and so on, and $u_{i,t} = v_{i,t} - v_{i,t-1}$. This eliminates the country effect while leaving the time effect intact. Analogous equations can be similarly specified for the other two components. Since the time effect was unrestricted to begin with, $\Delta\alpha_{0t} = \lambda_t$ is an unrestricted time factor and can be modeled with a time-specific dummy variable.

Arellano and Bond (1991) suggested using the lagged levels of the regressors as instruments. This is valid as long as the error term is serially uncorrelated and the lags of the explanatory variables are weakly exogenous. The natural outcome of this approach is known as a difference GMM estimation. According to Arellano and Bond (1991), the orthogonality of the moment conditions can be specified as follows:

$$E\left[y^{(k)}{}_{i,t-s} u^{(k)}{}_{i,t} \right] = 0 \text{ or } E\left[y^{(k)}{}_{i,t-s} (v^{(k)}{}_{i,t} - v^{(k)}{}_{i,t-1} \right] = 0 \text{ for } s \geq 2;\ t = 3,\ldots,T;\ k = 1,..,3$$

(11)

Due to the interdependence of the FDI components, which results in endogeneity, we can specify the following additional conditions:

$$E\left[y^{(1)}{}_{i,t-s} u^{(2)}{}_{i,t} \right] = 0,\ E\left[y^{(1)}{}_{i,t-s} u^{(3)}{}_{i,t} \right] = 0, E\left[y^{(2)}{}_{i,t-s} u^{(3)}{}_{i,t} \right] = 0, E\left[y^{(3)}{}_{i,t-s} u^{(2)}{}_{i,t} \right] = 0$$

(12)

Similar moment conditions apply to the other two equations, in which the dependent variables are $y^{(2)}$ and $y^{(3)}$. These conditions apply equally to all other endogenous regressors, so that we also have:

$$E\left[X^{(1)}{}_{ji,t-s} u^{(1)}{}_{i,t} \right] = 0\ ,\ E\left[X^{(2)}{}_{ji,t-s} u^{(2)}{}_{i,t} \right] = 0,\ E\left[X^{(3)}{}_{ji,t-s} u^{(3)}{}_{i,t} \right] = 0 \qquad (13)$$

where Xj is the openness variable described earlier.

Arellano and Bover (1995) and Blundell and Bond (1998) showed that the Arellano and Bond estimator can perform poorly if the autoregressive parameters are too large or if the explanatory variables are persistent. In this case, the lagged levels of the variables become weak instruments. To compensate, they propose implementing additional moment conditions using lagged first differences (LFD), as follows:

$$E\left[y^{(k)}{}_{i,t-s} - y^{(k)}{}_{i,t-s-1})(\eta_i^{(k)} + v^{(k)}{}_{i,t}) \right] = 0 \qquad \text{for } s=1 \text{ ; } k=1,..,3 \qquad (14)$$

such that each component equation uses its own LFD.

For endogenous component regressors:

$$E\left[(y^{(1)}_{i,t-s} - y^{(1)}_{i,t-s-1})(\eta_i^{(2)} + v^{(2)}_{i,t}\right] = 0, \qquad E\left[(y^{(1)}_{i,t-s} - y^{(1)}_{i,t-s-1})(\eta_i^{(3)} + v^{(3)}_{i,t}\right] = 0,$$

s = 1 (15)

$$E\left[(y^{(2)}_{i,t-s} - y^{(2)}_{i,t-s-1})(\eta_i^{(3)} + v^{(3)}_{i,t})\right] = 0,$$

$$E\left[(y^{(3)}_{i,t-s} - y^{(3)}_{i,t-s-1})(\eta_i^{(2)} + v^{(2)}_{i,t}\right] = 0, \text{ s = 1 (16) and,}$$

$$E\left[(X^{(k)}_{ji,t-s} - X^{(k)}_{ji,t-s-1})(\eta_i^{(k)} + v^{(k)}_{i,t}\right] = 0, \quad s=1; k=1,..,3 \qquad (17)$$

for any other j[th] endogenous regressor.

With these additional conditions (14 through 17), we have what is called GMM system estimation (GMM-sys). The incorporation of additional information associated with instruments in level form, we are able to reduce biases and imprecisions. On the other hand, despite the obvious advantages of this estimation methodology *vis-à-vis* the standard approach, also called GMM in differences (GMM-diff), the methodology may cause the number of instruments to increase drastically, thus threatening the validity of the tests. Nevertheless, we adopt the system approach, following Roodman's (2009) instrument reduction technique by way of imposing lag limits and collapsing the instrument matrix. All equations prefixed as GMM, therefore, exhibit GMM system estimation results.

The consistency of this estimator is contingent upon specification tests. The former, also called the J test, was developed by Hansen (1982) and is a test of over-identifying restrictions. If the instruments are jointly valid under the null hypothesis, the empirical moments have zero expectation, such that the J statistic is distributed as

a χ^2 with the degrees of freedom being equal to the degree of over-identification. The other test checks the null hypothesis of no serial correlation of the differenced error term. In this test, a large p value is indicative of an appropriate specification of the model.

5.5 Empirical Results

By employing yearly data from 2003 to 2011, we have estimated several dynamic panel data equations for each FDI component. We have included time dummies between 2005 and 2011 in order to capture the impacts of important events, such as the collapse of the U.S. real estate property market at the end of 2007, on FDI inflows. Four alternative one-step GMM system results for equity components are given in Table 14, and three and four alternative one-step GMM results for reinvested earnings and intra-company loans are given in Tables 15 and 16, respectively. At this point, one may ask why we did not employ all of the variables together in one GMM (e.g., GMM5). The answer is tied to a strong collinearity among particularly slow-changing variables. On the other hand, since the total FDI is composed predominantly of the equity component, the determining factors of total FDI and of equity capital are likely to be similar. Therefore, for equity capital, we have included all variables, as if we consider the equity component to be total FDI. In contrast, for subsequent components, which are expected to have direct effects based on economic theory, we have only retained some of the variables. To ensure the robustness of our estimates, the estimate for the coefficient of a lagged dependent variable should lie between the fixed effect (FE) and ordinary least squares (OLS) estimates. The reason is that while OLS inflates the coefficient of lagged dependent variable due to the correlation between regressor and error term, Fixed Effect deflates it due to the every transformed observation is now edogenous to the error

term. Estimates of FE and OLS are provided in the bottom part of each table, and the values of the coefficients of the lagged dependent variables for each one-step GMM system model do, indeed, fall between the FE and OLS estimates.

Table 14. The estimation output of a one-step system GMM for equity capital

	GMM1	**GMM2**	**GMM3**	**GMM4**
Const	-11.2170	-32.1496	-25.1534	-42.5938
	(0.610)	(0.026)*	(0.343)	(0.009)**
$Equity(t-1)$	.1961	.1419	.1773	.2217
	(0.000)**	(0.000)**	(0.014)**	(0.000)**
CRindex	-.1053	—	.0696	—
	(0.216)		(0.556)	
CRindexUS	-.2637	-.5785	-.8479	-.3645
	(0.401)	(0.015)**	(0.064)	(0.235)
CRindexEU	.4753	.8416	1.1234	.8470
	(0.019)**	(0.012)**	(0.001)**	(0.028)*
Invest.profile	—	.2377	—	—
		(0.686)		
GDP	.0122	.0108	.0052	.0116
	(0.000)**	(0.000)**	(0.026)*	(0.000)**
Growth	—	—	-.0308	-.0303
			(0.678)	(0.488)
CorporateTax	.0639	.1061	.0416	.0654
	(0.241)	(0.189)	(0.539)	(0.194)
Openness	—	—	-.0839	—
			(0.065)	
Tariff	-.6640	—	—	-.5388
	(0.054)*			(0.220)
Exchangerate	.0003	.0004	.0009	.0006
	(0.333)	(0.146)	(0.081)	(0.036)*
Interestrate	—	.2031	—	—
		(0.289)		
ControlsonFC	—	—	.0969	—
			(0.926)	
Not – regulatedFC	—	—	2.4475	—
			(0.027)*	
ControlsonDI	—	—	—	-.7367
				(0.144)
Not – regulatedDI	—	—	—	.6335
				(0.478)
ControlsonLDI	0.8749	—	—	—
	(0.512)			
Not – regulatedLDI	-.3617	—	—	—
	(0.614)			
$d5$	0.3632	.2161	.0193	.4992
	(0.701)	(0.867)	(0.988)	(0.533)
$d6$	0.2026	-.4063	-1.2564	-.0560
	(0.784)	(0.686)	(0.340)	(0.931)

*d*7	—	—	—	—
*d*8	1.5712 (0.087)	1.9982 (0.026)*	3.2796 (0.053)*	2.1342 (0.038)*
*d*9	-1.7310 (0.103)	—	—	—
*d*10	—	3.003 (0.009)**	4.3894 (0.010)**	2.2716 (0.039)*
*d*11	-.5902 (0.559)	2.5696 (0.104)	4.2891 (0.009)**	1.3997 (0.287)
Wald chi² (15)	34599.33	136024.83	7445.35	39335.38
prob> chi²	0.000	0.000	0.000	0.000
Instruments	17	16	19	17
Observations	100	109	116	101
Hansen Test	0.228	0.528	0.584	0.222
Arell.BondAR(2)	0.309	0.285	0.305	0.124
OLS	0.207	0.199	0.212	0.266
FE	0.185	0.102	0.119	0.170

Note. The probability values of the coefficients are in parentheses. ** denotes the 1% significance level, and * denotes the 5% significance level. FC, DI, and LDI denote financial credits, direct investments, and liquidation of direct investments, respectively.

Table 14 features four models (GMME1, GMME2, GMME3, and GMME4) for the equity capital component equation (hence the 'E' suffix on the GMM models) with alternating specifications. Both the Hansen and the AR (2) test results reveal no evidence of misspecification associated with over identification or serial correlation. Thus, the use of Roodman's instrument reduction technique by way of collapsing instruments does not come at the expense of lost information.

When included together, some variables, such as GDP and openness, may suffer from an inherent multicollinearity problem stemming from the way in which this latter variable is constructed. We have nevertheless been able to provide at least one specification, allowing for the inclusion of both variables (GMME3). Considering

the paramount importance of GDP as a market size proxy, this variable is retained across all four specifications. The estimation results indicate that, regardless of the specification used, variables such as GDP and country risk index of EU (CRindexEU) are statistically significant and positively associated with equity flows across all specifications. Thus, as expected, an increase in market size (proxied by GDP) motivates investors to increase their equity investments into CEECs, implying that foreign investors in these countries are market-oriented. On the other hand, increased confidence indexes in EU countries may result in higher amounts of equity capital investments into CEECs. There may be two reasons for this phenomenon. The first centers on foreign investors' desire to invest in new, unsaturated markets (rather than in saturated markets), since the EU area is composed predominantly of developed countries with saturated markets. As the confidence level increases in EU countries, foreign investors may wish to expand their operations to CEECs, which are composed mainly of unsaturated, emerging markets with rich natural resources that are located in close proximity to one another. Second, an increase in the confidence indexes of EU countries may be perceived as a good signal of banks and other financial institutions being more likely to lend funds to foreign investors in order to support their operations abroad.

All models also employ a U.S. CR index, which reflects U.S. investors' confidence in the U.S. However, except for GMME2, the models are not statistically significant. The GMME2 results suggest that, in contrast to the EU CR index, the U.S. CR index is negatively correlated with equity capital investments into CEECs. This means that, as the CR indices of the source country (i.e., the US) rise, the local investment environment becomes relatively more attractive; therefore, direct investment

outflows into all other emerging markets, including CEECs, are diverted to the U.S. and, thus, decrease.

On the other hand, the estimation results do support the persistence of the equity flow series; thus, according to all four specifications, a dynamic term is warranted. We also note strong evidence of a 2008 crisis impact on equity flows—although, interestingly, the global crisis does not seem to have decelerated equity inflows into the area.

The three types of capital control variables exhibit little variation over time. Therefore, most of the variation is attributable to country-specific differences, which hinder their joint inclusion in the models. Since the capital control variables are all factor variables that take on qualitative values, such as "control," "no control," and "not regulated" types, we include one at a time. A positive relation between unregulated financial credits and equity capital components reveals that unregulated financial markets are perceived positively, thus facilitating the ability of foreign investors to solicit loans in CEECs (as indicated by GMME3).

Again, GMME4 reveals that an increase in the exchange rate is positively correlated with equity capital investments. This also implies the reverse: that a depreciation of the exchange rate (i.e., such that there is more local currency per dollar) is likely to attract higher amounts of equity flows, since the cost of acquiring local assets decreases in terms of foreign investors' currency.

With a p-value of slightly above 5%, we have somewhat meager support for the impact of the tariff rate variable (in the GMME1 specification). Our intuition is that

rising tariff rates may deter further equity investment into import-oriented sectors and firms, as their principal cost item increases.

On the other hand, we fail to uncover any evidence of a significant effect of host CR indices or investment profiles on equity capital investments. Our prediction regarding the unresponsiveness of equity capital to host country CR indices and investment profiles may result from the irreversibility of equity capital investments. That is to say, once launched, such investments cannot be reversed easily. Hence, equity capital style investments may be slow to react to changes in host CR indices. For example, a foreign investor who opens a new business by building a factory with capital inflows spread out over a year or more cannot exit from the market easily in the case of sudden financial, political, or economic disturbances. In contrast, reinvested earnings and other capital may be rather sensitive to risks in both host and home markets, as we will see below. One can safely assume that reinvested earnings are the only component that arises particularly in the host country, while other capital (i.e., intra-company loans) can be perceived as a kind of compensation tool designed to support operations abroad. Thus, both may be characterized as short-dated and reversible. Moreover, the effect of the global financial crisis on equity components could not be proven. However, the positive impact of the 2008 dummy may imply that foreign investors direct their investments into CEECs to compensate for the dampening effect of the financial crisis in emerging markets.

Table 15 features three models (GMMR1, GMMR2, and GMMR3) that incorporate the reinvested earnings component as a dependent variable. GMMR1 employs a constant, the first lag of reinvested earnings, equity capitals and loans, a host country investment profile, source CR indices for the U.S. and the EU area, controls on the

liquidation of direct investments, the corporate tax rate, exchange rates, and time dummies for the years between 2005 and 2011. Compared to GMMR1, GMMR2 and GMMR3 employ additional variables, such as host country CR indices, growth, and openness.

Table 15. The estimation output of a one-step system GMM for reinvested earnings

	GMM1	**GMM2**	**GMM3**
Const	-27.34455	-24.0266	27.8664
	(0.214)	(0.088)	(0.111)
$Earnings(t-1)$	.2372	.3437	.2896
	(0.030)*	(0.001)**	(0.002)**
Equity	.5788	.5335	.5064
	(0.003)**	(0.003)**	(0.006)**
Loan	.3755	.2543	.2731
	(0.025)*	(0.011)**	(0.011)**
CRindex	—	.3257	.3483
		(0.001)**	(0.000)**
CRindexUS	.0928	-.0162	.0108
	(0.598)	(0.925)	(0.955)
CRindexEU	.1823	—	-.6285
	(0.192)		(0.034)*
Invest.profile	.6928	—	—
	(0.015)**		
Openness	—	.0261	.0091
		(0.047)*	(0.454)
Growth	—	.1228	.1164
		(0.027)*	(0.037)*
CorporateTax	-.1640	-.1801	-.1844
	(0.038)*	(0.004)**	(0.003)**
Exchangerate	.0004	.00001	.0001
	(0.190)	(0.931)	(0.388)
ControlsonLDI	1.3426	—	—
	(0.352)		
$Not-regulatedLDI$	-.3377	—	—
	(0.601)		
$d5$	-.3993	-.8286	-1.2344
	(0.580)	(0.201)	(0.021)*
$d6$	.4404	-.6877	-1.2058
	(0.505)	(0.258)	(0.022)*
$d7$	—	—	—
$d8$	-2.5742	-1.3251	-1.6585
	(0.000)**	(0.064)	(0.008)**
$d9$	-.5628	2.8038	—
	(0.499)	(0.023)*	
$d10$	—	1.7501	-.6792
		(0.030)*	(0.443)
$d11$	-.8107	.2722	-1.7115
	(0.099)	(0.687)	(0.048)*

Wald chi² (15)	355365.95	347323.08	252937.84
prob> chi²	0.000	0.000	0.000
Instruments	19	21	19
Observations	112	113	113
Hansen Test	0.587	0.993	0.890
Arell.Bond AR(2)	0.922	0.980	0.997
OLS	0.535	0.424	0.451
FE	0.165	0.209	0.199

Note. The probability values of the coefficients are in parentheses. ** denotes the 1% significance level, and * denotes the 5% significance level. LDI denotes liquidation of direct investments.

Overall, using the three GMMR models, we are able to detect strong associations among the three components, such that reinvested earnings complement both equity capital and intra-company loans. That is, rising equity investments and increasing volumes of loans both stimulate higher volumes of capital reinvested in the host market.

In keeping with our expectations, the reinvested earnings of investors are shown to be positively related to the host country's CR indices. Consequently, a rise in the confidence level (i.e., the host country's CR index) and/or in the host country's investment profile indicates that foreign investors feel more confident about investing in CEECs; thus, they choose to retain their earnings in the host country in order to benefit from favorable investment opportunities. On the other hand, the straightforward implication of a larger GDP growth rate is higher production and sales volumes—and, therefore, increased profit for both domestic firms and MNCs. Therefore, an increase in the GDP growth rate motivates investors to increase their reinvested earnings in CEECs in order to take advantage of potential investment opportunities. Moreover, higher corporate tax rates are regarded as the most important production costs encouraging investors to withdraw their earnings in order to repatriate them into their home markets or to reinvest them in other productive

foreign markets. GMMR2 suggests that, with the rising degree of host country openness, foreign investors' tendency to retain their earnings in the host market might also rise, since trade opportunities might signal higher host market profitability than that signaled by domestic activities. The negative and significant effect of the EU CR index in the GMMR3 equation contrasts starkly with its effect on the equity component (which was described earlier). Simply put, this can be nothing but a confirmation of how different components may react to the same risk factors: When there is an increase in the confidence level (i.e., the CR index) for the EU area, EU investors withdraw their earnings- which could be best described as marginal investments- from the host countries in order to repatriate them to their home countries. On the other hand, the 2008 global crisisis is now shown to have a deterring effect on reinvested earnings as opposed to positive effects found for the equity models.

Finally, Table 16 presents the estimation results for other capital (i.e., intra-company loans) in the form of four models (GMML1, GMML2, GMML3, and GMML4). GMML1 employs a constant, the first lag of loans, reinvested earnings and equity capitals, host country CR indices, source country CR indices for the U.S. and the EU area, GDP, openness, exchange rates, controls on the liquidation of direct investments, and time dummies for the years between 2005 and 2011. Additionally, GMML2 also employs GDP growth and lending interest rate variables, GMML3 employs investment profile and corporate tax rate variables, and GMML4 employs controls on financial credits.

Table 16. The estimation output of a one-step system GMM for intra-company loans

	GMM1	**GMM2**	**GMM3**	**GMM4**
Const	6.4311	-7.0343	5.2558	62.8899
	(0.894)	(0.018)**	(0.031)*	(0.199)
Loan$(t-1)$	.7506	.9336	.8755	.8665
	(0.051)*	(0.012)**	(0.012)**	(0.075)
Equity	-1.0699	-1.1460	-.6780	-1.1451
	(0.000)**	(0.001)**	(0.003)**	(0.000)**
Earnings	1.1170	1.0407	.8523	1.3058
	(0.096)	(0.013)**	(0.006)**	(0.019)**
CRindex	-.6035	—	—	-.4754
	(0.034)*			(0.102)
CRindexUS	-.4977	—	—	-.3521
	(0.321)			(0.381)
CRindexEU	.9513	—	—	—
	(0.001)**			
Invest.profile	—	—	-.6979	—
			(0.014)**	
GDP	.0005	—	—	—
	(0.929)			
Growth	—	.0357	-.1379	—
		(0.611)	(0.085)	
Openness	-.0341	—	—	—
	(0.195)			
CorporateTax	—	—	.1840	—
			(0.095)	
Exchangerate	-.0013	-.0007	—	—
	(0.036)*	(0.048)*		
Interestrate	—	.6375	—	—
		(0.002)**		
ControlsonLDI	-6.5430	-7.6995	-.7391	—
	(0.019)**	(0.002)**	(0.511)	
Not – regulatedLDI	1.3755	.3599	1.0145	—
	(0.213)	(0.550)	(0.035)*	
Not – regulatedFC	—	—	—	-.10310
				(0.284)
$d5$	1.5847	2.6973	.9126	1.0532
	(0.175)	(0.064)	(0.137)	(0.346)
$d6$	1.0512	3.5905	.1782	1.8198
	(0.255)	(0.048)*	(0.784)	(0.147)
$d7$	—	3.6627	.3815	—
		(0.117)	(0.608)	
$d8$	3.5328	5.2364	2.3687	2.9402
	(0.022)*	(0.028)*	(0.005)**	(0.007)**
$d9$	-1.3764	1.1869	-1.8005	-3.8801
	(0.510)	(0.587)	(0.174)	(0.097)
$d10$	—	1.5551	-.3027	-3.0736
		(0.449)	(0.673)	(0.021)*
$d11$	2.3927	4.5911	1.5211	-1.0288
	(0.021)*	(0.080)	(0.042)*	(0.382)
Wald chi² (15)	26876.86	1903.73	32686.73	5150.98
prob> chi²	0.000	0.000	0.000	0.000

Instruments	20	19	19	17
Observations	128	121	121	138
Hansen Test	0.962	0.797	0.266	0.953
Arell.Bond AR(2)	0.163	0.062	0.249	0.159
OLS	0.800	0.942	0.898	0.915
FE	0.344	0.794	0.737	0.669

Note. The probability values of the coefficients are in parentheses. ** denotes the 1% significance level, and * denotes the 5% significance level. LDI denotes liquidation of direct investments whereas FC denotes Financial Credits.

From the four GMML models, we observe a positive relation with reinvested earnings and a negative correlation with equity capital. Thus, we confirm once more that intra-company loans and reinvested earnings have complementary associations, while loans and equity capital act as substitutes. Moreover, we have established two cases of significant negative associations with exchange rates in GMML1 and GMML2. The interpretation is similarly straightforward: As the host currency depreciates, investors in the home market prefer to lend fewer funds to affiliates due to the increased wealth born from the exchange rate differential. In other words, foreign investors enjoy higher withholding funds that have increased in value. The highly significant positive effect of the host country's lending interest rate (GMML2) suggests that the rise in the interest rate leads potential investors to switch to their home markets as their borrowing preferences change. This provides further stimulus for the volume of intra-company loans. Likewise, for the case in which the CR index of the EU area is found to be positively associated with the other capital component, this positive effect may be attributable to the growing ability of EU investors to borrow funds from their home financial markets (since confidence in financial institutions increases in response to increases in EU CR indices). In these models, as opposed to in the earlier models, the host country's CR indices and investment

profiles seem to be significant with regard to repelling other capital-type investments. The intuition may be that foreign investors perceive intra-company loans as a means to support overseas operations in the event of high uncertainty and risk. With a rise in either the host country's CR indices or its investment profiles, investors become more confident in the foreign market. Hence, they become less willing to extend loanable funds to markets in which their subsidiaries' performances improve. On the other hand, the controls on the liquidation of direct investments prevent parent companies in home countries from sending additional funds to their subsidiaries in these markets, with the reverse being true for unregulated markets. Since the constraints associated with the liquidation of direct investments likely diminish investors' ability to solicit holdable funds, a negative significant effect of such controls on intra-company loans is unavoidable.

5.6 Summary and Concluding Remarks

Although related studies exist in the literature, the present paper attempts to offer new insights into the area of FDI into CEEC's. First, the determinants of the inflow of total FDI components into CEECs and some transitional countries are investigated in a simultaneous setting. As the figures show, there can be large discrepancies across countries in terms of shares of lesser-known components, such as reinvested earnings and inter-company debt transactions; therefore, any omission of their simultaneous interaction may result in distorted information. Second, the effects of unconventional push factors, such as CR indices, exclusively on individual components are taken into consideration.

Our main findings point to a complementary association between equity and reinvested earnings and between reinvested earnings and loans. The substitution link

between equity and loan investments suggests, however, that since equity investment generally precedes loans, the latter replaces further equity flows; that is, following an initial investment, companies restructure their equity-loan mixes in favor of the loans. We found that the improved economic, financial, and political factors associated with a rising CR index in the EU area exert strong positive impacts on equity investment into the CEEC region. This should come as no surprise, since some countries in the region are already EU members and others engage with the EU as a main trading partner. These findings point to the likelihood of EU investors being able to borrow from financial institutions during times of expansion at home in order to support overseas operations through equity investments and intra-company loans. However, higher reinvested earnings are perceived as marginal gains—funds to be repatriated to the home market rather than used as a financial tool. Thus, as confidence levels for home countries (i.e., the EU area) increase, investors feel more confident about repatriating their earnings—at the expense of diminished investment abroad. On the other hand, we observe that country-specific CR indices and investment profiles are influential in driving up company earnings retained in the market. This result is not a surprise, since investors are likely to hold company earnings to use for new investment opportunities arising from economic expansion.

With respect to the effects of the macroeconomic variables on FDI components, we find that, as far as exchange rate of the host currency against the dollar is concerned, foreign investors cut back on loanable funds to their subsidiaries when the host currency depreciates. The possible explanation for this result is straightforward: As the host currency depreciates, investors enjoy increased wealth or withholding funds valued in hand. Furthermore, we confirm that, while investors prefer to increase their

equity capital investments as the host market size increases, earnings are reinvested only if the host economy is growing. On the other hand, company earnings are correlated with variables that determine the profitability of foreign affiliations, whereas intra-company loans are associated with variables that affect the ability of investors to borrow from the host country. Thus, it is hardly a surprise that foreign investors tend to increase their reinvested earnings in keeping with increases in the GDP growth rate or in the host country's degree of openness. Conversely, foreign investors are very likely to repatriate their earnings in the event of higher corporate tax rates. We also note that markets with liquidity controls have a strong deterring effect on intra-company loans. The impact of interest rates on intra-company loans can be explained as follows: Investors are encouraged to borrow from their home markets when the cost of borrowing increases in the host market and discouraged from soliciting funds from abroad when the market is faced with tight liquidity constraints.

We find several characteristic features particular to equity capital, reinvested earnings, and intra-company loans: First, the unresponsiveness of equity capital to country-specific CR indices and investment profiles implies that equity investments are irreversible, such that, once they are launched, they cannot be reversed easily. Second, foreign investors adjust the financing structure of their foreign capital to reflect any of the three components compatible with their balance of cost and benefit. Therefore, the major drivers of each component vary with the gain or loss to which an investor is exposed by the same set of macroeconomic variables and risks in the market.

5.7 Policy Implications

As we stated before, subsequent components of total FDI emerge after the initial transaction (equity capital) in the long-run. Thus, this study primarily recommends FDI policy makers to prioritize attracting the equity capital flows in the country. Afterwards, they should adjust policy variables properly based on the desired volume of inflows for each subsequent component (reinvested earnings and intra-company loans). There is evidence that host country exchange rate depreciation increases equity capital and decreases intra-company loans. Similarly, country-specific CR indices and investment profiles are likely to encourage greater reinvested earnings and to discourage high volumes of intra-company loans. Thus, policy makers must prioritize and decide which subsequent component is the best candidate for the long-run growth of the whole economy. (For-example, higher reinvested earnings may be perceived as an indicator of higher confidence of existing investors in the country. Thus, it may be used as a policy tool to influence future potential investors in the long-run.) In light of this decision, the tax system, exchange rate markets, interest rates, and market regulations with respect to FDI should be re-regulated in order to encourage more FDI in the country.

Chapter 6

SUMMARY AND CONCLUDING REMARKS

International trade and activities of MNFs have become commonplace in both developing and developed countries over the past two decades. The crucial role of foreign investments in the national economic growth and the globalization of the world have changed the perception of FDI, particularly for developing countries. Moreover, CEECs, including Turkey, have lagged behind their Western European counterparts and therefore have perceived direct investments as an essential engine for the process of economic, political, and social transformation and integration into the EU. On the other hand, despite growing interest in FDI inflows, the major reasons behind foreign investors seeking a country in which to invest and the uneven spatial distribution of FDI across countries have yet to be uncovered in both the theoretical and the empirical international business literature.

Hence, the main objective of this thesis was to examine the main determinants of FDI inflows into the CEECs including Turkey and some transition countries. We conducted a more in-depth examination of the determinants of FDI inflows into Turkey in several ways. At the first stage, the recent growing interest in M&A activities of MNFs that are generally characterized in short periods of time in Turkey motivated us to examine the sensitivity of FDI inflows that are mostly in the form of M&A to short-term indicators, such as real exchange rate level and its volatility. Our justification to conduct the study for Turkey is that Turkey has an outstanding

growing economy with its tempestuous political environment and is likely to experience fluctuations in its real exchange rate level. Therefore, it is reasonable to test the effect of the real exchange rate level and its volatility on the total FDI inflows in Turkey. However, at the end of the study, we failed to find any evidence supporting the effect of both the real exchange rate level and its volatility on FDI inflows. We maintain that foreign investors may have hedged against exchange rate risks to avoid uncertainties in the host market. Instead, we found evidence that the impacts of the 2009 measures, decreasing inflation, and the agglomeration effect can be listed among the pull factors, whereas the policy interest rate and VIX which accounts for global appetite could similarly be a strong push factors in driving FDI inwards into Turkey.

At the second stage, determinants of FDI into Turkey are investigated at sectoral level. We have used Dunning's OLI paradigm as our main governing idea claiming that firm level and locational factors may also change with respect to the sectors and sub-sectors. Hence, the main objective of the second paper was to seek the major determinants of the FDI inflows in the manufacturing sub-sectors in Turkey separately. We have found strong evidence that while the tax rates, energy prices, turnover indices, and the 2009 measure have a positive significant effect on FDI, the CR index of the U.S. has a significant negative effect. There are several important implications of the findings. Despite the likelihood of potential reversals in FDI inflows during economic expansion times at home (USA market), foreign investors are unresponsive to the political, economic, and financial structure of Turkey. In other words, they disregard the risk in the host market. However, tax rates, energy prices, turnover indices, and the 2009 measure have the power to explain movements

in the industry. These findings show that foreign investors are highly profit-oriented and motivated negatively by the primary cost factors of production such as taxes and energy prices and positively with high turnover indices and 2009 measure. The positive reaction of investors to the 2009 measure is not a surprise, which provides several implications such as tax reductions, custom duty exemptions, and a value-added exemption.

Following an in-depth FDI analysis of Turkey, in the third paper (chapter 5), the determinants of FDI into Turkey and CEECs are investigated with respect to the FDI components. Total FDIs are mainly consists of three components (new equity, reinvested earnings, and inter-company debt flows). Such that FDI does not only include initial transaction but also subsequent equity and dept transactions between them. Thus, as opposed to the previous studies, we have treated total FDI as multidimensional rather than monolithic. However, regarding of total FDI and its components as totally independent of each other is obviously invalidated by the mere fact that the components sum up to the aggregate. It can be argued that a company decides where to set up an affiliate in the first step (location decision), then it decides how much to invest (investment decision), and finally how to finance investment. It means that the choice of financing structure (the equity-retained earnings-loans mix) is constrained by the amount of investment decided in the second step. According to this view, the various components of FDI inflows are substitutes, e.g. high values of reinvested earnings reduce the need for intercompany loans. On the other hand, the components of FDI inflows can be regarded as complements. The inflow of equity capital may be followed by internal borrowings if a multinational active in many countries uses it subsidiaries to shift profits and exploit interest tax shields. A

realistic approach therefore would consider the fact that FDI is structured by multidimensional components with each having intrinsic characteristics, as well as interdependent one another which calls for simultaneous estimates of their determinants, instead of running a separate regression for each FDI component. Therefore, we have employed dynamic panel one step system GMM method to find the different determinants of each component to the CEECs including Turkey and some transitional countries.

In conclusion, we have found that each component tends to react differently to the same set explanatory variables and the risks in the host and home markets. At the same time, we have also proved that various components are substitutes (e.g. equity capital and intra-company loans) or complements (e.g. company earnings and intra-company loans) with each other. We found several characteristic features particular to each component: First, unresponsiveness of equity capitals to the country specific CR indices and investment profile (which are very short-dated) implies that equity investments are irreversible so that once launched, their reversal cannot be administered easily. Thus, equity capitals are mostly responsive to the macro economic variables such as host country market size (GDP), exchange rate level, tariff rates applied, and source country (U.S. and EU area) CR indices. Second, subsequent components (reinvested earnings and intra-company loans) emerge after the initial investments (equity investments). Therefore, while the determining factors of company earnings are mostly related with the sustainability of the investments in the foreign market, major determinants of intra-company loans are associated with the borrowing ability of the investors. Accordingly, we have observed that reinvested earnings are positively associated with the host country CR indices, investment

profile, GDP growth and openness while negatively correlated with the corporate tax, and EU area CR indices. A higher reinvested earning shows the confidence as well as the profitability of investors in the foreign market. At the same time, it may also encourage for the future potential investments. On the other side, intra-company loans are affected by the factors determining the borrowing ability of investors and risks (host country CR indices) and investment profile in the host country. Thus, a higher confident with regard to economic, political or financial risks or better investment conditions or exchange rate depreciations are likely to encourage investors to prevent lending loans to its subsidiaries. The intuition is that investors use intra-company loans as an emergency tool to support overseas operation, hence, acquired gains by lower risk or the level of exchange rate causes investors not to lend funds abroad. Furthermore, while market regulations which constraint the liquidation of FDI also put pressure on investors not to send loan to its subsidiaries (and the reverse for unregulated market) higher interest rates in the host country encourage investors to lend more funds to avoid a higher cost of borrowing.

6.1 Shortcomings of the Thesis

There are several shortcomings sourced from the statistical data deficiency problems. It would be much better to employ firm-level data for each study paper to obtain a more precise estimate since ignoring firm heterogeneity may cause the results to be less realistic. As Dunning's' OLI paradigm indicates, there are three main factors that must be taken into consideration by investors while investing abroad. These are firm-specific factors (ownership) that are unique to the each firm and play a crucial role in foreign investors' decision to expand abroad, locational factors where foreign investors receive more benefits through a foreign establishment, and market internalization through opening a company rather than through an agreement with a

foreign firm. Therefore, neglecting the effect of firm-level data may limit the validity of our results, which may be inadequate for future policy implications concerning the FDI. Moreover, it would be much better to analyze the determinants of FDI in service sub-sectors of Turkey as well, as most FDI came from the service sector for the time period of the study. In this way, we could obtain more reliable results to capture the effect of the sectoral differences on the total FDI.

6.2 Recommendations for Future Works

The responsiveness of FDI in the form of M&A to the short-term indicators such as the real exchange rate level and its volatility would give more precise and realistic results by employing firm-level data rather than aggregate FDI data. Hence, there is still insufficient research in this area in Turkey. Furthermore, we are the first to explore the determinants of FDI by disaggregating the total FDI in the manufacturing sector to its sub-sectors. However, it would be much better to employ firm-level data by disaggregating total industry to its main sectors as manufacturing and services and then manufacturing sub-sectors and service sub-sectors. Researches in this area are still limited and therefore there is a high requirement for future works. Additionally, we have examined the each component of total FDI for Turkey and CEECs. However, disregarding the firm heterogeneity may again give misleading results. We suggest the future researchers to employ firm-level data rather than aggregate data for more precise results.

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