

Wilfrid Laurier University

Scholars Commons @ Laurier

Economics Faculty Publications

Economics

2-1-2012

Illicit Money Flows as Motives for FDI

M. Fabricio Perez

Wilfrid Laurier University, mperez@wlu.ca

Follow this and additional works at: https://scholars.wlu.ca/econ_faculty



Part of the [Corporate Finance Commons](#), and the [Economics Commons](#)

Recommended Citation

Pérez, M. Fabricio, Josef C. Brada, and Zdenek Drabek. "Illicit money flows as motives for FDI." *Journal of Comparative Economics* 40.1 (2012): 108-126.

This Article is brought to you for free and open access by the Economics at Scholars Commons @ Laurier. It has been accepted for inclusion in Economics Faculty Publications by an authorized administrator of Scholars Commons @ Laurier. For more information, please contact scholarscommons@wlu.ca.

**Illicit Money Flows as Motives for FDI:
Evidence from a Sample of Transition Economies**

Josef C. Brada

Arizona State University

Zdenek Drabek

World Trade Organization

M. Fabricio Perez

Wilfrid Laurier University

*We are grateful to Aravind Chandrasekaran and Stephan Westenberg for research assistance. We also thank Gerald McDermott, Marcus Noland and participants in presentations at the Meetings of the Allied Social Science Associations and of the Society for the Study of Emerging Markets for their helpful comments on earlier drafts of this paper.

Illicit Money Flows as Motives for FDI

Abstract

We examine the role of FDI in facilitating money laundering and illegal capital flight, focusing on transition economies' FDI outflows because they largely reflect current investment decisions rather than the inertia of past decisions. We estimate a model of FDI outflows in which illicit money flows influence the volume of FDI directed toward countries considered to be centers of money laundering. We show that traditional models of FDI are not able to account for these investment flows and that our results are robust when additional explanatory variables such as host country tax rates, governance, corruption, and cultural differences between the home and host country are included in the model. We estimate that 6 to 10% of total FDI outflows and over 20% of FDI to money-laundering countries from our sample were made to facilitate illicit money flows.

Key words: foreign direct investment, capital flight, money laundering, illicit money flows

JEL Classification: F21, F23, H26, K42

I. Introduction

In recent years, the study of the determinants of foreign direct investment flows (FDI) has stressed the role of non-traditional home- or host-country characteristics that tend to affect FDI inflows. These characteristics include host-country corruption (Drabek and Payne, 2002; Wu, 2006) and status as a tax haven (Wei, 2000; Morck et al., 2008; Alfaro et al., 2008). The authors of these studies have been able to show that such nontraditional host-country characteristics, sometimes in combination with home-country environments and institutions, play an important role in determining bilateral FDI flows. This paper contributes to this literature by showing that FDI flows from a sample of transition economies are influenced by the host country's status as a center for money laundering. Our sample of money-laundering host countries is characterized neither by low taxes, nor by status as a tax haven, nor by high levels of corruption. In fact, these host countries are largely not corrupt and have relatively high levels of taxes and good financial and regulatory institutions. Yet, we are able to show that higher than expected FDI flows to these countries cannot be explained entirely by drivers of FDI derived from the traditional theory of the multinational corporation (MNC), nor by the less traditional drivers mentioned above, and that the desire on the part of home-country investors to facilitate illicit money flows, including money laundering, explain a significant part of bilateral FDI flows between our sample of home and host countries.

Illicit money flows, meaning flows of money that is either earned through, or used for, illegal activity or moved across borders illegally, may be as large as one trillion US dollars per year from developing countries alone (Kar and Cartright-Smith, n.d.). Worldwide money

laundering flows are estimated at \$500million to \$2.85 billion (Schneider and Windischbauer, 2008), a range of estimates clearly indicative of the difficulties in measuring this illicit activity. Illicit financial flows of such magnitude should have a measurable impact on the pattern of international trade and investment in ways that differ from those predicted by traditional theories.

In this paper, we estimate the role of money laundering and illegal capital flight in foreign direct investment (FDI) decisions by using data on FDI outflows from a sample of East European transition economies. FDI data from the transition economies are particularly useful because these countries' FDI outflows better reflect current investment decisions due to the fact that these countries had virtually no outward FDI before 1995. Consequently the greater part of their FDI outflows reflects current investment decisions and their drivers rather than the inertia of past decisions. FDI flows from countries that have built up large stocks of FDI overseas will have some FDI outflows that reflect current decisions on moving funds from the home country to host countries but also a large volume of reinvested profits overseas that are driven largely by past decisions about where to invest that may or may not be related to the drivers of illicit capital flows.

Because FDI from transition economies is a new phenomenon, the literature describing it is relatively undeveloped.¹ In this paper we examine some of the trends in, and characteristics of, FDI outflows from transition countries and discuss the motivations behind them. Our examination of the data suggests that, in addition to the traditional motivations for FDI found in

¹ See Kolotay (2004) and Radlo and Sass (forthcoming) for overviews of outward FDI from transition economies.

the literature on the multinational corporation (MNC), capital flight and the facilitation of money laundering are motives for a significant share of outward FDI from some transition economies.

We discuss various channels for illicit capital flows to show how outward FDI can facilitate money laundering and some forms of capital flight. We stress here and elsewhere in the paper that the thrust of our argument is not that the FDI flows in and of themselves represent a quantitatively important way of moving illicit funds from one country to another. Rather, our point is that establishing businesses in foreign countries through FDI is a way of facilitating more traditional ways of moving illicit money overseas. These traditional ways include over- and under-invoicing, fictitious payments for services and phony financial transactions between parent firms and their foreign affiliates. The setting up of affiliates overseas to facilitate these more traditional ways of moving money offshore has a significant impact on bilateral FDI flows.

In order to test our hypothesis we specify and estimate an econometric model of outward FDI flows from a sample of transition economies. This model analyzes FDI from two different perspectives: first the investor's decision in which host country to invest, and, second, the decision on the amount to invest in. Four main conclusions flow from our estimates, and these support our hypothesis that illegal capital flight and money laundering lie behind an important part of the outward FDI of the transition economies. First, there is a higher probability that transition-economy-based investors will choose to invest in a host country that is a money laundering center than in a host country that is not. Second, traditional drivers of FDI are able to explain FDI flows from transition economies when the host countries are not money laundering centers, but, third, these same variables are less able to explain FDI outflows to host countries

that are money laundering centers. Fourth, we estimate that around 6-10% of the total FDI from our sample of home countries is caused by capital flight and money laundering.

The rest of the study is organized as follows. In Section II, we provide some background for our methodology. In Section III, we provide an overview of FDI from transition economies. Section IV contains our FDI model and the empirical results, and in section V we present robustness check for our estimates to ensure that they are not the result other factors that may affect FDI decisions but that are not included in our base specification. Section VI concludes.

II. Money Laundering, Capital Flight and the Foreign Investment Decision

This section is divided into two parts that set out the factual background and theoretical basis for our work. In Part A we briefly review the links between the theory of the MNC and the way in which that theory has influenced general equilibrium specifications of bilateral FDI flows between countries. Part B looks at the literature on capital flight and money laundering, which, we argue, serve as potentially important alternative drivers of FDI but that are generally not considered by traditional theories of FDI. It also suggests ways of incorporating the insights and findings of the literature on capital flight and money laundering an explanation of how these motives give rise to FDI outflows.

A. Driving Forces of Outward Foreign Investment

The literature explaining the existence of FDI generally ascribes such activity to two motives. One is the firm's desire to serve foreign markets in the presence of trade frictions (Markusen, 1984), which it does through so-called horizontal investment, and the other, vertical investment, is the firm's desire to locate operations in a foreign country in order to obtain access

to low priced non-tradable or hard-to-trade inputs (Helpman, 1984).² A good deal of the empirical work on aggregate, as opposed to firm-level, FDI flows between countries has been based on variations of the gravity equation (Anderson, 1979; Bergstrand, 1985; Anderson and Wincoop, 2003) known as the knowledge-capital (KK) model of MNC activity that encompasses both of the main theories of FDI. The model emphasizes absolute and relative country size, bilateral trade costs, relative factor endowment and investment cost differences as key drivers of FDI. Carr *et al.* (2001) and Blonigen *et al.* (2003) suggest that endowment differences and country size to should be interacted in the KK specification and Egger and Winner (2006) suggest that interaction between distance and relative factor endowments is also appropriate. Specifications of the KK model often include additional variables such as tax policies and political risk that are specific to the FDI process.³ Given the demonstrated ability of the KK model to explain bilateral FDI flows well, we use it in this paper.

B. Other Motives for FDI: Capital Flight and Money Laundering.

In the foregoing discussion of FDI, the MNC's motives for FDI rested on the desire to take advantage of the profit-enhancing opportunities offered by the decision to locate abroad. But there are other motives as well. One is the cross-country movement of capital to reflect differences in the risks and returns that investors face in home and host countries, leading to capital flight. In some transition economies, weak or uncertain property rights may be important

² See Navaretti and Venables (2004) for a review of the extensive literature since the publication of these two articles.

³ Blonigen (2005) provides an argument for including such additional variables in the gravity equation specification as well as a discussion of the gravity equation's shortcomings.

drivers of capital flight.⁴ Much capital flight is legal, but if the home country has capital controls, or if investment abroad facilitates tax evasion, such movements of capital are illegal. The other motive is the desire to use FDI to facilitate the movement of money from one country to another in order to disguise its origins in illegal activity, commonly called money laundering (Reuter and Truman, 2004).

Although the two phenomena are conceptually distinct, both motivate FDI flows that are unrelated to the traditional drivers of FDI. Legal flight capital often takes the form of portfolio and other short-term investments made through normal financial channels. The option of portfolio investment abroad, if legal, is attractive because portfolio investments are much more liquid. Nevertheless, portfolio investment may be unappealing or not possible because the returns are often quite low or because, if the home country imposes capital controls, portfolio investment abroad may be illegal. Consequently, illegal capital flight is often, by intention and by its covert nature, not recorded in the balance of payments and has to be estimated in various ways.

⁴ Kant (2002), Hermes and Lensink (2001), Khan and Haque (1985) and Schineller (1993) argue that risks related to the instability and lack of transparency of property rights, excessive taxation, corruption and weak contract enforcement and the like encourage capital flight, and also show the same for uncertainty about institutions, including property rights. Some of these concerns clearly exist in several of the transition economies in our sample, but perhaps the clearest example of the risk of expropriation driving large capital flows both in and out of a transition economy is the case of Russia, where the property rights of the so-called oligarchs have come under sharp attack from the Putin and Medvedev regimes, a development long expected by knowledgeable observers and, of course, by the oligarchs themselves. As a result, Russia has experienced significant capital flight as well as significant inward FDI, often from the same countries to which Russian capital flees. Russian oligarchs protect themselves against expropriation by moving money overseas, but because their oligopolistic position on the Russian market gives them the opportunity to earn large returns on their domestic investments, they set up foreign corporations that invest in Russia while providing the protection of anonymous “foreign” ownership for the assets thus invested. For example, Cyprus is both a major destination for capital from Russia as well as one of the leading sources of FDI into Russia. See Weintrobe (1998), Grigoryev and Kosarev (2000) and Kadochnikov (2005).

Channels for illegal capital flows include unreported movements of money abroad by carrying large amounts of cash on trips, using couriers to carry cash, hiding cash in freight or the post, and over- and under-invoicing of international trade transactions.⁵ FDI becomes an attractive vehicle for facilitating the movement of funds offshore because it is less likely to be restricted than is portfolio investment, because the investor can hope to earn a more attractive return through FDI and because, as we argue below, FDI facilitates the international movement of large amounts of money.⁶

What illegal capital flight and money laundering have in common is the desire of the investor to hide his or her connection to the funds being moved and the need to move the funds through unrecorded, and often illegal, channels. For large sums of money, establishing affiliates overseas through FDI is a relatively safe and cost-effective way of meeting both these objectives. FDI facilitates illicit flows in three conceptually separate ways. First, the establishment of foreign firms constitutes a movement of money from the home country to the host country that in itself may constitute the transfer of illicit funds abroad. The second, and more important in terms of the amount of money moved offshore, way in which FDI facilitates illicit international money flows lies in the ability of the foreign affiliate to internalize, and thus lower, the transactions costs of moving illicit funds between the home country and the host country in which the affiliate is domiciled through channels such as under- or over-invoicing, false payments for services,

⁵ Clearly, not all over- or under-invoicing transactions should be regarded as illegal money flows since some of those transactions simply exploit tax differences between countries in which the transactions take place. We return to this point in Section V.

⁶ Countries typically remove restrictions on FDI flows before liberalizing portfolio capital flows.

phony capital injections and loans, etc. Third, FDI may “legitimize” an investors’ assets of dubious origin in the home country by establishing a bona fide corporate presence of the investor in the host country. The establishment of physical presence abroad through FDI will fundamentally strengthen the investor’s ownership of the assets by putting them under the protection of a foreign legal system or bilateral investment treaty. Examples of this are investments of Russian or Thai oligarchs into British soccer.⁷

The motives for money laundering are typically somewhat different from those that motivate illegal capital flight because the existence of money laundering derives directly from the need to disguise the illegal origins of the money being laundered and not from differences in the domestic and foreign risk-return nexus. Nonetheless, the problems faced by money launderers and those engaging in illegal capital flight as well as the means for facilitating their efforts are similar. Criminal activity such as drug dealing, prostitution, fraud, bribery of public officials and various economic crimes generates large amounts of cash income. In order to use the financial system to hold and move this money and to use the money to make legitimate financial transactions without arousing the suspicion of the authorities, the criminals must launder the money, that is, make it take the form of legitimate income so that the authorities are unable to identify its criminal origins. In the case of petty criminals, the main objective is not to arouse suspicion by holding excessively large amounts of cash or making large cash deposits in bank accounts. Setting up multiple bank accounts and using surrogates and false identities to

⁷ This form of FDI seems to have become a widespread practice. For example, recent dispatches from the US embassy in Sofia, as reported by the Western press quoting documents published by Wikileaks, link the ownership of all major Bulgarian soccer teams to foreign investors with a record of criminal activities.

establish numerous bank accounts are ways of keeping illicit incomes out of the purview of law enforcement authorities (Buchanan, 2004).

As the amount of money needing to be laundered becomes larger, such amateurish money laundering schemes become too cumbersome to operate effectively as well as too vulnerable to discovery. To handle larger amounts of illegally obtained income, criminals may start businesses, especially businesses that have large part of their revenues and expenditures in the form of cash. Restaurants and retail establishments are particularly attractive because their large cash revenues and their deposits of cash in banks are less likely to attract attention and also because their financial records are easily falsified (Reuter and Truman, 2004, Ch. 3). In this way the money to be laundered can be reported as the cash revenue of, for example, a criminally-owned restaurant, thus turning money obtained through criminal activity into seemingly legitimate profits.

If the amount of money to be laundered is really large, then such local business schemes will also arouse the suspicions of authorities as their reported income begins to exceed the amount of legitimate business they can reasonably be expected to do. At this point, money launderers often turn to foreign banks and businesses. For example, they can use surrogates to deposit the money into the financial system of a foreign country. Firms engaged in international trade and financing are also attractive vehicles for laundering money because moving the money to a foreign location and then bringing it back to the country of origin further disguises its

criminal origins.⁸ Shell companies that engage in international trade can disguise the movement of such money through over- or under-invoicing or by means of fictional transactions in services, loans, capital transfers, royalties and intra-company payments, and this is thought to be a major mechanism for illegal capital flight and money laundering.⁹ For example, de Boyrie *et al.* (2005) examined unit values in US-Russian trade and estimated that over- and under-invoicing accounted for the movement of \$1.01 to \$4.85 billion per year between the two countries in the 1990s.¹⁰

Simpson (2005) reports that money launderers from Russia often set up shell companies in the United States, citing as an example ABN Amro's transfer of over \$1 billion of Russian money in one year to a shell company in Kentucky. This company has no physical presence in the United States, and it belongs to an individual thought to be associated with Russian "business circles". Moreover, the same individual has incorporated nearly 200 other companies in Kentucky and many more in other United States jurisdictions. In view of the high levels of corruption and criminality reported in some transition economies, we should expect that criminals there would also make similar use of foreign subsidiaries and affiliates to launder money and to move it outside their home countries.

⁸ The fictional Mafia "godfather", Don Corleone, owned an olive oil importing business to facilitate the laundering of illegal income (Puzo, 1983).

⁹ Hines and Rice (1994) survey the ways in which parents and affiliates can move funds from one country to another.

¹⁰ Because money laundering is hard to identify, even legitimate business may be caught up in it. Between \$7 and \$16 billion of Russian capital flight was allegedly laundered through The Bank of New York between 1996 and 1999. Much of this money was allegedly the proceeds of criminal activity in Russia, and some of it was said to be looted IMF loans to that country. See Simpson (2005).

The literature on illegal capital flight and money laundering provides few linkages between these phenomena and FDI, although there is a related literature on the use of tax havens by MNCs that provides some useful insights.¹¹ Which means of laundering money or engaging in illegal capital flight will be utilized depends in part on home and host country characteristics and in part on the amount of money an individual or organization seeks to launder. Different techniques for laundering money entail different fixed costs, and each implies a different relationship between the amount of money being laundered and the costs of money laundering, which include both the “direct” costs of operating the laundering scheme as well as the risk of apprehension, confiscation of the money laundered and other assets as well as incarceration upon discovery by the authorities.¹² The penalties for being caught laundering money can be quite high; the launderer can lose not only the money being laundered through a single account but also the money deposited in all other similar accounts (Reuter and Truman, 2004, pp. 69-70) as well as other assets, and he/she will be liable for criminal prosecution for money laundering and possibly also for the criminal activity that generated the illicit income being laundered.

Domestic money laundering schemes, such as those that use multiple bank accounts, even if serviced by surrogates, often face sharply increasing costs because of potential discovery by home country officials, especially if the country is small and has only a few banks. The use of multiple foreign bank accounts in one or more foreign countries with money transferred to service these accounts entails less risk of large cash deposits in the accounts drawing suspicion,

¹¹ See Desai et al. (2006) for a model of the effect of tax havens on MNC investment decisions. We return to the relationship between tax havens and money laundering centers later.

¹² Another cost is bribing bank personnel, law enforcement officials, etc.

but it entails higher variable costs for transporting cash to these accounts through couriers, etc.¹³ Setting up arrangements for moving money to foreign accounts through over- and under-invoicing with foreign firms requires a higher fixed investment to establish the scheme. Nevertheless, as the amount of money being laundered through such schemes increases, the risk of discovery by the authorities also increases, possibly quite rapidly both due to home- and foreign-country efforts to limit tax evasion through over- and under-invoicing. Thus, money launderers must resort to more complex schemes to avoid discovery. Of these, FDI potentially entails the highest fixed cost, that of establishing and operating a firm overseas, but it is also the arrangement that offers the lowest marginal costs of moving large amounts of money because these movements can be disguised through a variety of intra-firm transactions between the parent firm and the foreign affiliate as described above.

The growing number of offshore corporations with seemingly no legitimate business purpose confirms that illicit flows increasingly make use of firms established abroad for that purpose. For example, Buchanan (2004) reports that the number of shell companies in the British Virgin Islands, a reputed center for money laundering, had increased from 5,000 in the mid-1980s to more than 120,000 in 1994. A characteristic of such centers is a high degree of secrecy offered to shareholders and the infrastructure for moving funds internationally while maintaining a high degree of discretion, which leads to low variable costs of laundering money.

¹³ International efforts to interdict money laundering emphasize measures to limit the international movement of large amounts of cash. See Group of Eight (1999) and Reuter and Newman (2004).

Box 1 lists the host countries used in our study and notes those that international law enforcement organizations, described below, designate as countries where significant money laundering takes place. We also report for each country in our sample its corporate tax rate. A casual inspection of the tax rates and corruption rankings of the money laundering countries suggests that the picture of a money laundering country as a low-tax and corrupt jurisdiction is a cliché. Many jurisdictions identified by the US Drug Enforcement Administration as money laundering centers are countries with high corporate taxes. They are also countries with low levels of corruption; among our sample of money laundering countries, Australia, Austria, Canada, Germany, Hong Kong, Japan, Luxembourg, Spain, Switzerland, the UK, and the US all were ranked among the 20 least corrupt countries in the world by Transparency International. What these countries do offer to foreigners seeking to launder money is political stability, ease of incorporation, and a banking system that undertakes many international transactions of sufficient volume so that the investor's deposits and withdrawals do not attract the attention of the authorities.

III. An Overview of FDI from Transition Economies

The transition economies of Central and Eastern Europe have experienced large capital inflows since the start of their transitions, and the nature of these inflows and investors' motivation have received considerable attention.¹⁴ More recently, firms from the transition economies have begun to undertake investments outside their own countries. While the stock of outward FDI is still no more than 15-20% of the stock of FDI in the region, the growth of these

¹⁴ Studies include Bevan and Estrin, 2004, Carstensen and Toubal, 2004, Brada *et al.* 2006.

flows has accelerated rapidly in this decade. Not all or perhaps even the majority of outward FDI from transition economies is driven by money laundering and capital flight, but a review of the data strongly suggests that illicit capital flight and money laundering have been important drivers of FDI. Their effect on the pattern of transition-economy FDI outflows is palpable even if much of the FDI from transition economies is driven by the existence of firms that are able to deploy their firm-specific competitive advantage in foreign markets through FDI financed by legal outflows of capital.

One way of seeking out illicit motives for outward investment from transition economies is to examine the sectors into which MNCs from these countries invest. Kolotay (2004) reports that in five advanced transition economies, the Czech Republic, Estonia, Hungary, Poland and Slovenia, the share of services in the total outward FDI stock in 2001 was 56 percent.¹⁵ Bohatá and Zemplerová (2004) provide greater detail on the basis of Czech data, and they find that, at the end of 2000, only 13% of the stock of Czech outward FDI was in manufacturing while 77% was in trade and repairs, financial services and other services. Zemplerová (forthcoming) reports that this pattern has continued through 2007. These studies note that the trade and repair sectors may represent affiliates set up abroad to service machinery and equipment exports or to facilitate the marketing of Czech goods. This sectoral pattern is consistent with the declared objectives of firms from other transition economies that undertake FDI. In a survey of investing firms from five transition economies, Jaklič and Svetličič (2003) found that an important

¹⁵ Many of the transition economies, including Russia, publish few or no statistics on either the sectoral or geographic composition of outward FDI. The six countries above are the only ones for which such data are available for more than one year.

motivation for FDI was to expand foreign sales and to reduce non-labor costs, which could well mean distribution and marketing costs in foreign countries.¹⁶ Nevertheless, it is also possible that affiliates in such sectors could as well have been established to facilitate capital flight and money laundering.

Like the sectoral composition of outward FDI from transition economies, the data on its geographic distribution are not available for all countries or for all years. In Table 1 we report the geographic distribution of the stock of FDI from three transition economies, Croatia, Czech Republic and Latvia in 2000. For the first two countries, other Central and East European countries are the main destination for investments. History plays an important part in explaining this pattern: for Croatia, the other ex-Yugoslav states make up the bulk of these investments, and in the case of the Czech Republic, Slovakia alone makes up close to 30% of Czech outward FDI stock. The EU is the second most important destination for FDI for these two countries, not surprising given its proximity and the fact that the EU is the largest trading partner of each of them. Surprisingly, perhaps, developing countries receive a significant share of outward FDI as well. In the case of Latvia developing countries dominate.

The importance of developing countries as a destination for transition countries' outward FDI is not as innocent as it appears at first glance. Using the relatively detailed Czech National Bank data on the distribution of Czech outward FDI by destination, we compiled Table 2, which shows the importance of money laundering centers as identified by the Financial Action Task

¹⁶ Asset acquisition was not an important motive for FDI. See also Bohatá and Zemplerová (2004) for a fuller discussion of the Czech case.

Force (FATF) in Czech outward FDI. Note the surprisingly large stock of Czech FDI located in Liechtenstein and the British Virgin Islands. Liechtenstein was, until 2001, listed by the FATF on its Non-cooperative Countries and Territories (NCCT) list. Interestingly, Czech FDI in Liechtenstein was quite significant on a flow basis up to 2000, but then disappeared entirely after Liechtenstein reformed its banking policies to bring them into compliance with FATF standards. Cyprus is a well-known center for laundering money from Russia and other East European countries and St. Vincent and the Grenadines continued as NCCTs after Liechtenstein's removal from the list in 2000. It is hard to imagine that these countries have a great market potential for Czech goods or that Czech firms have some real competitive advantages in operating resorts and casinos on tropical islands and that these traditional factors serve as the drivers of Czech FDI to the Caribbean. Since the Czech Republic has a relatively good ranking among transition economies in ratings of corruption, transparency and security of property rights, it is somewhat surprising to find that, as Table 2 shows, FDI in money laundering centers accounts for nearly 30% of Czech outward FDI. Although we lack similarly detailed evidence for Latvia, Liuhto (2001) provides a number of case studies that document investments motivated by money laundering and capital flight.

There are no estimates of the amount of money that is laundered by agents from the transition economies, but Walker (1999) estimates global money laundering to be as much as \$2.85 trillion. According to Schneider and Windischbauer (2008), a major source of money to be laundered derives from illegal trafficking in drugs. They report that trade in illegal drugs is equal in value to nine percent of recorded world trade. Moreover, they report that in Austria and

Germany about 40% of money that is laundered is related to the drug trade, with the remainder due to illegal arms shipments (20%), economic crime (15%), theft (10%), prostitution and gambling (10%) and violent crimes such as armed robbery and kidnapping (5%). The relative importance of these sources of money needing to be laundered in transition economies may differ because economic crimes such as bribery, looting of firms, etc., may be more important than they are in Germany and Austria, but drug dealing, prostitution and human trafficking have been some of the well-publicized and unwelcome by-products of the transition.

IV. A Model of FDI with Illegal Capital Flight and Money Laundering Motives

In this section we specify and estimate a model of bilateral capital flows from our sample of transition economies to host countries around the world. We select a parsimonious model that captures the main traditional factors influencing FDI, and we add to it several variables that should account for the effects of capital flight and money laundering on FDI outflows from the sample of transition economies used in our econometric work. Our analysis is twofold. First we analyze the factors that influence the FDI location choice. Second, we investigate the principal determinants of the size of FDI outflows. Our results indicate that both economic factors that reflect the traditional drivers of FDI outflows and illicit money flows play a role in determining the destination of FDI outflows as well as the level of bilateral FDI flows from transition economies. In section V we test the robustness of our results in front of alternative nontraditional determinants of FDI including taxes, governance quality, wealth, infrastructure and cultural background and also to a different measure of money laundering.

A. Econometric Specification

The first objective of our empirical analysis is to analyze FDI decisions of the investors in our sample of transition economies, and the effect of money laundering motives on these decisions. Specifically, in what we call the Location Choice Model or LC Model, we analyze investors' selection of the host countries in which to invest. We propose the following augmented version of the KK model to analyze FDI location choice from transition economies:

Location Choice Model (LC Model)

$$FDI_{ij}^* = \alpha + \beta KK_{ij} + \delta MON_j + \gamma(MON_j \times KK_{ij}) + \varepsilon_{ij} \quad \text{Eq. 1}$$

$$FDIpro_{ij} = 1 \text{ if } FDI_{ij}^* \geq C \quad \text{Eq. 2}$$

$$FDIpro_{ij} = 0 \text{ if } FDI_{ij}^* < C \quad \text{Eq. 3}$$

where

FDI_{ij}^* = propensity for investors in country i to undertake FDI in country j .

$FDIpro_{ij}$ = dummy variable = 1 if country j receives FDI from country i and 0 otherwise.

KK_{ij} = country characteristics of countries i and j as specified by the KK model.

MON_j = dummy variable = 1 if the host country is a money-laundering center and 0 otherwise.

ε_{ij} = error term.

FDI_{ij}^* is a non-observable variable that measures the incentives for investors in country i to undertake FDI in country j . Investors in country i will invest in country j only if the economic, social and political conditions in the two countries make the investment sufficiently

advantageous either from a business sense or because it facilitates illegal capital flight or money laundering. If the propensity to invest is larger than the threshold value C , ($FDIpro_{ij}^* \geq C$), then we will observe FDI from county i to country j . We estimate the parameters of the LC Model using Probit.

The second objective of our study is to analyze the effect of money laundering on the volume of FDI from transition economies. Specifically, we propose a FDI Outflows Model, or OM model as follows:

FDI Outflows Model (OM Model)

$$FDI_{ij}^* = a + bKK_{ij} + cMON_j + d(MON_j \times KK_{ij}) + \varepsilon_{ij} \quad \text{Eq. 4}$$

$$FDI_{ij} = FDI_{ij}^* \text{ if } FDI_{ij}^* > 0 \quad \text{Eq. 5}$$

$$FDIpro_{ij} = 0 \text{ if } FDIpro_{ij}^* \leq C \quad \text{Eq. 6}$$

Equation 4 in the OM Model is defined exactly as Equation 1 of the Location Choice Model; however, FDI_{ij} in Equation 5 is the observed FDI outflow from home country i to host country j . Specifications such as the OM model have been widely used in the literature on foreign direct investment, and it is used by Carr *et al.* (2001) to test the KK model. The OM model is estimated as a Tobit model.

B. FDI and KK Model Data

We compiled FDI outflows by country of destination for six transition economies, Bulgaria, the Czech Republic, Estonia, Hungary, Macedonia and Slovenia. The data came from each country's central bank web site. Flows are reported in US dollars. Because of the

infrequency of some of these FDI flows, we cumulated the value of bilateral FDI flows from these transition economies for the period 2000-2003. Our data are limited to these six transition economies because their central banks are the only ones among transition economies to report their FDI outflows fully by country of destination.¹⁷ Our data show that there are no bilateral FDI outflows between numerous home and host country pairs. Specifically, 62% of the FDI flows in our sample are zero. In order to analyze the FDI location decision between a pair of countries, the dependent variable is set equal to 1 if there is an FDI flow between the two countries and to zero if there is no flow.

Most country economics variables were taken from the World Bank's *World Development Indicators* CD-ROM. Although we cumulated the dependent variable over a four-year period, the explanatory variables refer to 2002, thus centering the explanatory variable over the period under observation. We were unable to obtain explanatory-variable data for some of the host countries, and these were dropped from our sample. Our largest sample includes an unbalanced panel of 83 host countries and six home countries with a total of 449 observations. This sample includes all OECD countries and as many of the transition economy and developing country hosts for which data were available.

The variables in KK_j of the LC and OM models represent the economic drivers of bilateral FDI flows posited by the knowledge-capital model. According to this model, the main drivers of FDI are: (1) absolute and relative country size, (2) bilateral trade costs, (3) relative

¹⁷ We chose not to construct FDI outflows from other transition economies by using host country mirror statistics because of the sometimes large differences that are frequently present between the values reported by home and host countries.

factor endowment differences, (4) investment costs and certain interactions between these variables.

Country size is measured by GDP. The larger the home and the host countries' GDPs, the larger should be country i 's FDI flows to country j . In part, this is because a large host-country domestic market creates opportunities for capturing economies of scale and scope that promote the exploitation of firm-specific competitive advantages based on R&D, branding and the finer subdivision of production. We do note that, in some cases, a small home-country market may be a factor that forces firms to seek large foreign markets precisely to achieve these economies, but a small country is likely to have only a few firms able to undertake such a strategy. A larger host-country GDP attracts FDI because the costs of undertaking FDI are to some extent fixed, and thus investors will find larger host countries more profitable if they wish to expand sales at the least cost. Large economies are also likely to have a greater variety of specialized factors of production and resources that the foreign investor will find attractive.

Following Egger and Winner (2006) and Carr *et al.* (2001) we use the following variables to control for relative country size:

$$\begin{aligned} SUM_{ij} &= GDP_i + GDP_j \\ GDP2_{ij} &= 1 - \left[(GDP_i / SUM_{ij})^2 - (GDP_j / SUM_{ij})^2 \right] \end{aligned}$$

where GDP_i and GDP_j are gross domestic product of the home and host countries for 2002 in billions of 1995 US\$ respectively. GDP data was obtained from the World Bank's *World Development Indicators*. $GDP2_{ij}$ represents the difference in bilateral country size, a measure of size similarity. We include this variable because, according to the KK model, affiliate sales

volume has an inverted U-shaped relationship to differences in country size (see Carr *et al.*, 2001 and Egger and Winner, 2006).

The second set of drivers of FDI according to the KK model is home and host country trade costs. We use its imports as percentage of GDP of the host country as a measure of host country trade costs such as tariffs, and we refer to this variable as $TChost_j$. For the case of home country trade costs we use home country external balance of goods and services for 2002 and refer to this variable as $TChom_i$. Higher trade costs in the host country should stimulate FDI, as foreign firms will seek to serve the market through affiliates rather than through trade. Higher trade costs in the home country will make resource-seeking FDI less attractive for home country firms because they will find it more difficult to import components, parts and finished goods from foreign affiliates into the home country.

The existence of international factor endowment differences is an important motive for FDI (Helpman 1984; Markusen and Maskus 2002; Carr *et al.* 2001). Following Egger and Winner (2006) we control for factor endowment differences using the absolute value of the differences between home and host countries per capita GDPs:

$$SK1_{ij} = abs\left(\frac{GDP_i}{POP_i} - \frac{GDP_j}{POP_j}\right)$$

As an alternative measure of differences in skill endowments we use the differences between home and host countries values in the Human Development Index (HDI). The HDI has been published since 1990 by the United Nations Development Programme in their Human

Development Reports. The HDI aims to provide a broader characterization of “development” by aggregating country-level attainments in life expectancy and education as well as income.

Our measure of skill endowment differences, based on the HDI, is defined as follows:

$$SK2_{ij} = HDI_i - HDI_j$$

The *HDI* does not include observations for 12 host countries, which reduces our sample from 449 to 375 observations, so we report regressions results with and without this measure.

According to the KK model the cost of investing in the affiliate country should measure host countries perceived impediments to investment. As a proxy for investment cost we use the Economic Freedom of the World Index (EFWI) for 2002, developed by the Fraser Institute and we refer to this measure as *ICHost_j*. According to the Fraser Institute, the EFWI measures the degree to which the policies and institutions of countries are supportive of economic freedom, by summarizing countries' information from five broad areas: (1) size of government, (2) legal structure and security of property rights, (3) access to sound money, (4) freedom to trade internationally and (5) regulation of credit, labor, and business. The EFWI lacks data for 15 of our host countries, so our data set is reduced to 340 observations when we include this variable, and consequently we report results with and without it.

Finally, following Carr *et al.* (2001), we also incorporate a measure of distance. The role of distance between countries is ambiguous. On one hand, FDI is used to overcome high transportation costs for low-value bulky goods or for non-tradable services, and in this case distance between the home and host countries has a positive effect on FDI. On the other hand, proximity also has a positive effect on FDI because proximity implies similar tastes and

consumption patterns, promoting FDI used to increase sales in the host country. The literature on FDI suggests that not only is proximity a driver of FDI, but that adjacency of the home and host countries is also a particularly important stimulus to FDI. Consequently, in our model we use both distance and adjacency as separate explanatory variables so that:

$DIST_{ij}$ = distance in thousands of km between the capitals of countries i and j

ADJ_{ij} = 1 if countries i and j are adjacent, 0 otherwise

Carr *et al.* (2001), also suggest incorporating interaction terms in order to capture possible non-linear relations between the variables. Given the available data and including the interaction terms suggested by Carr *et al.* (2001), we estimate three versions of the KK variables for the LC and OM models as follows:

$KK1_{ij} = (SK1_{ij}, ADY_{ij}, DIST_{ij}, SUM_{ij}, GDP2_{ij}, TChost_j, TChom_i)$

$KK2_{ij} = (KK1_{ij}, SK2_{ij}, (GDP_i - GDP_j) * SK2_{ij}, TChost * SK2_{ij}^2)$

$KK3_{ij} = (KK2_{ij}, IChost_j)$

We employ the complete sample (449 observations) when we use $KK1_{ij}$ in our models, but, due to missing observations for skill endowment differences ($SK2_{ij}$) and the cost of investing in the affiliate country ($IChost_j$), we have only 375 and 340 observations respectively when we use $KK2_{ij}$ and $KK3_{ij}$. Note that the $KK3_{ij}$ specification includes all variables and interactions terms used by Carr *et al.* (2001) in their empirical test of the KK model.

C. Money Laundering Countries

An important issue for our study is the identification of money laundering countries. We define a country as a money laundering center if it is listed as a “jurisdiction of primary concern” in the *International Narcotics Control Strategy Report for 2003* of the US Bureau for International Narcotics and Law Enforcement Affairs. The countries identified as money laundering in our sample, listed in Box 1, are such “jurisdictions of primary concern”. This category includes "all countries and other jurisdictions whose financial institutions engage in transactions involving significant amounts of proceeds from all serious crime" (The Money Laundering and Financial Crimes section of the International Narcotics Control Strategy Report 2003, page XII-68). An important advantage of this way of categorizing money laundering countries is that the countries included in the list have significant inflows of illicit money and not just weak regulatory systems. The US Bureau for International Narcotics and Law Enforcement Affairs explicitly notes that "the focus of analysis in considering whether a country or jurisdiction should be included in this category is on the significance of the amount of proceeds laundered, not of the anti-money laundering measures taken." (The Money Laundering and Financial Crimes section of the International Narcotics Control Strategy Report 2003, page XII-68). We believe that this is a superior categorization to that of the Financial Action Task Force’s (FATF) list of Non-Cooperative Countries and Territories (NCCT), which focuses on a jurisdiction’s compliance with stated criteria regarding its legal and regulatory framework, international cooperation, and resources devoted to preventing money laundering.

Following the terrorist attacks of September 11, 2001, the United States and other countries have devoted extensive resources to reduce terrorist financing. Identification and

control of money laundering is critical part of this effort due to the close link between money laundering and terrorist financing. In view of the extensive research and resources devoted to the collection and analysis of a wide range of information used to produce the *International Narcotics Control Strategy Reports*, we believe that the list of countries identified as money laundering centers in this report is the most complete, up-to-date and accurate available.¹⁸

The report is produced through collaboration and information sharing involving the Financial Crimes Enforcement Network (FinCEN) of the US Department of the Treasury, as a member of the international Egmont Group of Financial Intelligence Units, but other agencies involved in the preparation of the report include the U.S. Customs Service, the Internal Revenue Service, the Office of the Comptroller of the Currency, the Office of Technical Assistance, the Office of Foreign Asset Control, the Secret Service, the Drug Enforcement Administration, the Federal Bureau of Investigation, the Criminal Division's Asset Forfeiture and Money Laundering Section, the Counterterrorism Section, the Overseas Prosecutorial Development Assistance and Training Office, the Federal Deposit Insurance Corporation and the Federal Reserve Board. The information used to prepare the report is accessible only to government officials. The basis for these activities is the USA PATRIOT Act, passed in October 2001. The Act revises key elements of the criminal code and Bank Secrecy Act to provide United States officials access to information critical to identifying money laundering activities.

Based on the list of money laundering countries described in this section, we create the dummy variable, MON_j , which is equal to one if the host country is a money-laundering center

¹⁸ Nevertheless, in Section V we also consider an alternative scheme for identifying countries that are money laundering centers. Use of this alternative categorization does not change our conclusions.

and to zero otherwise. We also include interaction terms between the KK variables and the money laundering dummy. While outward FDI motivated by economic forces is likely to be influenced by the economic characteristics of the host and home countries as measured by the variables suggested by the KK model, this should not be the case for FDI motivated by capital flight and money laundering. For example, investors seeking to make investments to facilitate money laundering are more interested in the host countries' laws and financial regulations than in their size or economic potential. Indeed, the effect of the traditional economic variables should be smaller for FDI to money laundering countries, and the interactive slope dummy variables will capture these differences.

D. Estimation Results for the Location Choice Model

The first objective of our empirical study is to evaluate the effect of money laundering in the location choice decisions. As explained before, our empirical strategy consists first in identifying a parsimonious model that captures the main traditional factors influencing FDI and then add to it variables that should account for the effects of money laundering. Given data availability, we estimate three specifications of the KK model, using the previously described variables $KK1_{ij}$, $KK2_{ij}$ and $KK3_{ij}$. The set of variables $KK3_{ij}$ is the most complete one, and includes all variables proposed by Carr *et al.* (2001). However, given missing observations for skill factor endowments differences and host country investment costs, our estimation using $KK3_{ij}$ is based on 340 observations. The set of variables in $KK2_{ij}$ does not include a measure of host country investment cost, increasing the number of observations to 375. Finally we use the

complete sample, 449 observations, with the set $KK1_{ij}$, but no measures of skill factor differences are included in this specification.

We estimate the FDI Location Choice Model using each one of the three specifications of the KK model variables as only regressors in a standard Probit regression. We refer to these three models as LC-KK1, LC-KK2, LC-KK3 models. The depended variable is the dichotomous variable $FDIpro_{ij}$ as described in Equations (2) and (3), so in this case we analyze FDI location choice as the probability that there will be FDI between a pair of countries. Estimation results for the three versions of the KK model are presented in the first three columns of Table 3. We report the variables' marginal effects evaluated at the mean and their corresponding p -values also evaluated at the mean¹⁹. The signs of all estimated coefficients are consistent with theory. Higher GDPs in the home and host country increase the probability that FDI between the two countries will take place. This is reflected in the positive coefficients of SUM and GDP2, although only SUM is significant in all three cases. The coefficient for factor endowment differences, as measured by $SK1_{ij}$ is not significant in our regressions.²⁰ However, skill differences measured by $SK2_{ij}$, the measure of differences in the human development index, are significant and positive, reflecting the proclivity of the host countries to invest in developing countries whose development index is lower than theirs.

¹⁹ The marginal effects for the interacted variables were estimated following Ai and Norton (2003). We thank an anonymous referee for bringing our attention to this issue.

²⁰ Egger and Winner (2006) also find an insignificant effect on FDI using $SK1$; they include interaction terms of SK with SUM and GDP2 that are significant. We refrain for using such interaction terms because they cause high multi-colinearity due to the cross sectional nature of our study. We do include interactions effects when $SK2$ is included in the specification.

Adjacency also significantly increases the probability of FDI, and greater distance between the two countries reduces the likelihood of FDI. These results are consistent across all three KK model regressions. We do not find evidence of the importance of bilateral trade costs, as $TChost_j$ and $TChom_i$ are not significant in our regressions. This is consistent with the results of Carr *et al.* (2001). The investment cost of host country, $IChost_j$ which is just included in the third regression, is not statistically significant. Finally none of the interacted variables included in the model are significant, which suggests that the effects of the KK variables on FDI in our sample are conditionally constant.

The second step is to analyze the effect of Money Laundering on FDI location decisions, so we add the money laundering dummy MON_j to our models. We also include interaction terms between the KK variables and the money laundering dummy as defined in Equation (1). In order to keep our model parsimonious and to avoid multicollinearity issues, we only include the statistically significant variables from the previously estimated KK models. Specifically, in Table 3 we present estimation results for two versions of the LC model with money laundering: first with the significant variables of $KK1_{ij}$ (LC-KK1+ML model in column 4) and then with the significant variables of $KK2_{ij}$ (and LC-KK2+ML in column 5). We do not report results using

the variables on $KK3_{ij}$ since they only differ from $KK2_{ij}$ by Investment Cost of the host country ($IChost_{ij}$), which is not significant.²¹

The marginal effects reported in Table 3 show that the coefficients for ADY_{ij} and DIS_{ij} are very similar to the LC-KK models results. The coefficient for the money laundering dummy is positive and significant in both specifications LC-KK1+MN and LC-KK2+MN. The effect for skill factor differences is also significant and almost identical to the models without money laundering. The marginal effects of SUM_{ij} increases to 0.47 in LC-KK1+MN and to 0.60 in LC-KK2+MN models when compared with LC-KK1 and LC-KK2 models respectively. The marginal effect of the interaction $SUM_{ij} \times MON_{ij}$ is negative and is the only significant interacted variables. Based on these results we can conclude:

1. On average, money laundering countries have a 20% higher probability of receiving FDI after we control for the traditional drivers of FDI contained in the KK model.
2. The horizontal investment components of the KK model, i.e., the effects of larger market size, measured by SUM_{ij} , is less important to the decision to invest in money laundering countries.
3. The vertical investment components of the KK model, i.e., the effects of differences in home and host country factor endowments, are equally important for FDI location in both money-laundering countries and non-money-laundering countries.

²¹ We also do not include the interaction with $MON_{ij} \times DIS_{ij}$ to avoid multicollinearity given the cross-sectional nature of our data. This variable is not significant in our estimation.

E. Estimation Results for the FDI Outflows Model

The second objective of our study is to evaluate the effect of money laundering in the volume of FDI outflows. Our estimations results are based on a Tobit regression for the OM model as described in Equations (4) to (6).²² We follow the same estimation strategy as in the Location Choice Model presented in the previous section, that is first we identify a parsimonious model that captures the main traditional factors influencing FDI (models OM-KK1, OM-KK2, and OM-KK3) and then add to it variables that should account for the effects of money laundering (models OM-KK1+ML and OM-KK2+ML).

Marginal effects for the Tobit estimation results of the OM model with the three specifications of the KK variables are reported in first three columns of Table 4 (OM-KK1, OM-KK2, and OM-KK3). The signs and statistical significance of the coefficients for the three specifications of the KK model are consistent with the probit results reported in Table 3. All coefficients of the three specifications of the KK model are consistent with theory. Market size, proxied by SUM, is positive and significant. The variables DIST and ADY are also significant with negative and positive effects respectively. As before, factor endowment differences measured by SK1 are not significant, but when they are measured by SK2 they are positive and significant. As in the probit case, we find no significant effect of bilateral trade costs nor of investment cost, and none of the interacted variables in the three KK models is significant.

²² We also estimated this model using a Heckman two-step procedure (Heckman 1979) to control for sample selection. Results are qualitatively similar to the ones using the Tobit model. Given that in the Heckman model we use a very similar set of regressors in the estimation equation and selection equation we believe that the Tobit regression results are more reliable. Results for the Heckman selection model are available from the authors.

Next, we estimate the model including our MON_{ij} dummy variable and the corresponding interaction terms in addition to the significant variables of the KK models. Intuitively, if the money laundering dummy is significant and positive, then, on average, FDI flows to a money-laundering country are larger compared to those to an identical country that is not a money laundering center. Similarly, significant coefficients for the interaction terms will imply different effects of the KK variables for FDI directed to money laundering countries.

The estimation results reported in columns 4 and 5 of Table 4 (OM-KK1+ML and OM-KK2+ML models) corroborate these hypotheses. The money laundering dummy is greater than zero at 5% significance level. The effect of ADY on FDI is different for money laundering countries as its corresponding interaction terms is significant. The interaction term for $SUM_{ij} \times MON_{ij}$ is significant only if skill differences are included in the model. The pseudo R-square coefficient increases from 0.0286 in the OM-KK1 model to 0.0367 in the OM-KK1+ML model and from 0.0356 to 0.0430 from the OM-KK2 to the OM-KK2+ML models.

Results presented in Table 4 show that the KK variables are significant when FDI is directed to host countries that are not money laundering centers. In the case of FDI directed to money laundering countries, the effect of the variables suggested by the KK model is substantially smaller. The only exception is the skill endowment differences, which has the same significant effect for both groups of host countries. We conclude that the volume of FDI outflows is well explained by the KK model when these flows are directed to countries that are not money laundering centers. However, the explanatory power of the KK with respect to the

volume of FDI outflows to money laundering countries is significantly less because the latter flows are motivated by other factors, the nature of which remains the subject of future research.

Finally, in Table 5, we provide a measure of the importance of FDI motivated by illicit money flows by relating it to total outward FDI from our sample of home countries. Panel A of Table 5 reports the amount of FDI that goes to host countries that we identify as money launderers as well as the amount of FDI as a percentage of total outward FDI by the home countries. The latter ranges from 11.6% for Estonia to a high of 80.7% for Bulgaria, and the average for our sample of host countries is 28.89%. Thus FDI to money-laundering countries accounts for a significant proportion of outward FDI from our sample of home countries.

Of course, not all investment going to money laundering host countries consists of illicit flows from the home countries because there are legitimate reasons for directing FDI to these hosts as well. Thus in Panel B we report our estimates of the share of FDI going to money laundering hosts that is motivated by illicit flows. We obtain these estimates by using the parameter estimates for FDI flows to non-money laundering countries to estimate the amount of FDI that we would expect from each home country to each money-laundering host if that host country were a “normal” country rather than a money launderer. The parameters used for the estimation are the ones presented in Table 4 for the model including skill endowment differences (OM-KK2+ML).²³ For our sample of home countries, we estimate that, on average, 21% of FDI to money laundering countries consists of FDI intended to facilitate illicit money flows. Thus, an appropriate model of FDI for these host countries clearly would have to be specified in

²³ In order to make our results conservative, we present our calculations assuming that the countries are not adjacent.

a way that accounted for FDI intended to facilitate illicit flows as a determinant of the volume and location of total FDI.

The dollar amount of FDI going to money laundering host countries, reported in Panel C, is obtained by multiplying the first row of Panel A by the corresponding percentage in Panel B of Table 5, and in the last column we relate this illicit-flow-promoting FDI to total FDI outflows from each home country. The highest share of FDI meant to facilitate illicit flows in total FDI is 17.06% for Macedonia and the lowest is less than 5.23% for Estonia. We estimate that about 6% of FDI from the sample of home countries appears to be motivated by the desire to promote illicit financial flows, significant enough as a proportion to warrant this inclusion of illicit capital flows in models of outward FDI.

V. Alternative Explanations and Robustness Checks

In this section we evaluate the robustness of the results of our model of FDI. As described in Section II, the benchmark model we use to analyze FDI is the knowledge-capital (KK) model. Our results imply that the KK model is not able to explain completely the FDI inflows for the host countries in our sample, and we showed that an important part of the unexplained FDI is motivated by the desire to facilitate illicit financial flows. In this section we assess the robustness of our findings by considering other factors that might also, theoretically, also influence FDI outflows and whose omission might have biased our estimates.²⁴ Our analysis focuses in five alternative drivers of FDI suggested by the literature on multinational firms: differences in home- and host-country tax rates, the special appeal for foreign investors of host

²⁴ Such other motives are often modeled as being part of the “resistance” variable represented in our model by the distance between home and host country.

countries that are tax havens, differences in home- and host-country levels of governance, differences in the economics environment such as wealth and infrastructure, and similarities in home and host country cultural environments. We report results of the effects of these variables on our results for the FDI Outflows Model only because the effects on the Location Choice Model are very similar.²⁵ Finally, we analyze the dependence of our results on money laundering dummy used in our estimation. We find that our results are robust to all the alternative explanations for FDI and to the use of other money laundering measures. Moreover, our estimate that 6% of total FDI is motivated by money laundering increases to 10% if we include all alternative explanations in our model.

A. Tax differences

Because MNCs are interested in the maximization of profits post-tax, home- and host-country tax rates should have an impact on location decisions. The literature on tax effects on FDI is extensive, and summaries can be found in the Ruding Report (see Commission of the European Communities (CEC) 1992), Hines (1997, 1999), Devereux and Freeman (1995) and Blonigen (2005). More recent studies analyzing the effect of tax differences on FDI include Buettner and Ruf (2007), Devereux, Lockwood, and Redoano (2008) and de Mooij and Ederveen (2008). The basic idea behind all these studies is that MNCs' location decisions are influenced by international differences in tax rates. Thus we must consider the possibility that, in our model, part of the unexplained FDI flows that we attribute to the facilitation of illicit money flows could be driven by the tax regimes of the host countries. If we failed to control for the

²⁵ Complete estimation results for the Location Choice Model robustness check are available from the authors.

effects of different tax regimes, our results would suffer from omitted variable bias if the differences in tax rates were highly correlated with the money laundering dummy as in the case where the countries listed as money laundering centers were also countries that had very low or high tax rates.²⁶

To examine whether our results are driven by host-country tax rates, we construct a variable that measures the tax differences between home and host countries as:

$$TAX_{ij} = \text{corporate tax rate}_i - \text{corporate tax rate}_j$$

where the subscripts i and j represent the home and host country respectively. Our tax variable is based on the corporate tax rates in existence in 2003.²⁷ If TAX_{ij} is an important driver of FDI, we expect it to have a positive effect on bilateral tax flows. We include the TAX_{ij} variable in the FDI Outflows Model that includes skill factor endowment differences (OM-KK2+ML of Table 4) and report the results in Table 6.²⁸ Table 6 includes estimated marginal effects and p -values for our base model (OM-KK2+ML) in the first column and results controlling for taxes in column 2.

As expected, the coefficient of TAX_{ij} is positive, meaning that the lower the host country tax rate relative to the home country rate, the higher the FDI flows to the host country. The

²⁶ From Box 1 we can see that, among the countries identified as money laundering centers, several have relatively high corporate tax rates.

²⁷ We obtain the corporate tax rate from KPMG Tax rate survey 2003. Of the 84 countries in our sample, 61 are included in this survey. For the countries not included in the KPMG survey we obtained data from a variety of other sources.

²⁸ Results for the Money Laundering Model I of Table 4 are qualitatively identical and are available from the authors. In unreported results we also include interaction term with money laundering dummy, which become statistically insignificant.

pseudo R-squared coefficient increases from 0.043 to 0.487. After including the tax proxy, the money laundering dummy coefficient increases in magnitude from 51.52 in our base model to 68.60 and remains statically significant with a p -value even lower than in the base case. These results imply that both low tax host countries and money laundering centers both attract FDI, but in different ways. We conclude that our estimates of illicit financial flows are robust and conservative even if we consider tax differences as an alternative determinant of FDI flows.

B. Tax havens

Countries attract FDI not only because income earned locally is taxed at favorable rates, but also because host countries' tax policies can facilitate the avoidance of tax payments by foreign-owned firms altogether. According to the OECD, four factors identify a country as tax haven:²⁹ the jurisdiction imposes no or only nominal taxes on foreign-owned firms; there is a lack of transparency; laws or administrative practices in place prevent the effective exchange of information for tax purposes with other governments on foreign taxpayers benefiting from low or nonexistent taxation; and there is no requirement that the activity of the foreign-owned firm be substantial. Several studies have documented the importance of tax havens on FDI. For example, Hines and Rice (1994) show the effect of "fiscal paradises" or tax havens on US MNCs' location decisions. A comprehensive analysis of tax haven countries can be found in Diamond and Diamond (2002), and Dharmapala and Hines (2009) explore the factors influencing whether countries become tax havens.

²⁹ See the OECD web site <http://www.oecd.org>

As in the case of differences in tax rates, our model for FDI may lead to incorrect conclusions if FDI is driven by the fact that some host countries are tax havens. In order to control for this possibility, we include in our FDI outflow model a dummy variable $HAVEN_j$ that takes the value of one if the host country is a tax haven and zero otherwise. Our list of tax havens countries includes all the countries identified in Hines and Rice (1994) and Diamond and Diamond (2002). We also include the countries included in the OECD's list of non-cooperative countries in 2000. This list of countries is the same as used by Dharmapala and Hines (2009).³⁰

As before, we estimate our FDI Outflows model incorporating the tax haven variable, $HAVEN_j$ into money laundering model OM-KK2-ML.³¹ The results presented in Table 6, column 3, show that the tax haven dummy variable is not significant. The estimated coefficients for the money laundering dummy remain the same after including the tax haven dummy. We conclude that our results are not driven by the presence of tax haven countries in our sample of host countries.

C. Differences in Governance Levels

The quality of the host country's regulatory system and government can also influence the volume of FDI intended to facilitate illicit financial flows. A well regulated country with an effective legal and crime prevention system is less likely to be a host for FDI that facilitates money laundering. The critical issue is whether the country in question regulates inflows of money that originates in illegal activities or not. Some countries have highly restrictive

³⁰ The tax haven countries are Bahamas, Bahrain, Belize, Cayman Islands, Cyprus, Hong Kong, China, Ireland, Lebanon, Liberia, Liechtenstein, Luxembourg, Malta, Seychelles, Singapore, and Switzerland.

³¹ In unreported results we also included interaction terms that were not statistically significant.

regulatory systems for *legal* business activities but permit inflows of laundered money. Other countries may provide access to their markets without restrictive regulations on *legal* activities but may seek to restrict the inflow of money that originates in criminal or other illegal activities. A valid concern regarding our study is the fact that our model lacks a variable that controls for differences in regulatory system effectiveness across countries. Proponents of those differences suggest that such a variable could be seen as a better proxy for money laundering risk.³²

We conjecture that the effect of regulatory differences and governance is already measured by our dummy for money laundering countries. In order to test our conjecture, we introduce into our regressions the governance indicators developed by Kaufmann et al. (2003). These indicators are estimates of six dimensions of governance covering 199 countries and are based on several hundred individual variables measuring perceptions of governance, drawn from 25 separate data sources constructed by 18 different organizations. The six measures of governance are described by Kaufmann et al. (2003) are as follows:

1. Voice and accountability (VOI): Number of indicators measuring various aspects of the political process, civil liberties and political rights. These indicators measure the extent to which citizens of a country are able to participate in the selection of governments. We also include in this category indicators measuring the independence of the media, which serves an important role in monitoring those in authority and holding them accountable for their actions.

³² Much of what is being said in this section about regulatory activities of countries has been subject of recent high level debates about international cooperation in developing controls on drug money, tax evasion, money supporting terrorist activities and other criminal and illegal activities. It is likely that, if those discussions were to be successful, they would likely affect the choice of proxies for illegal activities in our model.

2. Political stability and absence of violence (POL): Several indicators that measure perceptions of the likelihood that the government in power will be destabilized or overthrown by possibly unconstitutional and/or violent means, including domestic violence and terrorism. This index captures the idea that the quality of governance in a country is compromised by the likelihood of sudden changes in government, which not only has a direct effect on the continuity of policies, but also at a deeper level undermines the ability of all citizens to peacefully select and replace those in power.

3. Government effectiveness (EFF): Measures the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies. The main focus of this index is on "inputs" required for the government to be able to produce and implement good policies and deliver public goods.

4. Regulatory quality (REG): Includes measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development.

5. Rule of law (LAW): Indicators which measure the extent to which agents have confidence in and abide by the rules of society. These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts.

6. Control of corruption (CORRU): Measures perceptions of corruption, conventionally defined as the exercise of public power for private gain. Despite this straightforward focus, the

particular aspect of corruption measured by the various sources differs somewhat, ranging from the frequency of “additional payments to get things done,” to the effects of corruption on the business environment, to measuring “grand corruption” in the political arena or in the tendency of elites to engage in “state capture”.

All six indicator variables are measured from -2.5 to 2.5 with higher scores correspond to better outcomes. From these indicators we construct a measure of home and host countries differences in governability by the absolute value of the differences on the each indicator for all home and host country pairs in our sample. For example, Voice and Accountability differences are calculated as: $VOI_{ij} = abs(VOI_i - VOI_j)$, and the other measures are similarly defined.

Columns 4 through 9 of Table 6 reports results of our model with controls for these governability measures. We include the governability measures one by one due to the high correlation between them in our sample, but in the last column of Table 6 we also include them together with all the control variables used in our robustness checks. We find that differences in three measures of governability are statistically significant in explaining FDI outflows. Specifically, the marginal effects of differences in voice and accountability (VOI), political stability and absence of violence (POL) and regulatory quality (REG) are negative and significantly different from zero.

A home country’s FDI is directed mostly to host countries with the same level of governance. These results are consistent with the finding of Cuervo-Cazurra and Genc (2008) that MNCs from home countries with a low level of governance have advantages over MNCs

from better governed home countries when investing in host countries with low levels of governance because of their ability to cope with a challenging governance environment.

Note that the regressions in Table 6 show that the estimated coefficients for the money laundering dummy are almost invariant after including each one of the differences in governance controls. This strengthens our argument that money laundering has an independent effect on FDI flows that is separate from the effects of differences in governance.

D. Differences in the Economic Environment

FDI can be also be motivated by similarities between home and host country economic environment and infrastructure. Cuervo-Cazurra and Genc (2008) emphasizes the possible advantages an MNE from a poor home country can have for investing in a poor host country, because such MNEs have experience in meeting the needs of low income populations. Similarly, an MNE that has more experience working in a home country with inefficient markets or poor business infrastructure will have more success investing in a similar business environment. Based on this intuition we include unemployment ($UNEMP_j$) as measure of the efficiency with which a host country's markets function, and the number of internet connections for every 1000 habitants ($INTER_j$) as a measure of the host's infrastructure.³³ As in the case of the governance measures, we compute the absolute value of the differences between home and host countries and add them to our model OM-KK2+ML. Table 6 shows marginal effects of each of the environmental variables. We find support for Cuervo-Cazurra and Genc's (2008) findings for

³³ In unreported results we also included other measures of market efficiency and infrastructure, for example, GDP per capita and the number of phone subscribers per 1000 population; the results are qualitatively similar.

differences in countries market efficiency as a driver of FDI outflows. The coefficient on differences in $UNEMP_j$ is negative and significant which implies that home countries' FDI will be directed toward countries of similar market efficiency. The infrastructure proxy is not significant. More important, the marginal effects of the money laundering dummy remain significant and positive, with a magnitude similar to that in the base model. Thus we conclude that our conclusion derived from the main money laundering model remain valid when we control for differences in the economic environments.

E. Cultural Similarities

MNEs are thought to be more likely to invest in countries with similar language, customs and general cultural background as the home country (see for example, Guiso et al., 2009; Shenkar, 2001). In order to capture this link in our sample, we introduce a dummy variable that takes the value of one if the home and host countries belonged to the same country in the recent past. Specifically our dummy (CUL_{ij}) takes the value of one for FDI flows between Czech Republic and Slovakia; between Slovenia and Bosnia-Herzegovina, Macedonia, Croatia and Serbia; and between Macedonia and Bosnia-Herzegovina, Slovenia, Croatia and Serbia. Column 12 of Table 6 reports the regression results.³⁴ We also present results for cultural differences when we include all control variables discussed in this Section. We do not find statistically significant evidence for the importance of cultural links in our sample, which can be explained by the fact that several other controls such as distance, adjacency or skill factor differences are

³⁴ In unreported results we also include interaction effects for our dummy variable. The results are also robust to the presence of these non-significant interaction effects.

collinear with these cultural similarities. The effects of money laundering are robust to the inclusion of the cultural links variable, and even increase in magnitude. We also used a broader measure of cultural similarities in the form of a dummy for historical, colonial and same-nation links as suggested by Cuervo-Cazurra and Genc (2008), but this variable had even less explanatory power.

F. Other Measures of Money Laundering

In this section we discuss the robustness of our results to the use of other measures of money laundering. To identify a country as money laundering country is a difficult task, since it involves identifying money flows that are by their nature designed to be hidden. Although we believe that the list of money laundering countries prepared by the *International Narcotics Control Strategy Reports* is the most accurate available, in this section we test to see whether alternative categorizations that have some international credibility would yield different results.

Other measures of money laundering proposed in the literature are based on the identification of suspicious transactions (Levi and Gold, 1994), on surveys (UN International Crime Victims Surveys), on differences in money supply and money in circulation (Tanzi, 1997) and factor models (Schneider, 2003). However, most of the data used to compile these measures are difficult to obtain for a large set of countries or are relatively inaccurate estimators of money laundering (Walker and Unger, 2009)

One measure of money laundering that appears to have both better country coverage and international credibility is the so-called Walker Model (Walker, 1995, 1999, 2002, 2003a,b). This model is being used, updated and improved by the IMF to measure money laundering, and

it has been adopted by United Nations to predict global drug money flows (see UNODC, 2005). The Walker index is based on an input-output model and produces a measure of a country's "attractiveness to money launderers". A potentially valuable feature of this measure is that it is not a zero-one dummy as used in our previous regressions, but rather a semi-continuous variable with higher values indicating countries with greater attractiveness for money launderers. In order to check the robustness of our results to different measures of money laundering, we use the estimates of the Walker model, reported in Walker (2003b) as our money laundering proxy. In our sample, Walker's measures range from 634 for the United States to 0-9 for countries like Peru, Kenya and India.

In the last column of Table 6 we report results on the marginal effects of our Tobit model with money laundering, including all control variables analyzed in this robustness checks section but using Walkers' money laundering measure. To analyze the effects we compared the results presented in the last two columns of Table 6. The marginal effects for the KK model variables ADJ_{ij} , $DIST_{ij}$ and $SK2_{ij}$ have similar magnitude compared with the case using our money laundering proxy and they are all significant. The only exception is the coefficient of SUM_{ij} , which becomes both small in magnitude and statistically insignificant. Walker's money laundering measure is positive and significant, and the only significant interaction term is $MON_{ij} \times ADJ_{ij}$. As expected, the magnitude of the marginal effect of Walkers' measure is different from the one for our zero-one money laundering dummy because the magnitude of Walker's measure ranges from 634 to 5.

The main differences in the two regressions may be due to the fact that several of the KK regressors are used in the constructions of Walker's index. The best example is a country's *GDP*, which is used both to calculate the KK variable SUM_{ij} and Walker's attractiveness measure. This may be why SUM_{ij} is not significant when we use Walker's measure. Moreover, in the model using our money laundering dummy, if we take the coefficient of SUM_{ij} (174.91) minus that of $MON_j \times SUM_{ij}$ (-162.40), the effect of SUM_{ij} for a money laundering country (12.40) is similar to coefficient of SUM_{ij} Walkers measure (17.24), and is also insignificant.

Thus we conclude the money laundering dummy used in this paper is a robust proxy for money laundering activity. Moreover, results with the zero-one dummy have the advantage of being able to disentangle the money laundering effects from the traditional effects on FDI established by the KK model.

VI. Conclusions

We have shown that the volume and country of destination of bilateral FDI flows from our sample of transition economies to a broad sample of host countries are driven, in part, by non-economic motivations such as the desire to facilitate illegal capital flight and money laundering. By means of a widely-used model of bilateral FDI flows, we show that in average 29% percent of total FDI is directed toward countries that are money laundering centers and that, of the FDI going to these countries, about 20% is motivated by the desire to facilitate illicit money flows. We have provided robustness checks to ensure that our results are not driven by other explanations of FDI, such as differences in tax rates, etc. that have been identified as

important in the literature. Anecdotal evidence and an examination of outward FDI flows from a sample of transition economies support our hypothesis.

Our econometric results suggest that non-traditional determinants of FDI flows, including money laundering, should be integrated into the theory of foreign investment. One avenue for further research would be to broaden the sample of home countries beyond transition economies so as to generalize our findings. A second area for further work is to develop a model that explains the characteristics of home countries that lead to large illicit capital outflows and the incorporation of that model's insights into the estimation of bilateral FDI flows.

BIBLIOGRAPHY

Aia Chunrong and Edward C. Norton (2003), Interaction terms in logit and probit models, *Economics Letters*, 80, 123–129.

Alfaro, Laura, Sebnem Kalemli-Ozcan, and Vadym Volosovych. (2008) Why Doesn't Capital Flow from Rich to Poor Countries? An Empirical Investigation. *The Review of Economics and Statistics* Vol. 90, No. 2 pp. 347-368.

Anderson, James E. (1979) A theoretical foundation for the gravity equation. *American Economic Review*, Vol. 69, No. 1, 1979, pp. 106-116.

Anderson, James E. and E. van Wincoop, (2003) Gravity with Gravitas: A Solution to the Border Puzzle, *American Economic Review*, Vol. 93, No. 1, March 2003, pp. 170-92.

Bergstrand, Jeffrey. H. (1985) The gravity equation in international trade - some microeconomic foundations and empirical evidence”, *Review of Economics and Statistics*, Vol. 67, No. 2 (1985) pp. 474-481.

Bevan, Alan A. and Saul Estrin (2004) The Determinants of Foreign Direct Investment into European Transition Economies, *Journal of Comparative Economics*, Vol. 23, No. 4, (December 2004), pp.775-787.

Blonigen, Bruce A. (2005), A review of the empirical literature on FDI determinants, *Atlantic Economic Journal* **33** (4) pp. 383–403.

Blonigen, Bruce A, Ronald B. Davies and Keith Head, (2003), Estimating the knowledge–capital model of the multinational enterprise: comment, *American Economic Review* **93** (3) pp. 980–994.

Bohatá, Marie and Alena Zemplinerová (2004) Investice českých firem v zahraničí [Investment of Czech Firms Abroad], *Politická ekonomie*, No. 1 pp.34-47.

Brada, Josef C., Ali M. Kutan and Taner Yigit, (2006) The Effects of Transition and Political Instability on Foreign Direct Investment: Central Europe and the Balkans. *Economics of Transition*, Vol. 14, No. 4 (2006), pp. 649-680.

Buchanan, Bonnie (2004) Money Laundering - A Global Obstacle. *Research in International Business and Finance*, Vol. 18, (2004), No.1, pp.115-127.

Buettner, T., and Ruf, M. (2007), Tax incentives and the location of FDI: evidence from a panel of German multinationals. *International Tax and Public Finance* Vol. 14, No. 2 pp. 151-164

Carr, D.L., J.R. Markusen, and K.E. Maskus,(2001) Estimating the Knowledge-Capital Model of the Multinational Enterprise, *American Economic Review*, Vol. 91, No. 3, pp. 693-708.

Carstensen, Kai and Farid Toubal, (2004) Foreign direct investment in Central and Eastern European countries: a dynamic panel analysis. *Journal of Comparative Economics* Vol. 32, No. 1, pp. 3–22

Commission of the European Communities (CEC). (1992). “Report of the Committee of Independent Experts on Company Taxation. (Ruding Report).” Brussels.

Cuervo-Cazurra, Alvaro and Mehemet Genc (2008) Transforming Disadvantages into Advantages: Developing-Country MNEs in the Least Developed Countries. *Journal of International Business Studies* Vol. 39, (2008), pp. 957-979.

de Boyrie, Maria E., Simon J. Pak, and John S. Zdanowicz (2005), Estimating the magnitude of capital flight due to abnormal pricing in international trade: The Russia–USA case. *Accounting Forum* 29 249–270

de Mooij Ruud A and Sjef Ederveen (2008). Corporate tax elasticities: a reader's guide to empirical findings. *Oxford Review of Economic Policy* 24(4):680-697

Desai Mihir A. , C. Fritz Foley, and James R. Hines, Jr.,(2006) , Do tax havens divert economic activity?, *Economics Letters*, Vol 90, Issue 2, Pages 219-224

Devereux M.P. and H. Freeman, (1995). The impact of tax on foreign direct investment: empirical evidence and the implications for tax integration schemes, *International Tax and Public Finance* 2, pp. 85–106.

Devereux, M.P. B Lockwood, M Redoano (2008). Do countries compete over corporate tax rates? *Journal of Public Economics* Volume 92, Issues 5-6, Pages 1210-1235

Dharmapala Dhammika and James R. Hines (2009), Which countries become tax havens?. *Journal of Public Economics*, Volume 93, Issues 9-10, October 2009, Pages 1058-1068

Diamond W.H. and D.B. Diamond, (2002).Tax Havens of the World. Newark, Matthew Bender Books, NJ.

Drabek, Zdenek and Warren Payne (2002) The impact of transparency on foreign direct investments. *Journal of Economic Integration*, Vol. 17, No. 4 (2002) pp. 377-395.

Egger, Peter and Hannes Winner, (2006) How Corruption Influences Foreign Direct Investment: A Panel Data Study. *Economic Development and Cultural Change* Vol 54; No. 2, pp 459-486.

<http://www.forbes.com/global/2006/0522/032a.html> (accessed 10/03/2010)

Grigoryev, L. and A. Kosarev (2000) Capital Flight: Scale and Nature; Paper presented at the conference on *Investment Climate and Russia's Economic Strategy*; Moscow, April 2000.

Group of Eight (1999) Ministerial Conference of the G-8 Countries on Combating Transnational Organized Crime. United States Department of Justice, Washington DC.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales, (2009) Cultural Biases in Economic Exchange? *Quarterly Journal of Economics* (2009) 124(3): 1095-1131.

Heckman, James. (1979). Sample selection bias as a specification error. *Econometrica* 47 (1): 153–61.

Helpman, Elhanan. (1984) “A Simple Theory of International Trade with Multinational Corporations,” *Journal of Political Economy*, Vol. 92, No. 3, pp. 451-71.

Hermes Niels, and Robert Lensink (2001). Capital flight and the uncertainty of government policies, *Economics Letters*, Vol 71, Issue 3, Pages 377-381

Hines J.R. Jr., (1997), Tax policy and the activities of multinational corporations. In: A.J. Auerbach, Editor, *Fiscal Policy: Lessons from Economic Research*, MIT Press, Cambridge, MA pp. 401–445.

Hines J.R., Jr. (1999), Lessons from behavioral responses to international taxation, *National Tax Journal* **52** pp. 305–322.

Hines J.R. Jr. and E.M. Rice, (1994), Fiscal paradise: foreign tax havens and American business, *Quarterly Journal of Economics* **109**, pp. 149–182

Jaklič, A. and Svetličič, M. (2003) Enhanced Transition Through Outward Internationalization. Burlington USA, Singapore, Sydney: Ashgate Publishing Ltd.

Kadochnikov, Denis V. (2005) Economic Impact of Capital Flight from Russia and its Institutional Context: Why Capital Controls cannot be a Part of a Pro-Growth Policy. Working Paper, Leontief Center – International Center for Social and Economic Research, St. Petersburg, Russia.

Kant, Chander (2002) What is Capital Flight? *The World Economy*, Vol. 25, (2002), No. 3, pp.341-58.

Kar, Dev and Cartright-Smith, Devon (n.d.) Illicit Financial Flows from Developing Countries: 2002-2006. Washington: Center for International Policy.

Kaufmann Daniel, Aart Kraay and Massimo Mastruzzi (2003), Governance Matters III: Governance Indicators for 1996-2002, World Bank Policy Research Working Paper No. 3106

Khan, Mohsin and N. U. Haque (1985) Foreign Borrowing and Capital Flight: A Formal Analysis; *IMF, Staff Papers* , Vol. 32, No.4, (1985) pp.606-628.

Kolotay, K. (2004): Outward FDI from Central and East European Countries; *Economics of Planning*, Vol. 37, pp. 141-172.

http://us.kpmg.com/microsite/global_tax/ctr_survey/2003CorporateTaxSurveyFINAL.pdf
(Accessed 02/20/2010)

Levi Michael and Michael Gold (1994), Money Laundering in the UK; an Appraisal of Suspicion Based Reporting. Published by The Policy Foundation.

Liuhto, K. (Ed.), 2001. *East Goes West: The Internationalization of Eastern Enterprises*. Lappeenranta, Finland: Lappeenranta University of Technology. Studies in Industrial Engineering

Markusen, James R. (1984) Multinationals, Multi-Plant Economies, and the Gains from Trade, *Journal of International Economics*, Vol. 16, No. 3-4, pp. 205-26.

Markusen, J.R, and K.E. Maskus, (2002) Discriminating Among Alternative Theories of the Multinational Enterprise, *Review of International Economics*, Vol. 10, No. 4, pp. 694-707.

Morck Randall, Bernard Yeung and Minyuan Zhao, (2008) Perspectives on China's outward foreign direct investment. *Journal of International Business Studies* 39, 337–350.

Navaretti, Giorgio B. and Anthony J. Venables. (2004) *Multinational Firms in the World Economy*. Princeton and Oxford: Princeton University Press.

Puzo, Mario (1983) *The Godfather*. New York: Penguin, 1983.

Radlo, Mariusz-Jan and Magdolna Sass (forthcoming) Outward Foreign direct investments and Emerging Multinationals from Central and Eastern Europe: Case of Visegrad Countries. *Eastern European Economics*.

Reuter, Peter and Edwin M. Truman (2004) *Chasing dirty money: The fight against money laundering*. Washington: Institute for International Economics, 2004.

Shenkar, Oded (2001) Cultural Distance Revisited: Towards a More Rigorous Conceptualization and Measurement of Cultural Differences, *Journal of International Business Studies* Vol. 32, No. 3 (3rd Qtr., 2001), pp. 519-535.

Schineller, M. (1993) Hysterisis, Political Risk and International Capital Movements: Essays on Capital Flight; Yale University, PhD Dissertation, 1993.

Schneider, Benu (2003) Measuring Capital Flight: Estimates and Interpretations; London: Overseas Development Institute, Working Paper No. 194, 2003.

Schneider, Friedrich and Ursula Windischbauer (2008) Money Laundering: Some Facts. *European Journal of Law and Economics* Vol. 26, pp.387–404. DOI 10.1007/s10657-008-9070-x

Simpson, Glenn R., (2005) Risky Territory: How Top Dutch Bank Plunged Into World of Shadowy Money *The Wall Street Journal*, Vol. CCXLVI, No. 142, (December 30, 2005).

http://www.transparency.org/policy_research/surveys_indices/cpi/2002 (accessed 3/1/2010).

Tanzi, V. (1997). Macroeconomic Implications of Money Laundering, in *Responding to Money Laundering, International Perspectives*, 91-104. Amsterdam: Harwood Academic Publishers.

UNODC. (2005). World Drug Report 2005, United Nations Office on Drugs and Crime, April 2005.

Walker John and Brigitte Unger (2009), Measuring Global Money Laundering: "The Walker Gravity Model, *Review of Law & Economics*, Vol. 5, Issue 2.

Walker, John, (1995), Estimates of the Extent of Money Laundering in and through Australia, paper prepared for Australian Transaction Reports and Analysis Centre, September 1995. Queanbeyan: John Walker Consulting Services.

_____. (1999) How Big is Global Money Laundering? *Journal of Money Laundering Control*, Vol. 3. No. 1, pp. 25-37.

_____. (2002), Just How Big is Global Money Laundering?, seminar presented at Australian Institute of Criminology, Sydney.

_____, ed. (2003a), *The Profits & Losses of Global Crime*. Ontario: de Sitter Publications.

_____. (2003b), The Global Response to Money Laundering, Lecture in Bangkok, Thailand, http://www.johnwalkercriminology.com.au/THAILAND MONEY LAUNDERING_files/frame.htm.

Wei, Shang-Jin (2000) How Taxing is Corruption on International Investors? *Review of Economics and Statistics*, Vol. 82, No. 1, pp.1-11.

Weintrobe, R. (1998) Privatization, the Market for Capital Control, and Capital Flight from Russia, *The World Economy*, Vol. 21, pp. 603-612.

Wu, Shih-Ying (2006) Corruption and cross-border investment by multinational firms. *Journal of Comparative Economics* 34 (2006) 839–856.

Zemplerová, Alena (forthcoming) Czech OFDI: Investment Strategies and Motivation to Invest Abroad. *Eastern European Economics*.

Box 1: Host Countries' Money Laundering Status and Corporate Tax Rates^a

Albania (23), Algeria (30), Argentina (35), Australia* (30), Austria* (34), Azerbaijan (22), Bahamas* (0), Bahrain (0), Belarus (24), Belgium (34), Belize (25), Bosnia and Herzegovina* (30), Brazil* (34), Bulgaria (15), Canada* (38.6), Cayman Islands* (0), Chile (16.5), China* (33), Costa Rica* (36), Croatia (20), Cyprus* (10/15), Czech Republic (31), Denmark (30), Ecuador (36), Egypt(-), Estonia (24), Finland (29), France* (34), Georgia (20), Germany* (40), Greece* (30), Hong Kong* (17), Hungary* (18), India* (37), Indonesia* (30), Iran (25), Ireland (13), Israel*(36), Italy* (38), Japan* (42), Kazakhstan (30), Kenya (30), Korea (30), Latvia* (15), Lebanon* (15), Liberia* (35), Liechtenstein* (15), Lithuania (15), Luxembourg* (30), Macedonia (10), Malaysia (28), Malta (35), Mexico* (34), Moldova (0), Mongolia (10), Netherlands* (32), New Zealand (33), Nigeria* (30), Norway (28), Peru (27), Philippines* (32), Poland (27), Portugal (33), Romania (25), Russian Federation* (24), Serbia and Montenegro (14), Seychelles (0), Singapore* (22), Slovak Republic (25), Slovenia (25), Spain* (35), Suriname (36), Sweden (28), Switzerland* (24), Thailand* (30), Turkey* (30), Ukraine* (30), United Arab Emirates* (40), United Kingdom* (30), United States* (40), Uruguay* (35), Uzbekistan (10), Venezuela* (34)

Notes:

^a Corporate tax rates in percent for 2003 are taken from the cited Forbes and KPMG web sites. If 2003 is not available we use the first KPMG tax data after 2003 or information from countries' central banks. These rates should be interpreted with caution, since the effective tax on profits also depends critically on depreciation allowances, tax incentives, and other rules for calculating profit. See the text for definition of money laundering status.

TABLE 1
Geographic Distribution of the Stock of Outward FDI from Three
Transition Economies (2000)

Share in total outward FDI stock (%)	Croatia	Czech Rep.	Latvia
Central & East Europe	76	58	04
European Union	16	19	04
Other West Europe		04	00
Other Developed		05	01
Cyprus		02	06
Developing Countries	07	12	85

Sources: Kolotay, 2004 and the countries' National Bank web sites

Note: May not add to 100% due to rounding.

TABLE 2
Distribution of Czech Outward FDI Stock to Selected Countries in 2000
(thousands US\$ and % of total outward FDI)

Money Laundering Countries	<u>thou. \$US</u>	<u>%</u>
British Virgin Islands	45,362	6.15
Guernsey	7,122	0.97
Cyprus	30,847	4.18
Liechtenstein	131,358	17.80
Dutch Antilles	1,133	0.15
St. Vincent & Granada	1,005	0.14
Total	216,827	29.39
Other Hosts		
Germany	36,839	4.99
Austria	17,312	2.35

TABLE 3
Estimation of the Location Choice Model (LC)

	LC-KK1 Model	LC-KK2 Model	LC-KK3 Model	LC-KK1 +ML Model	LC-KK2+ML Model
<i>SK1</i>	2.62 (0.19)	4.22 (0.08)	0.53 (0.87)		
<i>ADY</i>	0.34 (0.00)	0.37 (0.00)	0.34 (0.01)	0.38 (0.00)	0.45 (0.00)
<i>DIST</i>	-0.04 (0.00)	-0.04 (0.00)	-0.04 (0.00)	-0.05 (0.00)	-0.05 (0.00)
<i>SUM</i>	0.07 (0.01)	0.09 (0.03)	0.1 (0.01)	0.47 (0.06)	0.6 (0.03)
<i>GDP2</i>	0.15 (0.35)	0.19 (0.30)	0.32 (0.12)		
<i>TCHost</i>	0.02 (0.89)	0.02 (0.89)	-0.06 (0.75)		
<i>TCHome</i>	-1.71 (0.64)	1.38 (0.75)	0.98 (0.83)		
<i>SK2</i>		0.52 (0.03)	0.49 (0.06)		0.45 (0.04)
$(GDP_i - GDP_j) * SK2$		-0.33 (0.14)	-0.39 (0.12)		
$TCHost * SK2^2$		-4.28 (0.13)	-5.88 (0.16)		
<i>ICHost</i>			0.07 (0.16)		
<i>MON</i>				0.18 (0.00)	0.21 (0.00)
<i>ADY*MON</i>				-0.08 (0.33)	-0.15 (0.22)
<i>SUM*MON</i>				-0.33 (0.06)	-0.43 (0.04)
<i>SK2*MON</i>					-0.03 (0.48)
Pseudo R2	0.08	0.11	0.13	0.09	0.11

Note: We report marginal effects at the variables mean from Probit regressions and the corresponding p-values in parenthesis immediately after. The marginal effects for the interacted variables were estimated following Ai and Norton (2003).

TABLE 4
Estimation of the FDI Outflows Model (OM)

	OM-KK1 Model	OM-KK2 Model	OM-KK3 Model	OM-KK1+ML Model	OM-KK2+ML Model
<i>SK1</i>	328.04 (0.55)	901.55 (0.19)	304.39 (0.73)		
<i>ADY</i>	184.67 (0.03)	202.8 (0.02)	195.81 (0.03)	307.47 (0.03)	363.82 (0.02)
<i>DIST</i>	-14.08 (0.00)	-13.36 (0.01)	-14.31 (0.00)	-15.52 (0.00)	-15.53 (0.00)
<i>SUM</i>	22.23 (0.00)	23.56 (0.01)	25.67 (0.01)	109.88 (0.09)	160.12 (0.04)
<i>GDP2</i>	86.26 (0.15)	93.12 (0.20)	124.25 (0.16)		
<i>TCHost</i>	28.42 (0.43)	45.46 (0.32)	39.66 (0.47)		
<i>TCHome</i>	1568.04 (0.31)	1861.78 (0.33)	1918.87 (0.35)		
<i>SK2</i>		212.9 (0.03)	201.66 (0.04)		188.17 (0.02)
$(GDP_i - GDP_j) * SK2$		-45.27 (0.38)	-58.31 (0.30)		
$TCHost * SK2^2$		-1532.68 (0.10)	-2039.28 (0.16)		
<i>ICHost</i>			7.84 (0.55)		
<i>MON</i>				41.34 (0.03)	51.52 (0.03)
<i>ADY*MON</i>				-267.98 (0.04)	-318.29 (0.03)
<i>SUM*MON</i>				-95.47 (0.15)	-145.89 (0.05)
<i>SK2*MON</i>					-109.84 (0.24)
Pseudo R2	0.0286	0.0356	0.0367	0.0342	0.0430

Note: We report marginal effects at the variables mean from Tobit regressions and their corresponding p-values in parenthesis immediately after. Standard errors are robust to misspecification and heteroskedasticity

TABLE 5
Quantitative Importance of Illicit Flows in FDI Outflows from Transition Economies (2000 – 2003)

Panel A. Total FDI to Money Laundering Countries* (observed)

	Bulgaria	Czech Rep.	Hungary	Macedonia	Slovenia	Estonia	Total
Million US \$	4.6	215.6519	320.1671	1.1016	1589.141	2.5776	2133.2392
% of total FDI	80.7%	32.2%	11.6%	77.7%	40.3%	23.2%	28.89%

Panel B. Illicit Flows to Money Laundering Countries (estimated by our model)

	Bulgaria	Czech Rep.	Hungary	Macedonia	Slovenia	Estonia	Total
% of total FDI	20.55%	20.18%	20.38%	21.95%	20.53%	22.57%	21.03%

Panel C. FDI to Money laundering countries motivated by illicit Flows

	Bulgaria	Czech Rep.	Hungary	Macedonia	Slovenia	Estonia	Total
Million US \$	0.95	43.52	65.25	0.24	326.25	0.58	436.79
% of total FDI	16.58%	6.50%	2.37%	17.06%	8.28%	5.23%	5.91%

TABLE 6
Robustness Checks for FDI location choice model

	Base Model	Tax diff.	Tax Haven	Gov 1	Gov 2	Gov 3	Gov 4	Gov 5	Gov 6	Efficiency	Infras.	Cultural	ALL	Walkers
ADY	363.82 (0.02)	367.72 (0.02)	362.7 (0.02)	350.52 (0.02)	349.14 (0.02)	358.47 (0.02)	353.67 (0.02)	360.99 (0.02)	362.44 (0.02)	357.43 (0.02)	371.18 (0.02)	295.28 (0.01)	291.48 (0.01)	231.92 (0.01)
DIST	-15.53 (0.00)	-13.54 (0.00)	-15.51 (0.00)	-15.33 (0.00)	-15.11 (0.00)	-15.52 (0.00)	-14.91 (0.00)	-15.44 (0.00)	-15.52 (0.00)	-15.27 (0.00)	-15.77 (0.00)	-13.9 (0.00)	-12.36 (0.00)	-9.9 (0.01)
SUM	160.12 (0.04)	188.82 (0.02)	156.91 (0.04)	151.81 (0.05)	140.54 (0.06)	159.2 (0.04)	149.06 (0.05)	157.79 (0.04)	160.23 (0.04)	135.51 (0.08)	134.83 (0.08)	181.66 (0.02)	174.91 (0.02)	17.24 (0.15)
SK2	188.17 (0.02)	114.81 (0.13)	189.94 (0.02)	235.65 (0.01)	239.98 (0.01)	194.25 (0.02)	269.25 (0.01)	192.01 (0.02)	187.56 (0.02)	230.99 (0.01)	191.19 (0.02)	184.65 (0.01)	218.02 (0.03)	201.99 (0.04)
MON	51.52 (0.03)	68.6 (0.01)	51.79 (0.03)	49.51 (0.04)	49.23 (0.04)	52.91 (0.02)	49.98 (0.03)	51.43 (0.03)	51.77 (0.03)	49.51 (0.03)	48.04 (0.03)	58.04 (0.01)	71.6 (0.01)	0.21 (0.05)
ADY*MON	-318.3 (0.03)	-316.29 (0.03)	-318.6 (0.03)	-309.8 (0.04)	-309.4 (0.04)	-314.4 (0.04)	-304.4 (0.04)	-315.4 (0.04)	-317.2 (0.03)	-315.7 (0.03)	-321.9 (0.03)	-250.9 (0.03)	-252.8 (0.03)	-0.5 (0.04)
SUM*MON	-145.9 (0.05)	-170.9 (0.03)	-142.9 (0.06)	-138.6 (0.07)	-127.4 (0.09)	-145.6 (0.06)	-136 (0.07)	-143.6 (0.06)	-146 (0.05)	-122.9 (0.10)	-121.6 (0.11)	-168.4 (0.02)	-162.4 (0.03)	-0.02 (0.40)
SK2*MON	-109.8 (0.24)	-75.05 (0.42)	-113.39 (0.23)	-149.3 (0.13)	-159.3 (0.12)	-128.3 (0.17)	-183.5 (0.08)	-118.7 (0.20)	-112.2 (0.23)	-202.4 (0.06)	-98.5 (0.28)	-114.9 (0.19)	-136.9 (0.20)	-39.11 (0.68)
TAX		3.04 (0.00)											2.24 (0.00)	1.9 (0.01)
HAVEN			-8.07 (0.69)										-28.1 (0.19)	-72.1 (0.05)
VOI				-26.98 (0.03)									-5.73 (0.73)	0.7 (0.97)
POL					-29.59 (0.01)								-32 (0.04)	-28.2 (0.10)

TABLE 6 continues

	Base Model	Tax diff.	Tax Haven	Gov 1	Gov 2	Gov 3	Gov 4	Gov 5	Gov 6	Efficiency	Infras.	Cultural	ALL	Walkers
EFF						-10.2 (0.34)							-8.41 (0.81)	-13.46 (0.71)
REG							-40.03 (0.01)						-36.21 (0.13)	-40.26 (0.12)
LAW								-6.71 (0.54)					60.56 (0.17)	72.62 (0.12)
CORRU									-2.18 (0.83)				-7.18 (0.84)	-35.09 (0.36)
UNEMP										-2.04 (0.04)			0.64 (0.49)	0.82 (0.42)
INTER											0.08 (0.26)		0.05 (0.53)	0.08 (0.35)
CUL												350.36 (0.10)	325.68 (0.12)	349.63 (0.11)
Pseudo R2	0.043	0.0487	0.0433	0.044	0.046	0.043	0.046	0.043	0.043	0.046	0.044	0.056	0.065	0.060

Note: We report marginal effects at the variables mean from Tobit regressions and their corresponding p-values in parenthesis immediately after. Standard errors are robust to misspecification and heteroskedasticity