FDI waves, waves of neglect of political risk

Pierre-Guillaume Méon[*] Khalid Sekkat[#]

Université Libre de Bruxelles (U.L.B.)
DULBEA, CP-140
avenue F.D. Roosevelt, 50
1050 Bruxelles, Belgium

Abstract: This paper investigates the impact of local political risk on the distribution of FDI inflows across countries. In a large sample of developed and developing countries, the results suggest that the sensitivity of the distribution of FDI inflows to local political risk is a decreasing function of the global volume of FDI in a given year. Specifically, investors are less sensitive to political risk during FDI waves.

Keywords: Foreign direct investment, institutions, political risk, governance.

JEL classification: C33, F21, F41, O17.

"Opportunities appear to predominate over political risk concerns."

(Economist Intelligence Unit and Columbia Program on International Investment, *World investment prospects* to 2011, 2007, p.7.)

[*] phone: 32-2-650-66-48; fax: 32-2-650-38-25; e-mail: pgmeon@ulb.ac.be.
[#] phone: 32-2-650-41-39; fax: 32-2-650-38-25; e-mail: ksekkat@ulb.ac.be.

1. Introduction

Whereas capital should flow from rich to poor countries, it does not. Although no single explanation may account for this paradox, the "Lucas paradox" (Lucas, 1990), explanations emphasizing the role political risk have gained credibility among both academics and practitioners. Indeed, foreign investment has been repeatedly found to be sensitive to political risk and institutions in general. This finding, which probably comes as a surprise neither to country-risk rating agencies nor to their customers, was first brought to the economic profession in a classic paper by Schneider and Frey (1985). That finding was recently corroborated using different statistical techniques and empirical strategies in studies that for instance include Wei (2000), Alfaro et al. (2005), Stein and Daude (2007), or Busse and Hefeker (2007).

At the same time, foreign direct investment is also sensitive to global factors, resulting in the global volume of FDI to fluctuate, in spite of a secular upward trend. It for instance rose from 1.04% of world GDP in 1990 to 3.99% of world GDP in 2000. However, it was down to 2.83% of world GDP in 2002, less than its 1997 level, as Mody (2004) reports. Many papers have thus emphasized the role of push factors, such as interest rates in the US, as opposed to pull factors, in determining capital flows, Calvo et al. (1993), Fernandez-Arias (1996), or Calvo and Reinhart (1996). More recently, Albuquerque et al. (2005) showed that global factors have gained importance relative to local factors, although the latter still matter.

Interestingly, the literature emphasizing the role of local political risk, does not seem to have yet taken stock of the role of global factors. Namely, all the studies that have reported that local institutional quality affects FDI inflows have considered that its effect was time-invariant and independent from the global volume of FDI. This is striking, because the behaviour of international investors could easily depend on the global volume of FDI activity, and if it was, it would have implications both at the global and the local level. From a local point of view, the impact of receiving countries' institutions may thus be amplified or dampened, depending on how investors adjust their behaviours. Accordingly, not only the volume but also the volatility of FDI inflows would be affected by institutional quality, with consequences on growth and on the exposition of receiving countries to currency and financial crises, as Wei and Wu (2002) suggest.

From a global perspective, the world level of exposition to political risk would also fluctuate with the global volume of FDI. It would thus respectively increase or decrease if investors turn less or more picky in choosing the location of their investments, with implications for the regulation of international investments.

A more technical, though important implication is that if the sensitivity of foreign investment to local political risk depends on the world volume of investment, then existing statistical estimates should be used with caution. Estimates relying on a single cross-section of countries would indeed be very sensitive to the period of study. Estimates obtained with panel datasets could moreover be misspecified, since they assume constant coefficients.

In this paper, we therefore precisely investigate how the global volume of FDI affects the sensitivity of FDI inflows to local institutional quality. To do so, we first present the global and local determinants of FDI inflows by surveying the existing literature in the second section. In the following section, we then argue that local and global factors are bound to interact. We do so by building a quite uncontroversial model of the behaviour of an international investor. The fourth section displays a tentative presentation of the evidence. We then describe our more rigorous empirical strategy in section 5. The following section displays our results. Section 7 concludes.

2. Global factors and political risk as two independent determinants of FDI

The determinants of FDI flows pertain both to the source and host countries of international investments. The literature thus refers to both push and pull factors. In this section, we argue that push factors are to some extent global, thus resulting in fluctuations in the global volume of FDI flows. We then briefly recall why institutional risk is a major local impediment of FDI flows.

2.1. Global factors

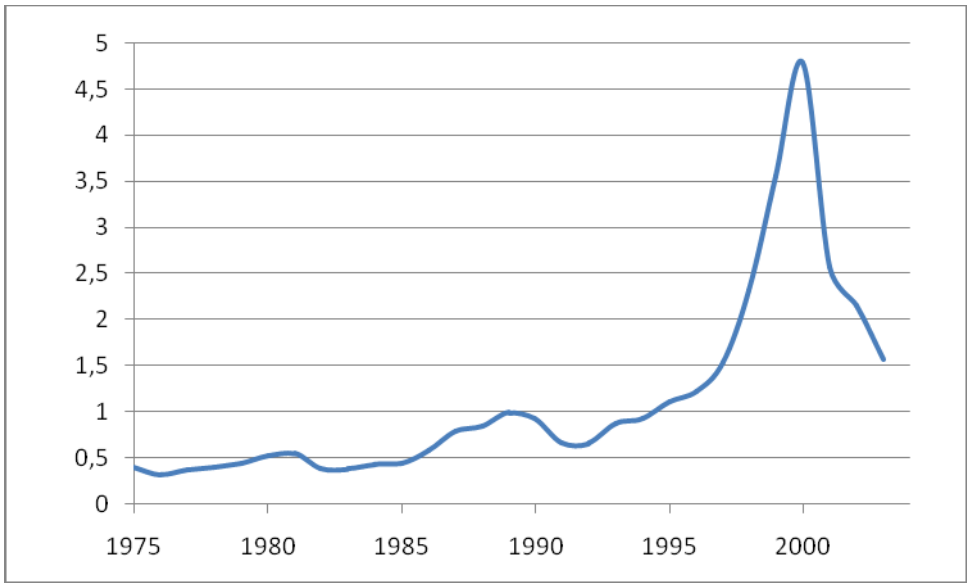
FDI is inherently a bilateral phenomenon, since it consists in capital flows from one country to another. It is therefore by construction affected by factors pertaining to both the host and the source country. However, one may suspect that it also has a global dimension.

The first reason why FDI has a global dimension is that some push factors may be correlated across source countries. Caves (1996) for instance stresses that parent companies' aggregate supply of liquidity determines their capacity to invest abroad. Global FDI outflows may therefore depend on the business cycles in source countries, which are correlated.

Secondly, one may also think of purely global determinants of FDI flows. Thus Thomsen (1999) remarks that the upward trend in the volume of FDI can be interrupted by declines in global growth. UNCTAD (2003) also emphasizes that since 1970 the four major downturns in FDI inflows, observed in 1976, 1982-1983, 1991, and 2001-2002, each correlated with periods of slow growth in the world economy. Caves (1996) moreover argues that FDI is sensitive to the worldwide cost of capital. Moreover, even political risk has a global dimension. For instance, the September 11 attack is often viewed as the key event that led to the 2002 drop in global FDI flows, because it signalled the beginning of a period of global political uncertainty. In an October 2001 survey, the Japan External Trade Organization thus found that more than half surveyed firms had postponed their investment plans following the September 11 attack. Moreover, Albuquerque et al. (2005) show that FDI inflows are sensitive to global factors such as the weighted average US, Japanese and German interest rates, the return in world stock markets, global bankruptcy risk, and the rate of growth of world per capita GDP.

Those global factors must thus lead to global fluctuations in the global volume of FDI activity. This is precisely what figure 1 below shows. It sketches the evolution of the world FDI to GDP ratio over the 1975-2004 period. It clearly shows that the global volume of FDI flows is subject to sizeable waves, despite an upward trend.

Figure 1: Evolution of the ratio of the world FDI to GDP ratio (%) (1975-2004)



Source: World Development Indicators database, authors' calculation.

We can therefore safely conclude that there are fluctuations in the global FDI activity. The question is now to determine whether, and to what extent, the evolution of the global volume of FDI may affect the sensitivity of FDI flows to local institutional risk. We therefore must first discuss how FDI may be sensitive to political risk at all.

2.2. Local political risk

There are reasons to contend that institutions affect FDI flows both directly and indirectly. Namely, they can directly affect the willingness of agents to invest abroad or affect economic variables that may in turn lower the propensity of agents to invest.

The first impact of governance on foreign investment runs through its effect on the return from investing abroad. Wei (2000) thus describes the consequences of corruption on bilateral FDI flows as a tax on foreign investors. Controlling corruption would therefore be equivalent to reducing the fiscal burden of foreign investors, which would raise the country's attractiveness.

However, the main institutional impediment to FDI may not lie in its effect on the return of investing abroad but on the risk that it entails. Thus, foreign investment is not only

subject to a risk of predation and hold-up but also, and chiefly, to a risk of expropriation and nationalization. Harms and Ursprung (2002) for instance focus on democracy, and claim that authoritarian regimes are associated with a greater risk of policy reversals, due for example to the dictator's own whims, the need to raise public support through populist measures, or coups.

Governance may also have an indirect effect on FDI flows through its impact on other variables. It has thus been found that FDI flows are sensitive to human capital, health of the workforce, and the quality of public infrastructure, as Mody and Srinivasan (1998) or Globerman and Shapiro (2002) have for instance observed. If governance affects those variables, it will doubtless also affect FDI. Kaufman et al. (1999b) have precisely observed that defective institutions tend to be associated with lower adult literacy rates and a worse health status. Similarly, Mauro (1998) reports that weaker institutions result in larger public investment in unproductive assets, and lower expenditures devoted to the maintenance of past projects. Hence, by encouraging unproductive public investments that result in less efficient public facilities and a slower accumulation of human capital, defective institutions also indirectly hamper countries' attractiveness for foreign investment.

There are therefore good reasons to contend that countries whose institutions are of better quality should attract more foreign direct investment. Since such a relationship has moreover been reported repeatedly in the literature, we do not address it any further. The question that we address is more specific. Namely, we investigate the extent to which that relationship is affected by the global volume of foreign direct investment. Why it should be is discussed in the following section.

3. The interplay of political risk and global factors

It is not clear at first glance that the impact of political risk should depend on the global volume of capital flows. A country's attractiveness, or lack thereof, should on a priori ground be the same regardless of the volume that investors wish to invest. In the present section, we argue just the opposite. To do so, we first design a very simple model, based on quite orthodox assumptions, that underlines that the sensitivity of foreign investment to

political risk in a given country should indeed depend on the total amount of capital available for investment at a given time. The following sub-section discusses possible extensions of the baseline model or alternative mechanisms that may lead to the same conclusion.

3.1. A simple model

We consider the behaviour of a risk-averse investor who must decide to invest an endowment W_t., that endowment represents the volume of capital available in a given period. The investor's utility is described by the following standard expected utility function:

$$U_t = E(\pi_t) - \rho\, var(\pi_t) \tag{1}$$

where π_t measures the investor's return in period t and ρ measures her relative risk aversion.

The investor can split her investment between two countries (i = 1, 2), and invest a share s_i of her endowment in country i. Country i's production function is given by:

$$Y_{it} = a_i K_{it}^{\alpha} \qquad \alpha > 0 \tag{2}$$

To keep the algebra as simple as possible, we first set α equal to one, and thus consider constant returns to scale. We will however discuss decreasing returns subsequently.

However, both countries are politically risky insofar as in both of them there is a positive probability θ_i that the investor's assets will be seized. In other words, the investment's return in country will be zero with probability θ_i. Since the focus is on local political risk, the probability of being expropriated is assumed uncorrelated across countries.

Finally, we assume the following timing. Each period, the investor receives her endowment, and decides where to invest it. Political risk is then realized. At the end of the period, the investor reaps the benefits of her investment, provided it has not been seized by the local government.

To determine the optimal distribution of her investment, the investor must accordingly determine expected returns in both countries. Given our assumptions, expected return in country i is simply:

$$E(\pi_{it}) = [(1-\theta_i)a_i - 1]s_{it}W_{it} \tag{3}$$

The investor's total expected profit thus reads:

$$E(\pi_t) = E(\pi_{1t}) + E(\pi_{2t})$$

$$= (1-\theta_1)a_1 s_{1t} W_t - s_{1t} W_t + (1-\theta_2)a_2(1-s_{1t})W_t - (1-s_{1t})W_t$$

$$E(\pi_t) = \left[(1-\theta_1)a_1 s_{1t}^{\alpha} + (1-\theta_2)a_2(1-s_{1t}) - 1\right]W_t \tag{4}$$

The investor must also determine the variance of profits in each country. Given that it follows a binomial distribution, it is simply given by:

$$var(\pi_{it}) = \theta_i(1-\theta_i)(a_i s_{it} W_t)^2 \tag{5}$$

This expression is decreasing in the as long as $\theta_i < ½$. For the variance of the portfolio to measure political risk, we must therefore assume that the probability of expropriation is smaller than one half, which is not too heroic an assumption.

As political risk is uncorrelated across countries, the variance of the investor's total portfolio simply reads:

$$var(\pi_t) = var(\pi_{1t}) + var(\pi_{2t})$$

$$= \theta_1(1-\theta_1)(a_1 s_{1t} W_t)^2 + \theta_2(1-\theta_2)(a_2(1-s_{1t})W_t)^2$$

$$var(\pi_t) = \left[\theta_1(1-\theta_1)(a_1 s_{1t})^2 + \theta_2(1-\theta_2)(a_2(1-s_{1t}))^2\right]W_t^2 \tag{6}$$

To determine the optimal value of s_{it}, it suffices to replace the expected return of the world portfolio (5) and its variance (7) in utility function (1) then to derive it with respect to s_{it}. If we focus on country 1, the first order condition thus reads:

$$\frac{\partial U_t}{\partial s_{1t}} = \left[(1-\theta_1)a_1 - (1-\theta_2)a_2\right]W_t - 2\rho\theta_1(1-\theta_1)a_1^2 s_{1t} W_t^2 = 0 \tag{7}$$

It leads to the following solution:

$$s_{1t}^* = \frac{\theta_2(1-\theta_2)a_2^2}{\theta_1(1-\theta_1)a_1^2 + \theta_2(1-\theta_2)a_2^2} + \frac{1}{2\rho W_t}\frac{(1-\theta_1)a_1 - (1-\theta_2)a_2}{\theta_1(1-\theta_1)a_1^2 + \theta_2(1-\theta_2)a_2^2} \tag{8}$$

On can notice that the optimal value of s_{1t} consists of two parts. The first one measures the contribution of country 2 to the variance of the investor's portfolio. The larger that contribution, the smaller is the relative risk of investing in country 1. The optimal share of the portfolio invested in country 1 is therefore increasing in that measure of that country's relative safety. The second part of s_{1t}^* is the ratio of country 1's excess expected return over country 2's to the variance of her total portfolio. The optimal value of s_{1t} is therefore increasing in that part. The investor's optimal decision can therefore be interpreted as the outcome of a trade-off between a diversification motive, measured by the first part of expression (8), and a return-seeking motive, described by the second part of expression (8).

Unless political risk in country 1 becomes very high, and/or the return it offers becomes very low, that share is positive. Moreover, that share also depends on W_t, the volume capital available for investment. As we focus on the impact of political risk on the share of world FDI that accrues to country 1, we compute the derivative of s_{1t}^* with respect to θ_1. This gives:

$$\frac{\partial s_{1t}^*}{\partial \theta_1} = -\frac{\theta_2(1-\theta_2)(1-2\theta_1)a_1^2 a_2^2}{\left[\theta_1(1-\theta_1)a_1^2 + \theta_2(1-\theta_2)a_2^2\right]^2} - \frac{a_1}{2\rho W_t}\frac{(1-\theta_1)a_1^2 + (1-\theta_2)a_2\left[\theta_2 a_2 + (2\theta_1 - 1)a_1\right]}{\left[\theta_1(1-\theta_1)a_1^2 + \theta_2(1-\theta_2)a_2^2\right]^2} \quad (9)$$

The key result that stems from this expression is that the derivative of the share of world investment that accrues to country 1 is in no way independent from the volume of investment in the world. In other words, the impact of political risk on the distribution of FDI is a function of the global FDI activity. The coefficient of political risk on a country's FDI share is therefore not constant over time.

To grab the intuition of that result, let us recall that the investor basically weighs risk, measured by the variance of her portfolio, with her portfolio's expected return. Moreover, whereas the return of the portfolio increases with its size, W_t, its variance increases with its size squared. The portfolio's variance will be greater relative to its expected return when its size will be larger. This will lead the diversification motive to play a larger role in the investor's decision with respect to the return-seeking motive.

To draw more precise conclusions from the model, one has to specify the structure of risk and return. Without loss of generality, we first define country 1 as the riskier country.

Political risk is therefore by definition larger in country 1 ($\theta_1 > \theta_2$). Moreover, we assume that the productivity of capital is larger in the riskier country, namely we assume ($a_1 > a_2$). If political risk is the explanation of Lucas's (1990) paradox, as Alfara et al. (2005) for instance argue, then it means that investors trade-off a lower return against lower political risk. Assuming that the riskier country is also offers the larger return is in that respect consistent with the institutional explanation of the Lucas paradox.

Given those reasonable parameter restrictions, it can be easily shown that both terms of expression (9) are negative. It therefore means that the share of world FDI that targets the riskier country decreases with the risk of being expropriated in that country, which is consistent with standard empirical estimates. Intuitively, the investor always trades off a lower risk and a higher return. Now, when the risk of expropriation increases in one country, it cuts down the incentive to invest in that country in two ways. Namely, it does not only increase the risk of investing in that country, but also reduces the expected return of doing so.

More to the point, expression (9) shows that the absolute value of the derivative of the share of world investment that accrues to country 1 unequivocally decreases with the investor's endowment. It means that the sensitivity of world FDI to political risk is smaller the larger the volume of investment in the world. Once more, it helps to think in terms of the two motives that determine the investor's optimal behaviour. Given our assumptions, both motives concur in reducing the share of the riskier country in world investment when its political risk increases. However, as argued before, the second motive becomes smaller relative to the former when the volume of investment is larger. As a result, the sensitivity to political risk of investment in riskier countries must be smaller during waves of FDI than at other times.

3.2. Complementary mechanisms

While the model we used in the previous section provides clear-cut predictions, it is very stripped-down. However, several refinements would probably foster its main prediction. First, the model rests on constant returns. However, the marginal productivity of capital could

well be decreasing.[1] In the middle of a global FDI boom, the return to investing in politically stable countries would soon become lower, increasing the return gap with riskier countries. Riskier countries may then become even more competitive, because the returns they offer may compensate for their higher risk. They would thus attract a larger share of world FDI.

A related extension would consist in assuming a limit on the absorbing capacity of safe countries, due to a limited number of investment opportunities.[2] This could be done imposing a cap on K_2. Consequently, the safe country may become unable to accommodate foreign investment for large endowments. The investor would therefore face an additional trade-off between investing in the riskier country and keeping idle capital. Facing that additional constraint, she may prefer to invest in the riskier country. The share of the risky country would therefore increase.

Both previous arguments suggest that investment opportunities in politically stable countries may become scarce, and returns lower in the midst of an FDI wave. Investing in risky countries would thus appear as the rational reaction of return-hungry investors to the lower returns and scarcer investment opportunities in safe countries during FDI booms. In addition to this rational behaviour, one may also suspect more behavioural motives. The leitmotiv of behavioural finance is that managers may not always form beliefs logically, or use their beliefs in a consistent way. That literature thus emphasizes the role of many phenomena such as optimism, overconfidence, or fads that affect the behaviour of firms and investors.[3] Among those, optimism and overconfidence may easily relate the sensitivity of investment to political risk to the global volume of investment or at least to the occurrence of an FDI wave.

There is indeed evidence that optimism is related to investment and mergers and acquisitions. More specifically, Roll (1986) argues that acquirers are subject to hubris, insofar as they are typically optimistic and overconfident in their valuation of the deals that they initiate. Roll's (1986) theory is moreover supported by Malmendier and Tate's (2003) finding

[1] This assumption would imply $\alpha < 0$ in our model. A drawback of this assumption is that it leads to multiple equilibria.
[2] A limit on the number of investment opportunities is a way to account for Blomström et al.'s (1996) finding that investment follows growth rather than precedes it.
[3] See De Bondt and Thaler (2004) or Baker et al. (2007) for surveys of behavioural finance.

that optimistic CEOs complete more mergers. There is no reason to rule out that those behavioural traits should be confined to domestic mergers. They should therefore affect cross-border mergers, which constitute the bulk of FDI.

The missing link between optimism and overconfidence and the present paper's focus is the link between optimism and the global FDI activity. However, the idea that market sentiment, or investors' "animal spirits", drive investment goes back at least to Keynes (1936). Namely, if an FDI wave is driven by a wave of optimism among investors, then the latter should simultaneously affect investors' evaluation of political risk. Their increased optimism would thus result in a reduced sensitivity of FDI flows to political risk. Alternatively, the FDI wave may be driven by more fundamental factors but breed optimism, which would in turn lead to a neglect of risk. Investors observing the behaviour of their colleagues, and possibly the success of their investment decisions would thus learn to be overconfident, following a pattern described by Gervais and Odean (2001). In both cases, periods of booming FDI and availability of capital would be associated with increased optimism or carelessness about political risk in host countries. As a result FDI flows would be less responsive to political risk too.

To be exhaustive, one has to acknowledge that the model may also be modified in a way that would make FDI more responsive to political risk when the volume of FDI is larger. For instance, the model assumes that the risk of expropriation is constant. It may nevertheless depend on the volume of overall investment. This is what Eaton and Gersowitz's (1984) theoretical model suggests. In their model, the host country's government weighs the benefits and the costs of expropriating foreign investors and the incentive to expropriate increases when more capital is funnelled into the country. If individual investors realise that incentive, they may revise upward the likelihood of an expropriation when global FDI flows are large. They may therefore become more sensitive to political risk, thereby investing only in countries where the risk of expropriation is initially low.

Furthermore, the model rests on an expected utility function that could be derived from an exponential utility function, which is a constant average risk aversion utility function. A function with decreasing risk aversion could also have been postulated. To briefly figure out the consequence of such an assumption, one may think of the risk-aversion parameter ρ as

a decreasing function of the endowment W_t. Expression (9) then shows that if that parameter was sufficiently decreasing with W_t, it may more than compensate the impact of that variable. FDI would then become more sensitive to political risk during FDI waves.

If the sensitivity of foreign investment to political risk is likely to depend on the volume of investment in the world, the magnitude and sign of that relationship is therefore ambiguous. The rest of this paper attempts to gauge that relationship empirically.

4. A first look at the evidence

The question we need to address is whether the sensitivity of the distribution of FDI flows to political risk varies with the global volume of FDI. The intuitive strategy we use in this section is first group FDI flows according to the political riskiness of target countries, and to see how the share of riskier and safer countries evolve with the world volume of FDI activity.

To implement that strategy, we drew FDI data from the World Development Indicators database of the World Bank. That dataset not only provides the value of total volume of world FDI flows but also its breakup across countries. The same dataset therefore provided the global volume of FDI.

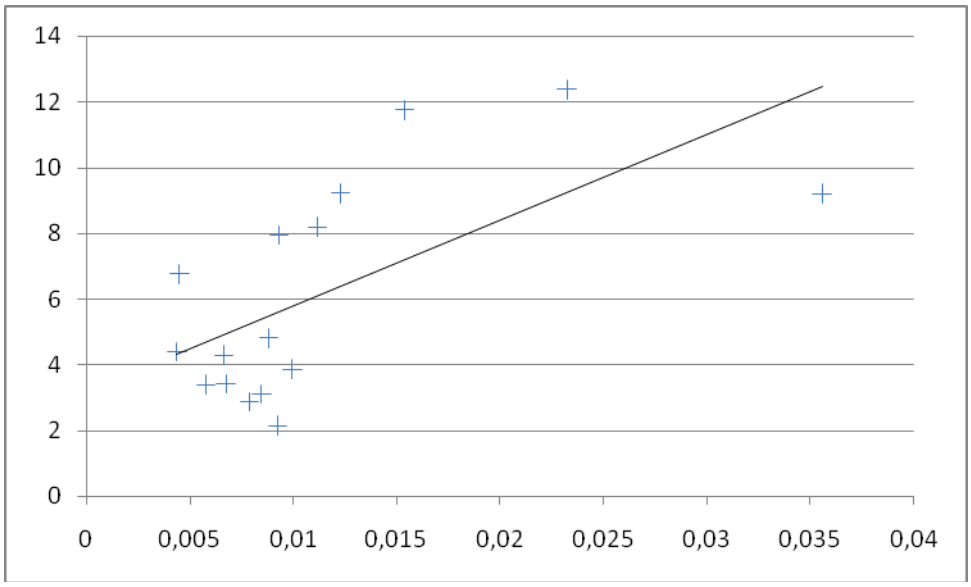
To assess political risk, we use to distinct indices of political risk. The first is the International Country Risk Guide (ICRG) index. It is published yearly and based on experts' opinions. We complement it by Henisz's (2002) political constraint (polcon3) index. It is meant to provide a measure of the risk that the regulatory framework environment will be changed. It summarizes information about the number of independent branches of the government that may veto a change of regulation, and distribution of preferences across and within those branches, according to a method described in Henisz (2000a).

Unlike the ICRG index, the political constraint index is an objective measure of political risk. Namely, it is not based on survey data, but summarizes observable information about the structure and the composition of the political system. It is therefore not subject to the biases that may affect observers' assessment and result in reverse causality. Moreover, it also allows grasping year-to-year variations of political risk more finely. The objective nature

of Henisz's index allows it to instantaneously reflect institutional changes, whereas subjective indices based on surveys only incorporate new information with a lag and in a very imprecise manner. On the other hand, it defines political risk in a narrower way than the ICRG index. This is why we use both indices as complements as a first check of the robustness of our findings.

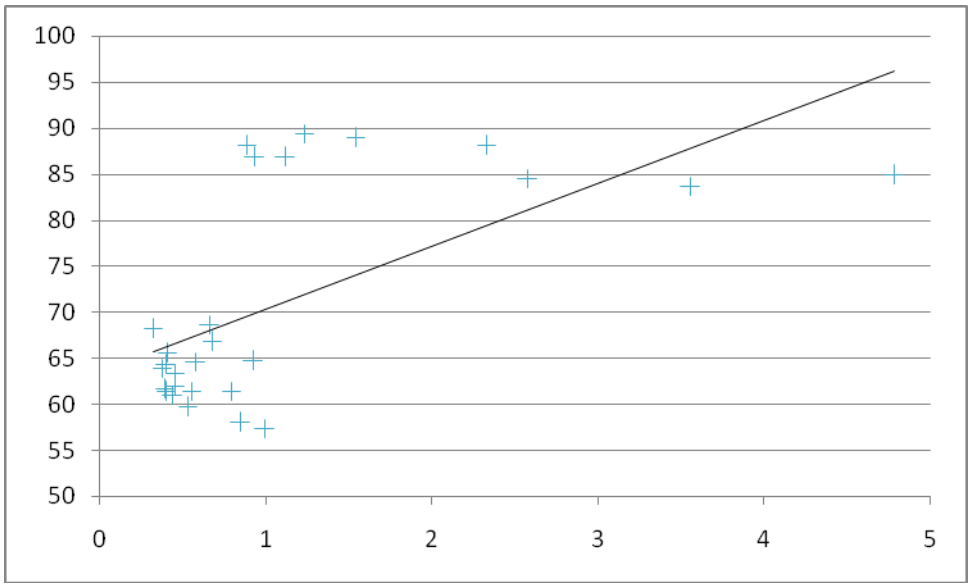
To get a first insight in the relationship between the distribution of FDI and the volume of FDI activity in the world, figures 2a and 2b plot the share of world FDI that accrues to risky countries as a function of the world FDI to GDP ratio. Figure 2a uses the ICRG index to define risky countries and plots the share of world FDI invested in countries with a below median ICRG score. The scatter plot shows that that share tends to increase with the global volume of FDI.

Fig. 2a: Share of the riskier half of countries in world FDI (ICRG index) 1984-1999



Source: World Development Indicators database, authors' calculation.

Fig. 2b: Share of the three riskiest quartiles of countries in world FDI (polcon index) 1970-2001



Source: World Development Indicators database, authors' calculation.

Figure 2b uses the polcon index instead of the ICRG index. However, over our period of study, the median polcon index was almost always zero. We therefore defined riskier countries as those with an ICRG score lower than the third quartile. The scatter plot again exhibits an upward tendency. Both graphs accordingly provide first evidence that riskier countries attract a larger share of world FDI when the volume of world FDI is larger.

To gain a more precise understanding of the relationship between the sensitivity of FDI flows to local political risk and the volume of FDI in the world, figure 3a, 3b, 3c, and 3d provides a breakup of FDI flows by quartile. This is done with the ICRG index only, since the polcon index does not allow a subtle enough breakup of political risk below the median.

Share of quartiles of countries in world FDI (ICRG index) 1984-1999

Fig.3a: Riskiest quartile

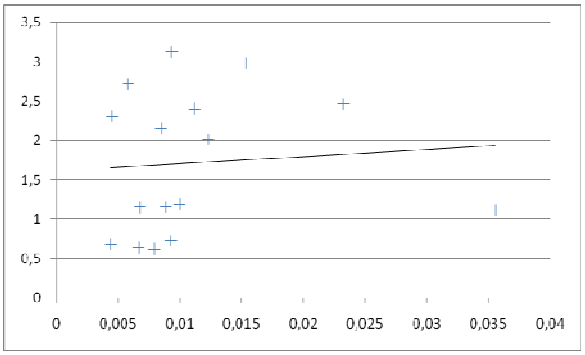


Fig.3b: 2nd riskiest quartile

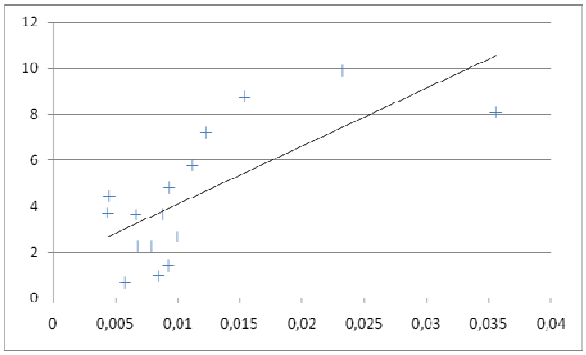


Fig.3c: 3rd riskiest quartile

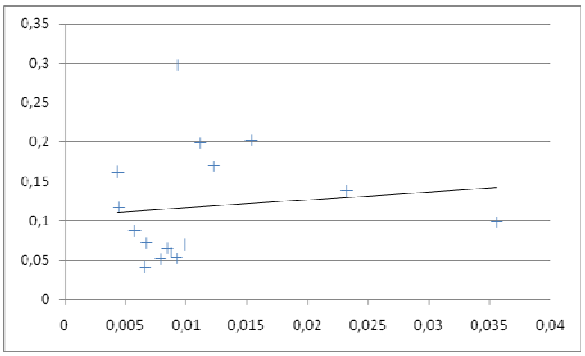
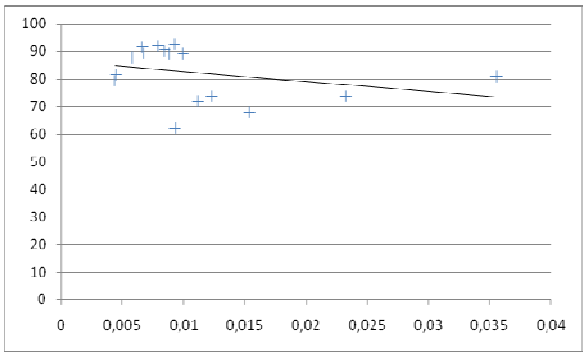


Fig.3c: safest quartile



Source: World Development Indicators database, authors' calculation.

Those four graphs confirm and refine the previous two. Namely, the riskier quartiles of countries tend to receive a larger share of world FDI when the volume of world FDI is larger. Conversely the share of world FDI that the safest country receives decreases with the global volume of FDI in a given year. The tendency of the share of FDI to be larger in times of larger global FDI flows is present in the first three quartiles of risk, but is the clearest in the second quartile.

A different way to grasp some insight in the distribution of world FDI flows as a function of the global volume of FDI flows is to compare periods of low and high FDI activity. This is what the following four graphs achieve. Namely, graphs 4a and 4b and 5a and 5b compare the distribution of world FDI across countries in the first and second half of the

nineties. In other words, their compare the distribution of world FDI at the beginning and at the top of the nineties' wave of world FDI.

Breakup of world FDI by quartile (ICRG index)

Fig. 4a: 1990-1994

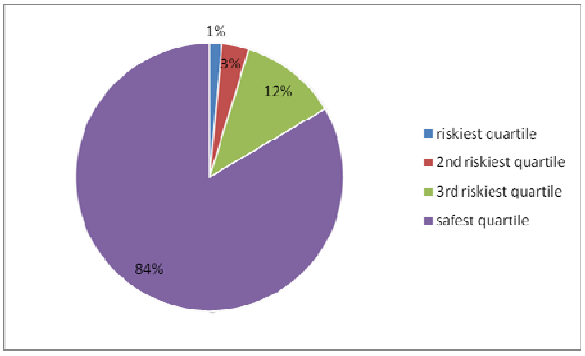
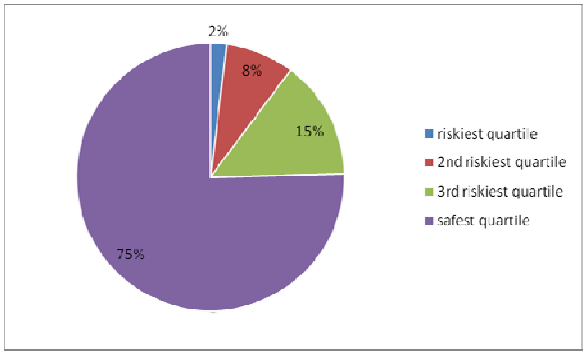


Fig. 4b: 1995-1999



Source: World Development Indicators database, authors' calculation.

Breakup of world FDI by quartile (polcon index)

Fig. 5a: 1990-1995

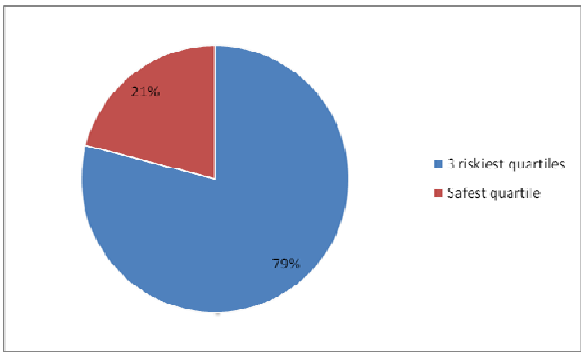
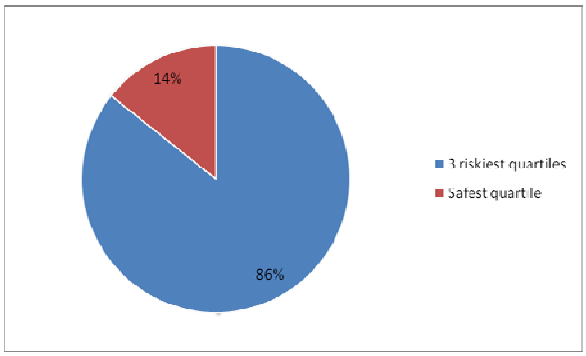


Fig. 5b: 1996-2001



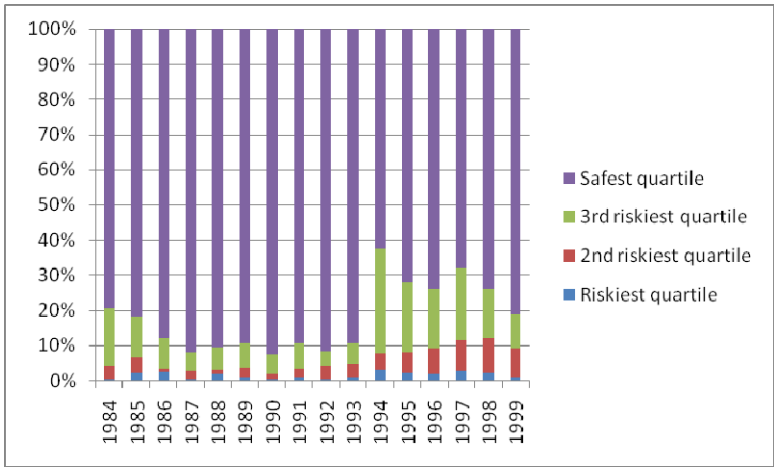
Source: World Development Indicators database, authors' calculation.

Both couples of graphs show that the share of world FDI that the safest quartile of countries received was smaller during the wave of FDI. Alternatively, the other three quartiles received more FDI.

Figures 4a and 4b, which are based on the ICRG index, provide a more detailed picture of the distribution of world FDI, since they describe the distribution of FDI across the

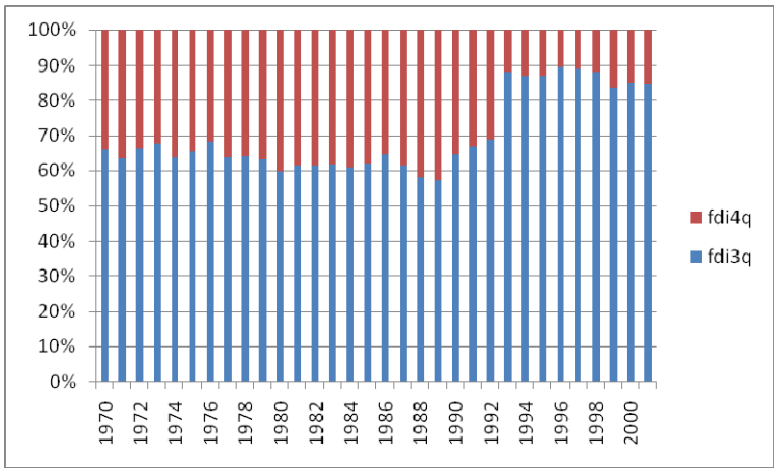
first three quartiles of countries. They suggest that the three riskiest quartiles of countries all received more FDI during the FDI wave than before it. Here again, we therefore observe a tendency for FDI to flow relatively more to riskier countries when the global volume of FDI is larger.

Fig. 6: Share of the riskier half of countries in world FDI (ICRG index) 1984-1999



Source: World Development Indicators database, authors' calculation.

Fig. 7: Share of the riskier half of countries in world FDI (polcon index) 1970-2001



Source: World Development Indicators database, authors' calculation.

Our final casual look at the data consists in plotting the share of risky countries in any given years for which data is available. This is done in figure 6 for the ICRG index, and in figure 7 for the polcon index. Both graphs concur in underlining that the share of safer countries dropped after the beginning of the FDI wave. As a corollary, the share of riskier countries increased at the same time. Figure 6 more shows that the same tendency was at works across the three riskiest quartiles of countries, although the magnitude of the effect is more difficult to gauge.

Of course, all those conclusions only rest upon a casual inspection of the data. The impact of other variables that may have affected the distribution of FDI across countries was in particular not controlled for. This section's findings though suggestive must therefore be considered preliminary. In the next section, we describe a strategy to investigate more carefully the interrelationship of local political risk and global FDI activity in shaping the distribution of world FDI flows.

5. Empirical strategy

This section first describes the paper's econometric specification then the data to which it was applied.

5.1. Econometric specification

The desired feature of the empirical strategy we use is to allow taking into account the nexus between global factors and local political risk. We therefore resort to a very simple specification where a country's share in world FDI is a function of that country's institutional risk and world FDI flows. More precisely, our specification reads:

$$log(FDI\ share_{it}) = \alpha_{0i} + \alpha_1 * inst_{it} + \alpha_2 * log(world\ FDI_t) * inst_{it} + A.C_{it} + \varepsilon_{it} \qquad (1)$$

Where:

$FDI\ share_{it}$ is the share of country i's FDI inflows in the volume of total FDI flows in year t;

$inst_{it}$	is the relevant index of institutional risk;
$world\ FDI_t$	is the volume of FDI inflows in the world for year t scaled down by GDP;
C_{it}	is the vector of control variables for country i and year t;
ε_{it}	is the error term.

α_{0i} is country i's fixed effect, which controls for that country's specificities that are not measured by the other explanatory variables. A is a vector of parameters.

The key parameters of interest are however α_1 and α_2, namely the coefficients of institutional risk and of its interaction with total FDI flows. Political risk has repeatedly been found to detract foreign investors. If we define political risk indices to increase with risk, coefficient α_1 should therefore be negative.

The paper's main innovation is to check whether the impact of risk at a given point in time depends on the world volume of FDI flows at that point in time. This is described by coefficient α_2. More precisely, if the sensitivity of FDI flows to local institutional risk decreases when FDI is abundant, α_2 should be positive. Thus, the overall coefficient of FDI would be a decreasing function of the world volume of investment flows, if investors are less picky in their choices when the amount of capital to invest is larger. This would imply that the overall impact of political risk on a country's share in world FDI decreases when international capital flows are larger. On the other hand, if foreign investors are more sensitive to local institutional risk when capital abounds, then α_2 should be positive.[4]

5.2. Data

As before, both local and global FDI data were drawn from the World Development Indicators database, and political risk was assessed by the ICRG index and the polcon index. Both were rescaled so as to increase when political risk increases.

[4] Note that we do not the volume of world FDI among the regressors since the dependent variable is a country's share in world FDI.

The control variables are standard. We thus first control for the relative size of each country, which is measured by the logarithm of the ratio of that country's GDP to the world's GDP. We expect this control variable to be mechanically positively related to a country's share in world FDI flows.

The second control variable assesses country *i*'s level of economic development, measured by the logarithm of per capita income. An increase in per capita income being associated with higher purchasing power, it is supposed to attract more FDI. At the same time, that variable may proxy wages. Since wages are larger in richer countries, GDP per capita may then be negatively related to FDI flows, if their motivation is to seek cheap labour. Determining the sign of that variable is therefore an empirical matter.

Third, we control for GDP growth. Faster GDP growth suggests that the economy is dynamic, and is therefore expected to attract more FDI. It should therefore correlate positively with a country's FDI share.

The next control variable is openness, defined as country *i*'s exports plus imports divided by GDP. We also take the logarithm of this variable. Countries that are more open to trade are also expected to be more open to foreign investments. We therefore expect this variable to exhibit a positive sign.

The last control variable takes infrastructure quality into account. It is the number of phone lines per thousand inhabitants. As before, we take the logarithm of this variable. As foreign investment is known to be sensitive to infrastructure quality, we expect this variable to be positively related to a country's share in world FDI flows.

All non-institutional variables were drawn from the World Development Indicators dataset. Overall, we assembled a sample that includes annual data over the period 1971-2000 when we used the polcon index, and 1984-2004 when we used the ICRG index. Our sample covers up to 120 countries.

6. Empirical Results

The model was systematically estimated with the two indices of political risk. Moreover we first estimated it thanks to a simple panel estimation technique with fixed

country effects. We then resorted to GMM estimations. The next section describes of vasic findings, while the following one displays our robustness checks.

6.1. Basic findings

The results displayed in table 1 show that all coefficients are significant in at least one estimation. Moreover, whenever they are significant, control variables exhibit their predicted sign. Namely, GDP is positively related to a country's share in world FDI flows. GDP growth also attracts foreign investors, as well as openness and more numerous telephone lines. Finally, our estimations suggest that FDI flows are attracted by cheap labour, as shown by the negative sign of GDP per capita in our second set of regressions.

****** Insert table 1 around here ******

Secondly, our results replicate the usual finding on the relationship between FDI and political risk. Namely, in all the estimations where a measure of political risk is included without interaction with the world volume of FDI, political risk is negatively associated with FDI inflows. This is true when political risk is measured by the ICRG index, as in estimations (1.1) and (1.2), or by the polcon index, as in estimations (1.5) and (1.7). This finding is also robust to the estimation method, since it appears both with OLS, in odd-numbered columns, and GMM, in even-numbered columns.

However, the key result of our estimations is to be found in the last four rows of table 1, when the coefficients of political risk indices are interacted with the global volume of FDI. In line with the standard finding that political risk deters foreign investment, we find that the coefficient of political risk is always negative, regardless of the estimation technique and of the index of political risk used.

More to the point, we can now refine the standard finding thanks to the interaction term. The estimated sign of the coefficient of that interaction term is indeed always significantly positive. Accordingly, the absolute value of the overall coefficient of political risk is smaller when the global volume of FDI is smaller. The impact of political risk on a country's share in world FDI is therefore smaller when the global volume of FDI is larger. In other words, we find that FDI is less sensitive to political risk when capital is more abundant.

This results not only refines the usual relationship between FDI and political risk, but also suggests that relationship may be unstable across years. It finally underlines that pooling years of large and small global FDI activity may blur the relationship. In the next section, we check the robustness of that finding.

6.2. Robustness checks

The first concern about our main finding may be that it is due to variations in the sample's size from one period to the next. Indeed, one may suspect a selection bias over time. Namely, political risk indices may be available for a smaller number of countries at the beginning of our period of investigation. This may be an issue if the characteristics of the new countries that are added to the sample over time are specific. In a cross-section, Knack and Aszfar (2003) for instance showed that it is in general larger or more open countries that are included in corruption surveys, which biases the estimated relationship between corruption and openness. To address this concern, we therefore ran our estimations again on a balanced sample of countries. The results are displayed in table 2. They show that our finding still holds in spite of the smaller sample size, insofar as there is only one regression out of four where the interaction term between political risk and the global volume of FDI is not significantly positive.

****** Insert table 2 around here ******

Our second concern was that by estimating a single regression for all countries, we may overlook significant differences between heterogeneous groups of countries. We therefore split our sample into four groups of countries, each corresponding to a different quartile of the relevant political risk index, and then ran a distinct regression for each quartile.[5] The outcome of the ensuing estimations is displayed in table 3a for regressions using the ICRG index, and table 3b for regressions using the polcon index. In both instances the interaction term remains significantly positive for all quartiles of countries.

[5] As the median polcon index is zero over most of the sample period, we defined the quartiles of countries over the sample of countries consisting only of observations with positive indices.

****** Insert table 3a around here ******

****** Insert table 3b around here ******

A final question was whether the finding was driven by a specific period or more general. Indeed, the volume of world FDI was an order of magnitude larger at the end of the nineties than it was ten years before, as figure 1 shows. As a result, one may suspect our finding to be specific to the nineties' FDI wave. We therefore ran our regressions separately for the 1984-1993 and 1994-2001 periods. Here the outcome of the regressions differs depending on the political risk index that we use. Namely, we find that the interaction between the ICRG index and the volume of FDI remains significantly positive for both periods. However, when the polcon index is used instead of the ICRG index, the interaction term is only significant during the second period. This suggests that the finding obtained over the longer period with that index was partly driven by the peculiarities of the nineties. One may for instance this result as implying that the world volume of FDI must become quite large for investors to start paying less attention to the dimension of political risk as measured by the polcon index.[6]

****** Insert table 4 around here ******

7. Concluding comments

In this paper, we explicitly model the distribution of FDI flows across countries as a function of local political risk and global FDI flows, and let the coefficient of local risk be a function of global FDI flows.

[6] Recall that the definition of political risk measured by the polcon index is somewhat narrower than that measured by the ICRG index.

Our results confirm that FDI inflows are negatively affected by political risk. However, we find robust evidence that FDI flows become less sensitive to political risk when the global volume of capital flows is larger. This new finding could be explained by diminishing returns to capital, a scarcity of investment opportunities in safer countries, or behavioural factors affecting the evaluation of political risk by foreign investors. Determining the extent to which each of these explanations matters is food for further research.

References

Albuquerque, R., 2003, "The composition of international capital flows: risk sharing through foreign direct investment", *Journal of International Economics* , vol.61, p.353-383.

Albuquerque, R., N. Loayza, and L. Servén, 2005, "World market integration through the lens of foreign direct investors", *Journal of International Economics*, vol.66, p.267-295.

Alfaro, L., S. Kalemli-Ozcan, and V. Volosovych "why doesn't capital flow from rich to poor countries? An empirical investigation", NBER Working Paper n°11901, 2005.

Baker, M., R.S. Ruback, and J. Wurgler, "Behavioral Corporate Finance", in *Handbook of corporate finance*, vol.1, B. Espen Eckbo (ed.), Elsevier, 2007.

Blomström M., R. Lipsey, and M. Zejan "Is fixed investment the key to economic growth?", *Quarterly Journal of Economics*, vol. 111 n°1, p. 269-276, 1996.

Busse, M., and C. Hefeker, "Political risk, institutions and foreign direct investment", *European Journal of Political Economy*, vol. 23, p. 397–415, 2007.

Calvo, G., Leiderman, L., and Reinhart, C., "Capital inflows to Latin America: the role of external factors", *IMF Staff Papers*, vol.40, p.108-151, 1993.

Calvo, S., Reinhart, C.M., "Capital flows to Latin America: is there evidence of contagion effects?", In *Private Capital Flows to Emerging Markets After the Mexican Crisis*, Calvo, G., Goldstein, M., Hochreiter, E. (eds.), Institute for International Economics, Washington, DC, p.151-171, 1996.

Caves, R., *Multinational Enterprise and Economic Analysis*, Cambridge University Press, Australia, 1996.

De Bondt, W.F.M. and R.H. Thaler "Financial Decision-Making in Markets and Firms: A Behavioral Perspective", NBER working paper n°4777, 1994.

Eaton, J., and M. Gersovitz, 1984, "A theory of expropriation and deviations from perfect capital mobility", *Economic Journal*, vol.94, p.16-40.

Economist Intelligence Unit and Columbia Program on International Investment, *World investment prospects* to 2011, 2007.

Fernández-Arias, E. "The new wave of private capital inflows: push or pull?", *Journal of Development Economics*, vol. 48, p.389-418, 1996.

Gervais, Simon, and Terrence Odean, Learning to be overconfident, *Review of Financial Studies*, vol.14 n°1, p. 1-27, 2001.

Globerman, S. and D. Shapiro "Global foreign direct investment flows: the role off governance infrastructure", *World Development*, vol. 30 n°11, p.1899-1919, 2002.

Harms, P. and H.W. Ursprung "Do Civil and Political Repression Really Boost Foreign Direct Investments?", *Economic Inquiry*, vol. 40 n°4, p. 651-63, October 2002.

Japan External Trade Organization (JETRO), *17th Survey on Japanese manufacturing affiliates in Europe/Turkey*, Tokyo, JETRO, 2001.

Knack, S., and O. Azfar "Trade intensity, country size and corruption", *Economics of Governance*, vol.4 n°1, 1-18, 2003.

Lucas, R. E. "Why doesn't Capital Flow from Rich to Poor Countries?", *American Economic Review*, vol. 80, p.92-96, 1990.

Malmendier, Ulrike, and Geoffrey Tate, "Who makes acquisitions? CEO overconfidence and the market's reaction", Stanford University working paper, 2003.

Mody, A. "Is FDI Integrating the World Economy?", *World Economy*, vol. 27 n°8, p.1195-1222, 2004.

Mody, A. and Srinivasan K., "Japanese and U.S. firms as foreign investors: do they march to the same tune?", *Canadian Journal of Economics*, vol. 31 n°4, p 778-799, October 1998.

Roll, Richard, The hubris hypothesis of corporate takeovers, *Journal of Business*, vol. 59 n°2, p. 197-216, 1986.

Schneider, F. and B.S. Frey "Economic and political determinants of foreign direct investment", *World Development*, vol. 13 n°12, p.161-175, 1985.

UNCTAD, *World Investment Report, FDI Policies for Development: National and International Perspectives*, United Nations, New York and Geneva, 2003.

Wei, S.-J. "How Taxing Is Corruption on International Investors?", *Review of Economics and Statistics*, vol. 82 n°1, p.1-11, February 2000.

Wei, S.-J. and Y. Wu "Negative Alchemy? Corruption, Composition of Capital Flows, and Currency Crises", in *Preventing currency crises in emerging markets*. S. Edwards, and

J. Frankel (eds.), NBER Conference Report series, University of Chicago Press. p.461-501, 2002.

Table 1: basic findings

	OLS fixed effects				GMM fixed effects			
	(1.1.)	(1.2.)	(1.3.)	(1.4.)	(1.5.)	(1.6.)	(1.7.)	(1.8.)
log(GDP)	0.009 (0.040)	–0.18 (0.82)	0.43 (2.31) **	0.271 (1.40)	0.916 (36.40) ***	0.892 (37.96) ***	0.85 (57.95) ***	0.888 (63.61) ***
log(GDP per capita)	0.038 (0.184)	0.232 (1.12)	–0.32 (1.80) *	–0.146 (0.795)	–0.760 (0.382)	–0.769 (–21.61) ***	–0.57 (23.80) ***	–0.650 (28.26) ***
GDP growth	1.469 (2.004) **	1.48 (2.01) **	1.26 (2.64) **	1.21 (2.55) **	9.070 (6.192) ***	7.34 (5.57) ***	12.47 (14.37) ***	9.95 (13.26) ***
Log(openness)	0.601 (3.993) ***	0.655 (4.25) ***	0.67 (4.36) ***	0.733 (4.62) ***	1.021 (13.602) ***	1.02 (13.48) ***	1.09 (19.56)	1.16 (21.32) ***
Log(phones)	–0.011 (0.101)	0.181 (1.74) *	–0.10 (1.31)	–0.264 (0.328)	0.586 (19.986) ***	0.577 (20.77) ***	0.53 (21.33) ***	0.536 (22.85) ***
ICRG	–1.517 (2.878) **	–2.04 (3.83) ***			–2.435 (5.961) ***	–5.12 (8.71) ***		
ICGR*(World FDI/World GDP)		0.333 (5.58) ***				1.87 (6.68) ***		
Polcon			–0.59 (2.42) **	–1.13 (4.31) ***			–0.57 (3.71) ***	–4.42 (11.85) ****
Polcon*(World FDI/World GDP)				0.339 (5.87) ***				2.32 (11.78) ***
Number of observations Number of countries Adjusted R^2	1366 120 0.839	1366 120 0.843	2083 153 0.842	2083 153 0.844	1190 120 0.841	1190 120 0.854	1847 153 0.873	1847 153 0.882

Absolute *t*-statistics are displayed in parentheses under the coefficient estimates. *: test-statistic is significant at the 10% level ; **: significant at the 5% level ; ***: significant at the 1% level. n.r.: not relevant. The estimates are heteroskedastic consistent.

Table 2: Balanced sample

	OLS fixed effects				GMM fixed effects			
	(2.1.)	(2.2.)	(2.3.)	(2.4.)	(2.5.)	(2.6.)	(2.7.)	(2.8.)
log(GDP)	1.59 (3.07) ***	1.05 (2.02) **	0.93 (2.16) **	0.45 (1.02)	0.96 (28.31) ***	0.96 (29.06) ***	0.92 (38.01) ***	0.92 (39.45) ***
log(GDP per capita)	–1.62 (3.17) ***	–1.07 (2.08) **	–0.92 (2.15) **	–0.44 (0.99)	–0.92 (19.31) ***	–0.92 (18.88) ***	–0.80 (20.50) ***	–0.80 (21.68) ***
GDP growth	1.72 (2.16) **	1.54 (1.96) *	2.09 (2.87) **	1.99 (2.75) **	1.20 (0.64)	1.42 (0.78)	–0.94 (0.38)	–0.94 (0.38)
Log(openness)	0.47 (1.49)	0.57 (1.79) *	–0.02 (0.07)	0.11 (0.41)	1.11 (10.83) ***	1.10 (10.95) ***	1.17 (13.49) ***	1.17 (13.47) ***
Log(phones)	0.03 (0.21)	0.25 (1.79) *	–0.13 (0.92)	0.06 (0.42)	0.74 (19.21) ***	0.73 (19.52) ***	0.86 (23.82) ***	0.86 (23.82) ***
ICRG	–1.95 (2.86) **	–2.35 (3.49) ***			–3.53 (6.36) ***	–7.43 3.53) ***		
ICGR*(Word FDI/WorldGDP)		0.30 (4.65) ***				2.73 (1.93) *		
Polcon			–0.28 (0.81)	–0.73 (1.95) *			–0.13 (0.55)	–0.13 (0.22)
Polcon*(Word FDI/WorldGDP)				0.31 (4.02) ***				0.00 0.00
Number of observations Number of countries Adjusted R^2	650 65 0.773	650 65 0.902	756 63 0.909	756 63 0.911	650 65 0.871	650 65 0.873	756 63 0.891	756 63 0.891

Absolute *t*-statistics are displayed in parentheses under the coefficient estimates. *: test-statistic is significant at the 10% level ; **: significant at the 5% level ; ***: significant at the 1% level. n.r.: not relevant. The estimates are heteroskedastic consistent.

Table 3.a: Regressions by risk quartiles (ICRG)

Variable	1st quartile	2nd quartile	3rd quartile	4th quartile
	OLS fixed effects			
log(GDP)	0.19 (0.49)	–1.90 (2.42)	–0.16 (0.25)	1.78 (2.76)
log(GDP per capita)	–0.17 (0.45)	1.91 (2.46)	0.27 (0.42)	–1.55 (2.43)
GDP growth	2.67 (1.47)	0.72 (0.44)	0.34 (0.34)	1.56 (1.34)
Log(openness)	0.87 (1.33)	–0.07 (0.14)	0.89 (2.12)	0.53 (2.81)
Log(phones)	1.74 (1.97)	–0.24 (1.02)	0.13 (0.57)	0.97 (2.47)
ICRG	0.14 (0.09)	–3.70 (1.41)	–5.38 (2.70)	–5.47 (3.39)
ICRG*(Word FDI/WorldGDP)	0.32 (2.99)	0.21 (2.23)	0.41 (2.87)	1.17 (2.66)
	GMM fixed effects			
log(GDP)	1.14 (17.28)	0.82 (22.50)	0.53 (5.83)	1.30 (26.57)
log(GDP per capita)	–1.18 (11.85)	–0.67 (10.77)	–0.27 (2.06)	–1.50 (17.09)
GDP growth	–3.10 (0.91)	18.25 (8.30)	10.60 (3.87)	–2.89 (0.70)
Log(openness)	1.34 (9.86)	0.44 (2.70)	0.21 (0.93)	2.03 (12.78)
Log(phones)	1.19 (4.64)	0.45 (4.99)	0.48 (7.60)	0.79 (14.67)
ICRG	–0.25 (0.16)	–14.94 (2.18)	0.39 (0.08)	–3.64 (2.23)
ICRG*(Word FDI/WorldGDP)	1.19 (4.19)	0.84 (4.38)	1.25 (4.89)	0.12 (0.26)

Table 3.b: Regressions by risk quartiles (polcon)

Variable	1st quartile	2nd quartile	3rd quartile	4th quartile
	OLS fixed effects			
log(GDP)	-0.35 (0.85)	-0.68 (1.31)	0.55 (1.66)	0.52 (1.09)
log(GDP per capita)	0.43 (1.08)	0.74 (1.52)	-0.55 (1.76)	-0.41 (0.87)
GDP growth	1.74 (1.14)	0.36 (0.23)	1.70 (1.42)	1.44 (1.13)
Log(openness)	1.02 (2.02)	0.60 (1.70)	1.29 (3.77)	1.41 (3.21)
Log(phones)	-0.13 (0.47)	0.00 (0.01)	0.12 (0.70)	0.36 (1.38)
Polcon	0.19 (0.07)	-7.29 (2.32)	6.79 (1.83)	0.07 (0.06)
Polcon*(World FDI/World GDP)	0.30 (3.19)	0.43 (3.35)	0.73 (5.61)	1.31 (4.65)
	GMM fixed effects			
log(GDP)	0.72 (16.32)	0.61 (12.23)	0.92 (21.60)	0.97 (26.58)
log(GDP per capita)	-0.48 (7.16)	-0.41 (6.05)	-0.74 (10.39)	-0.74 (11.34)
GDP growth	3.61 (1.02)	4.27 (0.99)	2.74 (1.30)	0.68 (0.15)
Log(openness)	0.98 (7.95)	0.08 (0.37)	0.77 (6.82)	1.32 (7.59)
Log(phones)	0.49 (9.99)	0.85 (9.56)	0.78 (11.36)	0.59 (7.23)
Polcon	-6.45 (6.24)	-6.68 (1.68)	6.31 (1.44)	-8.41 (5.42)
Polcon*(World FDI/World GDP)	0.88 (4.64)	0.89 (4.03)	0.60 (2.78)	4.04 (5.77)

Table 4: Regressions by periods

	OLS fixed effects				GMM fixed effects			
	1984-1993		1994-2001		1984-1993		1994-2001	
log(GDP)	-0.49 (1.54)	0.03 (0.11)	-0.34 (0.34)	-0.69 (0.86)	0.93 (18.32)	0.86 (28.88)	0.84 (26.92)	0.90 (41.20)
log(GDP per capita)	0.52 (1.66)	0.03 (0.09)	0.41 (0.41)	0.78 (0.99)	-0.77 (10.35)	-0.61 (13.06)	-0.67 (14.49)	-0.62 (18.28)
GDP growth	0.49 (0.56)	0.77 (1.09)	0.51 (0.56)	0.23 (0.37)	4.83 (1.70)	1.84 (0.82)	13.88 (7.03)	10.70 (11.48)
Log(openness)	0.47 (2.72)	0.46 (2.92)	0.14 (0.39)	0.64 (2.41)	1.22 (10.16)	1.26 (11.71)	0.85 (7.55)	1.10 (13.11)
Log(phones)	0.35 (1.43)	0.25 (1.23)	-0.05 (0.17)	-0.43 (2.40)	0.53 (10.89)	0.55 (12.66)	0.58 (10.26)	0.54 (15.18)
ICRG	-3.36 (4.46)		-2.07 (2.17)		-1.68 (0.50)		-4.97 (4.30)	
ICGR*(Word FDI/WorldGDP)	1.42 (4.05)		0.26 (3.76)		-0.71 (0.18)		1.21 (1.82)	
Polcon		-2.83 (3.79)		-0.91 (2.46)		5.83 (1.44)		-4.36 (2.80)
Polcon*(Word FDI/WorldGDP)		1.48 (2.46)		0.36 (5.67)		-7.76 (1.47)		1.56 (2.30)