

## **The Dynamics of Foreign Direct Investment and Privatization: An Empirical Analysis**

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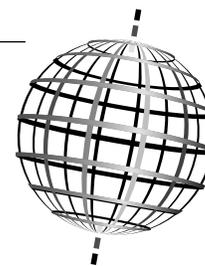
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Résumé de l'article

Cet article examine le lien entre l'investissement direct à l'étranger (IDÉ) et la privatisation des entreprises étatiques. Nous faisons l'hypothèse que la privatisation affecte l'IDÉ dans la mesure où la participation du secteur privé s'accompagne souvent de mesures de libéralisation et de l'allocation d'actions des entreprises nouvellement privatisées à des investisseurs étrangers. De même, nous prévoyons que l'IDÉ favorise la privatisation dans la mesure où les entrées de capitaux, la technologique, et les habiletés de gestion qui accompagnent l'IDÉ créent un environnement plus compétitif et plus propice à la privatisation d'entreprises inefficaces. Nos résultats tendent à confirmer nos hypothèses.

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# The Dynamics of Foreign Direct Investment and Privatization: An Empirical Analysis\*



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## RÉSUMÉ

Cet article examine le lien entre l'investissement direct à l'étranger (IDÉ) et la privatisation des entreprises étatiques. Nous faisons l'hypothèse que la privatisation affecte l'IDÉ dans la mesure où la participation du secteur privé s'accompagne souvent de mesures de libéralisation et de l'allocation d'actions des entreprises nouvellement privatisées à des investisseurs étrangers. De même, nous prévoyons que l'IDÉ favorise la privatisation dans la mesure où les entrées de capitaux, la technologique, et les habiletés de gestion qui accompagnent l'IDÉ créent un environnement plus compétitif et plus propice à la privatisation d'entreprises inefficaces. Nos résultats tendent à confirmer nos hypothèses.

Mots clés : privatisation, investissement direct à l'étranger, relation bidirectionnelle.

## ABSTRACT

This article examines the link between foreign direct investment (FDI) and privatization of state-owned enterprises. We hypothesize that privatization has an effect on FDI as the process of fostering private sector participation is often accompanied by liberalization measures, and by allocating the shares of newly privatized firms to foreign investors. Similarly, we expect FDI to foster privatization efforts as capital inflows, technology and managerial skills that accompany FDI make the environment more prone to competition, and provide governments with a good environment to privatize inefficient firms. Our results provide support for our conjectures.

Keywords: privatization, foreign direct investment, bi-directional relation.

## RESUMEN

Este artículo examina la relación entre la inversión directa en el extranjero (IDE) y la privatización de empresas estatales. Nuestra hipótesis es que la privatización afecta la IDE en la medida en que la participación del sector privado con frecuencia va acompañada por medidas de liberalización y de adjudicación de acciones de empresas recientemente privatizadas a inversores extranjeros. De la misma manera, suponemos que la IDE favorece la privatización en la medida en que la afluencia de capitales, la tecnología y las habilidades de gestión asociadas a la IDE crean un entorno más competitivo y propicio a la privatización de empresas ineficaces. Los resultados obtenidos tienen a confirmar nuestras hipótesis.

Palabras claves: privatización, inversión directa en el extranjero, relación bidireccional.

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More than twenty years ago, many countries around the world engaged into economic reform programs that seek to establish an active private sector, i.e. privatization. The purpose of this reform is to decrease government control in the economy, and to transfer resources and ownership from the state to private investors. The inefficiencies of state-owned enterprises that were the principal impetus for privatization were largely due, according to Shleifer (1998), to the political objectives pursued by the government officials and bureaucrats that were managing these firms. Privatization then spread worldwide as economic globalization and markets integration increased. Indeed, the deeper international competition, the liberalization of stock markets worldwide and the lift of trade barriers across countries helped strengthen the need to develop and foster private sector activities, leading to an international shift towards private sector development.

The pace of the privatization process has been both sustained and global, in both developing and developed countries, and still shows no signs of slowing down, particularly in developing countries, even though more than two decades elapsed from its start (World Bank, 2006). When countries engaged in economic policies favouring private ownership, they simultaneously attracted much attention from foreign investors, particularly from multinational corporations, in the form of foreign direct investment (FDI). This is especially true for developing countries. The World Bank (2003) notes, for instance, that FDI has become the largest and most resilient form of capital flows, especially for developing countries. Some studies sustain that privatization was instrumental in the FDI growth observed worldwide. For example, Baer (1994) notes that privatization had an impact on foreign investments in many Latin American countries, as he documents that

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the presence of foreign capital has increased as the extent of involvement of the state in the economy declined. Other arguments in the literature hold that privatization, often accompanied with a combination of other reform measures that aim to improve the investment climate, lift barriers to trade and provide a better and more effective institutional environment, contributed to the rise in FDI flows over the last twenty years.

Like privatization, FDI has made significant progress around the world. The rising trend in FDI in several regions around the globe appears in several World Bank reports. Particularly, the World Bank (2002) reports that FDI has positively responded to government implementations of privatization programs, and notes that seven of the ten largest FDI recipients received more than \$US1 billion from foreign investors to participate in the privatization transactions that were conducted in 1999. The intensity of the privatization program seems to be strengthened by massive increases in FDI flows which continued to increase throughout the 2000s. FDI brings about many benefits ranging from fund-raising, new technologies, improvements in human capital, new managerial skills and improved corporate governance. It is thus no surprise that several privatization transactions on the stock market involved the sale of a tranche directly aimed at foreign investors.

The objective of this paper is to examine the link between these phenomena by investigating whether privatization is a determinant of FDI, and whether FDI enhanced and contributed to the sustainability of the privatization process. More specifically, we seek to provide answers to the following questions: how does privatization affect FDI? How do both interact? The use of international data from developed and developing economies allows us provide new evidence and draw several novel insights and policy implications.

The empirical analysis of the role of privatization in determining FDI, and the role of FDI in affecting privatization is important for several reasons. First, FDI flows are an engine for future economic growth and institutional development. Examining the role of specific economic reforms as a determinant of FDI is thus important for policy purposes. Second, assessing the link between a redistributive (often opposed) policy such as privatization, and an equally controversial phenomenon, such as FDI, is important on theoretical grounds. Several governments faced riots and social opposition as they were engaging in privatization reforms, further fuelled by the announcement that the potential buyers were foreign. Previous studies have examined the link between foreign participation and postprivatization firm performance (Boubakri, Cosset, Guedhami, 2005). However, at the macro-economic level, whether FDI and privatization are mutual determinants remains an issue to explore.

Why, beyond the anecdotal evidence described above, should privatization and FDI be related? Several potential

channels can be put forward. First, privatization usually improves the investment climate thus making investment more attractive for investors, domestic and foreign alike, and contributes to enhance the growth and development process. For instance, a recent study by Boubakri, Cosset and Smaoui (2007) shows that privatization contributes to the improvement in the overall institutional quality of the country –i.e., its rule of law and law enforcement mechanisms. Second, while the effect of privatization on growth remains yet to be assessed, available evidence from countries that pursued privatization does reveal significant positive outcomes, especially at the firm level (see Megginson and Netter, 2001, for an extensive review of the literature). Finally, within the context of private risk taking, privatization should reinforce the globalization phenomenon as privatization, through share issues, has a positive impact on financial market developments and drains FDI. Parallel to this effect, we also argue that more financially open economies are more likely to privatize extensively. These mechanisms of transmission between FDI and privatization have been unexplored to date. Thus, privatization, defined as the process by which the government transfers state-owned firms to the private sector, and FDI are two concomitant, reinforcing mechanisms, although, to date, they have been treated in two separate strands of literature: the privatization literature has focused on the outcome of the reform on several aspects, such as the performance of newly privatized firms, corporate governance, legal institutions, stock market liquidity, etc,...(e.g., D'Souza and Megginson, 1999; Perotti and van Oijen, 2001; Bortolotti, de Jong, Nicodano and Schindele, 2004; Boubakri, Cosset and Guedhami, 2005). The FDI literature has instead focused on its impact on economic growth and welfare, and social inequality (e.g., Borensztein, De Gregorio and Lee, 1998; Morley, 2001; Noorbakhsch, Paloni and Youssef, 2001; Aitken, Harrison and Lipsey, 2001; Khawar, 2005).

Using a sample of 22 developed and 31 developing countries, over the period 1984 to 2005, we implement a generalized method of moments (GMM) approach in a dynamic panel context and find support for our conjecture. Indeed, controlling for several factors shown in the literature to affect the decision to privatize, we find that FDI flows have a positive effect on privatization proceeds and on the privatization method. We also find that privatization proceeds (but not the privatization method) influence the extent of FDI in a country, suggesting that both FDI flows and privatization are interrelated. Our results suggest that privatization can be instrumental in attracting FDI, which can contribute to domestic economic growth. By the same token, privatization constitutes a credible signal of less policy risk for foreign investors, and contributes to attract more FDI.

The rest of the paper is organized as follows: Section 2 presents some stylized facts on FDI and privatization. Section 3 discusses the empirical approach, the sample

and variables. Section 4 presents descriptive statistics and discusses the empirical results. Section 5 concludes.

### **Stylized facts and the review of the literature**

Recent figures given by the World Bank (2006) show that FDI flows continue to expand. FDI inflows to developing countries reached a record \$325 billion in 2006. The industry composition of FDI shows that FDI is particularly important in banking, and telecommunications, these sectors being under intensive privatization activities. The trend has been supported by the relaxation of restrictions on foreign ownership and by major privatization transactions. Most of the 10 largest privatizations, mergers and acquisitions in 2006 occurred in the banking and telecommunications sectors.

Recent figures from the World Bank privatization database suggests that the global privatization trends also show a regain of momentum in 2004-2005. In the last two decades, 44 countries carried out 4 580 transactions (1 437 transactions in 25 developing countries, and 3 143 transactions in 19 developed countries). In the 1990s, privatization proceeds in developing countries averaged between \$20 to 30 billion on an annual basis. Proceeds peaked sharply in 1997 to almost \$90 billion. Revenues declined thereafter following the East Asian financial crisis of 1997 and the Russian debt crisis of 1998. But, by 2000, the privatization activity has exceeded its 1990 level, and soon picked up until today. Furthermore, in developed and developing countries, the average value of transactions increased over time as larger companies were put for sale to reach \$96 million in 2003.

The literature on privatization suggests that domestic economic conditions influence the government's decision to privatize, and the way it structures privatization. For instance, governments facing budget deficits, or fiscal crises are more likely to undertake privatization. Also, Megginson, Nash, Netter and Poulsen (2004) argue that countries with higher deficits, among other variables, are more likely to privatize state-owned assets by share issue privatizations (SIPs) than by private sales. However, Boubakri, Cosset, Guedhami and Omran (2007) show that whether privatization is implemented by SIPs or private sales in developing countries, foreign direct investment was omnipresent (foreign investors thus participated in 86% of privatization transactions between 1980 and 1999 in developing countries). Other determinants of privatization have been identified in the literature (e.g., Bortolotti, Fantini and Siniscalco, 2003; Megginson, Nash, Netter and Poulsen, 2004): For example, the political orientation of the government is important as right-wing governments are more likely to privatize than left-wing governments. In addition, a financial distressed government is more likely to privatize while countries with lower protection and a weak legal environment are less likely to privatize.

FDI can be an additional potential determinant of privatization. Since FDI enhances the competitiveness of the domestic economy, contributes to more skilled labour, helps to import new technology, it has a positive externality on the environment. Thus, governments will have more incentives to privatize if the economy is more open to foreign investment. Furthermore, regarding the benefits of privatization through FDI, there is a general agreement that foreign investors, using their technological know-how, their funds and their managerial expertise, tend to carry out restructuring more fully than local investors and thus would lead to improvements in the post-privatization performance of privatized firms (Boycko, Shleifer and Vishny, 1996). Finally, foreign participation has the additional benefit that it can impose high information disclosure standards and an efficient corporate governance in privatized firms (Dyck, 2001). Hence, we expect that more foreign direct investment in the country will contribute to enhance privatization efforts by local governments. FDI will also create more inflows for governments willing to privatize through SIPs because the more open is the economy to foreign investment the better are the institutional framework and the protection of private property rights that facilitate stock market transactions (Perotti and Oijen, 2001). This discussion leads to the following hypotheses:

H1A: FDI has a positive impact on privatization proceeds, everything else being equal.

H1B: FDI has a positive impact on the proportion of share issue privatizations in the total number of privatizations transactions, everything being equal.

The literature also identifies several determinants of FDI: Li and Resnick (2003, p.203) argue that with respect to foreign direct investment: "While increasing levels of democracy help to produce better judicial systems and rule of law, these higher levels of democracy also drive foreign investors away by imposing constraints on foreign capital and the host government." More law and order means a more predictable regulatory environment, less prone to unexpected reversals, and therefore a more transparent policymaking process.

In addition, financial liberalization is also a determinant of FDI. Financial liberalization is a reform that allows foreign investors to invest, without particular restrictions, in the domestic market, and allows domestic investors to trade freely on international financial markets. The recent liberalization reforms in emerging markets resulted in an increased presence of foreign investors that bring their funds, stricter disclosure rules, accounting transparency and new management and governance skills (Bekaert, Harvey and Lundblad, 2005).

Market-related variables such as GDP, GDP per capita (wealth or economic development) and GDP growth also constitute traditional FDI determinants (see, for example, Schneider and Frey (1985), Wheeler and Mody (1992)

and Tsai (1994)). Trade liberalization which measures the extent of openness of the country to foreign trade is also shown to be positively related to FDI flows.

In addition to these classic determinants of FDI, we consider the impact of privatization. Indeed, when one of the governments' objectives is to attract FDI, it requires that a credible environment of contract enforcement, and transparency is put in place. Privatization can provide the government with such a credible signal. Following Perotti (1995), this is particularly true in the case of a share issue privatization (unlike private sales). Thus, Perotti's model suggests that gradual sales, with an immediate transfer of control, signal that the government is ready to assume residual policy risk and that it does not intend to alter the value of newly privatized firms through a future change in economic policies. Therefore, share issue privatizations should signal commitment to investors whose increased confidence should attract FDI flows.<sup>1</sup> This discussion leads to the following hypotheses:

H2A: Privatization proceeds have a positive impact on FDI, everything else being equal.

H2B: The proportion of share issue privatizations in the total number of privatization transactions has a positive impact on FDI, everything being equal.

## Variables, Empirical Approach and Sample

### Variables

FDI is measured by FDI as a share of GDP from the International Monetary Fund (IMF) database. We measure privatization with (1) Privatization proceeds to annual GDP per country (PRIVPROC). This ratio measures the volume of the country's privatization and captures the government commitment towards market reforms and privatization (Perotti and van Oijen, 2001). This ratio is a measure of the willingness of governments to privatize and of the economic impact of one country's privatization (Bortolotti, Fantini and Siniscalco, 2003). We use the number of share issue privatizations (SIPs) to the total number of privatizations in the country (PRIVMETH) to capture the method of privatization and the willingness of governments to use the stock market as a source of financing (Bortolotti, Fantini and Siniscalco, 2003). Privatization measures come from SDC Thomson Financial.

The determinants of FDI encompass institutional and macroeconomic variables. The first ones include law and order from the International Country Risk Guide (ICRG). Other variables such as GDP per capita, and trade open-

ness come from the World Development Indicators (WDI) database, while the degree of liberalization is drawn from the International Finance Corporation (IFC).

As for the determinants of privatization, the measures of Budget Balance come from the International Financial Statistics (IFS), measures of Total Debt come from WDI, while political orientation comes from the Database of Political Institutions of the World Bank, and Legal Origin is drawn from La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998).

### Empirical Approach

To investigate the (possibly) reinforcing link between both phenomena, privatization and globalization, we rely on a GMM-system estimation technique in a dynamic panel setting. Exploiting the information in both dimensions, cross-sectional (across countries) and time-series, provides a more efficient estimation of the parameters since panel data create more variability, through combining variation across countries with variation over time, while lessening multicollinearity problems (Baltagi, 2001). The approach also allows us to control for the problems of joint endogeneity of the independent variables (reverse causality and simultaneity) and country heterogeneity (i.e., unobserved country-specific effects) (Arellano and Bond, 1991; Arellano and Bover, 1995).

Specifically, we are concerned with finding empirical evidence which would support the hypothesis of the two-way relation running from foreign direct investment flows to privatization and vice-versa. Therefore, we make use of an empirical strategy which does account for simultaneity bias arising from possible reverse causality between both phenomena in a dynamic panel data set. To tackle this issue, we resort to the dynamic panel-data estimation, two-step system GMM following Blundell and Bond (1998), which achieves efficiency gains by exploiting the whole information contained in the data set, making use not only of the regressions in differences but also the regressions in levels. For each type of regression, a series of instrumental variables are generated to address endogeneity problems which are lagged values of the endogenous and exogenous variables for the regressions in differences while the lagged differences are used in the regressions in levels.

From an overall stand, the generalized method of moments (GMM) first introduced by Hansen (1982) in a time-series framework and later extended by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998) to deal with dynamic panel data sets is an estimation procedure that does not require the knowledge of the data generating process to produce valid inferences. By making

1. As pointed out by an anonymous reviewer, the case of Russia that at the same time nationalizes its oil industry and draws high levels of FDI flows does not seem to support our hypotheses that privatization and FDI are mutual determinants. However, experiences of foreign firms operating in Russia vary with the industrial sector markedly

(Kaartermo, 2007). Indeed, the faster FDI growth in the non-sensitive (non-strategic) industries (e.g., retail and wholesale trade, production of consumer goods) compensates for the lowering FDI in the sensitive industries (e.g., oil and gas industries, telecommunications) where political interference and state ownership are pervasive.)

fewer distributional assumptions on the data generating process, the GMM methodology is widely applicable to a great variety of fields (finance, macroeconomics, ...).

Following Windmeijer (2005), we also implement the finite-sample corrected standard errors for the efficient two-step GMM estimator throughout the procedure. Without this correction, the two-step GMM standard errors are known to be severely biased downwards leading thereby to mechanically low p-values.

However, the consistency of the GMM estimator hinges on the hypotheses that the instruments are valid and that the error terms are not serially correlated. To test both hypotheses, we run two specification tests, one proposed by Hansen (1982) and the other one proposed by Arellano and Bond (1991). The first test, known as the J test, is a test of over-identifying restrictions which tests the validity of the instruments by checking whether the orthogonality conditions are satisfied. If this is the case, the J statistic should be close to 0 supporting the hypothesis that the instruments are valid. In other words, our model specification is adequate if we cannot reject the null hypothesis of over-identifying restrictions. The second tests the null hypothesis that the error term  $\varepsilon_{i,t}$  is not serially correlated. The test examines whether the difference error term,  $\Delta\varepsilon_{i,t}$  has second order serial autocorrelation. The non-rejection of the null hypotheses supports our model.

To identify the impact of the privatization on the flows of foreign direct investment and reciprocally, it is necessary to control for some effects already pinned down in the literature. Thus the design for our panel data analysis will incorporate the influence of the other factors as follows.

For the foreign direct investment (FDI) flows equation we consider:

$$FDI_{it} = \rho FDI_{it-1} + \beta_1 PRIV_{it} + \beta_2 LIBER_{it-1} + \beta_3 TRADE_{it-1} + \beta_4 GDPC_{it-1} + \beta_5 LAW\_AND\_ORDER_{it-1} + \mu_i + \varepsilon_{it}$$

and for the privatization equation:

$$PRIV_{it} = \rho PRIV_{it-1} + \beta_1 FDI_{it} + \beta_2 DEBT_{it-1} + \beta_3 BUDGETBAL_{it-1} + \beta_4 LEGAL_{it-1} + \beta_5 POLITO_{it-1} + \mu_i + \varepsilon_{it}$$

with  $i$  denoting the country ( $i=1, \dots, N$ ) and  $t$  the time index ( $t=1, \dots, T$ ) for yearly observations;  $\mu_i$  will account for the unobserved country-specific effect.

The foreign direct investment is measured as the logarithm of the ratio of inflows and outflows to the GDP.<sup>2</sup> We consider two different measures of privatization:

(1) We rely on the logarithm of the ratio of privatization

proceeds to the GDP as a measure of the volume of privatization (PRIVPROC); we expect a positive relation between this variable and FDI;

(2) to capture the method of privatization and the willingness of the government to use the stock market as a source of financing we rely on the logarithm of the ratio of the number of share issue privatizations to the total number of privatization transactions (PRIVMETH); we expect a positive relation between this variable and FDI;

The control variables for the FDI equation are the following ones:

(1) the trade openness is measured as the logarithm of the sum of exports and imports of goods and services as a share of GDP; the more a country is open and integrated into the world economy, the greater the likelihood for the country to attract FDI (+);

(2) the logarithm of the GDP per capita is a proxy for the level of economic development or wealth; the larger the level of economic development, the higher the propensity of the country to attract FDI (+);

(3) the index of intensity of financial liberalization as defined by Bekaert, Harvey and Lunblad (2005); financial liberalization reforms tend to increase the presence of foreign investors as the latter can exchange freely without any restrictions (+);

(4) the index of Law and Order which comes from the International Country Risk Guide (ICRG) is measured on a scale from 0 to 6 (the best outcome); the more law and order in the country, the more predictable regulatory environment, the less prone to unexpected reversals, the more the government commits itself to protecting the investors and hence the greater the likelihood to attract FDI (+)

The control variables for the privatization equation are the following ones:

(1) a measure of the logarithm of the total (foreign and domestic) indebtedness as a percentage of the GDP since financial distressed governments are more likely to privatize (+),

(2) a measure of fiscal deficit (government cash surplus/deficit) as a percentage of the GDP

(-),

(3) a dummy variable for the legal environment since, in contrast to common law countries, civil law countries are not strong advocates of investor protection and therefore less prone to privatize,

(4) a dummy variable for the political orientation of the

2. Note that we use a loglinear model, also known as a constant elasticity form which does not vary with the explanatory variable (Greene, 2003). For instance, in the loglinear model  $\ln y = \beta_1 + \beta_2 \ln x + \varepsilon$

$\beta_2$  measures the percentage in  $y$  associated with a one percentage change in  $x$ . This removes the units of measurement of the variable from consideration in using the regression model (Greene, 2003, p. 123) together with providing a useful interpretation in terms of elasticity.

**TABLEAU 1**  
**Definitions, Proxies and Data sources**

Variable	Proxy	Label	Expected sign	Source
Foreign direct investment	Ratio of inflows and outflows to the GDP (in log)	FDI		IMF data base
Privatization proceeds Method of Privatization	Log of the annual privatization proceeds to GDP Log of the number of privatizations by share issues to the total number of privatizations	PRIVPROC PRIVMETH	+ +	SDC Platinum, Thomson Financial International Financial Statistics
Trade openness Level of wealth Financial liberalization Law and Order	Log of the sum of imports and exports of good and services Log of the GDP per Capita based on purchasing power parity, in current international US\$ Index measuring the degree of openness as the number of investment restrictions imposed on entry in the local stock market. Index=0 for a closed market and index=1 for fully open market. (Bekaert <i>et al.</i> 2005) Assessment of the strength and impartiality of the legal system and of popular observance	TRADE GDPC LIBER Law and Order	+ + + +	World Development Indicator (WDI) International Finance Corporation International Country Risk Guide (ICRG)
Total debt Budget Balance	Log of the total debt(domestic and foreign) as a share of GDP Cash surplus/deficit as a share of GDP	DEBT BUDGETBAL	+ -	World Development Indicators (WDI) International Financial Statistics (IFS)
Legal Origin Political Orientation	Dummy that is equal to one if the legal origin is common law, and zero otherwise Dummy that is equal to one for a right-wing government	LEGAL POLITO	+ +	La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998) Database on Political Institutions (WORLD BANK)

government since a right-wing government (outcome=1) is more likely to privatize than a left-wing government (outcome=0).

### Sample Description

Our sample consists of 31 developing countries and 22 developed countries over the period 1984 to 2005, with yearly observations. The list and the definition of the variables as well as their data sources appear in Table 1.

We note that foreign direct investment flows were more important at the end of the 1990s, beginning of 2000s (between 1997 and 2002). They smoothly increased in

the mid-nineties to sharply peak at the end of the century. Developed countries were the most attractive with respect to FDI, headed by North European countries such as Belgium, Denmark, Sweden, Ireland, Switzerland, Netherlands, United Kingdom and France as the hard core but also followed by Singapore in the East Asian region. Developing countries did also benefit from FDI, among which Chile, Trinidad & Tobago and Jamaica are striking examples. Regarding privatization proceeds, they started to increase smoothly before peaking sharply in 1997 and 1998, right at the onset of the Asian Crisis. Privatization proceeds remain intensive despite a slight slowing down in 2003. Countries which did benefit more from privatization in terms of

**TABLEAU 2**  
**Sample of Privatizing Countries**

<b>Panel A: Developing Countries</b>			
Argentina	Ghana	Morocco	Turkey
Bangladesh	India	Nigeria	Uganda
Brazil	Indonesia	Pakistan	Venezuela
Cameroon	Jamaica	Peru	Zimbabwe
Chile	Jordan	Philippines	
Colombia	Kenya	Sri Lanka	
Cote d'Ivoire	South Korea	Thailand	
Ecuador	Malaysia	Trinidad & Tobago	
Egypt	Mexico	Tunisia	
<b>Panel B: Developed Countries</b>			
Australia	France	Netherlands	Sweden
Austria	Germany	New Zealand	Switzerland
Belgium	Greece	Norway	United Kingdom
Canada	Ireland	Portugal	United States
Denmark	Italy	Singapore	
Finland	Japan	Spain	

proceeds are the Philippines, Trinidad & Tobago, Brazil, Jamaica among developing countries, and Denmark and Finland among developed countries. Thus privatizations contributed substantially to drain revenues toward developing countries. Regarding share issue privatizations, the evolution of this indicator is quite erratic through time with pikes between 1994 and 1996 and in 2004. Developing countries such as Egypt, Pakistan, Malaysia, South Korea, Tunisia, Ecuador and Jordan did resort to the stock market in the mid-nineties to transfer ownership rights. During the same years, Ireland and Japan did also make use of the stock market to privatize. In 2004, the important players in this area are Thailand, Indonesia, Brazil, Peru, and Jamaica.

## Empirical Results

### Impact of FDI on Privatization

Table 4 presents the results of the regression of the logarithm of privatization proceeds to GDP (PRIVPROC) on the logarithm of FDI (FDI). First, we observe that the coefficient of the lagged dependent variable is significant at all conventional levels (p value=0.000). Consequently, a dynamic specification for the privatization equation helps us to understand the evolution of this phenomenon across time. Second, we note that the FDI coefficient is significant at the 5% level (p value=0.015). Therefore our results support our first hypothesis (H1A) that foreign direct

**TABLEAU 3**  
**Descriptives statistics (panel A)**

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>FDI</i>	1042	1.202556	.8035513	-1.854664	5.210179
<i>PRIVPROC</i>	1076	.2132306	.3688746	0	2.202567
<i>PRIVMETH</i>	700	.1402257	.1954829	0	.6931472
<i>TRADE</i>	1140	4.028233	.5385985	2.591217	6.124876
<i>LIBER</i>	900	.685	.4252494	0	1
<i>LAW AND ORDER</i>	1160	4.042349	1.652064	0	6
<i>GDPC</i>	1165	8.353014	1.578863	5.019722	11.06702
<i>DEBT</i>	880	2.033206	1.917634	0	5.252699
<i>BUDGETBAL</i>	779	-5.285532	27.47681	-336.3994	48.00256
<i>LEGAL</i>	880	.4545455	.4982128	0	1
<i>POLITO</i>	819	.3199023	.4667235	0	1

**TABLEAU 3**  
**Descriptives statistics by years (panel B)**

Year	Statistic	FDI	PRIVPROC	PRIVMETH	Year	Statistic	FDI	PRIVPROC	PRIVMETH
1984	MEAN	.6122	.00029	0	2000	MEAN	1.9882	.3437	.1428
1985	STD	.5170	.00205	.	2001	STD	1.0599	.4726	.1927
1986	MEAN	.6543	.00009	.2027	2002	MEAN	1.6080	.2446	.0903
1987	STD	.5560	.00045	.2867	2003	STD	.9322	.4558	.1690
1988	MEAN	.7216	.0228	.0308	2004	MEAN	1.4415	.2455	.1371
1989	STD	.5887	.1326	.0689	2005	STD	.7523	.3643	.1877
1990	MEAN	.8174	.0202	.07985		MEAN	1.4173	.2008	.1342
1991	STD	.6075	.0582	.1316		STD	.7104	.3446	.1797
1992	MEAN	.8695	.0500	.0929		MEAN	1.3116	.2047	.1597
1993	STD	.6649	.1243	.2307		STD	.7991	.2904	.2107
1994	MEAN	1.0445	.1220	.1016		MEAN	1.6497	.2058	.0688
1995	STD	.6840	.3467	.2112		STD	.7546	.3573	.1256
1996	MEAN	1.0003	.1699	.0822					
1997	STD	.6560	.3965	.1668					
1998	MEAN	.9352	.1680	.1166					
1999	STD	.6295	.3569	.2066					
	MEAN	.8913	.2080	.1594					
	STD	.6737	.3044	.2075					
	MEAN	1.1434	.2905	.2376					
	STD	.5903	.3477	.1919					
	MEAN	1.2737	.3664	.16234					
	STD	.6784	.4856	.16239					
	MEAN	1.2159	.3068	.1835					
	STD	.6334	.3114	.2179					
	MEAN	1.2592	.3305	.1604					
	STD	.6617	.3417	.2262					
	MEAN	1.4455	.4738	.1059					
	STD	.6525	.5287	.1806					
	MEAN	1.6345	.4329	.1155					
	STD	.7954	.4387	.1731					
	MEAN	1.8066	.3106	.1619					
	STD	1.0131	.3774	.2221					

investment flows have a positive impact on privatization proceeds. More specifically, an increase of 1% of foreign direct investments entails a 66% increase of privatization proceeds<sup>3</sup>. With regard to the debt factors, we find that budget imbalances provide strong incentives to trigger privatization in order to fill in the empty coffers of the State, as already pinned down in Bortolotti, Fantini and Siniscalco (2003). The coefficient is negative and strongly significant (with a p value =0.000). The effect from total debt is less pronounced (with a p value=0.073) than the one from the fiscal deficit which appears to be the major determinant in this context. As for the dummy variables, the results do not provide evidence that common law countries that protect investors' rights better and the political orientation

of the privatizing government (right-wing versus left-wing) affect privatization proceeds since both variables are not significant at a conventional level.

With regard to the method of privatization, we find that privatization reforms draw foreign investors when the stock market is involved since the positive impact of FDI on the number of share issue privatizations is significant at the 10% level (with a p value=0.078). These results support our (H1B) hypothesis. Indeed, an increase of 1% of FDI translates into an 87% increase of share issue privatizations<sup>4</sup>. As for the lagged variable, it is not too surprising to find that its predictive power is relatively low (with a p-value= 0.146). Indeed, it is difficult for the market to show any sign of memory with such a short time span and market-

3.  $(0,01)^{0,0893926} = 0,6625$

4.  $(0,01)^{0,0298082} = 0,8717$

through privatizations happening so infrequently. The variables related to debt and deficits are not significant even though the significance of the fiscal imbalances is close to 10% (with a p value = 0.110). Meanwhile, the legal origin variable is significant at the 5% level (p-value 0.042) and supports the hypothesis that the legal origin is an important determinant of share issue privatization. In this respect, the law and finance literature has shown that French civil law countries tend to be associated with a poor minority shareholder protection. Legal protection does matter when one issues shares to transfer ownership rights.

Then, we check if the model is well specified by performing the tests proposed by Hansen (1982) for the validity of the instruments and the Arellano and Bond (1991) test of autocorrelations in the residuals. The results shown in Table 4 suggest that the Hansen J test cannot reject the null hypothesis that our instruments are appropriate. The Arellano and Bond test for the autocorrelation in the residuals in differences should find spurious autocorrelation

of order 1 and no sign of autocorrelation of order 2 in the first differences. The Arellano and Bond test cannot reject (at the 5% significance level) the null hypothesis that there is no second-order autocorrelation in the residuals. In this respect, the output in Table 4 provides no evidence that the model is misspecified at the 1% and 5% conventional levels.

### Impact of Privatization on FDI

Table 5 presents the results of the regression of the logarithm of FDI (FDI) on the logarithm of privatization proceeds to GDP (PRIVPROC). We note that the PRIVPROC coefficient is significant at the conventional level of 5% (p value = 0.019). Therefore, our results do support our (H2A) hypothesis that contemporaneous privatization proceeds have a positive and significant impact on foreign direct investment flows. More specifically, an increase of 1% in privatization proceeds entails a 40% increase of foreign direct investments.<sup>5</sup> In addition, we note that the presence

**TABLEAU 4**  
**Impact of FDI on Privatization**

This table presents, for the whole sample, the results of the regressions in dynamic panel estimated with a system GMM procedure as in Blundell and Bond (1998) for the period 1984-2005. The privatization (PRIVPROC/PRIVMETH) model is as follows:

$$PRIV_{it} = \rho PRIV_{it-1} + \beta_1 FDI_{it} + \beta_2 DEBT_{it-1} + \beta_3 BUDGETBAL_{it-1} + \beta_4 LEGAL_{it-1} + \beta_5 POLITO_{it-1} + \mu_i + \varepsilon_{it}$$

Variable	Expected sign	Coefficient	Robust Standard Error	T	p-value
<i>PRIVPROC-L</i>	+	.3090969	.0633383	4.88	0.000
<i>FDI</i>	+	.0893926	.0352359	2.54	0.015
<i>DEBT</i>	+	.0165211	.0089702	1.84	0.073
<i>BUDGETBAL</i>	-	-.0011787	.0003061	-3.85	0.000
<i>LEGAL</i>	+	-.043784	.037602	-1.16	0.252
<i>POLITO</i>		.0356458	.0317841	1.12	0.269
A-B test for AR(1)				-3.15	0.002
A-B test for AR(2)				1.94	0.053
Hansen J test					1.000
Number of observations = 510					
<i>PRIVMETH-L</i>	+	.1521399	.1023873	1.49	0.146
<i>FDI</i>	+	.0298082	.0164611	1.81	0.078
<i>DEBT</i>	+	.0070089	.0055219	1.27	0.212
<i>BUDGETBAL</i>	-	-.0004641	.000283	-1.64	0.110
<i>LEGAL</i>	+	.0500508	.0237547	2.11	0.042
<i>POLITO</i>	+	.0270264	.0220987	1.22	0.229
A-B test for AR(1)				-3.07	0.002
A-B test for AR(2)				0.69	0.492
Hansen J test					1.000
Number. of observations =363					

5.  $(0,01)^{0.1989593} = 0,40$

of recent foreign investments encourages new FDI through a positive significant coefficient on the lagged dependent variable ( $p$  value = 0.000), which supports the choice of a dynamic specification for the FDI equation. In order to disentangle the effects of the sole privatization proceeds onto FDI from side-benefits, we incorporate some control variables into the specification. The results bring to light the importance of trade openness ( $p$  value = 0.005) and level of wealth ( $p$  value = 0.018) for foreign investors, all of which make the economic environment friendlier together with profitable market growth opportunities. However, both the coefficients of the law and order variable and the financial liberalization index are not significant at conventional levels.

We further perform specification tests to check the validity of the model. The results shown in Table 5 do not provide evidence that the model is misspecified. With regard to the Hansen J test, the  $p$  value reported is arbitrarily close to 1 and does not question the exogeneity of the instruments. We also cannot reject (at the 5 % significance level) the null hypothesis that there is no second-order correlation in the residuals which supports our model specification.

With regard to the method of privatization measured by PRIVMETH, the results do not seem to support the (H2B) hypothesis that privatization through the stock market should boost FDI. A look at the World Bank database on privatization transactions shows that foreign investment is often associated with private sales of former state-owned firms, to foreign investors. Nevertheless, we should be circumspect about drawing any conclusive remark, to the extent that this dearth of evidence in favour of the (H2B) hypothesis may be attributed to a large number of missing values for PRIVMETH.

### Concluding remarks

In this paper, we examine the link between foreign direct investment (FDI) and privatization of state-owned enterprises in a multi-country sample that includes both developed and developing countries. We hypothesize that privatization has an effect on FDI as the process of fostering private sector participation often involved the allocations of substantial shares to foreign investors in newly privatized firms. Similarly, we expect FDI to foster privatization

**TABLEAU 5**  
**Impact of Privatization on FDI**

This table presents, for the whole sample, the results of the regressions in dynamic panel estimated with a system GMM procedure as in Blundell and Bond (1998) for the period 1984-2005. The FDI model is as follows:

$$FDI_{it} = \rho FDI_{it-1} + \beta_1 PRIV + \beta_2 LIBER_{it-1} + \beta_3 TRADE_{it-1} + \beta_4 GDPC_{it-1} + \beta_5 LAW\_AND\_ORDER_{it-1} + \mu_i + \varepsilon_{it}$$

Variable	Expected sign	Coefficient	Robust Standard Error	T	p-value
<i>FDI-L</i>	+	.6451673	.0662044	9.75	0.000
<i>PRIVPROC</i>	+	.1989593	.0818513	2.43	0.019
<i>LIBER</i>	+	.0203502	.0695516	0.29	0.771
<i>TRADE</i>	+	.1467477	.0497719	2.95	0.005
<i>GDPC</i>	+	.0466939	.0190848	2.45	0.018
<i>LAW AND ORDER</i>	+	.0027789	.015994	0.17	0.863
A-B test for AR(1)				-3.56	0.000
A-B test for AR(2)				0.52	0.600
Hansen J test					1.000
Number of observations = 781					
<i>FDI-L</i>	+	.6161758	.0544696	11.31	0.000
<i>PRIVMETH</i>	+	.0858217	.1570865	0.55	0.588
<i>LIBER</i>	+	-.018648	.067852	-0.27	0.785
<i>TRADE</i>	+	.1835041	.0552776	3.32	0.002
<i>GDPC</i>	+	.0652761	.0304999	2.14	0.038
<i>LAW AND ORDER</i>	+	-.00012	.0182926	-0.01	0.995
A-B test for AR(1)				-3.06	0.002
A-B test for AR(2)				0.23	0.816
Hansen J test					1.000
Number of observations = 572					

efforts as new capital inflows, technology and managerial skills that accompany FDI make the environment more prone to competition, and provide governments with a good environment to privatize inefficient firms that need to be turned around. We do find some empirical evidence that there is a *two-way relation* running from FDI to privatization and vice versa. The link is strong when we measure privatization with the proceeds from these transactions to GDP. It seems to be more difficult to identify the link connecting FDI to the number of share issue privatizations mostly because of a limited data set. However, in the light of these results, we advance that there does exist a bi-directional relation between these two major phenomena of the last twenty years. Thus by improving the investment climate, privatization contributes in attracting investors, domestic and foreign alike, and contributes to enhance the growth and development process. A policy implication of our study is that privatization programs in an economic environment that is investment-friendly contribute to draw foreign investors who will bring the capital flows, technology and managerial skills that are needed to turn around inefficient firms. Another policy implication of this study is that share issue privatization is more likely to be successful in countries where the legal system protects shareholders' rights, that is a common law system rather than a civil law system. From the FDI perspective, FDI flows have accompanied and responded positively to government privatization programs. The intensity of the privatization programs seems to have been strengthened by massive increases in FDI flows which continued to increase throughout the 2000s. It is thus no surprise that several privatization transactions on the stock market involved the sale of a tranche directly aimed at foreign investors. Thus both phenomena, the worldwide launching of privatization programs and FDI flows seem to have a reinforcing dynamic.

To our knowledge, ours is the first multinational empirical study on the bi-directional relation between privatization and FDI flows. The evidence we provide on such a relation, particularly strong in the case of the privatization proceeds, is new but it should be viewed as preliminary for different reasons. First, we show that there is a bi-directional relation between privatization and foreign direct investment flows but we do not provide a direct causality test between these two phenomena. The main objective of the present study was to shed light on the existence of such a link in a relatively simple methodological setup. A thorough examination of such a relation requires a more elaborated statistical framework that is specifically designed for conducting causality tests (e.g., Granger and instantaneous causality tests that require a vector autoregressive model in a panel setting (Chong and Gradstein, 2007)). These empirical tests go beyond the scope of this paper and will be left for future research. Second, we could complement our study of the bi-directional relation between privatization and FDI by investigating the link between privatization and international portfolio flows. Indeed, share issue privatizations that are open to foreign

investors are likely to drain foreign portfolio flows as well. Likewise, countries with more developed local capital markets that attract these flows by foreign investors are likely to privatize more extensively. The analysis of the bi-directional relation between privatization and international portfolio flows also deserves a thorough investigation.

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