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Private Capital Flows in Southern Mediterranean Countries : Determinants and Impact on Economic Growth, Domestic Investment and Wage Inequality

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Résumé

Partie 1: THE DETERMINANTS OF FDI AND FPI IN THE MEDA COUNTRIES: AN INTERNATIONAL COMPARISON

Les investissements directs étrangers (IDE) enregistrés dans les pays MEDA dans les deux dernières décennies apparaissent largement en deçà de ceux observés dans les pays européens, asiatiques ou encore en Inde (Daniele and Marani, 2006). Par conséquent, le but de ce projet les IDE envers les pays MEDA, et notamment ceux ayant signé des accords de coopération bilatéraux avec l'Union Européenne (U.E) , et de comprendre pourquoi ces pays se tiennent derrière les pays émergents en terme d'attractivité des IDE mais aussi d'étudier l'impact de ceux-ci sur la compétitivité de leurs économies. Une question se pose alors : comment notre projet va t-il contribuer à la littérature existante en matière d'investissements directs étrangers ? La partie 1 cherche à savoir si les IDE affectent les économies des pays MEDA de manière différente des pays pris en « benchmark », i.e. les pays d'Amérique Latine, d'Asie ou encore de l'Union Européenne.

La première question que nous voulons éclaircir est le fait de savoir si les IDE en direction des pays MEDA ayant signé un accord de partenariat avec l'U.E s'accroissent après l'entrée en vigueur de ces accords ou non ? Pour répondre à cette question, nous comparons, en utilisant des tests statistiques non paramétriques, les IDE avant et après signature de ces accords et nous comparons nos résultats avec les pays européens.
Le second objectif de cette partie consiste à identifier les déterminants des investissements directs en portefeuille (FPI ou Foreign Direct Investments), étant donné que ce type d'investissement est connu pour être plus volatile comparé aux IDE, en particulier dans les pays développés.

Basée sur une analyse empirique en données de panel, la première partie de notre projet prend ainsi en compte les déterminants des IDE et des FPI dans la région MEDA en comparaison avec d'autres régions du monde, et ce, sur une période allant de 1980 à 2006.

Voici en résumant nos principaux résultats :

- Les investisseurs sont attirés par les pays à forte croissance économique et une population en augmentation ;
- Par ailleurs, l'ouverture de l'économie au commerce international « booste » les IDE notamment les IDE orientés export ;
- Les résultats montrent également que la stabilité des taux de change est un élément crucial d'attractivité des IDE.

Lorsque nous introduisons le cadre institutionnel et les variables politiques comme la stabilité gouvernementale, l'ouverture du compte capital, le risque-pays ou encore le régime du taux de change, nos résultats indiquent :

- Que la stabilité politique est un argument fondamental d'attractivité des investissements à long terme;
- Qu'un environnement local risqué fait fuir les investisseurs ;
- Qu'un régime de change fixe est nécessaire pour attirer des investissements à long terme ;
- que les investissements en portefeuille sont des investissements alternatifs concurrents des IDE.

En introduisant à la fois les variables institutionnelles et politiques et les variables dummies pour inclure en plus des pays MEDA, les régions jouant le rôle de benchmark, à savoir l'Amérique Latine, l'U.E, l'Afrique et l'Asie du Sud, nos principaux résultats indiquent que :

- Un gouvernement stable contribue à attirer les IDE en Amérique Latine et en Asie;
- Un environnement risqué réduit les avantages pour les investisseurs à long terme, notamment en Asie ;
- Enfin, l'ouverture du compte du capital affecte différemment les IDE selon les régions. Cela joue un rôle positif pour les pays asiatiques à l'inverse des pays de l'U.E du panel. L'impact de l'ouverture du compte du capital est inexistant dans les autres régions.

Les résultats relatifs aux FPI montrent globalement que la majorité des fondamentaux économiques (croissance du PIB, inflation, …) sont statistiquement significatifs comme attendu. Ces résultats indiquent que les pays avec une croissance du PIB / tête élevée et une balance des capitaux excédentaire attirent davantage les investisseurs. Enfin, la stabilité macroéconomique mesurée par l'inflation apparaît avoir un intérêt mineur pour les investisseurs.

Part 2: Foreign capital flows, economic growth, domestic investment and inequality: an international comparison

A notre connaissance, peu d'études se sont intéressées à l'impact des IDE/FPI sur les inégalités dans la région MEDA. Dans cette seconde partie de notre projet, nous tentons de combler ce vide en analysant empiriquement les effets des investissements dans les pays

cibles, et ce, dans une perspective comparative internationale. Deux questions sont soulevées : pourquoi les IDE, comparativement aux investissements domestiques devraient avoir un impact sur le développement économique à long terme qui est différent de celui généré par les investissements domestiques ? Les IDE ont-ils pour effet d'accroître ou de diminuer les investissements domestiques ?

Par ailleurs, nous attendons, conformément aux effets positifs observés, soit sur l'ensemble de notre échantillon, soit sur certaines d'entre-elles comme la région MEDA, l'Amérique Latine, l'Asie ou l'Afrique, que les IDE aient un effet positif sur la croissance économique.

Nos résultats montrent un impact positif des IDE sur l'investissement domestique et que les IDE jouent un rôle moteur dans les pays MEDA, en Asie mais également dans les pays membres de l'U.E. En conséquence, on peut considérer que plus d'IDE favorise l'investissement global et donc la croissance économique.

Part 3: Foreign capital flows and competitiveness: an International Comparison

La partie 3 se concentre sur les effets des IDE sur le taux de change réel d'équilibre. Nous développons un modèle dynamique pour estimer ce taux de change basé sur les fondamentaux. Les décideurs des économies des pays émergents ont pour objectif d'éviter la persistance du mésalignement de leurs taux de change.

Selon la Dutch Disease theory (Corden and Neary, 1982), un excès d'IDE peut amener à une appréciation du taux de change. Cependant, le degré d'appréciation dépend dans une large mesure du « degré de réversibilité » de l'IDE en question. Certains flux sont plus ou moins réversibles que d'autres et affectent donc différemment les taux de change et le revenu national. Cela suggère une décomposition des IDE selon leur « degré de réversibilité ». Ainsi, et à l'inverse de la majorité des études empiriques précédentes qui utilisent des flux d'investissements agrégés, nous décomposons dans notre étude les flux de capitaux.

Notre problématique majeure est de savoir si les IDE contribuent à une appréciation du taux de change du pays hôte, et si cet impact est différent lorsque l'on décompose les investissements entre IDE et investissement de portefeuille (FPI) ?

Nos principaux résultats peuvent être résumés comme suit :

- Les investissements en portefeuille (FPI), l'emprunt international, l'aide, et le revenu amènent à une appréciation du taux de change et donc à une perte de compétitivité;
- Les transferts des travailleurs expatriés (Remittances) ont des résultats différents selon leur nature et leur taille ;
- Les IDE n'ont pas d'effet sur le taux de change et dans certains cas améliorent la compétitivité.

Abstract

Introduction and main conclusions

Foreign direct investment (FDI) has assumed increasing importance over time, becoming a prime concern for policymakers and a trendy debatable topic for economists. The debate on FDI has several facets, but the particular aspect that policymakers in capital-starved countries are concerned with is the determinants of FDI inflows. Many countries have policies aimed at creating stronger incentives for foreign investors who are potentially capable of providing FDI flows, and MEDA countries are no exception. The Asian crisis of the 1990s has shown that the provision of incentives and the adoption of FDI-stimulating policies are motivated by the conviction that FDI is a more reliable source of capital than portfolio investment. Consequently, understanding the determining factors of FDI inflows and unveiling the reasons why some countries (The transition economies of Central and Eastern Europe countries) are more successful than others in attracting FDI may provide policymakers with useful guidance for future policy recommendation.

On the background of improving macroeconomic conditions and institutional reforms, the majority of the South-Mediterranean and Middle East (MEDA) countries still lag behind in attracting FDI. The existing FDI inflows towards MEDA economies appear to be insufficient to increase competitiveness, particularly as compared to other regions of the world such as Central and Eastern Europe (CEE), Southeast Asia, or Latin America. This project has two key objectives.

In this project, our first main purpose is to identify the patterns and the determinants of private capital flows in MEDA countries. To begin with, we examine whether capital flows increased after singing the partnership agreement with the European Union (EU). Then we analyse the determinants of FDI, distinguishing between traditional factors – macroeconomic fundamentals – and other factors related to the business climate such as institutions, governance, or political instability. Next, in addition to FDI, we extend our analysis to foreign portfolio investment (FPI), which constitutes an increasing part of private capital flows in the MEDA countries.

Our second key objective is to determine to which extent capital inflows help improving competitiveness in the MEDA countries. To do so, we will analyse the impact of capital inflows on economic growth, wage and education inequality. Specifically, we will determine those economic, financial, institutional, and policy conditions under which private capital flows boosts economic growth. We will also assess whether private capital flows contribute to the appreciation exchange rate of the recipient country, and how does the impact differ when decomposing capital flows into FDI and FPI.

First, most of the papers published on FDI are rather concentrated on Latin America and Southeast Asia. Very few studies have been devoted to MEDA countries. Even if this region is studied, the samples used exclude Malta, Cyprus and Israel and include Gulf countries and Iran which are oil exporting countries that have never signed any commercial agreement with the EU. So, our objective in this project is to focus only on the Southern Mediterranean countries that have engaged in opening their frontiers to European investment and trade.

Second, most of the studies on the MEDA and Arab countries used very rudimentary OLS and static panel data estimators that neglect dependent variable persistence and potential endogeneity, or focus on descriptive statistics with very short period time not exceeding 10 years. Our intention here is to use an extensive period of study from 1980 to 2006, to apply dynamic panel data to correct for the above mentioned econometric problems, and to use non parametric statistics in order to assess the significant evolution of capital flow before and after the signature of the agreement of creation free exchange zone with the EU countries and to compare it with Eastern-European countries. Besides, to make our econometric results more robust and to compare MEDA with other regions in order to draw some policy recommendations, we will include in our sample CEE, South-eastern Asian and Latin American countries.

Third, we will extend our interest to foreign portfolio investment (FPI) which constitute an increasing part of private capital flows since MEDA economies begin to open gradually their stock exchanges to foreign investors. More precisely, we will study the factors explaining the importance of portfolio investments in MEDA countries comparatively to other more advanced regions (Latin America and South Asia) and also if these determinants are different from those explaining FDI. We will not stop our analysis to flow level but enrich it with an understanding of the factors behind the composition of capital flows.

Fourth, we will also be interested by examining the impact of FDI, FPI and the composition of capital flows on economic growth and their sources in the MEDA region extending the capital flows literature that mainly focus on FDI impact. Moreover, while some economic thesis and some previous empirical evidence suggest that capital flows will only have a positive growth impact under particular institutional and policy regimes, we examine an extensive array of interaction terms to determine those key economic, financial, institutional, political conditions under which capital flows boost economic growth. We also extend our assessment of the impact of private capital flows on other economic aggregates often neglected in the empirical literature but extensively analysed theoretically: domestic investment, wage inequality and real exchange rate misalignment.

In our study, we focus on the MEDA countries in comparison with Latin American, Southeast Asian, and Eastern European countries.[1] A rich geographic composition is chosen to disentangle the role of macroeconomic, institutional, and region-specific factors. In particular, the experience of Eastern European countries is motivating to identify the effect of policy measures related to the EU enlargement on private capital flows. The sample extends the estimation period to 1980-2005. Analysing the effects of private capital flows, we focus on four different impacts: on economic growth and productivity, on domestic investment, on wage inequality and on exchange rate misalignment.

[1] Our sample includes the following countries. **MEDA:** Morocco, Algeria, Tunisia (Maghreb); Egypt, Israel, Jordan, the Palestinian Authority, Lebanon, Syria (Mashrek); Turkey, Cyprus and Malta. **Latin America:** Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela. **Southeast Asia:** Cambodia, Laos, Thailand, Vietnam, Brunei, Indonesia, Malaysia, Philippines, Singapore. **Central and Eastern Europe:** Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia.

Part 1: THE DETERMINANTS OF FDI AND FPI IN THE MEDA COUNTRIES: AN INTERNATIONAL COMPARISON

FDI flows to the MEDA countries have been disappointing relative to other developing countries. Data show as in MEDA experience the growth of FDI flows proved to be notably inferior to that recorded in the CEE countries or in Asian economies, such as China and India (Daniele and Marani, 2006). So, the aim of this project is to study the private foreign capital flows in the MEDA countries that have signed a partnership with the EU and to analyse why this region is lagging behind in attracting international flow and does the private capital inflow contribute to improve the competitiveness of its economy. A legitimate question to ask here is: how this project will contribute to the literature of international private capital flow? Part 1 investigates whether the determinants of FDI affect MEDA countries differently.

The first question we are going to tackle is: did capital flow increase after the signature of the agreement of creation of free exchange zone with the EU countries in the MEDA region? To answer this question, we will compare, using non-parametric test statistics, the level and composition of private capital flows before and after the signature. We then compare the results obtained to those of CEE countries.
The next objective consists in the identification of the determinants of FPI, since this type of investment is commonly known to be more volatile as compared to FDI, particularly in case of developing countries.

This study has considered determinants of FDI/FPI in MEDA countries and compared them to other countries in the world. The analysis is done by applying dynamic panel estimation to the yearly data from 1980 to 2006.
The main results can be summarized as follows:

- investors are attracted to a country with better growth perspectives and a growing population;
- Additionally, opening the economy to trade spur FDI confirming the above-mentioned hypothesis that trade openness attracts export-oriented FDI;
- The results show also that foreign long term investors are more attracted by a stable exchange rate;

When we introduce institutional and policy variables such as government stability, capital account openness, country risk and exchange rate regime, our results indicates that :

- Political stability is a convincing argument to attract long term foreign investors;
- A risky local environment repels foreign investors for investing domestically;
- A fixed exchange rate regime is necessary to attract foreign *investors* in the long run;
- FPI seems to behave as a competitor to FDI, as the signs on the FP variable are negative and strongly significant.

Finally, we interact the institutional and policy variables such as government stability, country risk and capital account openness with dummies variables linked to five regions: Latin America, MEDA, CEE, South Asia and Africa. The main results are :

- A stable government contribute to attract FDI in Latin America and Asia where the coefficients on Government stability interacted with region dummy variables are positive and highly significant.
- As risky environment reduce the incentives for long-term foreign investors to pour money in the domestic market in CEE and Asian regions where foreign direct capital favours risky countries in the MEDA region.
- Finally, capital account openness affects differently on FDI depending on the recipient region. It is an ingredient for attracting FDI in Latin America whereas it repeals FDI in CEE countries. In other regions, the impact of capital account liberalization on FDI seems to be inexistent.
- The results relative to the FPI estimates shows that almost all domestic economic fundamentals (such as PGDP growth, Inflation, CAB) are statistically significant and bear the expected signs. Such findings indicate that countries with high per capita GDP growth and high current account balance succeed to attract more investors. Macroeconomic stability as measured by lagged inflation shows up as a minor concern to foreign investors.

Part 2: Foreign capital flows, economic growth, domestic investment and inequality: an international comparison

To the best of our knowledge, no study has focused on the direct impact of FDI and FPI on inequality in the MEDA region. The project attempts to fill this void by providing a comprehensive analysis of the effect of capital inflow and its composition on inequality in the receiving country. Inequality in this project is understood as wage and education inequality. The impact of FDI on growth remains more controversial in empirical rather than in theoretical studies. While some studies observe a positive impact of FDI on economic growth, others find a negative relationship between these two variables. A growing literature is attempting to analyse the effects of FDI on income and wage inequality, reaching mixed conclusions. Concerning the impact of FDI inflows on domestic investment, the literature is very scarce.

So, the second main purpose of this project is to once again revisit the link between growth and capital inflows, but to do so using a panel of the MEDA, South-eastern Asian, Latin American and CEE countries over a longer period (1980-2006). Overall, this project intends to make several contributions.

First, the approach and data set enable us to examine an extensive array of FDI indicators that is the gross stock of FDI assets and liabilities, growth of flows of FDI assets and liabilities and

inflow of FDI. The need for adopting both stock and flow measures is that stock measures do not fluctuate over short run and they accommodate variation of inflow over the long run.

Second, while economic theories and some previous empirical evidence suggest that FDI only has a positive growth effect under particular institutional and policy regimes, we examine an extensive array of interaction terms to determine those economic, financial, and institutional and policy conditions under which private capital flow boosts economic growth. Specifically, we examine whether FDI has stronger (and positive) impacts on economic growth when countries have higher levels of real per capita GDP; higher levels of education attainment; lower population growth rates; larger government size; higher levels of international trade; lower inflation; higher level of bank an stock market development and lower country risk. We then, evaluate where the MEDA region stands in private capital flow absorptive capacity and what kind of policies we should advise to make capital flows more growth effective in MEDA countries.

Third, the use of more relevant techniques to control for dependent variables persistence, short-term effects and simultaneity biases.

Fourth, we expend the literature by including in our model of endogenous growth not only FDI but also neglected FPI and the composition of capital inflows.

Fifth, we will not stop on considering only economic growth as our output impact but we will focus on other channels of growth and associated economic concepts. Effects of capital inflows, and particularly FDI, on domestic investment have been subject of recent literature both theoretically (e.g., Fedderke and Romm, 2006) and empirically (e.g., Hetch et al. 2004). While a number of studies have examined the contribution of aggregate investment expenditure to economic growth, few have addressed the distinction between domestic and foreign investment expenditure and the impact of FDI on development in particular (Fedderke and Romm, 2006). Similarly, to date no attention has been paid in the MEDA countries on the distinct impact of foreign investment on growth and if the foreign investment crowded out domestic investment.

So, two questions arise from this discussion: why foreign as opposed to domestic investment should have an impact on long run development that is different from domestic investment? Does foreign investment increase or decrease domestic investment? An answer to these questions would help to draw policies aiming at strengthening the link between inflow and investment.

FDI is intended to be a major generator of growth since positive effect was recorded either from the whole sample or some regions such as MENA, Latin America, Africa, Asian and CEE. This detects the need of these countries for inflows of foreign capital in order to boost economic growth. A positive and significant impact of FDI on domestic investment is also exhibited. In such case, FDI seems to hop the domestic investment. So it could be considered that more inflows of foreign capital constitute an impulse factor to global investment. Such positive influence is also detected for MENA region, Asia and CEE countries. For the region of our concern, that is the MENA region, national efforts to create opportunities of investment are requested and approved, but the support coming through FDI is significant.

Part 3: Foreign capital flows and competitiveness: an International Comparison

Part 3 focuses on the effects of capital inflows in determining the real exchange rate (RER). We develop a dynamic model to estimate the RER based on the fundamentals. Exchange rate management is a challenging macroeconomic policy issue. There has been a broad consensus in policy circles in developing countries that the overriding objective of exchange rate policy should be to avoid persistence in misalignment, which is a common problem in most emerging economies. An important factor in identifying the equilibrium real exchange rate is the role of capital inflows, which are among the fundamentals determining the real exchange rate. According to Dutch Disease theory (Corden and Neary, 1982), excessive capital inflows lead to real appreciation of the exchange rate via its impact on both the tradable and non-tradable sectors of the recipient economy. However, the extent of appreciation as a result of capital inflows depends to a large extent on the 'degree of reversibility' of the particular inflow in question. Some inflows are more prone to reversal (or more likely to be associated with outflows) and therefore will have different effects on national income and the real exchange rate than other flows that are less reversible (or more permanent in nature). This suggests a merit of decomposing capital inflows according to their degree of reversibility. Unlike most empirical studies, which use aggregate capital inflows, this study decomposes capital inflows. The question in our project is to assess whether private capital flows contribute to the appreciation of the exchange rate of the recipient country and does the impact is different when we decompose capital flow into FDI and FPI?

Our main results can be summarized as follows :

- Portfolio investments, foreign borrowing, aid, and income lead to real exchange rate appreciation and loss of competitiveness;
- Remittances have disparate results depending on their nature and size.
- Foreign direct investments have no effect on the real exchange rate, and in some cases even enhance competitiveness.

We conclude that dedicating particular efforts to attracting FDI compared with the other types of capital flows could resolve the above dilemma

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PART 1 : THE DETERMINANTS OF FDI AND FPI IN THE MEDA COUNTRIES: AN INTERNATIONAL COMPARISON

Abstract

This study seeks to identify the patterns and the determinants of private capital flows in the Mediterranean (MEDA) region in comparison with Latin American, Southeast Asian and Eastern European countries. First, we examine whether capital flows increased after singing the partnership agreement with the European Union (EU). Then we analyze the determinants of foreign direct investment (FDI), distinguishing between traditional factors – macroeconomic fundamentals – and other factors related to the business climate such as institutions, governance, or political instability. Next, in addition to FDI, we extend our analysis to foreign portfolio investment (FPI), which constitutes an increasing part of private capital flows in the MEDA countries. The analysis is done by applying dynamic panel estimation to the yearly data from 1980 to 2006. The study concludes with policy recommendations.

1. Introduction

Foreign direct investment (FDI) contributes to economic development and represents additional resources most countries need to improve their economic performances. By increasing capital stock, FDI can enhance countries' real activity through a more efficient and rational use of existing resources. The world market for such investment is highly competitive, and emerging economies, in particular, seek such investment to accelerate their development efforts. It has been shown (see for instance, UNCTAD, 2005, 2006 and 2007; De Gregorio, 1992) that FDI is about three times more efficient than domestic investment. FDI can act as a catalyst for local investment mainly by complementing local resources and providing a signal of confidence in investment opportunities. There are many channels through which the FDI could bring benefits for developing countries. Some of these include job creation, transfer of technology and know-how, improvement of a country balance of payment and development of down- and upstream activities.

FDI has assumed increasing importance over time, becoming a prime concern for policymakers and a trendy debatable topic for economists. The debate on FDI has several facets and most of them concern the relationship between capital flows and domestic factor markets; such relationship can run both ways; domestic factor markets influence capital inflows, and the volume as well as nature of capital inflows affects factor markets. However, the particular aspects that policymakers in capital-starved countries are concerned with are the factors that may influence capital inflows; in other words, the determinants of FDI inflows become focus of policy debate. Many countries have policies aimed at creating stronger incentives for foreign investors who are potentially capable of providing FDI flows, and Mediterranean countries[2] (MEDA) countries are no exception. The Asian crisis of the 1990s has shown that the provision of incentives and the adoption of FDI-stimulating policies are motivated by the conviction that FDI is a more reliable source of capital than portfolio

[2] MEDA region is composed of the following twelve countries: Morocco, Algeria, Tunisia (Maghreb); Egypt, Israel, Jordan, the Palestinian Authority, Lebanon, Syria (Mashrek); Turkey, Cyprus and Malta.

investment. Consequently, understanding the determining factors of FDI inflows and unveiling the reasons why some countries (e.g. the transition economies in Central and Eastern Europe) are more successful than others in attracting FDI may provide policymakers with useful guidance for future policy recommendations.

Most of MEDA countries signed partnership agreements with the European Union (EU). Tunisia was the first Mediterranean country to sign an Association Agreement with the EU on 17 July 1995. The Euro-Med Association Agreement between the European Community and its Member States, on the one part, and the Tunisian Republic, on the other, came into force on March 1, 1998. Under the term of the Agreement, the EU and Tunisia commit themselves to co-operate in a wide range of areas including: strengthened political dialogue, trade, economic, social and cultural issues. The Agreement foresees also financial co-operation to accompany reform measures in Tunisia. An important component of the Association Agreement is the clauses providing for the establishment of an EU-Tunisia free trade area by the year 2010.
Other such Association Agreement were signed with :

- Morocco (on February 26, 1996, came into force on March 1, 2000);
- Israël (on November 20, 1995, came into force on June 1, 2000);
- Egypt on June 2001;
- Jordan, (on November 24, 1997, came into force on May 1, 2002) and
- Algeria on April 22, 2002.

The basic motives behind such agreements were to open up in order to promote exports and attract more FDI rather than substitute imports with over-protected and often unprofitable, local production – strategy that was widely popular in the developing world during the 1970s. It was thought that partnership agreements allow MEDA countries to become more attractive to the exporting enterprises of their partner countries. For most MEDA countries, regional trade agreements (notably partnership agreements) are still seen as an opportunity to improve the competitiveness of certain sectors by taking advantages of different factor endowments and fiscal exemptions. Unfortunately, on the background of improving macroeconomic conditions and institutional reforms, the majority of the MEDA countries are still lagging behind in attracting FDI. The existing FDI inflows towards MEDA economies appear to be insufficient to increase competitiveness, particularly as compared to other regions of the world such as Central and Eastern Europe (CEE), Southeast Asia, or Latin America.

Data show that the growth of FDI inflows to MENA countries proved to be inferior to that recorded in the CEE countries or in some Asian economies, such as China and India (Daniele and Marani, 2006). Therefore, one may wonder whether private foreign capital flows in MEDA countries that have signed a partnership with the EU have increased after the partnership signature or not; if so, it would be important to analyze whether the private capital inflows have contributed to improve significantly the competitiveness of these economies. But if not, it becomes urgent to understand the deep reasons that make this region lagging behind in attracting international flows.

The literature on FDI, while being rich, has some serious downsides. First, most of the papers published on FDI are rather concentrated on Latin America and Southeast Asia, and very few studies have been devoted to MEDA countries. The rare studies on some MEDA countries focus on rather small countries samples often excluding Malta, Cyprus and Israel and including Gulf countries and Iran which are oil-exporting countries that have never signed any commercial agreement with the EU (see for instance Mina, 2007).

Second, most of the available studies on the MENA and Arab countries use rudimentary OLS and static panel data estimators that neglect dependent variable persistence and potential endogeneity, or focus on descriptive statistics with very short time period not exceeding 10 years. Our intended contributions here are to use an extensive period of study from 1980 to 2006, to apply dynamic panel data to correct for the above mentioned econometric problems, and to use non parametric statistics in order to assess the significant evolution of capital flow before and after the signature of the agreement of creation free exchange zone with the EU countries and to compare it with Eastern-European countries. Besides, to make our econometric results more robust and to compare MEDA with other regions in order to draw some policy recommendations, we will include in our sample CEE, South-eastern Asian and Latin American countries.

Third, we will extend our interest to foreign portfolio investment (FPI) which constitutes an increasing part of private capital flows since MEDA economies begin to open gradually their stock exchanges to foreign investors. More precisely, we will study the factors explaining the importance of portfolio investments in MEDA countries as compared to other more advanced regions (Latin America and South Asia). We will also test whether the FPI determinants are different from those explaining FDI. We will not stop our analysis on examining the flow levels but will enrich it with an understanding of the factors affecting the composition of capital flows.

In brief, this study attempts to overcome the existing downsides by contributing to the literature at least on three grounds: first, by considering a new region, namely the MEDA region while using a more consistent sample data; second, by using new and up-to-date techniques in the panel data context that solve previous statistical drawbacks, and third by analyzing in addition to FDI, the dynamics and determinants of FPI (Foreign Portfolio Investments).

The main objective of this study is to identify the patterns and the determinants of private capital flows in the South-Mediterranean and Middle East (MEDA) countries. To begin with, we examine whether capital flows increased after singing the partnership agreement with the EU. Then we analyze the determinants of FDI, distinguishing between traditional factors – macroeconomic fundamentals – and other factors related to the business climate such as institutions, governance, or political instability. Next, in addition to FDI, we extend our analysis to FPI, which constitutes an increasing part of private capital flows in the MEDA countries. Furthermore, our contribution to the literature stems from using the extensive period of study stemming from 1980 to 2006, applying a modern estimation technique – dynamic panel data analysis – in order to correct for several econometric problems of earlier studies, and performing comparison MEDA with other regions to draw some policy recommendations.

The remaining structure of the study is as follows. After this introduction and motivation, the second section presents an overview on foreign investment flows. Section three highlights the key studies on the determinants of FDI. Section four attempts to identify main FPI determinants; it highlights also the composition of private capital flows with a special emphasis on MEDA countries. The fifth section presents the conceptual framework by providing details on our key research questions. The sixth section introduces the data and discusses the empirical strategy. The seventh section emphasizes the main findings and comments the results. The last section concludes and elaborates on policy implications.

2. Foreign investment flows: Some basic concepts

Foreign Investment flows can be dived into foreign direct investment and foreign indirect investment. Foreign indirect investment is portfolio investment (FPI); it represents passive holdings of securities such as foreign stocks, bonds, or other financial assets, none of which entails active management or control of the securities' issuer by the investor; where such control exists, it is known as foreign direct investment. The main examples of FPI are purchase of shares in a foreign company, purchase of bonds issued by a foreign government, acquisition of assets in a foreign country. The factors affecting FPI depend from one country to another; they could be tax rates on interest or dividends (investors will normally prefer countries where the tax rates are relatively low), interest rates (money tends to flow into countries with higher interest rates) and exchange rates (foreign investors may be attracted if the local currency is expected to strengthen).

As for FDI, it is defined as being long term investment by non residents, but with control (10% or more shares). FDI is consequently less liquid than foreign portfolio investment. FDI is now one of the leading modes for reaching international markets. By 2007, the stock of global FDI capital is estimated at 21% of global GDP. Economic literature classifies FDI into Greenfield and Brownfield investments, Mergers and acquisitions, horizontal and vertical FDI. Greenfield FDI consists in setting up new facilities while Brownfield FDI is referred to expanding existing ones. These two types of investment are considered as being the primary target of a host country’s promotional efforts because they create new production capacity and jobs, transfer technology and know-how, and can lead to linkages to the global market place. Mergers and acquisitions are the procedures of taking-over existing foreign firms. FDI is qualified as being horizontal when the operator (the firm) invests in the same industry abroad as it operates in at home; for instance, Nokia opening a new factory in Turkey is an example of horizontal FDI. As for vertical FDI, it admits two forms: backward vertical FDI and forward vertical FDI. The investment is said to be backward vertical when an industry abroad provides inputs for a firm's domestic production process. For instance, Mercedes opening a firm in Tunisia for producing electric cables for its German operations is an example of backward vertical FDI. However, when an industry abroad sells the outputs of a firm's domestic production, the investment itself is called forward vertical FDI. For instance, Renault opening a dealership in Morocco to sell Renaults cars produced in France is an example of forward vertical FDI.

FDI has several facets, but the particularly aspect that policymakers in capital-starved countries are concerned with is the determinants of FDI inflows. The theoretical as well empirical literature distinguishes between quantitative traditional determinants and qualitative non-traditional determinants. All these determinants have been largely investigated in the literature over the past few years (Cartstensen and Toubal, 2004; Janicki and Wunnava, 2004; Campos and Kinoshita, 2003; Deichmann et al., 2003; Kyrkilis and Pantelidis, 2003; Balasubramanyam, 2002; Bevan and Estrin, 2000; Dunning, 1993; Aliber, 1970). The aim of the next section is to identify the potentially important macroeconomic determinants of FDI distribution across countries.

3. Foreign Direct Investment determinants

3.1. Traditional quantitative determinants of Foreign Direct Investment

These traditional determinants include the size of the economy, openness to trade, market potential, labor costs, skilled workforce, depth of financial markets, and stable exchange rates. The most important determinants for the location of FDI are economic considerations, which come into full play once an enabling FDI policy framework is in place. They may be divided into three groups: those related to the availability of location-bound resources or assets; those related to the size of markets for goods and services; and those related to cost advantages in production. Although many of the factors that attract investment to particular locations— such as abundant natural resources; large host country markets; or low-cost, flexible labor— remain important, their relative importance is changing as transnational corporations, within the context of a globalizing and liberalizing world economy, increasingly pursue new strategies to enhance their competitiveness.

The market size (called also return on investment) in the host country is an important determinant of FDI inflows. There is a wide consensus among economists that countries with higher return on capital attract more FDI. Market size and market demand are closely linked to return on investment. The market size of the source and host economies in the country is a proxy for product demand and the potential for growth and the capacity to supply. First of all, the market demand and market size has positive impact on the FDI because it directly affects the expected revenue of the investment. In fact, one major motivation for FDI is to look for new markets. The larger the market size of a particular province is, other things being constant, the more FDI the country should attract. Kravis and Lipsey (1982) and many other empirical studies find such positive relationship. Blomström and Lipsey (1991) show a significant size threshold effect for firms' decision to invest abroad[3].

In most studies, measures such as GDP, GDP per capita, retail sales, and retail sales per capita are used to capture demand and size effect (see Table 1). The market size variable is linked to the return on investment. As a proxy for the return on investment, one may use the inverse of real GDP per capita (see Asiedu, 2002). The chief objective of most of firms is indeed to gain market share (to look for new markets); then, the larger the market size of a given country, other things being equal, the higher return on the investment will be and the more FDI the country should attract.

The degree of openness of the host country is another variable that has been suggested as a potential determinant of FDI inflows. The impact of openness on FDI may depend on the type of investment itself. Its potential mixed blessings on FDI depends on the FDI nature. For market-seeking investments for instance, trade restrictions can have a positive (and therefore openness may have a negative impact) impact on FDI. The reason stems from the so-called "tariff jumping" hypothesis; this hypothesis states simply that foreign firms that seek to serve local markets may decide to set up subsidiaries in the host country if it turns to be difficult to import their products to the country. Besides, multinational firms committed in export-oriented investments may prefer to locate in more open economies since increased imperfections that accompany trade protection imply higher transaction costs associated with exporting. In addition, a more open economy attracts FDI because it welcomes foreign capital and foreign investors are more familiar with the host economy. But on the other hand, openness can have a negative impact on FDI due to keen competition. Wheeler and Mody (1992) find that Brazil and Mexico attracted major US investment in their sample period despite the fact that these two countries exhibit a very low ratings in openness. Hence, the exact relationship between the two is an empirical question.

[3] Thus, the coefficients of both GDP variables are expected to be positive.

In most empirical studies, the host country's degree of openness is often approximated by the ratio of total trade (the sum of imports and exports) to GDP. This ratio, which is interpreted as a measure of trade restrictions, is widely used in the empirical literature[4]. Openness is expected to promote a friendly climate for business and investment and, thus, to attract more FDI.

Next, endowment in human capital is another important factor attracting foreign capital, especially FDI. Foreign investors seek markets with highly qualified workers to maximize the productivity of investment. In many developing countries the lack of skilled labor impedes foreign capital, especially in manufacturing and services sectors. The quality of human capital also influences the productivity and overall growth impact of FDI, and low endowment of human capital may explain the limited gains from FDI. Thus, Labor quality should be an important factor for FDI consideration. It is often proxied by the number of research scientists, engineers and technicians per 1000 of the employees which has been used by Braunerhjelm and Svensson (1996). This variable measures the relative endowment of skilled labor in each country and its impact on FDI is expected to be positive.

In close connection to labor quality is the country's level of scientific research. It indicates the level of human capital and the level of general development in a given country. It is commonly measured by R&D expenditures and the number of patents. The higher level of scientific research should promote FDI in a province. Education is another variable measuring human capital. It is commonly proxied by the percentage of population (or employee) who have received the secondary or above education. Since such data are not available, we use the number of universities as a rough proxy for the level of education. Of course, the level of education is expected to have positive impact on the inflow of FDI.

Labor cost, as measured by average wage is a negative factor to FDI. However, such a measure is not without problems. Workers in the some countries (The Gulf Cooperation Council (GCC) countries or China) are provided with housing benefits and health care whereas workers in the private sector get ‘pure’ salaries with cash bonuses (which may not be reported for tax purpose). As a consequence, this weakens the ability of the variable to capture the true labor cost. On the other hand, some countries, like China, attract foreign investment not purely through cheap labor during the recent years of fast economic development. As reflected in the model of Branstetter and Feenstra (1999), multinational firms in China tend to pay a wage premium to their workers. This may be because multinational firms want to hire quality workers. Higher wage may well reflect higher labor quality. Hence, it is conceivable that wages in those provinces that can attract relatively more FDIs can be higher, too. Furthermore, as pointed out by Lipsey (1999), most studies show no evidence that low wages, associated with low per capital real income, were the main attraction for FDI. We will go back to this variable later in the empirical analysis.

The effect of exchange rates on FDI has been examined both with respect to changes in the bilateral level of the exchange rate between countries and in the volatility of exchange

[4] Nonetheless, some rare studies digress on this tradition; for instance, Sachs and Warner (1995) used a dummy variable to take into account the openness. The dummy varible takes 1 for the years during which a country was classified as liberalized and the value zero otherwise. Sachs and Warner (1995) consider a country as being leberalized if the following creteria are verified: (a) non-tariff barriers cover less than 40% of traded goods, (b) average tariff rates below 40%, (c) a black market premium of less than 20%, (d) no extreme controls in the form of taxes, quotas or state monopolies on exports and (e) the country is not considered a socialist country.

rates. Until Froot and Stein (1991), the common wisdom was that (expected) changes in the level of the exchange rate would not alter the decision by a firm to invest in a foreign country. In rough terms, while an appreciation of a firm's home country's currency would lower the cost of assets abroad, the (expected) nominal return goes down as well in the home currency, leaving the rate of return identical.

Froot and Stein (1991) present an imperfect capital markets story for why a currency appreciation may actually increase foreign investment by a firm. Imperfect capital markets mean that the internal cost of capital is lower than borrowing from external sources. Thus, an appreciation of the currency leads to increased firm wealth and provides the firm with greater low-cost funds to invest relative to the counterpart firms in the foreign country that experience the devaluation of their currency. Froot and Stein (1991) provide empirical evidence of increased inward FDI with currency depreciation through simple regressions using a small number of annual US aggregate FDI observations; Stevens (1998) argues that this is a quite fragile specification. Klein and Rosengren (1994) confirm however that exchange rate depreciation increases US FDI using various samples of US FDI disaggregated by country source and type of FDI.

Blonigen (1997) provides another way in which changes in the exchange rate level may affect inward FDI for a host country. If FDI by a firm is motivated by acquisition of assets that are transferable within a firm across many markets without a currency transaction (e.g., firm specific assets, such as technology, managerial skills, etc.), than an exchange rate appreciation of the foreign currency will lower the price of the asset in that foreign currency, but will not necessarily lower the nominal returns. In other words, a depreciation of a country's currency may very well allow a "fire sale" of such transferable assets to foreign firms operating in global markets versus domestic firms that may not have such access. Blonigen (1997) uses industry-level data on Japanese mergers and acquisition FDI into the US to test this hypothesis and finds strong support of increased inward US acquisition FDI by Japanese firms in response to real dollar depreciations relative to the yen. As predicted, Blonigen (1997) finds that these exchange rate effects on FDI acquisition are primarily relevant for high-technology industries where firm-specific assets are likely to be of substantial importance.

Other studies generally find consistent evidence that short-run movements in exchange rates lead to increased inward FDI, including Grubert and Mutti (1991), Swenson (1994), and Kogut and Chang (1996), with limited evidence that the effect is larger for merger and acquisition FDI (see for instance Klein and Rosengren, 1994). Thus, the evidence has largely been consistent with the Froot and Stein (1991) and Blonigen (1997) hypotheses. One serious issue in the literature is that these exchange rate effects have been tested almost exclusively on the US data, though some studies have focused on US outbound FDI, while others have used US inbound FDI.

These previous studies also make an implicit assumption that exchange rate effects on FDI are symmetric and proportional to the size of the exchange rate movement. The financial crises of the late 1990s have just begun to spur a small nascent literature on the effects of large sudden exchange rate swings on a variety of economic variables, including FDI by multinationals enterprises (MNEs). Lipsey (2001) studies the US FDI into three regions which experienced currency crises (Latin America in 1982, Mexico in 1994, and East Asia in 1997) and finds that FDI flows are much more stable during these crises than other flows of capital. Desai, Foley and Forbes (2004) compare the performance of the US foreign affiliates with

local firms when faced with a currency crisis and find that the US foreign affiliates increase their investment, sales and assets significantly more than local firms during and after the crisis. While the above studies are quite informative, there are clearly more questions to be answered in this literature.

3.2. Qualitative determinants of Foreign Direct Investment

The experience of most countries has shown that factors other than quantitative traditional factors do matter in explaining the host countries' attractiveness of FDI. Although classification into quantitative and qualitative is far from being totally satisfactory, it can be nonetheless adopted in the present research. Qualitative factors stand for all the factors that cannot be put under the heading of quantitative traditional factors. These factors relate to the role of infrastructure, political instability, market reforms and institutions governance.[5]

The quality of institutions is likely to be an important determinant of FDI activity, particularly for less-developed countries for a variety of reasons. First, poor legal protection of assets increases the chance of expropriation of a firm's assets making investment less likely. Poor quality of institutions necessary for well-functioning markets (and/or corruption) increases the cost of doing business and, thus, should also diminish the FDI activity. And finally, to the extent that poor institutions lead to poor infrastructure (i.e., public goods), expected profitability falls as does FDI into a market. Institutions can affect capital flows directly by providing a favorable environment, especially through good governance as well as governance infrastructure. Governance infrastructure is meant to include attributes of legislation, regulation, and legal systems that condition freedom of transacting, security of property rights, and transparency of government and legal processes (Globerman and Shapiro, 2003). Good governance as well as governance infrastructure in host countries proved to play a crucial role in attracting FDI. Globerman and Shapiro (2003) give empirical evidence that governance infrastructure is an important determinant of the amount of FDI that countries receive. In the same vein, Richaud et al. (1999) provide additional support to the positive impact of infrastructure on FDI. The role of infrastructure is generally acknowledged in boosting growth and investment; for instance, Wheeler and Mody (1992) find that infrastructure quality is an important determinant of FDI inflows to the less developed countries (LDCs).

Besides, FDI is a forward-looking activity based on investors' expectations regarding future returns and the confidence that they can place on these returns. Thus, FDI decision requires an assessment of the political future of the host country. Investors may face at least two main risks stemming from the host country political instability. Domestic instability will reduce the profitability of operating in the host country because domestic sales and exports could be impaired, or production could be disrupted, or the facility may be damaged or in some extreme cases destroyed. Political instability has been often apprehended by either country risk or political risk. It is worth noting that some economists refer to the political risk as country risk or vice versa. The difference between these two concepts is quite tiny. While Country risk refers to the likelihood that changes in the business environment adversely affect operating profits or the value of assets in a specific country, Political risk is a wider term used to characterize only risks that all companies operating within a particular country are incurring. As far as the determinants of capital flows are concerned, it seems more appropriate to focus on and to use the term of country risk than political risk. The effects of political

[5] Some studies add other factors such as country risk or privatization. We do believe that these factors are highly linked to the political stability and market reforms.

instability have been extensively investigated in the literature. For instance, Lothian and Melvin (1991) examine the significance of political instability (political risk) on investments decisions. In a couple of seminal papers, Campos and Nugent (2002, 2003) find a strong causality from political instability to investment. Regarding the role of country risk, Egger and Winner (2003) find a negative relationship between country risk and FDI. Bevan and Estrin (2000) argue that country risk is influenced by private sector development, industrial development, the government balance, reserves and the level of corruption.

The exchange rate dynamics plays a crucial role in attracting FDI. Indeed, when the political environment is instable, the host country's currency depreciates, and consequently the value of the assets invested in the host country as well as the future investment profits fall. The linkage between political instability and host country's currency has been extensively investigated in the literature. For instance, Crowley and Loviscek (2002) assess the impact of political risk on the currency markets of six Latin American countries namely Brazil, Chile, Colombia, Mexico, Peru and Venezuela during the 1990s. The authors also report a statistically significant relationship wherein instances of political unrest depressed a country's currency on foreign exchange markets for up to three months. Kutan and Zhou (1995) show that the intensity of political unrest in Poland preceding and during the economic reforms affected foreign exchange market and increased the bid-ask spreads. In short, the linkage between the depreciation of the currency and the foreign market volatility has been demonstrated in many studies (see among others, Melvin and Tan, 1996, Kutan and Zhou,1995). Besides, Kogut and Chang (1996) prove empirically that FDI inflows decline in response to greater foreign exchange market volatility.[6]

The functioning of institutions determines to wide extent the terms of commitments to rules. For instance, corruption is generally put at the heart of the non-enforcement of rules in LDCs. Corruption is found to impede growth and domestic investment and to contribute to an unfair wealth distribution (Mauro, 1995). On the empirical ground, Wei (2000b) records a negative relationship between corruption level in the host country and inward FDI. On another front, Henisz (2000) examines the effect of commitment to rules on growth and investment. Henisz (2000) focuses on the effects of frequent changes in taxation and regulation on economic performance. Commitment to rules is found to have a statistically and economically significant impact on growth. Kahai (2004) reports that FDI is significantly affected by the level of economic freedom, level of corruption, and the level of international trade regulations adopted in the host country.

Another subset of qualitative determinants of FDI deals with market reforms and privatization. As far as market reforms are concerned, the experience of CEE countries is informative for MEDA policymakers. For instance, Assenov (2003) shows that advance in market reforms have a positive impact on FDI, whereas Altomonte (2000) finds that an efficient, transparent and enforceable legal and institutional framework is a crucial determinant of FDI by altering investors' expectations.

[6] The reader may consult Carmignani (2003) for a literature survey on the link between political instability and economic performance in general.

4. Determinants of Foreign Portfolio Investment

Portfolio investment (FPI) is foreign indirect investment; it represents passive holdings of securities such as foreign stocks, bonds, or other financial assets, none of which entails active management or control of the securities' issuer by the investor; where such control exists, it is known as foreign direct investment. The main examples of FPI are purchase of shares in a foreign company, purchase of bonds issued by a foreign government, acquisition of assets in a foreign country. An investor will benefit from having a greater proportion of wealth invested in foreign securities the higher their expected return, the lower the variation of their returns, and the lower the correlation of returns of foreign securities with the investor's home market. Besides, engaging in FPI has some advantages such as participating in economic growth of other markets, diversifying the effects and possibly abnormal returns due to market segmentation.

High economic growth goes hand in hand with growth in the country's capital market, and consequently attracts investors from abroad. The contribution of foreign investors in the faster growth of other countries (via the purchase of securities) is more pronounced when it concerns the so-called emerging markets. Driven by the general economic expansion, the financial markets in these countries have exhibited important growth. In short, this means that the securities holdings of investors attained values several times worth the original investment. Far from limiting their analysis to the fascinating developments of emerging countries, investors also take a close look at countries known, in addition to their above average growth, for being politically more stable. Indeed, the experience has shown that real growth rate is often associated with high average stock returns. However, emerging markets do not offer high returns only, but the risks associated with investments in these countries are frequently higher than in established markets as well.

Unfortunately, there are not only benefits from FPI that simply wait to be taken advantage of, but there are also some risks and constraints that arise when extending the scope of securities held to an international scale. The main risks emanate from adverse (unfavorable) changes in exchange and interest rates as well as regulatory developments. Even though it might look attractive for investors to purchase some foreign securities for their portfolios, this might not easily be feasible due to institutional constrained imposed on FPI. Obstacles such as taxation, exchange control, capital market regulations and transaction costs can represent valid reasons why the scope and thus the potential FPI might be limited.

For instance, an investor that purchases US dollar denominated and euro-denominated Eurobonds listed on the Tokyo exchange may face two types of risk; one related to the currency denomination (dollar or euro), and the other is attached to the political jurisdiction with which the securities are issued or traded. The former is called currency risk whereas the latter is called country risk. Being expressed or denominated in foreign currency, the portfolio of foreign securities is often exposed to unexpected changes in the exchange rates of the respective currencies. These changes can be a source of additional risk to the investor, but they can also reduce risk to the investor. The net effect depends chiefly on the specifics of the portfolio composition, the volatility of the exchange rates, the correlation of returns of the securities and exchange rates, and finally on the correlation between the currencies involved, on how volatility is measured (in particular whether it is measured in real or in nominal terms).

Basically, the issue boils down to the nature of the correlation between returns of securities and currencies in the short and long run. With respect to countries known for their monetary policy discipline, currency values and returns on securities, especially equities, tend to exhibit positive correlation. In contrast, in countries where monetary policy seems to have an inflationary bias, returns on securities and external currency values tend to be negatively correlated. The so-called country risk arises when a security is issued or traded in a different and sovereign political jurisdiction than that of the investor. It can be classified into transfer risk (restrictions on capital flows) and operational risks (government policies with regard to ownership/managerial control). Country risk encompasses the possibility of exchange controls, expropriation of assets, changes in tax policy and other changes in the business environment of the country. Malaysia's actions in 1997/98 represent a textbook example why country risk is still a concern to foreign portfolio investors. Country risk also includes default risk due to government actions and the general uncertainty regarding political and economic development in the foreign country. In order to tackle these issues, the investor needs to assess the country's prospects for economic development as well as its balance of payment trends.

In addition to assessing the degree of government intervention in business, the ability of the labor force and the extent of the country's natural resources, the investor has to appraise the structure, size, and liquidity of its securities markets. To sum up, perception of the country risk is, therefore, a valuable reason for unwillingness of international investors to hold a portion of their securities in some of the less developed countries.

From the above potential benefits and risks involved in FPI activities, one may infer the main determinants of FPI inflows to the countries of interest. The determinants highlighted by the literature can be broadly divided into internal and external factors as well as the interactions of both. The internal factors, called also pull factors, are mainly the host country's macroeconomic fundamentals (such as economic growth, inflation and the balance of payment position) and institutional environment (i.e. the nature of exchange regime or taxation that is tax rates on interest or dividends; it is well known that investors will normally prefer countries where the tax rates are relatively low). The external or push factors are (a) increased investors' sentiment; (b) exchange rates, foreign investors may be indeed attracted if the local currency is expended to strengthen); and (c) low international interest rates, money tends to flow to countries with high interest rates. Earlier studies have shown indeed that capital inflows in emerging countries are pushed by low international interest rates (Fernandez-Arias, 1996; Taylor and Sarno, 1997). Moreover, it is portfolio investment which is particularly boosted by interest rate differentials. It has been shown (see for instance, Montiel and Reinhart, 1999) that foreign interest rates decline usually brings about a change in capital inflows composition in favor of FPI rather than FDI. To the above pull and push factors, two more aspects should be considered as FPI determinants, namely currency risk and country risk.

The drivers of investment, however, are not uniform across the emerging economies. According to Baek (2006), portfolio investment in Latin American countries is largely drawn by solid macroeconomic fundamentals, while in case of Asia it is attracted primarily by the investors' "appetite for risk", with macroeconomic conditions playing a minor role. On the other hand, following Griffin et al. (2004), a combination of both external and internal factors attracts investment in Asian economies. The relative contribution of different factors in attracting portfolio investment can be associated with the host country's level of economic development: macroeconomic fundamentals are found to play significant role for net portfolio

investment flows between developed countries (Simpson et al. 2005), while institutional environment plays important role in investment decision process in case of developing countries (Salins and Bénassy-Quéré, 2006).

The early empirical literature on the composition of capital flows has stressed regional differences. During the 1970s and 1980s, Latin America was often associated with short-term portfolio flows, while Asian countries attracted more FDI. Montiel and Reinhart (1999) show that regional differences have diminished over time and that economic policy can impact the content of capital flows. They find that capital controls alter the composition, but not the volume of capital flows and that sterilized intervention can affect both volume and composition. Using data of 25 emerging countries, Garibaldi et al. (2001) find that the determinants for FDI and FPI are different. While FDI is well explained by macroeconomic fundamentals, a performant stock market and well protected property-rights are the only significant variables impacting on portfolio inflows. Carlson and Hernandez (2002) explore whether policies can alter the composition of capital inflows and if composition aggravates crisis. They find that when the exchange rate is allowed to float, the share of short-term debt in total capital inflows increases. Capital account restrictions are associated with a higher share of FDI. Ahmed et al. (2005) find that in south-Africa a number of explanatory variables matter for both FDI and FPI. FDI and FPI can be considered to have common determinants. A better institutional environment and foreign interest rate fall in this category. They also suggest that short-run macroeconomic policies may affect both the level and composition of capital flows. Trade openness is conducive to FDI flows, but has little impact on portfolio flows. In contrast to Montiel and Reinhart (1999), Ahmed et al. (2005) find that changes in capital controls have an impact on both the value and the structure of flows. Better still, their results also suggest that exchange rate volatility tends to deter FDI but has little effect on portfolio flows.

The Turkish experience with FPI is very informative for other MEDA countries. Turkey has succeeded in attracting an important outstanding of portfolio inflows during the recent years. It has done so because it offered a very lucrative "carry trade" to international investors looking to exploit the large real interest-rate differential between Turkish assets and risk-free assets such as US treasuries. For instance, real interest rates on a 12-month Turkish bank deposit have been on average 6x-7x higher than those on a long-term US Treasury Bill since the beginning of 2004. And as the currency has been appreciating over this period, investors have been piling in to take advantage of investment opportunities. It is worth noting also that Turkey, contrary to Mashrek and Maghreb countries, does not impose any restriction on outward capitals. Better still, Turkish financial market appears to be more developed when compared with these countries markets.

5. Conceptual framework

The first question we are going to tackle is: did capital flow increase after the signature of the agreement announcing the creation of a free exchange zone with the EU countries in the MEDA region? To answer this question, we will compare, using non-parametric test statistics, the level and composition of private capital flows before and after the signature. We then compare the results obtained to those for CEE countries.

In the next step, we will focus our attention on the determinants of FDI, FPI and capital flow composition. The MEDA countries embarked into macroeconomic and institutional reforms to increase international opening, impose stability and encourage private sector. The

results in terms of attracting FDI have been disappointing. Most of MEDA countries failed to attract sufficiently FDI – Israel and Turkey are exceptions. While the improvement of the economic and institutional systems increased, the pace of FDI inflows towards MEDA countries, market-oriented reforms appear still insufficient to increase the degree of competitiveness in this area, particularly in comparison with other regions of the world (CEE countries, East Asia or Latin America countries). Despite the comparatively lower labor cost and the relative integration with the countries of the north of the Mediterranean, MEDA countries are far from being able to offer significant attraction for multinational enterprises.

(i) What are the causes of these disappointing performances?
(ii) What are the obstacles and the hindrances to FDI inflows in MEDA countries?

One of the numerous objectives we aim at achieving is to identify the specific determinants of FDI inflows in MEDA countries. The emphasis is firstly put on traditional or quantitative determinants, also called macroeconomic variables. However, it remains to be seen whether other determinants matter for FDI inflows. Thus, we go on a step further by considering other determinants, notably those related to business climate. FDI studies on CEE countries stress the importance of better quality institutions and good governance.

(i) Do quality institution and governance matter for FDI and FPI in MEDA countries?
(ii) Does risk country impact on FDI inflows and FPI?
(iii) Does political instability explain the MEDA countries failure to attract more FDI?

Answers to these questions are far from being straightforward; our knowledge about the role of institutions, political instability and other qualitative determinants in explaining the FDI dynamics in MEDA countries is still incomplete, and studies on this issue are still scarce. One of the numerous objectives of this study is to shed more light on this issue by answering the above questions.

The next objective consists in the identification of the determinants of FPI, since this type of investment is commonly known to be more volatile as compared to FDI, particularly in case of developing countries. At the same time, developing countries tend to attract more FPI relative to FDI (Goldstein and Razin, 2006). As the empirical analysis of FPI determinants is relatively scarce, our contribution lies in addressing this issue, and we do so for a large set of countries. Similarly to FDI, FPI determinants could be linked to the key macroeconomic fundamentals. Analyzing the FPI patterns in six Asian economies, Agarwal (1997) finds the following significant determinants: inflation rate (negative effect on FPI), real exchange rate, index of economic activity, and the share of domestic capital market in the world stock market capitalization (all three having a positive effect on FPI). On the other hand, such variables as FDI, total foreign trade and current account balance have no significant impact on FPI. The two types of capital flows are typically analyzed separately in the empirical literature, with a large number of studies focusing on FDI determinants. In this regard, another contribution consists in examining the FDI and FPI determinants in the unified framework, i.e. using the same composition of countries and time span.

6. Empirical strategy

6.1. Sample description

Panel data analysis is used since we are seeking to identify the main determinants of FDI and FPI across countries and over time. In this study, we focus on the MEDA countries in comparison with Latin American, Southeast Asian, and Eastern European countries.[7] The idea behind considering a rich geographic composition is to attempt to disentangle the role of macroeconomic, institutional, and region-specific factors. In particular, the experience of Eastern European countries is especially motivating to identify the effects of different policy measures related to the EU enlargement on private capital flows. For most countries, the sample extends the estimation period to 1980-2006. However, the sample for Central and Eastern Europe ranges only from 1995 to 2006 due to data availability. All quantitative data are sourced either from International Financial statistics (International Monetary Funds) or from World Development indicators (World Bank).

Qualitative variables are split into two variables sets, the institutional variables and other qualitative variables. The institutional variables were collected by the Political Risk Services Group, Inc. for its International Country Risk Group (ICRG). Table 2 provides a concise description of two variables sets.

Table 1: Description of variables (FDI determinants)

	Description, Measurements and Sources
Dependent variable	
FDI	The dependent variable FDI is extracted from the IMF's International Financial Statistics (IFS). FDI stands for net direct investment (line 78bdd plus line 78bed) where positive numbers mean that the flow of net inward investment by non-residents exceeds the flow of net outward investment by residents. It is measured as a % of GDP.
Independent variables	
Size	Size stands for the domestic country market size. It is often defined as the ratio of Market demand market size. It is measured by GDP or GDP per capita. Source: World Development Indicators.
LQ	LQ is a measure of Labor quality. It is proxied by the number of research engineers, scientists and technicians as percent of total employees. Source: World Development Indicators.
LC	LC is a measure of Labor cost LC is proxied by the average wage. Source: World Development Indicators.
OPEN	It represents the degree of openness of an economy. It may be measured by the total trade amount (Imports + Exports) or Import/GDP. Source: World Development Indicators.
FPI	FPI stands for foreign portfolio investment. It is a measure for the FDI substitutes. Source: International Financial Statistics. Internal Monetary Funds.
INFR	INFR stands for infrastructure and it is measured by the number of telephones per 1000 population. Source: World Development Indicators.

[7] The countries included in our sample are reported on Appendix A.

Table 2: Description of qualitative variables

Variable	Description, Measurements and Sources
CR	The variable CR stands for country risk. It is a composed index where three risk ratings are accounted for, namely Political, Financial, and Economic Risk Rating. The political risk rating contributes 50% of the composite rating, while the financial and economic risk ratings each contribute 25%.The CR variable ranges 0 to 10. The highest overall rating indicates the lowest risk, and the lowest rating indicates the highest risk. Source: International Country Risk Group (ICRG). Range of data: 0-10.
CORR	CORR stands for corruption. CORR assesses corruption within the political system. Such measure of corruption is more concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, 'favor-for-favors', secret party funding, and suspiciously close ties between politics and business. The greatest risk in such corruption is that at some time it will become so overweening, or some major scandal will be suddenly revealed, as to provoke a popular backlash, resulting in a fall or overthrow of the government, a major reorganizing or restructuring of the country's political institutions, or, at worst, a breakdown in law and order, rendering the country ungovernable. Source: International Country Risk Group (ICRG). CORR ranges from 0 to 6.
GOVSTAB	GOVSTAB stands for government stability. This variable reflects the stability of the government in power. It is expected to capture "the viability of the current government, based on the degree of stability of the regimes as well as its leaders, the probability of the effective survival of the government, and the continuation of it policies if the current leader dies or is replaced" (ICRG). Range of data: 0-12.
BQ	BQ stands for bureaucracy quality. This variable measures the institutional strength and quality of the bureaucracy of a given country. Therefore, high points are given to countries where the bureaucracy has the strength and expertise to govern without drastic changes in policy or interruptions in government services are given in principle high points. Such a country is also seen as a low-risk country because the bureaucracy tends to be somewhat autonomous from political pressure and to have an established mechanism for recruitment and training. Conversely, the country that lacks the cushioning effect of a strong bureaucracy records low points because a change in government tends to be traumatic in terms of policy formulation and day-to-day administrative functions. Source: International Country Risk Group (ICRG). Range of data: 0-6.
KOP	KOP is the Chinn and Ito index series. KOP index measures the country's degree of capital account openness. It was initially introduced in Chinn and Ito (Journal of Development Economics, 2006). The dataset provided by Chinn and Ito encompasses the time period of 1970-2007 for 182 countries. Source: Chinn-Ito (2006) Financial Openness measure http://www.ssc.wisc.edu/~mchinn/kapen_2007.xls.
EXREGIME	EXREGIME stands for exchange rate regime quality. Exchange rate regime indicators such as restrictions to convertibility, multiple exchange rate practices, exchange rate pegs.

Table 3: Description of variables (FPI determinants)

	Description, Measurements and Sources
Dependent Variable	
FPI	The dependent variable FPI is extracted from the IMF's International Financial Statistics (IFS). FPI is net portfolio investment (assets (line 78bfd) plus liabilities (line 78bgd)). It is measured as net portfolio investment as a % of GDP. Source: International Financial Statistics (IMF).
Independent Variables	
INF	INF is a measure of inflation. It is computed as the consumer price index (CPI) yearly growth rate. Source: International Financial Statistics (IMF).
RER	RER stands for real exchange rate. It is proxied by the real effective exchange rate. Source: International Financial Statistics (IMF).
WSM	WSM is a measure of World Stock market performance. Share of domestic capital market in the world stock market capitalization. Source: MSCI
RXRV	RXRV is a measure of exchange rate volatility. It is calculated as the variance of the quarter-on-quarter percentage in the exchange rate index. Source: International Financial Statistics (IMF)
WIG	WIG is a measure of the world income growth. It is computed as the growth of industrial production of industrial countries. Source: International Financial Statistics (IMF)
KOP	KOP stands for capital account liberalization Dummy variable taking 1 if the host country's capital account is liberalized and 0 otherwise.
USTB	USTB is the three-month US treasury bill rate. Source: International Financial Statistics (IMF)
CAB	CAB is current account balance. Current account balance as a fraction of GDP % change in CPI at annual rate. Source: International Financial Statistics (IMF)
EXREGIME	Exchange rate regime indicators such as restrictions to convertibility, multiple exchange rate practices, exchange rate pegs (stagnancy of the exchange rates).

6.2. Econometric modeling and data issues

In this section, we briefly review some methodological issues, including model construction and estimation. In order to identify the FDI determinants, we consider the following dynamic panel data model:

$$FDI_{i,t} = \alpha_1 + \alpha_2 FDI_{i,t-1} + \alpha_3' X_{i,t} + \alpha_4' Z_{i,t} + \varepsilon_{i,t} \quad (1)$$

where the dependent variable is the FDI as share of GDP. X refers to a vector of time-varying variables that are deemed as quantitative determinants of FDI dynamics. It is question mainly of the following variables: the market size (proxied by GDP), market potential (measured by GDP per capita), infrastructure quality (measured by telephone lines per 1000 inhabitants), openness to trade (measured by the sum of exports and imports of goods and services divided by GDP), skills of workforce (proxied by secondary school enrolment as a percentage of the population in the secondary school age category), and stable exchange rate management (measured by a dummy variable). To these traditional determinants, we add non-traditional variables, namely the level of corruption (proxied by the corruption of perception index), country risk (measured by the country risk index), and the rule of law (measured by rule of

law index). Besides, since it has been proved that democratic and politically stable economies are more likely to respect property rights, and thereby attract more FDI than unstable countries (Schneider and Frey, 1985), we deem it judicious to add a measure that captures the host country respect of civil liberties and property rights. Freedom House's Index of Political Freedom could be considered as a good measure of political instability and level of internal trade regulation as well. It goes without saying that some of the above determinants might also explain FPI inflows as well. These variables are included into the Z vector. ε is the white noise error term. The subscript t refers to the time period from 1980 to 2006, and the index *i* to countries. This specification with a lagged dependant variable ($FDI_{i,t-1}$) allows to capture capital flow persistence effects and to correct for residual autocorrelation present in static panel data.

Likewise, in order to capture the FPI determinants, we consider the following dynamic model:

$$FPI_{i,t} = \alpha_1 + \alpha_2 FPI_{i,t-1} + \alpha_3' W_{i,t} + \alpha_4' Z_i + \varepsilon_{i,t} \quad (2)$$

Where FPI stands for net portfolio investment and W is a vector of time varying control variables specific to FPI dynamics. The specific determinants of FPI that have been considered are the US interest rates (three-month Treasury bill rates), the world income growth (proxied by average growth, GDP-weighted of developed countries), the world stock market performance (measured by returns on the US stock market). Finally, we add FDI (in the respective host economy) to examine whether there is a relationship between the two types of investment. Notice that both types of inflows have a fairly large set of common determinants. However, the specific variables which are significant in explaining a particular type of inflows may depend on the country and period of examination. Hence, it is ultimately a matter of empirical verification to differentiate between the determinants of FDI and FPI. To the specific FPI determinants, institutional and political or qualitative determinants have added. It is mainly question of government stability and country risk, capital account liberalization and exchange rate volatility[8]. Obviously the intersection of the two variables sets Z and W is not compulsory disjoint.

This study makes use of a dynamic panel data technique that controls for country-specific effects and allows for potential endogeneity of explanatory variables. It has been shown that the fixed effect estimator produces biased coefficient estimates when the lagged dependent variable is included as an additional explanatory variable under fixed effects formulation (Hsiao, 1986). Thus, the best to deal with problem is to have recourse to the first-differenced and system GMM estimators with standard errors both robust and non-robust to general heteroscedasticity over individuals and over time. The inclusion of lagged dependent variables in the right hand side of equations (1) and (2) supports the adoption of the Generalized Method of Moments (GMM) procedure as a consistent method of estimation.

A necessary condition that should be fulfilled in order for the GMM estimator to be consistent is the validity of the instruments. This can be tackled with by considering the specification test of Sargan, which checks whether the instruments considered are valid or not. It has been shown that under, the null hypothesis of the validity of the instruments, the

[8] It is woth noting that due to the relatively high degree of multicollinearity among the institutional/political variables, the variables corruption and bureaucraty have dropped and the emphasis has put on the remaining variables.

statistic associated with this test has a chi-squared distribution with (J-K) degrees of freedom where J is the number of instruments and K the number of the independent variables in the regression. Another test could be also used. It examines the assumption of no serial correlation in error terms. The purpose is to test whether the differenced error term is second-order serially correlated. Under the null hypothesis of no second-order correlation, the statistic associated with this test has a standard-normal distribution. Failure to reject the null hypotheses of both tests confirms the validity of our specifications.

7. Results

In addition to basic specification displayed in Equation (1) above which includes the traditional determinants of FPI and FDI, we add institutional aspects and regional dummies to access the robustness of our results to these additional variables. Table A1 and A2 (see appendix) presents the GMM-in-Difference results for the determinants of FDI and FPI using annual data for 46 developing countries. GMM-in-Difference regressions satisfy both the Sargan test of over-identifying restrictions and the serial correlation test, which means there is no second order correlation for the errors and the instruments used are valid. Therefore, we conclude that the GMM method is appropriate for our empirical work.

As for our regressions on FDI, Table A1 show in all columns that the dynamic process of the data is confirmed since the one year lagged value of FDI is positive and significant at the 1% confidence level. Additionally, the coefficients indicate that the adjustment to equilibrium is relatively fast.

Regarding the exogenous variables, the first column in Table 1 show that the marginal effects of economic growth and population growth on FDI are positive and significant at the 1% level of confidence. This result reflects that investors are attracted to a country with better growth perspectives and a growing population. Additionally, opening the economy to trade spur FDI confirming the above-mentioned hypothesis that trade openness attracts export-oriented FDI. The results show also that foreign long term investors are more attracted by a stable exchange rate since the exchange rate volatility is negatively associated with FDI in all columns in Table A1. Against all expectation, a strong currency is a key factor in pulling FDI as evidenced by the positive and significant coefficient on real exchange rate. In addition, long-term investors did not care about the quality of infrastructure since the coefficient on infrastructure variable is negative and significant in all regressions. This could mean that the best opportunity of investment is in those countries where infrastructures should be rehabilitated.

In column 2 of Table A1, we added institutional and policy variables such as government stability, capital account openness, country risk and exchange rate regime. The coefficient on government stability is positive and significant as expected meaning that political stability is a convincing argument to attract long term foreign investors. Besides, a risky local environment repels foreign investors for investing domestically as the coefficient on risk and significantly negative. The coefficient on exchange regime is positive and significant indicating that a fixed exchange rate regime is necessary to attract foreign *investors* in the long run. Finally, FPI seems to behave as a competitor to FDI, as the signs on the FP variable are negative and strongly significant.

In columns 3 to 5, we interact the institutional and policy variables such as government stability, country risk and capital account openness with dummies variables linked to five regions: Latin America, MEDA, CEE, South Asia and Africa. On the government stability side, we notice in column 3 that a stable government contribute to attract FDI in Latin America and Asia where the coefficients on Government stability interacted with region dummy variables are positive and highly significant. As far as risk is concerned, a risky environment reduce the incentives for long-term foreign investors to pour money in the domestic market in CEE and Asian regions where foreign direct capital favours risky countries in the MEDA region. Finally, capital account openness affects differently on FDI depending on the recipient region. It is an ingredient for attracting FDI in Latin America whereas it repeals FDI in CEE countries. In other regions, the impact of capital account liberalization on FDI seems to be inexistent.

<Insert table A1 near here>

The results relative to the FPI estimates are presented on Table A2. Table A2 reports the results of different specifications. For instance, column 1 reports the results of the basic specification, which is the specification that accounts for the traditional variables. Column 2 presents the results of the estimates with the institutional variables. Columns 3-7 focus on the results of the estimates of the model with interaction effects. As in the case of FDI estimates, Table A2 shows that the dynamic process of the data is confirmed since the one year lagged variable of FPI is positive and statistically significant. The magnitude of the adjustment coefficient to FPI variable seems to be adequate indicating that the adjustment to the equilibrium is about 18 per cent.

As for the contribution of the explanatory variables to the FPI dynamics, Table A2 shows that almost all domestic economic fundamentals (such as PGDP growth, Inflation, CAB) are statistically significant and bear the expected signs. Such findings indicate that countries with high per capita GDP growth and high current account balance succeed to attract more investors. Macroeconomic stability as measured by lagged inflation shows up as a minor concern to foreign investors. The empirical results reported on Table A2 indicate that inflation lagged one period bears a very low albeit statistically significant coefficient through all the specifications.

As far as the exchange rate volatility is concerned, the empirical results tend to indicate that its effect on FPI is negative. This implies that stable exchange rate is another factor that contributes to attract foreign investors. It is worth noting that inflation, as measured by the consumer price index first difference, has little impact on FPI in the specification reported in column 1; however, when the institutional factors were included in the model inflation turned to be significant.

By and large, accounting for the institutional variables does seem to alter significantly neither the magnitudes nor the signs of the estimates of the domestic economic fundamentals (see columns 1 and 2, Table A2). More specifically, Table A2 shows also that those external variables play an important role in explaining the FPI dynamics since all the coefficients to these variables are statistically significant and exhibit the expected signs.

Regarding the external factors, FPI is found to be affected significantly by world interest rates as well as by world stock market. Indeed, many studies (see for instance, Lopez-Mejia, 1999; Baek, 2006) have shown that US interest rates have been one of the most important determinants of capital flows to emerging countries. In these studies a negative

relationship between US interest rates and FPI inflows is found. Our finding corroborates theses conclusions. The coefficient to the world interest rate (USTB) seems to be robust to different specifications (see for instance columns 1 and 2 of Table A2). Such finding might be explained by the fact that when the return in the US is low, FPI to the emerging countries grows as investors seek higher return.

The results reported on Table A2 indicate also that the relationship between world stock market and FPI is statistically significant whatever the specification considered. More specifically, this relationship is found positive indicating that FPI to the sample countries are pushed by high return on the world stock market. Such finding does not seem to be in line with the argument that investors are attracted to high return opportunities in emerging countries when the return in the US is low. Better still, our finding confirms the findings of previous studies (see for instance, Baek, 2006).

Regarding for the institutional/political variables, their effects on FPI have been estimated in specification (2). Against all expectations and contrary to the FDI results, country risk as well as government stability variables show up with negative and statistically significant signs. The finding regarding the country risk variable implies that a positive relationship exists between country risk and portfolio investments; in other words, foreign investors expect high returns when it comes to investing in high risk countries. As for the finding concerning the government stability, the negative sign put forward in Table A2 indicates that a negative relationship exists between FPI and government stability. This might imply that in unstable environment, governments in place become more willing to attract foreign investors notably by launching new initiatives and passing new laws to facilitate and encourage FPI in their ailing economies. Besides, the coefficient to capital account openness shows up with a negative sign. This might indicate capital account openness leads to decreases in FPI which is rather surprising as a finding. One explanation of this puzzling result is that capital account openness does not enhance foreign investment unless it is associated with passing new laws and easing regulations and improving governance in order to attract fore foreign investors.

It goes without saying that these results concerning the role played by institutional-political variables might hide dissimilitude in the way foreign investors perceive the political/institutional environment of the countries. In order to tackle this issue, we decided to differentiate the effects of the institutional/political dimension on portfolio inflows from one region to another. This permits to inform policymakers about whether some key institutional variables (such as country risk, government stability, capital openness, or exchange rate volatility) affect the different regions in the same manner or not. To this purpose, we decided to account for the interaction effects between regions and the institutional variables; policy variables have been interacted with dummy variables (a dummy has been included for each region; the dummy variable takes one if the country belongs to the region and 0 otherwise). As in the FDI case, five regions have been considered, namely Latin America (Latin), Mediterranean countries (MEDA), Central and Eastern Europe (CEE), Southeast Asia (Asia) and Africa (Africa).

<Insert table A2 about here>

As far as the government stability is concerned, the estimates (Columns 3-7) indicate that the interaction variables between government stability and the region dummies is statistically significant and positive for the cases of MEDA and Asia whereas it is statistically significant and bears a negative sign in the case of Latin America and CEE countries. Such

results indicate that an increase in the Government stability index may induce and increase in the net portfolio inflows into CEE and ASIA countries and a decrease in the remaining countries. Thus, the conjecture that countries with stable governments are more able to attract foreign portfolio investment than countries with instable governments is corroborated only in the case of CEE and Asia and not elsewhere.

The inference concerning the role of the country risk is presented in column 3. It is expected to find that a risky environment reduces the incentives to attract foreign portfolio investment. It seems that this is true only for countries belonging to Latin American. For the other countries, and against all the expectations, country-risk does not discourage foreign investors from investing in the domestic market.

The results concerning the interaction effects of exchange rate volatility with region dummies are reported on column (3) of Table A2. These results tend to show that exchange rate volatility tends to dampen the inflows of foreign portfolio. The coefficients to the interaction variables are negative and statistically significant at the standard levels for the cases of Southeast Asia, African, and Mediterranean countries. In other words, our empirical results show that sharply fluctuating exchange rates, or sudden revaluations or devaluations in fixed exchange rates, is deemed to be as an obstacle to foreign investment. Indeed, it stands out from the empirical results that exchange rate volatility does seem to attract neither speculative capital flows nor productive and sustained foreign investment into these regions. However, it does not appear to have any significant role in the case of Latin American countries. On another hand, exchange rate volatility does not seem to discourage foreign investors willing to bring their capital in central and eastern European countries. Many of the central and European countries are undertaking serious political and economic reforms as part of their commitment to joining the European Economic Community. These reforms embrace many economic and political aspects and facets. If foreign investors perceive such undertaken reforms as credible, they will tend to increase their investors despite the fluctuations of countries' currencies.

Finally, capital account openness is expected to catalyze the portfolio dynamics into domestic markets. However, the empirical results indicate that its role is rather mixed. The sign of the coefficient to the capital account openness variable is found to be negative and statistically significant as shown in column (2). This is rather unusual indicating that capital account openness appears to act as an impediment to FPI inflows in most countries whereas it seems to enhance those inflows to Latin America countries. Besides, capital account liberalization is far from playing a significant role when it comes to African countries. Since the coefficient to the capital account openness is rough average measure of the marginal effect when all countries are included, it might hide some differences between regions. To shed more light about this issue, the estimates of the interaction effects between the capital account openness and the region dummies have been reported (see column 7, table A2). These estimate that in almost all regions, the coefficient to the capital account openness is still negative, except for the case of Latin American countries.

8. Conclusions and policy implications

In this project, our first main purpose is to identify the patterns and the determinants of private capital flows in MEDA countries. To begin with, we examine whether capital flows increased

after singing the partnership agreement with the European Union (EU). Then we analyse the determinants of FDI, distinguishing between traditional factors – macroeconomic fundamentals – and other factors related to the business climate such as institutions, governance, or political instability. Next, in addition to FDI, we extend our analysis to foreign portfolio investment (FPI), which constitutes an increasing part of private capital flows in the MEDA countries.

Our message to MEDA's policy makers is the follow :

- First, trade liberalization and trade openness are important preconditions for FDI flows to MEDA region. This suggests that MEDA countries should sequence their policy measures, beginning with a focus on privatization and trade liberalization, and subsequently shift to improvement in economic fundamental. Removal of trade barriers and economic integration within the region will have the effect of boosting the flow of FDI to MEDA countries;

- Second, improvements in other aspects of the investment climate are important complements to liberalization and can result in a sensitive increase of FDI inflows. Indeed, political stability and a sound macroeconomic fundamentals are a convincing argument to attract long term foreign investors. Besides, a risky local environment repels foreign investors for investing domestically and a fixed exchange rate regime is necessary to attract foreign *investors* in the long run;

- All MEDA countries are concerned by a subtantial effort to improve their investment climate in order to make the region attractive to foreign investors.

- Third, this Study allowed us to understand the potential contribution of capital account openness in the considered countries' economies. Capital account openness does not enhance foreign investment into domestic markets unless it is associated with passing new laws and easing regulations and improving governance in order to attract fore foreign investors. Thus, it politicians are willing boost FPI into their markets, they have to be aware that opening up their capital account should be supported by other measures such as easing regulation, passing new laws…; otherwise, the policy will be fruitless. In short, all MEDA countries are concerned by a substantial effort to improve their investment climate in order to make the region attractive to foreign investors.

- Fourth, sharply fluctuating exchange rates, or sudden revaluations or devaluations in fixed exchange rates in some MEDA countries, is deemed to be as an obstacle to foreign investment. Exchange rate volatility does seem to attract neither speculative capital flows nor productive and sustained foreign investment into these regions. Consequently, it more beneficial for MEDA country to pursue policies which permit to avoid fluctuations in their currency in order to attract more foreign investors.

References

Agarwal, R. N., 1997, "Foreign Portfolio Investment In Some Developing Countries: A Study of Determinants and Macroeconomic Impact", Indian Economic Review 32, pp.217-229.

Ahmed, F., R. Arezki, and N. Funke, 2005, "The Composition of Capital Flows: Is South Africa Different?", IMF Working Paper N°05/40.

Aliber, R. Z., 1970, "A Theory of Foreign Direct Investment", in Kindleberger, C. (eds.), The International Corporation, MIT Press, Cambridge, MA.

Altomonte, C., 2000, "Economic Determinants and Institutional Frameworks: FDI in Economies in Transition", *Transnational Corporations* 9, pp.75-106.

Asiedu, E., 2002, "On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different?" World Development, 30 (1), pp.107-119.

Assenov, I., 2003, "Market Reforms and Foreign Investment: What Drives Capital Flows to Transition Economies?", Osaka Economic Papers 53, pp.99-118.

Baek, I. M., 2006, "Portfolio Investment Flows to Asia and Latin America: Pull, Push or Market Sentiment?", Journal of Asian Economics, 17, pp.363-373.

Balasubramanyam, V. N., 2002, "Foreign Direct Investment in Developing Countries: Determinants and Impact", in OECD Global Forum on International Investment: New Horizons for Foreign Direct Investment, Paris and Washington DC.

Belsley, D. A., Kuh, E., and R. E. Welsch. (1980). *Regression Diagnostics: Identifying Influential Data and Sources of Collinearity*. New York: John Wiley and Sons.

Bevan, A. A. and Estrin, S. (2000). "Determinants of FDI in Transition Economies", Working Paper No. 342. Centre for New and Emerging Market, London Business School.

Blomström, M., and R. E. Lipsey. (1991). "Firm Size and Foreign Direct Investment," NBER Working Papers 2092, National Bureau of Economic Research.

Blonigen, B. A. (1997) "Firm-Specific Assets and the Link between Exchange Rates and Foreign Direct Investment", American Economic Review, 87(3): 447-65.

Branstetter, L.G. and R. C. Feenstra, (1999) "Trade and Foreign Direct Investment in China: A Political Economy Approach," NBER Working Papers 7100, National Bureau of Economic Research, Inc.

Braunerhjelm, P. and R. Svensson. (1996). "Host Country Characteristics and Agglomeration in Foreign Direct Investment," Applied Economics, Taylor and Francis Journals, 28(7): 833-40.

Campos, N. and J. Nugent (2002). "Who is afraid of political instability?" Journal of Development Economics 67: 157-172.

Campos, N. and J. Nugent (2003). "Aggregate Investment and Political Instability: An Econometric Investigation." Economica. 70 (3): 533-549.

Campos, N. F., and Y. Kinoshita, 2003, "Why Does FDI Go Where it Goes? New Evidence from the Transitional Economies", CEPR Discussion Paper N°3984.

Carkovic, M., and R. Levine, 2005, "Does Foreign Direct Investment Accelerate Economic Growth?", in Moran, T.H., Graham, E. M. and Blomström, M. (eds.), Does Foreign Direct Investment Promote Development?, Institute for International Economics, Washington, D.C.

Carlson, M., and L. Hernandez, 2002, "Determinants and Repercussions of the Composition of Capital Flows", Board of Governors of the FRS, International Finance Discussion Paper N°717.

Carmignani, (2003) "Political Instability, Uncertainty and Economics". Journal of Economic Surveys, 17(1):1-54

Carstensen, K., and F. Toubal, 2004, “Foreign Direct Investment in Central and Eastern European Countries: A Dynamic Panel Analysis”, Journal of Comparative Economics 32, pp.3-22.

Crowley, F.D. and Loviscek, A. L. (2002). “Assessing the impact of political unrest on currency returns: a look at Latin America.” *Quarterly Review of Economics and Finance* 42(l), pp.143-153

Daniele, V., and U. Marani, 2006, "Do Institutions Matter for FDI? A Comparative Analysis for the MENA Countries", Available at SSRN: http://ssrn.com/abstract=917581.

De Gregorio, J. (1992). "Theories of Policy Accommodation - The Persistence of Inflation and Gradual Stabilizations," IMF Working Papers 92/19, International Monetary Fund.

Deichmann, J., S. Karidis, and S. Sayek, 2003, “Foreign Direct Investment in Turkey: Regional Determinants”, *Applied Economics* 35, pp.1767-1778.

De Melo, M., C. Denizer, A. Gelb, and S. Tenev, 1997, "Circumstance and Choice: The Role of Initial Conditions and Policies in Transition Economies", Policy Research Working Paper N°1866, The World Bank.

Desai, M. A., Fritz C. Foley, and K. J. Forbes. (2004) “Financial Constraints and Growth: Multinational and Local Firm Responses to Currency Crises,” NBER Working Paper No. 10545.

Dunning, J. H., 1993, *Multinational Enterprises and the Global Economy*, Addison Wesley, Reading.

Egger, P., and H. Winner, 2003, “Does Contract Risk Impede Foreign Direct Investment?”, Swiss Journal of Economics and Statistics 139, pp.155-172.

Fernandez-Arias, E., 1996, “The New Wave of Private Capital Inflows: Push or Pull?”, Journal of Development Economics 48, pp.389-418.

Froot, K. A. and J. C. Stein. (1991) “Exchange Rates and Foreign Direct Investment” An Imperfect Capital Markets Approach,” Quarterly Journal of Economics, 106(4): 1191-1217.

Garibaldi, P. N. Mora, R. Sahay, and J. Zettelmeyer, 2001, “What Moves Capital to Transition Economies?”, IMF Staff Papers 48, pp.109–145.

Globerman, S., and D. Shapiro, 2003, “Governance Infrastructure and US Foreign Direct Investment”, Journal of International Business Studies 34, pp.19-39.

Goldstein, I., and A. Razin, 2006, “An Information-Based Trade Off between Foreign Direct Investment and Foreign Portfolio Investment”, Journal of International Economics 70, pp.271-295.

Griffin, J. M., F. Nardari, and R. M. Stulz, 2004, “Are Daily Cross-Border Equity Flows Pushed or Pulled?”, Review of Economics and Statistics 86, pp.641-657.

Grubert, H., and J. Mutti. (1991) “Taxes, Tariffs and Transfer Pricing in Multinational Corporate Decision Making,” Review of Economics and Statistics, 73(2): 285-293.

Hsiao, C., (1986), Analysis of Panel Data. Cambridge University Press, Cambridge, MA.

Hsiao, C. (2001). "Open forum on the current state and future challenges of econometrics," Journal of Econometrics, Elsevier, vol. 100(1), pp. 1-1.

Janicki, H. P., and P. V. Wunnava, 2004, “Determinants of Foreign Direct Investment: Empirical Evidence from EU Accession Candidates”, Applied Economics 36, pp.505-509.

Judge, G.G., R.C. Hill,. W. E. Griffiths, H. Lutkepohl, and T. Lee.1988. "Introduction to the Theory and Practice of Econometrics" (John Wiley, 2nd ed: New York).

Kahai, S. K., 2004, “Traditional and Non-traditional Determinants of Foreign Direct Investment in Developing Countries”, Journal of Applied Business Research 20, pp.43-50.

Klein, . W., and E. S. Rosengren. (1994) “The Real Exchange Rate and Foreign Direct Investment in the United States: Relative Wealth vs. Relative Wage Effects,” Journal of International Economics, 36(3-4): 373-89.

Kogut, B., and S. J. Chang. (1996) “Platform Investments and Volatile Exchange Rates: Direct Investment in the U.S. by Japanese Electronic Companies,” Review of Economics and Statistics, 78(2): 221-31.

Kravis, I. B., and R.E. Lipsey. (1982). "The location of overseas production and production for export by U.S. multinational firms," Journal of International Economics 12(3-4), pages 201-223.

Kutan, A., and S. Zhou (1995). "Socio-Political Stability, Volatility, and the Bid-Ask Spread: Evidence from Free Market for Dollars in Poland", Open Economies Review, No. 6, (1995), pp. 225-23.

Kyrkilis, D., and P. Pantelidis, (2003). “Macroeconomic Determinants of Outward Foreign Direct Investment”, International Journal of Social Economics 30, pp.827-836.

Lipsey, R. E. (2001). “Foreign Direct Investors in Three Financial Crises,” NBER Working Paper No. 8084.

Lipsey, R. E. (1999). “The Role of FDI in Capital Flows”, In Martin Feldstien Editor, International Capital Flows, Chicago Press, pp.307-331.

Lopez-Mejia, A. (1999). Large capital flows: A survey of the causes, consequences, and policy responses. In *IMF working paper*, WP/99/17. Washington, DC: International Monetary Fund.

Lothian J.R. and Melvin, M.T. (1991). “Political influences in international economic models”. *Journal of International Money and Finance 10(1),* supplement, pp.S1-S122.

Mauro, P. (1995). “Corruption and Growth”, Quarterly Journal of Economics 110, pp. 681–712.

Melvin, M., and K-H. Tan. (1996). "Foreign Exchange Market Bid-Ask Spreads and the Market Price of Social Unrest," Oxford Economic Papers, Oxford University Press, vol. 48(2), pages 329-41,

Mina, W. (2007). “The location determinants of FDI in the GCC countries”, Journal of Multinational Financial Management, 17(4), pp. 336-348

Montiel, P., and C. M. Reinhart, (1999). “Do Capital Controls and Macroeconomics Policies Influence the Volume and Composition of Capital Flows? Evidence from the 1990s”, Journal of International Money and Finance 18, pp.619-635.

Richaud, C., K. Sekkat, and A. Varoudakis. (1999). “Infrastructure and Growth Spillovers: A Case for a Regional Infrastructure Policy in Africa”, University of Brussels, mimeo.

Sachs, J.D., and A. Warner. (1995). "Economic Reform and the Process of Global Integration," Brookings Papers on Economic Activity, Economic Studies Program, The Brookings Institution, vol. 26, pp. 1-118.

Salins, V., and A. Bénassy-Quéré. (2006). “Institutions and Bilateral Asset Holdings”, CEPII Working Paper N°2006-19, CEPII, Paris.

Schneider, F., and B. F. Frey. (1985). “Economic and Political Determinants of Foreign Direct Investment”, World Development 13, pp.161-175.

Stevens, G. V. G. (1998). “Exchange Rates and Foreign Direct Investment: A Note,” Journal of Policy Modeling, 20(3): 393-401.

Swenson, D. L. (1994). “The Impact of U.S. Tax Reform on Foreign Direct Investment in the United States,” Journal of Public Economics, 54(2): 243-66.

Simpson, N. B., M. Tomljanovich, and G. S. Georgiev. (2005). “Macroeconomic Fundamentals and Net Portfolio Investment between Developed Regions”, International Finance 8, pp. 303-327.

Taylor, M., Sarno, L. (1997). Capital flows to developing countries: Long- and short-term determinants. The World Bank Economic Review, 11(3), 451–470.

UNCTAD. 2005, 2006, 2007. *World Investment Report*. Geneva: United Nations Conference on Trade and Development.

Wei, S-J. (2000b). "Local Corruption and Global Capital Flows" Brookings Papers on Economic Activity, 0(2): 303-46.

Wheeler, D., and A. Mody (1992). "International Investment Location Decisions: The Case of U.S. Firms," Journal of International Economics, 33(1-2): 57-76.

Appendix A: Sample countries (grouped by region)

MEDA	Latin America	Southeast Asia	Africa	CEE
Algeria	Argentina	China	Botswana	Bulgaria
Cyprus	Bolivia	India	Cameroon	Croatia
Egypt	Brazil	Indonesia	Côte d'Ivoire	Czech Republic
Jordan	Chile	Korea	Ghana	Estonia
Lebanon	Colombia	Malaysia	Kenya	Hungary
Morocco	Ecuador	Pakistan	Mali	Latvia
Syria	Mexico	Philippines	Mozambique	Lithuania
Tunisia	Peru	Singapore	Nigeria	Poland
Turkey	Uruguay	Thailand	Senegal	Romania
	Venezuela		Tanzania	Slovakia
			Zambia	Slovenia

Table A1- GMM-in System FDI Estimates; One-Step Results

Variables	(1)	(2)	(3) Z=GOVSTAB	(4) Z=CR	(5) Z=KOP
Constant	0.094***	0.091***	0.063***	0.116***	0.083***
	(41.58)	(6.13)	(6.04)	(7.42)	(5.85)
FDI(-1)	0.132	0.130***	0.1852	0.119	0.133
	(48.46)***	(36.9)	(26.83)***	(36.55)***	(30.71)***
PGDP Growth	0.011	0.012***	0.005	0.0145	0.010
	(14.34)***	(5.31)	(1.04)	(3.81)***	(2.28)**
POP	0.029	-0.165***	-0.198	-0.098	-0.149
	(5.68)***	(-13.82)	(-10.45)***	(-10.74)***	(-12.97)*
OPENNESS	0.043	0.036***	0.025	0.041	0.039
	(895.9)***	(13.75)	(7.56)***	(23.99) ***	(9.91)***
INFR	-0.096	-0.169***	-0.157	-0.198	-0.186
	(-23.69)***	(-13.45)	(-10.25)*	(-12.26)***	(-10.85)
INFLATION	0.0000633	0.000***	0.000	0.000	0.000
	(88.57)***	(13.29)	(9.25)***	(9.7)***	(8.4)***
REX	0.165	0.318***	0.234	0.387	0.534
	(4.38)***	(2.9)	(1.46)	(2.7)***	(3.25)*
REXVOL	-0.000	-0.000	-0.000	-0.000***	-0.000
	(-153.59)***	(-9.47)***	(-5.88)***	(-3.47)	(-7.31)**
GOVSTAB		0.231***			
		(2.34)			
KOP		-0.054**	0.041	0.223*	
		(-2.63)	(0.43)	(1.86)	
CR		0.369***	-0.057		-0.026
		(16.69)	(-2.91)***		(-2.66)***
EXREGIME		-0.032***	0.291***	0.324***	0.335
		(-7.22)	(7.25)	(8.01)	(10.79)***
FPI		*0.090***	*-0.029***	*-0.031***	*-0.030***
		(6.13)	*(-5.15)*	*(-5.42)*	*(-6.64)*
MEDA* Z			0.053	0.123	2.162
			(1.57)	(3.22)***	(0.89)
ASIA* Z			0.081	-0.284	0.421
			(1.81)***	(-8.89)***	(0.78)
LATIN*Z			0.193	0.026	1.527
			(6.22)***	(0.92)	(2.86)***
CEE*Z			-0.821	-0.494	-4.753
			(-12.57)***	(-14.03)***	(-6.17)***
AFRICA*Z			0.008	0.024	0.424
			(0.26)	(1.21)	(1.42)
Sargan test	44.85***	41.92***	31.32***	40.09***	37.49 ***
AR(1) Test	-2.17***	-2.10***	-2.21***	-2.06***	-2.19***
AR(1) Test	1.32	1.30	1.18	1.24	1.37
Nb. of Countries	46	46	46	46	46
Nb. of observations	752	752	752	752	752

Notes: Arellano-Bond dynamic panel-data estimation one-step GMM results (using Stata 9.2's xtabond command). This table presents the results of GMM-in system estimation for the full sample of the considered countries over the 1980-2006 periods. For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation. Standard errors of estimates are reported in parentheses. Numbers between brackets are the p-values. AR(1) and AR(2) tests stand for Arellano-Bond test that average autocovariance in residuals of order 1 is 0 / of order 2 is 0. Sargan test is the test of over-identifying restrictions.
***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table A2- GMM-in System FPI Estimates; One-Step Results

Variables	(1)	(2)	(3) Z=CR	(4) Z=EXVOL	(5) Z=GOVSTAB	(7) Z=KOP
Constant	-0.071***	-0.071***	-0.089***	-0.07***	-0.063***	-0.077***
	(-10.49)	(-10.49)	(-5.55)	(-3.84)	(-2.60)	(-4.03)
FPI(-1)	0.1803***	0.181***	0.185***	0.174***	0.186***	0.177***
	(465.17)	(151.43)	(194.38)	(114.81)	(113.62)	(139.75)
PGDP growth	0.046***	0.059***	0.054***	0.057***	0.047***	0.058***
	(31.24)	(26.16)	(13.44)	(7.71)	(6.77)	(18.05)
CAB	-0.137***	-0.147***	-0.135***	-0.147***	-0.141***	-0.147***
	(-123.09)	(-21.06)	(-18.61)	(-13.93)	(-16.7)	(-12.89)
Inflation(-1)	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(7.72)	(4.46)	(4.1)	(2.26)	(2.25)	(3.04)
EXVOL	-.00022***	-0.000***	-0.000***	-	-0.000	-0.000***
	(-3.48)	(-2.86)	(-3.18)	-	(-1.32)	(-0.92)
USTB	-0.301***	-0.305***	-0.292***	-0.293***	-0.220***	-0.285***
	(-34.48)	(-53.37)	(-24.05)	(-12.53)	(-8.03)	(-23.69)
WSM	0.008***	0.008***	0.008***	0.007***	0.005***	0.006***
	(28.27)	(17.56)	(8.88)	(5.8)	(3.97)	(6.98)
WIG	0.0569***	0.058***	0.062***	0.059***	0.044***	0.059***
	(13.91)	(13.26)	(9.46)	(6.87)	(4.82)	(6.12)
KOP		-0.116***	-1.53***	-1.09***	-0.837***	-
	-	(-30.1)	(-10.57)	(-6.27)	(-4.49)	-
CR		-0.071***	-	-0.162***	-0.193***	-0.144***
	-	(-8.84)	-	(-6.12)	(-8.99)	(-7.12)
GOVSTAB		-1.336***	0.013	-0.160***	-	-0.111***
	-	(-15.78)	(0.97)	(-8.23)	-	(-5.25)
MEDA* Z			-0.231***	-0.248***	0.715***	-0.514
	-	-	(-8.13)	(-45.31)	(28.01)	(-1.22)
ASIA* Z			-0.433***	-0.011***	0.102***	-4.887***
	-	-	(-9.66)	(-5.43)	(12.51)	(-9.58)
LATIN* Z			0.292	-0.000	-0.485***	0.501***
	-	-	(2.25)***	(-1.4)	(-9.5)	(2.51)
CEE*Z			-0.035	0.002***	-0.515***	-5.498***
	-	-	(-0.67)	(6.12)	(-10.51)	(-9.24)
AFRICA*Z			-0.095***	-0.015***	-0.020	-0.512
			(-11.4)	(-3.1)	(-0.66)	(-0.62)
Sargan test	42.25***	41.5***	40.1***	40.1***	39***	39***
AR(1) Test	-2.07***	-2.07	-2.06***	-2.10***	-2.05***	-2.06***
AR(2) Test	-0.92	-0.92	-0.92	-0.76	-0.94	-0.94
Nb. of Countries	46	46	46	46	46	46
Nb. of observations	727	727	727	727	727	727

Notes: Arellano-Bond dynamic panel-data estimation one-step GMM results (using Stata 9.2's xtabond command). This table presents the results of GMM-in system estimation for the full sample of the considered countries over the 1980-2006 periods. For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation. Standard errors of estimates are reported in parentheses. Numbers between brackets are the p-values. tests AR(1) and AR(2) tests stand for Arellano-Bond test that average autocovariance in residuals of order 1 is 0 / of order 2 is 0. Sargan test is the test of over-identifying restrictions.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Part 2 : Foreign capital flows, economic growth, domestic investment and inequality: an international comparison

Abstract

We assess the impact of FDI/FPI and the composition of capital flows on economic growth and their sources in the MEDA region extending the capital flows literature that mainly focus on FDI impact. Moreover, while some economic thesis and some previous empirical evidence suggest that capital flows will only have a positive growth impact under particular institutional and policy regimes, we examine an extensive array of interaction terms to determine those key economic, financial, institutional, political conditions under which capital flows boost economic growth. We also extend our assessment of the impact of private capital flows on other economic aggregates often neglected in the empirical literature but extensively analysed theoretically: domestic investment and wage inequality.

1. Introduction

To the best of our knowledge, no study has focused on the direct impact of FDI and FPI on inequality in the MEDA region. The project attempts to fill this void by providing a comprehensive analysis of the effect of capital inflow and its composition on inequality in the receiving country. Inequality in this project is understood as wage and education inequality. The impact of FDI on growth remains more controversial in empirical rather than in theoretical studies. While some studies observe a positive impact of FDI on economic growth, others find a negative relationship between these two variables. A growing literature is attempting to analyse the effects of FDI on income and wage inequality, reaching mixed conclusions. Concerning the impact of FDI inflows on domestic investment, the literature is very scarce.

So, the second main purpose of this project is to once again revisit the link between growth and capital inflows, but to do so using a panel of the MEDA, South-eastern Asian, Latin American and CEE countries over a longer period (1980-2007). Overall, this project intends to make several contributions.

First, the approach and data set enable us to examine an extensive array of FDI indicators that is the gross stock of FDI assets and liabilities, growth of flows of FDI assets and liabilities and inflow of FDI. The need for adopting both stock and flow measures is that stock measures do not fluctuate over short run and they accommodate variation of inflow over the long run.

Second, while economic theories and some previous empirical evidence suggest that FDI only has a positive growth effect under particular institutional and policy regimes, we examine an extensive array of interaction terms to determine those economic, financial, and institutional and policy conditions under which private capital flow boosts economic growth. Specifically,

we examine whether FDI has stronger (and positive) impacts on economic growth when countries have higher levels of real per capita GDP; higher levels of education attainment; lower population growth rates; larger government size; higher levels of international trade; lower inflation; higher level of bank an stock market development and lower country risk. We then, evaluate where the MEDA region stands in private capital flow absorptive capacity and what kind of policies we should advise to make capital flows more growth effective in MEDA countries.

Third, the use of more relevant techniques to control for dependent variables persistence, short-term effects and simultaneity biases.

Fourth, we expend the literature by including in our model of endogenous growth not only FDI but also neglected FPI and the composition of capital inflows.

Fifth, we will not stop on considering only economic growth as our output impact but we will focus on other channels of growth and associated economic concepts. Effects of capital inflows, and particularly FDI, on domestic investment have been subject of recent literature both theoretically (e.g., Fedderke and Romm, 2006) and empirically (e.g., Hetch et al. 2004). While a number of studies have examined the contribution of aggregate investment expenditure to economic growth, few have addressed the distinction between domestic and foreign investment expenditure and the impact of FDI on development in particular (Fedderke and Romm, 2006). Similarly, to date no attention has been paid in the MEDA countries on the distinct impact of foreign investment on growth and if the foreign investment crowded out domestic investment.

So, two questions arise from this discussion: why foreign as opposed to domestic investment should have an impact on long run development that is different from domestic investment? Does foreign investment increase or decrease domestic investment? An answer to these questions would help to draw policies aiming at strengthening the link between inflow and investment.

2. **Literature review**

Foreign Direct Investment, investment and economic growth

During the last decades literature has stressed a particular channel whereby technology has spread from developed countries to developing countries, allowing the latter to grow at higher rates i.e. the entrance of Foreign Direct Investment (FDI). In a recent study on a panel of 27 Indonesian provinces over the period [1988-1996], Blalock and Gertler (2008) have found that through the mechanisms of transfer of technology FDI leads to productivity increase, greater competition, and a decline in prices among local firms in markets that supply foreign entrants. A profit gains has also observed for firms in both the supplier and buyer sectors. Also for the Indonesian case, Khaliq and Noy (2007) have found that FDI is beneficial for Indonesia concluding that FDI have a positive effect on economic growth in the aggregate level while such effects vary across sectors when analysis is disaggregated to sectoral level. For example, in the mining and quarrying sector FDI exhibits a negative effect on economic growth, while in transport and communications, hotels and restaurants, it has a positive effect on economic growth.

Prabirjit (2007) has also studied the effect of FDI on economic growth. Both panel data and times series analyses for 51 less developed countries (LDCs) over the period [1970-2002] are conducted. The first analysis shows a rising relationship between FDI and economic growth but only for the open and rich group of countries. The time-series analysis for individual country cases concludes that only for ten countries it can be clearly said that the share of FDI in their gross capital formation has a long-term positive effect on growth measured by the annual rate of growth of per capita income. In the majority of country cases studies, no long-term positive relationship exists between the two irrespective of income levels, openness and FDI-dependence.

On the other hand, Borensztein et al. (1998) have studied the effects of both FDI and domestic investment on economic growth in a cross-country regression framework. Using data on FDI flows from industrial countries to 69 developing countries over the 1970s and 1980s, they find that FDI contributes more to economic growth than domestic investment. They also conclude that FDI is more productive than domestic investment, but only when the host country has a minimum threshold stock of human capital. Their results have showed that FDI has the effect of increasing FDI which signifies that there is a strong complementarities effect between FDI and domestic investment. These results are confirmed by a recent study conducted by Lin and Chuang (2007). Using a firm-level data for Taiwan's manufacturing industries over the [1993-1995] and [1997-1999] periods, they have supported the views that FDI promotes domestic investment. But the positive effect of FDI on domestic investment is observed in the cases of larger firms, while the influence is negative in the case of smaller ones.

Analyzing the relationship between FDI, growth and domestic investment for a set of 107 LDCs over the [1980-1999] period, Kumar and Prakash Pradhan (2002) have obtained compatible results with those of Borensztein et al. (1995). Indeed, they conclude that FDI plays an important role in fostering growth in host countries, and that the impact of FDI is observed to be higher than that of domestic investment. A one percent increase in the FDI to GDP ratio is observed to lead to an increase in the growth rate of about 0.34 percent whereas the increase is of about 0.19 percent in response to a similar increase in the domestic investment. Using tests of causality, they have concluded that in the majority of cases the direction of causation between FDI and growth is not pronounced. GMM regressions show that FDI affects domestic investment in a dynamic manner with initial effect being negative and the subsequent effects positive. Ford et al. (2008) have also concluded that FDI contributes more to growth than the domestic investment in the presence of a minimum of human capital for 48 contiguous U.S. States from 1978 to 1997. These results are compliant to those of Mullen and Williams (2005). In fact, FDI is significantly and positively associated with the regional growth.

While they have arrived at the same conclusion as Borensztein et al. (1995), and Kumar and Prakash Pradhan (2002), Seetanah and Khadaroo (2007) have found that although FDI has a positive and significant effect on the level of economic growth for the case of African countries, this contribution to economic growth is observed to be relatively weak as compared to domestic investment.[9] Such results are explained by the fact that African countries have been among the lowest beneficiaries from FDI. Finally, GMM estimates show that there is an important endogeneity in FDI-growth relationship as FDI is not only seen to precede growth and output level of the country but also follows growth.

[9] Either domestic private investment or domestic public investment is taken as proxy to gross domestic investment.

Choe (2003) has analyzed the causal relationship between economic growth, FDI and gross domestic investment for 80 countries over the period [1971-1995]. Using the panel VAR approach, he finds that 'FDI inflows Granger-cause economic growth and vice versa. However the causality seems to run in either direction, but the effect is more apparent from growth to FDI than from FDI to growth'. However, the causality between economic growth and gross domestic investment is only in one direction from economic growth to gross domestic investment rates, which can indicate that gross domestic investment does not Granger-cause economic growth.

Using a panel data set of 24 Chinese provinces observed over the [1985-1996] period, Berthélemy and Démurger (2000) found that FDI plays a fundamental role in Chinese provincial economic growth. They have also observed that openness exhibits positive affects on economic growth through FDI. Zhang (2001a) has also examined the relationship between FDI and economic growth in Chinese provinces. He found that FDI seems to contribute to Chinese economic growth 'through direct effects (such as raising productivity and promoting exports) and positive externality effects (such as facilitating transaction and diffusion technology)'.

Bengoa-Calvo and Fernández (2004) found that FDI may promote economic growth acting as a channel whereby advanced technology may be adopted in host country. Monte Carlo simulations show that an increase in the entry cost of FDI and a decrease in the state of technology lead to a decrease in economic growth. The results assume the hypothesis of the importance of the technology and the contribution of FDI on economic growth.

In a recent study, Mallick and Moore (2008) have examined the impact of external financial flows in investment and that of investment on per capita GDP for 60 LDCs grouped according to their level of income. The results of this study provide evidence that FDI exerts beneficial effects on growth through its contribution to investment regardless of the income level of the host economy. Whereas official flows (ODA)[10] affect significantly and positively growth in the upper and lower middle income countries, FDI affects positively economic growth in all groups of countries. Particularly, the results indicate that FDI shows the strongest link to aggregate investment and that may be preferred type to flows for promoting growth in LCDs. The authors found also that although FDI affects positively and significantly growth through its contribution to investment, this effect is weak in the low income group countries. This result can be explained by the lack of absorptive capability in LCDs with lower levels of income.

The "unit root-cointegration-causality tests" of Zhang (2001b) applied to a sample of 11 Latin American and Asian countries, respectively, over the period [1957-1997] show that FDI is expected to boost economic growth. But the extent to which FDI is growth-enhancing appears to depend on country specific characteristics. In fact, the growth-enhancing effect of FDI is stronger particularly in countries which pursue liberalization of trade regime, improve education and thereby human capital conditions, encourage export-oriented FDI and maintain macroeconomic stability.

Testing empirically hypotheses developed by Balasubramanyam et al. (1996)[11] on a sample of 77 LCDs over the period [1990-2000], Greenaway et al. (2007) arrived at the same

[10] ODA: Official Development Assistant.
[11] The efficiency of FDI in promoting growth will be influenced by the trade policy regime.

conclusions as in Zhang (2001a). Indeed, they found that FDI inflows acted as an engine of developing countries growth in open economies but not in closed ones. FDI inflows into open economies exerted a positive and statistically significant influence. However, inflows of FDI in closed economies exerted no discernible impact on host country growth performance. Khamfula (2007) has also provided an extension to the empirical model developed by Balasubramanyam et al. (1996) by analyzing how FDI determines growth within the new growth theory framework when the degree of corruption is taken into account. Through an empirical study on 17 LCDs characterized by two different categories of trade policy regimes, that is export promotion (EP)[12] and import substitution (IS)[13] over the period [1994-2004], he found that when the level of corruption goes up, this leads to a strong negative influence on FDI in both IS and EP countries. He also found that the effect of the interaction term between FDI and corruption perception index on economic growth is more pronounced in the EP countries than in IS countries.

Bengoa-Calvo and Sanchez-Robles (2003) have examined the relationship between economic freedom, FDI and economic growth. Employing panel data set for a sample of 18 Latin American countries over the period [1970-1999], they found that both the FDI and economic freedom are associated significantly and positively with economic growth. However, the impact of FDI on economic growth is conditioned by a certain level of human capital, economic stability and liberalized markets in the host countries.

In their study for a set of 89 countries over the period [1994-2003], Busse and Groizard (2006) have examined the linkage between government regulations, FDI and economic growth. Their results sustain the hypothesis that countries with restrictive regulations cannot exploit FDI inflows efficiently. They conclude that countries may only benefit from FDI inflows if they have appropriate local government regulations and institutions in place.

The study of Alfaro and Charlton (2007) is characterized by an ideal specification which would correlate economic growth with exogenous changes in homogenous types of FDI. In exploiting a comprehensive industry level data set for the period [1985-2000] that encompasses 29 countries to examine the various links between different types of FDI and growth, they find that the growth effects of FDI increase when they account for the quality of FDI.

Nunnenkamp and Spatz (2004) have examined whether the growth impact of FDI differs between manufacturing industries and how it is related to industry characteristics,[14] and they also analyze the interplay between industry and host country characteristics.[15] To this end, a cross country analysis for a set of developing countries over the period [1991-2000] was conducted. The main results of this study are:

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[12] According to Bhagwati (1978), Khamfula (2007) defines EP strategy as one that equates the average effective exchange rate on exports to the average effective exchange rate on imports. It is trade neutral or bias free.

[13] IS strategy is one where the effective exchange rate on imports exceeds the effective exchange rate on exports and is biased in favor of import substitution activities.

[14] The manufacturing industries are characterized according to six indicators that are labor intensity, human capital intensity, R&D intensity, the amount of technology transfer, export orientation and the degree of vertical integration.

[15] Host countries are classified into two groups with favorable and unfavorable characteristics according to four alternative indicators that are their GDP per capita, secondary school enrollment, institutional development and the index of openness.

- In countries with unfavorable characteristics, high total FDI stocks tend to be associated with lower subsequent growth.
- The link between FDI and economic growth is stronger in the services sector than in the manufacturing one.
- The interplay of host-country and industry characteristics suggests that positive growth effects of FDI are more likely when the technological gap is relatively small.
- Sound institutions appear to be a prerequisite for attracting and benefiting from FDI.

Foreign Direct Investment and wages inequality

There is a heated debate about the effects of FDI on development. While it is generally found that FDI can lead to positive growth, hence, efficiency effects, what is generally neglect is the issue of equality. Feenstra and Hanson (1997) is one of the first studies identifying a positive relationship between FDI and wages inequality. Using state-level on two digit industries from the Mexico Industrial Census for the period [1975-1988], they find that FDI affect positively the wage inequality. Their finding shows that in the regions where FDI was most concentrated, increase in FDI can account for over 50 percent of the increase in the share of skilled labor share of total wages that occurred during the late 1980s. In the same way, Taylor and Driffield (2000) examine the impact of inward FDI upon relative wages in UK manufacturing industries at the three digit level over the period [1983-1992]. They find that FDI has a strong impact upon wage dispersion, even after controlling for the two most common explanations of wages dispersion that are technology and trade.

Tomohara and Yokota (2007) examine whether inward FDI is a source of wage inequality between skilled and unskilled labor in LDCs. They examine specifically whether FDI's impacts on labor demand differ depending on FDI origin. Using establishment-level panel data from an industrial survey for [1998-2002][16] periods they find that, on average, FDI caused wage inequality due to an increase demand for skilled labor via skill biased technological change. However, Japanese and Taiwanese FDI helped alleviate wage inequality between skilled and unskilled labor. The two countries' FDIs which are dominant in Thailand were motivated by comparative advantage and thus increase relative demand for unskilled labor.

Based on a model developed by Aghion and Howitt (1998) in which the introduction of new technologies leads to increasing demand for skilled labor and therefore leads to increasing inequality, Figini and Görg (1999) have conducted an econometric study. They use pooled data for wages gapes between industrial workers and administrative and technical staff within 17 manufacturing Irish sectors over [1979-1995] periods. Their results provide support to the theoretical expectation that there is an inverted-U relationship between wage inequality and the presence of multinationals. They show that the presence of multinationals companies has the effect of first increasing, and then decreasing, wages gaps between the two groups.

In more recent study, Figini and Görg (2006) have based also on the endogenous growth model developed by Aghion and Howitt (1998). For the empirical analysis they use a

[16] They focus on the time period after the East Asian crisis of 1997, when Thailand experienced a surge of FDI inflows.

panel of more than 100 developed and developing countries for the [1980-2002] periods. They find that the link between inward FDI and wage inequality depends on the level of economic development in the host countries. In fact, the results for the developing countries (non-OECD) show that the inward FDI has a positive effect on inequality wages and that this relationship is non-linear.[17] For developed countries (OECD), wages inequality decreases with FDI inward and there is no robust evidence to show that this effect is non-linear.

Bruno et al. (2004) study whether FDI contributed to the raise in earning inequality via a change in the skill composition of labor demand in three EU Accession countries (Poland, Hungary and the Czech Republic). Using nonparametric and parametric approaches they find that while in Hungary and the Czech Republic FDI exerts a positive direct impact on the skill-premium, in none of the countries considered FDI has worsened wages inequality by favoring labor demand shifts. In the case of Poland it is difficult to trace any specific role at all for FDI.

To analyze the effect of FDI on wages inequality, Velde (2003) uses a supply-demand framework of the market for skilled and less-skilled workers. Workers are divided into skilled and unskilled categories, where skills can be based on education or occupation. The income of skilled workers relative to income of unskilled workers is the measure of wages inequality. Using a panel of four Latin American countries (Chile, Bolivia, Colombia and Costa Rica) over [1978-2000] periods he found that FDI does not have an inequality reducing effect, although there are possible exceptions (e.g. Colombia) where FDI may have played a relatively minor inequality reducing role. However, in Chile and Bolivia FDI appears to have increased wages inequality. Considering all Latin American countries he found that, on average, FDI may raise wages inequality by raising wages of skilled workers more than wages of less-skilled workers. He also concludes that FDI has a more positive effect (inequality increasing) in countries where FDI strategies are mainly natural resources seeking (e.g. Venezuela) or motivated by exploiting relatively skilled workers (e.g. Costa Rica) than the other countries. This would confirm that natural resources seeking or skill seeking FDI benefits skilled workers more than less-skilled workers. Finally, he shows that FDI affects wages inequality between workers with third and second level education, not between second and first level education. Velde and Morrissey (2004) have also based on a supply-demand for skills framework in a study for five East Asian countries over [1985-1998] periods. They find that the effects of FDI appear to vary across countries. Inward FDI has raised wages inequality in Thailand substantially, while the effects of FDI on wages inequality were less clear or insignificant in Singapore, Hong Kong, Philippines and Korea.

3. Econometric modeling

The empirical study focuses on the MENA countries in comparison with Latin American, Southeast Asian, African, and Eastern European countries.[18] A rich geographic composition is chosen to disentangle the role of macroeconomic, institutional, and region-specific factors. In particular, the experience of Eastern European countries is motivating to identify the effect of policy measures related to the EU enlargement on private capital flows.

[17] Wage inequality increases with FDI inward stock but this effect diminishes with further increases in FDI.
[18] See appendix for a complete list of the panel.

Foreign Direct Investment, investment and economic growth

In order to assess the impact of private capital flow on economic growth, we consider the endogenous growth model completed by capital inflow variables and interaction variables to account for absorptive capacity of the host country. The generic form of the regression equation estimated in this project is defined as follows:

$$g_{i,t} = \alpha_1 + \alpha_2 g_{i,t-1} + \varphi_1 FDI_{i,t} + \varphi_2 FDI_{i,t} * FD_{i,t} + \beta' X_{i,t} + \varepsilon_{i,t} \qquad (1)$$

where g indicates growth as measured by either the annual growth rate of real GDP or the annual growth rate of real per capita GDP. Variable FDI refers to FDI inflows. In the empirical study, two variables are considered either separately or together. We affect the name of variable FDI to the ratio of FDI over GDP and FPI to the ratio of portfolio liabilities over GDP. Variable FD refers to some proxies for the level of financial development. Such variables are interacted with FDI and/or FPI variables to take into account non linear effects of these variables on growth in relation with the level of development of the financial system. Studying the impact of the financial system development on economic growth, two categories of indicators are usually considered one for the measure of the impact of banking development on growth and the second for the impact of stock markets development on growth. To measure bank development, we use a variable *Credit to private sector* which equals the value of credits by financial intermediaries to the private sector divided by GDP following Levine and Zervos (1998), Rousseau and Wachtel (2000), and Beck and Levine (2004). Unlike many past measures, this indicator excludes credits issued by central banks. As for stock markets development, we consider here two stock markets indicators measuring its size and efficiency.[19] Stock market capitalization to GDP ratio measures the size of stock markets as it aggregates the value of all listed shares in the stock markets. It is assumed that the size of the stock markets is positively correlated with the willingness to mobilize capital and to diversify risk. We use also the turnover ratio which equals the value of trades of shares on national stock markets divided by market capitalization to capture the efficiency of the domestic stock markets. More efficient stock markets can foster better resource allocation and spur growth (Levine, 1991; Bencivenga et al., 1995). If α_1 is negative and α_2 is positive, the appropriate threshold would be the value of FD that makes the sum of the second and third terms positive. The precise break-even point is therefore $FD \geq -\alpha_1/\alpha_2$. Of course, if α_1 and α_2 are both positive (negative), then FDI has an unambiguously positive (negative) real effect. X is a standard set of growth conditioning variables that includes the logarithm of initial income per capita to control for convergence. It is GDP per capita converted to international dollars (constant 2000 US$). According to neoclassical theory, the coefficient associated to per capita income represents the convergence effect and thus should be negative.[20] According to endogenous growth models, there is no convergence effect, since economies do not depart from their steady states, and therefore the coefficient is expected to be zero. On the other hand, we use the openness ratio which equals the total amount of exports and imports over GDP to capture the degree of openness of an economy. As discussed by Edwards (1993), the literature on endogenous growth argue that economies that are more open to international trade can grow more rapidly by expanding their markets and becoming

[19] Beck et al. (1999) outline indeed three key stock markets indicators in measuring its size, activity and efficiency. We consider only two indicators since the efficiency indicator is defined from the size indicator and the so called activity indicator.

[20] If convergence is confirmed, then a country with a relatively low level of initial per capita GDP will grow faster, since it is that much farther away from its steady state and must catch up.

more efficient. Finally, inflation rate and the ratio of government consumption to GDP are introduced as indicators of macroeconomic stability. Theory and some evidence suggest a negative relationship between macroeconomic instability and economic activity (Fischer, 1993; Easterly and Rebelo, 1993; Bruno and Easterly, 1995). More specifically, as Barro and Sala-i-Martin (1995) point out, the government consumption variable is intended to capture public expenditures that do not directly affect productivity but will entail distortions on private decisions. The coefficient associated to this variable is also expected to be negative.

We are also interested in the influence of private capital inflow on domestic investment. We employ the following specification:

$$I_{i,t} = \phi_1 + \phi_2 I_{i,t-1} + \varphi FDI_{i,t} + \beta' X_{i,t} + \varepsilon_{i,t} \qquad (2)$$

where I corresponds to the gross capital formation or gross fixed capital formation over GDP. Variable FDI refers to FDI inflows. In the empirical study, three variables are considered either separately or together. We affect the name of variable FDI to the ratio of FDI over GDP, FPI to the ratio of portfolio liabilities over GDP and *Debt* the ratio of loans over GDP. The control variables included in vector X are annual growth rate of real per capita GDP lagged twice, the lagged inflation rate, and the change in terms of trade. The lagged value of investment is included as an additional control to allow for persistence in the dependent variable. All these variables are drawn from the World Development Indicators database (WDI).

The presence of lagged dependent variables in the right hand side of equations (1) and (2) justifies the adoption of the Generalized Method of Moments (GMM) procedure as a consistent method of estimation. According to the available data, the treatment of incomplete panels is imperative. Indeed, the available panel dataset for the countries to be considered is unbalanced since each variable is observed over varying time length. The dynamic structure provided in the econometric specifications (1) and (2) leads to more efficient and consistent estimators given through the GMM methodology. This technique, developed essentially by Arellano and Bond (1991), is more and more employed in the context of dynamic panels. It provides convergent estimators and derives from the instrumental variables principles. It also makes up for problems of correlation between the lagged dependent variable included in the vector of control variables and the error term $\varepsilon_{i,t}$.

From an econometric point of view, the GMM procedure is based on a set of orthogonality conditions between the error terms and some instrumental variables. Estimation procedure is conducted in order to assure convergence of these orthogonality conditions to zero. The obtained estimator follows from a minimization of an appropriate quadratic form. Improvements are introduced like the two-step estimator developed by Arellano and Bond (1998). In comparison with the earlier procedures, the later reduces the dimensionality of the instruments which permits to avoid the over-fitting risk but still takes into account the presence of heteroskedastic consistent standard errors. The difference between one-step and two-step estimation consists in the specification of an individual specific weighting matrix. The two-step estimation uses the one-step's residuals, so it is more efficient. But, Arellano and Bond (1991) mention that Monte-Carlo simulations suggest that the asymptotic standard errors for the two-step estimators can be a 'poor guide' and so the inferences should be based rather on the one-step estimators.

Consistency of the GMM estimator depends on the validity of the instruments. To address the issue we consider two specification tests suggested by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998). The first is the Sargan test of over-identifying restrictions, which tests the overall validity of the instruments. Under, the null hypothesis of the validity of the instruments, the statistic associated with this test has a chi-squared distribution with (J-K) degrees of freedom where J is the number of instruments and K the number of the independent variables in the regression. The second test examines the assumption of no serial correlation in error terms. We test whether the differenced error term is second-order serially correlated. Under the null hypothesis of no second-order correlation, the statistic associated with this test has a standard-normal distribution. Failure to reject the null hypotheses of both tests confirms the validity of our specifications.

Foreign Direct Investment and wage inequality

While private capital inflow may bring benefits to the host economy, it is by no means clear where everyone will benefit to the same extent. It seems that in some cases FDI gives rise to more unequal income distribution in the host LCDs. The impact of FDI on wage inequality could be specified according to following model as developed by Tsai (1995):

$$INEQ_i = \theta_1 + + \varphi_1 FDI_i + \beta' X_i + \varepsilon_i \qquad (3)$$

where INEQ is a measure of wage inequality which is measured by Gini indices for each country i. Variable FDI refers to FDI inflows over GDP. X is a vector of control variables also assumed to be correlated with inequality. According to the literature on wage inequality, we introduce three basic control variables in equation (3), namely trade openness, the level of development measured by the annual rate of real per capita GDP and the level of education as a measure of human capital.[21] Tsai (1995), among others, argue that FDI could contribute to the growth and development of the host LCDs via channels such as transfer of modern technology and management skills, human capital development as well as exporting market access. Two additional variables are also introduced. The first is the general government consumption over GDP reflecting the role of the state. The second is the share of employment in agriculture in the total employment. The lack of data in the time series dimension leads to regress equation (3) by OLS in a cross sectional manner. So the sample is constituted by countries each one observed at least one time.[22] When GINI index is referred to year t, all the explanatory variables, except the human capital variable, are the three-year average of their values at times t, t-1 and t-2. The purpose is to drop out short-run fluctuations of these variables. However, the human capital variable is conceived to have a longer term effect with a substantial time lag. So when GINI index is observed at year t, the human capital variable is observed 10 years earlier.

4. Empirical results and comments

Different results of estimation of equation (1) appear in Tables 1-4. Table 1 presents results for the full sample when the dependent variable is the annual growth rate of real GDP. In the first column of Table 1, we present our estimate of equation (1) for all full sample without including FPI. In this table, columns (1)-(3) are reserved to specifications including the ratio

[21] Data for these variables come from the WDI database.

[22] Each country could have more than one observation at different years which is a kind of pooled semi longitudinal sample.

of FDI over GDP as a measure of FDI inflows. In column 2, we introduce maket capitalization instead of Credit to private sector. GDP lagged one time and inflation show the expected sign. In column 3, we replace Market capitalization by the turnover ratio. We record the same results as with column 2. Columns (4)-(6) contain specifications with FPI as FDI measure, and in columns (7)-(9) both FDI and FPI are present. Finally, control variables are present in the whole specifications. Moreover for these variables, we can note that inflation exhibits the negative and significant expected effect on growth in all the specifications except specification (1). This result is in line with the theory. The second indicator of macroeconomic stability that is Government consumption also exhibits the negative effect in the majority of specifications but the associated coefficient is not significant except in specification (6). Results for variables which indicate openness and convergence are mitigated, since neither the expected sign (positive for openness and negative for initial income per capita) nor accepted level of significance is observed. On the other hand, the direct effect of FDI on growth is positive in columns (1)-(3) although significance is observed only in presence of Credit to private sector as a measure of financial development. The crossed effect for this variable is also significant for a negative coefficient. So, the importance of the banking system could increase the absorptive capacity of the host country creating a compensatory effect to FDI. From column 4 to 6, we introduce FPI inflow in the model instead of FDI, and we consider a set of alternative measure of financial development and control variables to test the robustness of our results.Similar results appear in columns (4)-(6) for FPI variable. In addition, direct effect of such variable on growth is also positive and significant in presence of Market capitalization as a measure of stock markets development, but the crossed effect is not significant. Finally, when we introduce FDI and FPI variables together in columns (7)-(9), no significant differences are observed in comparison to results obtained in columns (1)-(6).

<Insert table 1 near here>

The same structure is taken again in Table 2 but considering real per capita GDP growth as dependent variable. Again control variables exhibit similar results to those obtained in Table 1 as well as for variables FDI and/or FPI.

<Insert table 2 near here>

In Table 3, the dependent variable is again the annual growth rate of real GDP, but regional dummies for MENA, Latin American, African, Asian and CEE countries are introduced in order to differentiate the impact of FDI and/or FPI relating to these regions. In this sense these regional dummies are interacted with FDI and/or FPI variables as well as with interaction variables between FDI and/or FPI and financial system development indicators. A significant direct impact of FDI on growth is obtained for MENA region when the two indicators of stock markets development that are market capitalization and turnover are also considered (columns (2) and (3)). The non linear negative effects are also observed but the associated estimated coefficients are not significant. For Latin American and African countries, respectively, direct effect and non linear effect are significant when the financial system development indicator is credit to private sector (column (1)). Also for Africa, column (2) provides the same results when Market capitalization indicator is introduced in the model. For CEE countries, the impact of FDI is significant only when Turnover variable is present in the model (column (3)). Looking at columns (4)-(6), a significant impact of FPI is observed solely for Africa when credit to private sector and turnover variable are considered, and for

Asia in presence of Market capitalization variable (column (5)). Introduction of FDI and FPI together did not exhibit tangible results.

<Insert table 3 near here>

The same structure is taken again in Table 4 but considering real per capita GDP growth as dependent variable. Interesting results are confirmed when FDI variable is considered (columns (1)-(3)). We can observe a positive impact of FDI on growth for MENA countries when the financial development is measured by market capitalization, for Latin America in presence of credit to private sector as indicator of financial development, for CEE countries in presence of turnover ratio, and for Africa when either credit to private sector or market capitalization indicator is considered. On the other hand, the impact of FPI on growth is significant (columns (4)-(6)) only for Africa when either credit to private sector or turnover ratio is considered, and for Asia when market capitalization is present in the model.

<Insert table 4 near here>

We move now to results relating to the estimation of equation (2) which represent the impact of FDI on domestic investment (Tables 5-8). Table 5 provides results for the full sample when the dependent variable is gross capital formation as a measure of domestic investment while Table 6 provides similar results when the dependent variable is rather gross fixed capital formation. These results are almost similar especially in terms of expected signs and statistical significance. A first interesting result is that, the inertia effect of domestic investment is positively significant. We assist to a natural dynamic of domestic investment in an increasing trend. On the other hand, changes in terms of trade influence domestic investment positively, but this effect is not significant in the whole of the specifications. The expected negative effect of inflation on domestic investment is also observed but it is not significant. The positive effect of growth on domestic investment is significant only at one lag. The three variables indicating FDI exhibit a positive and significant effect on domestic investment when introduced separately or together which confirms the role of FDI as an impulse factor to global investment in host countries whatever the form it takes (FDI, FPI or Debt).

<Insert table 5&6 near here>

In Table 7, the dependent variable is gross capital formation, but regional dummies for MENA, Latin American, African, Asian and CEE countries are introduced in order to differentiate the impact of FDI, FPI and/or Debt relating to these regions. In this sense these regional dummies are interacted with FDI, FPI and/or Debt variables. In column (1), we observe that FDI has a positive and significant impact on domestic investment in MENA region, in Asia and CEE. The effect of FPI is also significant for Asia (column (2)). When we consider Debt variable as a measure of FDI, the effect is positive and significant for Latin America, Asia and CEE.

<Insert table 7&8 near here>

Finally, Table 9 presents results for the estimation of equation (3). One column is reserved to the full observations while in the second we take into account differences in the distributional effect of FDI on wage inequality between regions. The effect of real per capita GDP is positive as expected while this variable has a negative effect when it is squared. The significance is observed in presence of regional dummies. Openness has a negative effect as

expected which is significant only for the full sample. In column (1) also the human capital variable and the economic growth variable have the negative and significant effect on wage inequality. As far as for FDI variable, the impact is positive and significant except for CEE region.

<Insert table 9 near here>

5. Conclusion and main recommandations

From this study we can assess on the importance of FDI as a generator of growth since positive effect was recorded specially in the presence of Credit to private sector as a measure of financial development. We can assess also on the main role of the banking system increasing the absorptive capacity of the host country creating a compensatory effect to FDI. In a comparative perspective, introducing regional dummies for MENA, Latin American, African, Asian and CEE countries, we observe a significant direct impact of FDI on growth for MENA region. This detects the need of these countries for inflows of foreign capital whatever this observation remains valid for other regions such as Africa and Latin America.

The impact of FDI on domestic investment is also exhibited. In such case, FDI seems to hop the domestic investment. So it could be considered that more inflows of foreign capital constitute an impulse factor to global investment. Such positive influence is also detected for MENA region, Asia and CEE countries. For the region of our concern, that is the MENA region, national efforts to create opportunities of investment are requested and approved, but the support coming through FDI is significant.

References

Aghion, P., and Howitt, P., (1998), *Endogenous growth theory*, MIT Press, Cambridge, MA, USA.

Alfaro, L., and Charlton, A., (2007), "Growth and the quality of Foreign Direct Investment: Is all FDI equal?", Presented at the IMF New perspectives on financial globalization Conference, Washington, DC, USA.

Arellano, M., and Bond, S.R., (1991), "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations", *Review of Economic Studies* 58, pp.277-297.

Arellano, M., and Bond, S.R., (1998), "Dynamic panel data estimation using DPD98 for GAUSS: A guide for users", available at: http://www.ifs.org.uk/econometindex.shtml.

Arellano, M., and Bover, O., (1995), "Another look at the instrumental variable estimation of error components models", *Journal of Econometrics* 68, pp.29-52.

Balasubramanyam, V.N., Salisu, M., and Sapsford, D., (1996), "Foreign Direct Investment and growth in EP and IS countries", *Economic Journal* 106, pp.92-105.

Barro, R., and Sala-i-Martin, X., (1995), *Economic growth*, McGraw-Hill, New York, USA.

Beck, T., and Levine, R., (2004), "Stock markets, banks and economic growth: Panel evidence", *Journal of Banking and Finance* 28, pp.423-442.

Beck, T., Levine, R., and Loayza, N., (1999), "Finance and sources of growth", World Bank Policy Working Paper N°2057, World Bank, Washington D.C., USA.

Bencivenga, V., Smith, B., and Starr, R., (1995), "Transaction costs, technological choice and endogenous growth", *Journal of Economic Theory* 67, pp.53-117.

Bengoa-Calvo, M., and Fernández, A.C., (2004), "A Model of endogenous growth with Foreign Direct Investment", Presented at the VIIIth Conference of Applied Economics, University of Murcia, Spain.

Bengoa-Calvo, M., and Sanchez-Robles, B., (2003), "Foreign Direct Investment, economic freedom and economic growth: New evidence from Latin-America", *European Journal of Political Economy* 19, pp.529-545.

Berthélemy, J.C., and Démurger, S., (2000), "Foreign Direct Investment and economic growth: Theory and application to China", *Review of Development Economics* 4, pp.140-155.

Bhagwati, J.N., (1978), *Foreign trade regimes and economic development: Anatomy and consequences of exchange control regimes*, Ballinger, Cambridge, MA, USA.

Blalock, G., and Gertler, P.G., (2008), "Welfare gains from Foreign Direct Investment through technology transfer to local suppliers", *Journal of International Economics* 74, pp.402-421.

Blundell, R., and Bond, S.R., (1998), "Initial conditions and moment restrictions in dynamic panel data models", *Journal of Econometrics* 87, pp.115-143.

Borensztein, E., De Gregorio, J., and Lee, J.W., (1998), "How does Foreign Direct Investment affect economic growth?", *Journal of International Economics* 45, pp.115-135.

Bruno, G.S.F., Crinò, R., and Falzoni, A.M., (2004), "Foreign Direct Investment, wage inequality, and skilled labor demand in EU accession countries", CESPRI Working Paper N°154, CESPRI, Centre for Research on Innovation and Internationalisation, University of Bocconi, Milan Italy.

Bruno, M., and Easterly, W., (1995), "Inflation, crisis and long-run growth", NBER Working Paper N°5209, National Bureau of Economic Research, Cambridge, Massachusetts, USA.

Busse, M., and Groizard, J.L., (2006), "Foreign Direct Investment, regulations, and growth", Policy Research Working Paper N°3882, World Bank, Washington, DC, USA.

Choe, J.I., (2003), "Do Foreign Direct Investment and gross domestic investment promote economic growth?", *Review of Development Economics* 7, pp.44-57.

Easterly, W., and Rebelo, S., (1993), "Fiscal policy and economic growth", *Journal of Monetary Economics* 32, pp.417-458.

Edwars, S., (1993), "Openness, trade liberalization and growth in developing countries", *Journal of Economic Literature* 31, pp.1358-1393.

Feenstra, R.C., and Hanson, G.H., (1997), "Foreign Direct Investment and relative wages: Evidence from Mexico's maquiladoras", *Journal of International Economics* 42, pp.371-393.

Figini, P., and Görg, H., (1999), "Multinational companies and wage inequality in the host country: The case of Ireland", Trinity Economic Paper Series, Technical Paper N°98/16, Department of Economics, Trinity College, Dublin, Ireland.

Figini, P., and Görg, H., (2006), "Does Foreign Direct Investment affect wage inequality? A empirical investigation", IZA Discussion Paper N°2336, Institute for the Study of Labor, Bonn, Germany.

Fischer, S., (1993), "The role of macroeconomic factors in growth", *Journal of Monetary Economics* 32, pp.485-512.

Ford, T.C., Rork, J.C., and Elmslie, B.T., (2008), "Considering the source: Does the country of origin of FDI matter for economic growth?", *Journal of Regional Science* 48, pp.329-357.

Greeneway, D., Sapsford, D.R., and Pfaffenzeller, S., (2007), "Foreign Direct Investment, economic performance and trade liberalization", *World Economy* 30, pp.197-210.

Hsiao, C., (1986), *Analysis of panel data*, Cambridge University Press, Cambridge, MA, USA.

Khaliq, A., and Noy, I., (2007), "Foreign Direct Investment and economic growth: Empirical evidence from sectoral data in Indonesia", Working Paper N°07-26, Department of Economics, University of Hawai at Manoa, USA.

Khamfula, Y., (2007), "Foreign Direct Investment and economic growth in EP and IS countries: The role of corruption", *World Economy* 30, pp.1843-1854.

Kumar, N., and Prakash Pradhan, J., (2002), "Foreign Direct Investment, externalities and economic growth in developing countries: Some empirical explorations and implications for WTO negociations on investment", RIS Discussion Paper N°27/2002, Research and Information System for the Non-Aligned and Other Developing Countries, New Delhi, India.

Levine, R., (1991), "Stock markets, growth and tax policy", *Journal of Finance* 46, pp.1445-1465.

Levine, R., and Zervos, S., (1998), "Stock markets, banks and economic growth", *American Economic Review* 88, pp.537-558.

Lin, H.L., and Chuang, W.B., (2007), "FDI and domestic investment in Taiwan: An endogenous switching model", *The Developing Economies* 45, pp.465-490.

Mallick, S., and Moore, T., (2008), "Foreign capital in a growth model", *Review of Developement Economics* 12, pp.143-159.

Mullen, J.K., and Williams, M., (2005), "Foreign Direct Investment and regional economic performance", *Kyklos* 58, pp.265-282.

Nunnenkamp, P., and Spatz, J., (2004), "FDI and economic growth in developing countries: How relevant are host-country and industry characteristics?", *Transnational Corporations* 13, pp.53-83.

Prabirjit, S., (2007), "Does Foreign Direct Investment promote growth? Panel data and time series evidence from Less Developed Countries, 1970-2002", MPRA Paper N°5176, University of Munich, Germany.

Rousseau, R.L., and Wachtel, P., (2000), "Equity markets and growth: Cross country evidence on timing and outcomes", *Journal of Banking and Finance* 24, pp.1933-1957.

Seetanah, B., and Khadaroo, A.J., (2007), "Foreign Direct Investment and growth: New evidence from Sub-Saharan African countries", Mimeo, Department of Economics and Statistics, University of Mauritius.

Taylor, K., and Driffield, N., (2000), "Wage dispersion and the role of multinationals: Evidence from UK panel data", Presented at the International Economic Association Conference on Globalisation and Labour Markets, University of Nottingham, England.

Tomohara, A., and Yokota, K., (2007), "Foreign Direct Investment and wage inequality: Is skill upgrading the culprit?", Working Paper Series N°2007-3, The Society of Economic Studies, University of kitakyushu, Japan.

Tsai, P.L., (1995), "Foreign Direct Investment and income inequality: Further evidence", *World Development* 23, pp.469-483.

Velde, D.W., (2003), "Foreign Direct Investment and income inequality in Latin America: Experiences and policy implications", Prepared for Overseas Development Institute, London, England.

Velde, D.W., and Morrissey, O., (2004), "Foreign Direct Investment, skills and wage inequality in East Asia", *Journal of the Asia Pacific Economy* 9, pp.348-369.

Zhang, K.H., (2001a), "How does Foreign Direct Investment affect economic growth in China?", *Economics of Transition* 9, pp.679-693.

Zhang, K.H., (2001b), "Does Foreign Direct Investment promote economic growth? Evidence from East Asia and Latin America", *Contemporary Economic Policy* 19, pp.175-185.

Appendix

MENA	Latin America	Asia	Africa	CEEC
Bahrain	Argentina	China	Botswana	Bulgaria
Egypt	Bolivia	India	Cameroon	Croatia
Iran	Brazil	Indonesia	Côte d'Ivoire	Czech
Jordan	Chile	Korea	Ghana	Republic
Kuwait	Colombia	Malaysia	Kenya	Estonia
Lebanon	Ecuador	Pakistan	Mali	Hungary
Morocco	Mexico	Philippines	Mauritania	Latvia
Oman	Peru	Singapore	Mozambique	Lithuania
Qatar	Uruguay	Thailand	Nigeria	Poland
Saudi Arabia	Venezuela		Senegal	Romania
Syria			South Africa	Slovakia
Tunisia			Sudan	Slovenia
Turkey			Tanzania	
UAE			Zambia	

Table 1- GMM-in system estimates of the impact of FDI on economic growth (Full sample)

	Dependent variable : GDP growth								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	0.172	-0.183	-0.183	0.137	-0.215	-0.16	0.223	-0.219	-0.151
	(0.19)	(0.162)	(0.162)	(0.13)	(0.152)	(0.135)	(0.201)	(0.153)	(0.108)
GDP growth(-1)	0.189*	0.256***	0.256***	0.233**	0.252**	0.249***	0.107	0.257***	0.249***
	(0.112)	(0.094)	(0.094)	(0.109)	(0.1)	(0.063)	(0.117)	(0.0984)	(0.0673)
FDI	0.607***	0.145	0.145				0.64***	0.0821	0.126
	(0.235)	(0.0973)	(0.0973)				(0.233)	(0.111)	(0.115)
FDI*Credit to private sector	-0.668**						-0.661**		
	(0.306)						(0.332)		
FDI*Market capitalization		0.0264						0.0542	
		(0.039)						(0.0542)	
FDI*Turnover			0.0264						0.05
			(0.039)						(0.143)
FPI				0.152*	0.135*	0.081	-0.0674	0.138**	0.0735
				(0.0823)	(0.0702)	(0.0523)	(0.081)	(0.0692)	(0.0485)
FPI*Credit to private sector				-0.987*			0.11*		
				(0.588)			(0.0575)		
FPI*Market capitalization					-0.0201			-0.0334	
					(0.02)			(0.0215)	
FPI*Turnover						-0.039			-0.0305
						0.0504			(0.052)
Initial income per capita	-0.055	0.0752	0.0752	-0.0458	0.0825**	0.0594	-0.072	0.082*	0.054*
	(0.0605)	(0.0462)	(0.0462)	(0.043)	(0.0416)	(0.039)	(0.0641)	(0.0423)	(0.0322)
Government consumption	-0.106	-0.071	-0.071	-0.0548	-0.0344	-0.0303	-0.12*	0.0131	0.053
	(0.067)	(0.195)	(0.195)	(0.059)	(0.211)	(0.169)	(0.0652)	(0.206)	(0.191)
Openness	0.0635***	-0.0261	-0.0261	0.07***	-0.0162	0.0106	0.073***	-0.0211	-0.00065
	(0.0203)	(0.0172)	(0.0172)	(0.025)	(0.0164)	(0.014)	(0.027)	(0.0186)	(0.0174)
Inflation	-0.0016	-0.00434**	-0.00434**	-0.0021*	-0.00431**	-0.00322**	-0.00214*	-0.00424**	-0.0033*
	(0.00114)	(0.00202)	(0.00202)	(0.00114)	(0.002)	(0.0014)	(0.0012)	(0.002)	(0.00193)
F-Statistic	11.74***	3.35***	3.35***	14.16***	2.65**	10.39***	16.6***	2.29**	7.11***

Sargan test	41.83**	8.03	8.03	63.24***	9.28	28.39*	57.30***	10.93	26.03*
Serial correlation test	-3.61***	-3.97***	-3.97***	-3.71***	-3.66***	-4.03***	-3.39***	-3.72***	-3.97***
Nb. of countries	56	47	47	53	44	44	53	44	44
Nb. of observations	1230	714	714	1162	671	671	1162	671	671

This table presents the results of GMM-in system estimation for the full sample of the considered countries over the 1980-2007 periods. The number of considered countries in each specification depends on the availability of explanatory variables. The dependent variable is the annual growth rate of GDP. The nature of GMM method leads to the introduction of lagged dependent variable (GDP growth(-1)). Foreign direct investment is measured through FDI and FPI variables introduced separately of together. In order to take into account a non linear effect of FDI and/or FPI, interaction variables between FDI and/or FPI and some measures of financial system development are also introduced.

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 2- GMM-in system estimates of the impact of FDI on economic growth (Full sample)

	Dependent variable : Real per capita GDP growth								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	0.0647	-0.239	-0.273	0.0525	-0.26*	-0.146	0.157	-0.222*	-0.134
	(0.138)	(0.165)	(0.169)	(0.115)	(0.143)	(0.113)	(0.153)	(0.135)	(0.101)
Per capita GDP growth(-1)	0.236**	0.245***	0.283***	0.313***	0.278***	0.252***	0.134	0.246***	0.245***
	(0.114)	(0.068)	(0.098)	(0.11)	(0.105)	(0.0683)	(0.106)	(0.072)	(0.0728)
FDI	0.707***	0.172*	0.181*				0.738***	0.188*	0.146
	(0.205)	(0.101)	(0.108)				(0.222)	(0.106)	(0.102)
FDI*Credit to private sector	-0.794***						-0.764**		
	(0.234)						(0.305)		
FDI*Market capitalization		0.000524						-0.042	
		(0.0658)						(0.0583)	
FDI*Turnover			-0.0039						-0.00214
			(0.0447)						(0.124)
FPI				0.174**	0.143**	0.082	-0.0256	0.0837	0.0734
				(0.0889)	(0.072)	(0.0532)	(0.0718)	(0.0655)	(0.05)
FPI*Credit to private sector				-0.968			0.08		
				(0.697)			(0.0495)		
FPI*Market capitalization					-0.021			-0.01	
					(0.02)			(0.02)	
FPI*Turnover						-0.0366			-0.0252
						(0.0521)			(0.052)
Initial income per capita	-0.0254	0.0755	0.095*	-0.0247	0.09**	0.047	-0.056	0.07*	0.043
	(0.0457)	(0.0483)	(0.049)	(0.0396)	(0.0412)	(0.0362)	(0.0494)	(0.0401)	(0.032)
Government consumption	-0.124*	0.0605	-0.0252	-0.06	-0.026	0.0035	-0.159**	0.05	0.047
	(0.0758)	(0.185)	(0.181)	(0.078)	(0.186)	(0.114)	(0.078)	(0.174)	(0.163)
Openness	0.0627***	0.00414	-0.0172	0.0737***	-0.00734	0.024	0.0753***	0.0127	0.0124
	(0.0212)	(0.0168)	(0.0182)	(0.0256)	(0.0182)	(0.0152)	(0.0273)	(0.0173)	(0.02)
Inflation	-0.00126	-0.0034*	-0.00426**	-0.00191	-0.00421**	-0.00315**	-0.00202*	-0.00325*	-0.0032*
	(0.0011)	(0.00195)	(0.002)	(0.00123)	(0.00194)	(0.00136)	(0.00116)	(0.002)	(0.002)

F-Statistic	13.83***	4.56***	3.77***	17.04***	2.49**	13.11***	21.19***	5.25***	5.44***
Sargan test	44.24**	23.13**	6.24	56.24***	4.31	31.02*	62.42***	19.09	28.58**
Serial correlation test	-3.49***	-4.37***	-4.26***	-3.59***	-3.92***	-4.13***	-3.47***	-4.07***	-4.05***
Nb. of countries	56	47	47	53	44	44	53	44	44
Nb. of observations	1230	714	714	1162	671	671	1162	671	671

This table presents the results of GMM-in system estimation for the full sample of the considered countries over the 1980-2007 periods. The number of considered countries in each specification depends on the availability of explanatory variables. The dependent variable is the annual growth rate of real per capita GDP. The nature of GMM method leads to the introduction of lagged dependent variable (Per capita GDP growth(-1)). Foreign direct investment is measured through FDI and FPI variables introduced separately of together. In order to take into account a non linear effect of FDI and/or FPI, interaction variables between FDI and/or FPI and some measures of financial system development are also introduced.

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 3- GMM-in system estimates of the impact of FDI on economic growth (Regional dummies)

	Dependent variable : GDP growth								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	0.026	-0.0978	-0.1	0.157	-0.177*	0.0154	-0.0673	0.0304	0.026
	(0.085)	(0.105)	(0.1)	(0.117)	(0.101)	(0.089)	(0.0611)	(0.046)	(0.076)
GDP growth(-1)	0.0331	0.187	0.262***	0.091	0.271***	0.271***	0.246***	0.294***	0.281***
	(0.136)	(0.144)	(0.1)	(0.182)	(0.1)	(0.0935)	(0.0712)	(0.0902)	(0.09)
FDI*MENA	0.14	0.299*	0.286*				0.0284	-0.0464	0.124
	(0.51)	(0.162)	(0.153)				(0.226)	(0.169)	(0.138)
FDI*Latin America	1.855***	0.00518	-0.959**				0.204	-0.144	-0.839**
	(0.711)	(0.316)	(0.391)				(0.346)	(0.251)	(0.389)
FDI*Asia	0.975	-0.0857	0.166				1.591***	-0.467	0.347
	(0.697)	(0.369)	(0.257)				(0.487)	(1.13)	(0.765)
FDI*Africa	1.0763*	2.17***	0.004				0.33	-0.0088	-0.0912
	(0.576)	(0.686)	(0.307)				(0.272)	(0.166)	(0.21)
FDI*CEE	-0.202	0.148	0.26**				-0.189	0.22*	0.251**
	(0.273)	(0.174)	(0.126)				(0.219)	(0.113)	(0.119)
FDI*Credit to private sector*MENA	-0.191						0.0365		
	(0.631)						(0.345)		
FDI*Credit to private sector*Latin America	-2.274**						-0.589		
	(1.028)						(0.539)		
FDI*Credit to private sector*Asia	-1.257*						-0.886		
	(0.669)						(0.798)		
FDI*Credit to private sector*Africa	-4.501**						-0.712		
	(1.957)						(0.515)		
FDI*Credit to private sector*CEE	0.222						0.593		
	(0.47)						(0.398)		
FDI*Market capitalization*MENA		-0.089						0.187*	
		(0.0586)						(0.101)	
FDI*Market capitalization*Latin America		0.464						-0.487	
		(0.341)						(0.62)	

FDI*Market capitalization*Asia	0.105 (0.181)						1.148 (0.762)	
FDI*Market capitalization*Africa	-2.726** (1.38)						0.000322 (0.195)	
FDI*Market capitalization*CEE	-0.014 (0.269)						-0.012 (0.165)	
FDI*Turnover*MENA		-0.298 (0.318)						-0.336 (0.324)
FDI*Turnover*Latin America		3.952*** (1.03)						3.411*** (1.126)
FDI*Turnover*Asia		0.182 (0.224)						0.054 (0.196)
FDI*Turnover*Africa		0.431 (1.774)						-0.272 (1.125)
FDI*Turnover*CEE		-0.198** (0.1)						-0.21** (0.0951)
FPI*MENA			-0.0084 (0.15)	0.225 (0.166)	-0.0192 (0.0681)	0.211 (0.36)	0.537*** (0.201)	-0.034 (0.0451)
FPI*Latin America			-0.994 (1.784)	0.404 (0.506)	0.224 (0.307)	1.095*** (0.301)	0.323 (0.495)	0.274 (0.301)
FPI*Asia			-0.391 (0.596)	0.268*** (0.076)	-0.0125 (0.05)	-0.155 (0.313)	0.273** (0.12)	-0.0454 (0.0604)
FPI*Africa			2.773*** (0.81)	0.444 (0.373)	0.478* (0.251)	0.807*** (0.246)	0.308 (0.383)	0.356 (0.295)
FPI*CEE			-0.978** (0.466)	-0.052 (0.035)	-0.05 (0.035)	-0.042 (0.247)	-0.075** (0.0375)	-0.0741* (0.039)
FPI*Credit to private sector*MENA			0.267 (0.956)			-0.181 (0.598)		
FPI*Credit to private sector*Latin America			12.824 (10.106)			-2.202** (1.128)		
FPI*Credit to private sector*Asia			2.868 (4.411)			0.158 (0.218)		

FPI*Credit to private sector*Africa				-13.154***			-0.659***		
				(4.537)			(0.221)		
FPI*Credit to private sector*CEE				7.124*			-0.0803		
				(4.211)			(0.756)		
FPI*Market capitalization*MENA					-0.0951			-0.537**	
					(0.161)			(0.21)	
FPI*Market capitalization*Latin America					0.592			0.612	
					(1.673)			(1.683)	
FPI*Market capitalization*Asia					-0.051***			-0.134**	
					(0.0187)			(0.063)	
FPI*Market capitalization*Africa					-0.245			-0.134	
					(0.156)			(0.151)	
FPI*Market capitalization*CEE					-0.218			0.188	
					(0.185)			(0.217)	
FPI*Turnover*MENA						0.89**			1.0223***
						(0.42)			(0.355)
FPI*Turnover*Latin America						1.222			0.717
						(0.756)			(0.601)
FPI*Turnover*Asia						0.129**			0.1**
						(0.0605)			(0.046)
FPI*Turnover*Africa						-1.0824**			-0.865
						(0.55)			(0.66)
FPI*Turnover*CEE						-0.0719			-0.0011
						(0.114)			(0.101)
Initial income per capita	-0.00871	0.04	0.0442	-0.0546	0.0725**	0.0081	0.0335*	0.0068	0.00431
	(0.0284)	(0.0304)	(0.03)	(0.041)	(0.031)	(0.031)	(0.0203)	(0.018)	(0.0243)
Government consumption	-0.12	-0.0935	0.01	-0.045	-0.107	-0.0221	-0.07	-0.0293	0.013
	(0.0882)	(0.105)	(0.146)	(0.098)	(0.172)	(0.118)	(0.0914)	(0.157)	(0.1)

Openness	0.08***	0.0142	-0.0232	0.0845***	-0.0113	-0.0081	-0.000591	-0.0238	-0.0131
	(0.0205)	(0.0201)	(0.02)	(0.024)	(0.0177)	(0.015)	(0.0214)	(0.0203)	(0.01834)
Inflation	-0.00206*	-0.00253	-0.004**	-0.00355**	-0.0043**	-0.004**	-0.0007	-0.0039**	-0.0035**
	(0.00106)	(0.002)	(0.002)	(0.00153)	(0.00188)	(0.0018)	(0.00064)	(0.00171)	(0.002)
F-Statistic	4.55***	6.25***	3.45***	19.06***	5.1***	8.33***	8.58***	14.85***	14.9***
Sargan test	54.06***	51.09***	17.76	43.28**	13.86	23.98**	28.90	35.92*	32.18
Serial correlation test	-3.17***	-2.76***	-4.02***	-2.78***	-3.73***	-4***	-5.11***	-3.87***	-4.08***
Nb. of countries	56	47	47	53	44	44	53	44	44
Nb. of observations	1230	714	714	1162	671	671	1162	671	671

This table presents the results of GMM-in system estimation for the full sample of the considered countries over the 1980-2007 periods. The number of considered countries in each specification depends on the availability of explanatory variables. The dependent variable is the annual growth rate of GDP. The nature of GMM method leads to the introduction of lagged dependent variable (GDP growth(-1)). Foreign direct investment is measured through FDI and FPI variables introduced separately of together. In order to take into account a non linear effect of FDI and/or FPI, interaction variables between FDI and/or FPI and some measures of financial market development are also introduced. In order to differentiate the impact of FDI and/or FPI according to regions, regional dummies for MENA, Latin American, African, Asian and CEE countries are introduced as interaction variables with FDI and/or FPI as well as with the measures of financial system development.
For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.
For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.
Standard errors are reported in parentheses.
***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 4- GMM-in system estimates of the impact of FDI on economic growth (Regional dummies)

	Dependent variable : Real per capita GDP growth								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	0.022	-0.12	-0.143	0.111	-0.204**	-0.0455	-0.08	-0.011	0.00061
	(0.086)	(0.109)	(0.1)	(0.111)	(0.103)	(0.0717)	(0.07)	(0.06)	(0.1)
Per capita GDP	0.0623	0.0837	0.276***	0.219	0.299***	0.241***	0.264***	0.331***	0.318***
growth(-1)	(0.149)	(0.155)	(0.1)	(0.192)	(0.102)	(0.0726)	(0.0775)	(0.1)	(0.1)
FDI*MENA	-0.189	0.353**	0.254*				-0.146	-0.02	0.09
	(0.475)	(0.18)	(0.152)				(0.247)	(0.166)	(0.139)
FDI*Latin America	2.05***	0.122	-0.882**				0.315	-0.129	-0.79**
	(0.726)	(0.347)	(0.399)				(0.351)	(0.262)	(0.396)
FDI*Asia	0.861	-0.147	0.182				1.567***	-0.243	0.413
	(0.744)	(0.447)	(0.231)				(0.533)	(1.139)	(0.728)
FDI*Africa	0.961*	1.76***	0.025				0.311	-0.02	-0.06
	(0.552)	(0.676)	(0.323)				(0.259)	(0.184)	(0.233)
FDI*CEE	0.221	0.263	0.308**				-0.0811	0.219**	0.305**
	(0.294)	(0.203)	(0.124)				(0.234)	(0.111)	(0.123)
FDI*Credit to private	0.117						0.23		
sector*MENA	(0.593)						(0.378)		
FDI*Credit to private	-2.449**						-0.659		
sector*Latin America	(1.0812)						(0.551)		
FDI*Credit to private	-1.257*						-0.809		
sector*Asia	(0.675)						(0.789)		
FDI*Credit to private	-4.68**						-0.7		
sector*Africa	(1.882)						(0.474)		
FDI*Credit to private	-0.14						0.653		
sector*CEE	(0.536)						(0.451)		
FDI*Market		-0.143**						0.137	
capitalization*MENA		(0.067)						(0.102)	
FDI*Market		0.456						-0.476	
capitalization*Latin		(0.376)						(0.628)	

America								
FDI*Market capitalization*Asia	0.093 (0.211)						1.03 (0.749)	
FDI*Market capitalization*Africa	-2.239* (1.217)						-0.03 (0.204)	
FDI*Market capitalization*CEE	0.02 (0.351)						0.121 (0.185)	
FDI*Turnover*MENA		-0.336 (0.276)						-0.341 (0.296)
FDI*Turnover*Latin America		3.862*** (1.056)						3.343*** (1.08)
FDI*Turnover*Asia		0.1 (0.241)						0.0345 (0.189)
FDI*Turnover*Africa		0.172 (1.813)						-0.659 (1.142)
FDI*Turnover*CEE		-0.207** (0.1)						-0.223** (0.1)
FPI*MENA			0.08 (0.152)	0.319** (0.148)	0.0545 (0.0585)	0.322 (0.382)	0.516*** (0.197)	-0.0083 (0.06)
FPI*Latin America			-1.416 (1.71)	0.381 (0.511)	0.141 (0.352)	1.085*** (0.295)	0.311 (0.507)	0.251 (0.32)
FPI*Asia			-0.527 (0.586)	0.253*** (0.0855)	-0.022 (0.0462)	-0.148 (0.314)	0.244** (0.121)	-0.06 (0.063)
FPI*Africa			1.949** (0.945)	0.404 (0.344)	0.636* (0.335)	0.77*** (0.246)	0.267 (0.355)	0.304 (0.278)
FPI*CEE			-0.971** (0.478)	-0.0642 (0.0455)	-0.02 (0.045)	-0.105 (0.254)	-0.08* (0.0424)	-0.08* (0.0424)
FPI*Credit to private sector*MENA			-0.16 (1.137)			-0.38 (0.627)		
FPI*Credit to private sector*Latin America			14.712 (9.978)			-2.21* (1.171)		
FPI*Credit to private			3.796			0.153		

sector*Asia				(4.344)			(0.216)		
FPI*Credit to private sector*Africa				-8.828* (5.244)			-0.555*** (0.213)		
FPI*Credit to private sector*CEE				7.472* (4.306)			0.169 (0.791)		
FPI*Market capitalization*MENA					-0.172 (0.135)			-0.49** (0.21)	
FPI*Market capitalization*Latin America					0.638 (1.676)			0.609 (1.705)	
FPI*Market capitalization*Asia					-0.0463** (0.02)			-0.121* (0.0623)	
FPI*Market capitalization*Africa					-0.206 (0.142)			-0.1 (0.142)	
FPI*Market capitalization*CEE					-0.124 (0.217)			0.221 (0.237)	
FPI*Turnover*MENA						0.263 (0.436)			0.877** (0.434)
FPI*Turnover*Latin America						1.597* (0.828)			0.766 (0.658)
FPI*Turnover*Asia						0.0715 (0.05)			0.112** (0.05)
FPI*Turnover*Africa						-1.449* (0.803)			-0.616 (0.637)
FPI*Turnover*CEE						-0.119 (0.0873)			0.0312 (0.101)
Initial income per capita	-0.0142 (0.0282)	0.0403 (0.034)	0.0522* (0.03)	-0.0455 (0.0393)	0.074** (0.032)	0.0123 (0.023)	0.033 (0.0211)	0.014 (0.0205)	0.00633 (0.03)
Government	-0.132	-0.0656	0.0543	-0.058	-0.079	0.0312	-0.0855	-0.0131	0.03

consumption	(0.102)	(0.13)	(0.13)	(0.116)	(0.151)	(0.12)	(0.101)	(0.164)	(0.102)
Openness	0.0849***	0.024	-0.02	0.085***	-0.002	0.032**	0.001	-0.02	-0.00732
	(0.0187)	(0.0214)	(0.021)	(0.03)	(0.02)	(0.0141)	(0.022)	(0.0212)	(0.02)
Inflation	-0.0019*	-0.003	-0.004**	-0.0033**	-0.00411**	-0.003**	-0.001	-0.004**	-0.0034**
	(0.00104)	(0.0022)	(0.002)	(0.0016)	(0.002)	(0.00131)	(0.001)	(0.002)	(0.0017)
F-Statistic	5.42***	5.73***	3.66***	21.97***	7.8***	8.96***	9.98***	13.5***	14.78***
Sargan test	51.77***	56.39***	15.33	48.73**	9.61	47.16**	24.83	31.9	29.95
Serial correlation test	-3***	-2.45***	-4.23***	-2.82***	-4.05***	-4.45***	-5.29***	-4.15***	-4.25***
Nb. of countries	56	47	47	53	44	44	53	44	44
Nb. of observations	1230	714	714	1162	671	671	1162	671	671

This table presents the results of GMM-in system estimation for the full sample of the considered countries over the 1980-2007 periods. The number of considered countries in each specification depends on the availability of explanatory variables. The dependent variable is the annual growth rate of GDP. The nature of GMM method leads to the introduction of lagged dependent variable (Per capita GDP growth(-1)). Foreign direct investment is measured through FDI and FPI variables introduced separately of together. In order to take into account a non linear effect of FDI and/or FPI, interaction variables between FDI and/or FPI and some measures of financial market development are also introduced. In order to differentiate the impact of FDI and/or FPI according to regions, regional dummies for MENA, Latin American, African, Asian and CEE countries are introduced as interaction variables with FDI and/or FPI as well as with the measures of financial system development.
For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.
For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.
Standard errors are reported in parentheses.
***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 5- GMM-in system estimates of the impact of FDI on domestic investment (Full sample)

	Dependent variable : Gross Capital Formation			
	(1)	(2)	(3)	(4)
Constant	0.108**	0.094***	0.116***	0.114***
	(0.044)	(0.032)	(0.04)	(0.04)
Gross Capital Formation(-1)	0.469**	0.543***	0.446**	0.429**
	(0.201)	(0.151)	(0.187)	(0.179)
FDI	0.002***			0.00211***
	(0.000612)			(0.0007)
FPI		0.064***		0.094***
		(0.022)		(0.03)
Debt			0.00103**	0.00101**
			(0.00042)	(0.0004)
Per capita GDP growth(-1)	0.167**	0.231***	0.177***	0.16***
	(0.051)	(0.055)	(0.05)	(0.05)
Per capita GDP growth(-2)	0.02	0.06	0.033	0.0252
	(0.06)	(0.0535)	(0.051)	(0.0534)
Inflation(-1)	-0.00005	-0.000045	-0.00014	-0.0000411
	(0.00013)	(0.00021)	(0.000115)	(0.000141)
Change in terms of trade	0.01	0.0302	0.0205	0.02
	(0.0154)	(0.024)	(0.018)	(0.02)
F-Statistic	10.36***	23.2***	12.69***	14.19***
Sargan test	45.86***	3.43	76.62***	95.57***
Serial correlation test	-3.18***	-2.54***	-3.2***	-3.06***
Nb. of countries	53	53	53	53
Nb. of observations	1109	1109	1109	1109

This table presents the results of GMM-in system estimation for the full sample of the considered countries over the 1980-2007 periods. The number of considered countries in each specification depends on the availability of explanatory variables. The dependent variable is the gross capital formation. The nature of GMM method leads to the introduction of lagged dependent variable (Gross Capital Formation(-1)). Foreign direct investment is measured through FDI, FPI and Debt variables introduced separately of together.

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 6- GMM-in system estimates of the impact of FDI on domestic investment (Full sample)

	Dependent variable : Gross Fixed Capital Formation			
	(1)	(2)	(3)	(4)
Constant	0.116***	0.119***	0.122***	0.137***
	(0.03)	(0.0453)	(0.0436)	(0.0221)
Gross Fixed Capital Formation(-1)	0.391***	0.399*	0.386*	0.29***
	(0.148)	(0.22)	(0.211)	(0.11)
FDI	0.0025*			0.00142
	(0.0014)			(0.00132)
FPI		0.09**		0.224***
		(0.036)		(0.06)
Debt			0.0009***	0.0013*
			(0.000332)	(0.0007)
Per capita GDP growth(-1)	0.143	0.167***	0.156***	0.256*
	(0.114)	(0.05)	(0.0465)	(0.157)
Per capita GDP growth(-2)	0.08	0.0634	0.059	-0.08
	(0.0755)	(0.05)	(0.0442)	(0.1)
Inflation(-1)	-0.0004	-7.98e-06	-0.0000404	-0.001
	(0.002)	(0.00009)	(0.0001)	(0.002)
Change in terms of trade	0.0606	0.00541	0.0113	0.123**
	(0.0424)	(0.0151)	(0.0171)	(0.06)
F-Statistic	14.41***	18.26***	14.28***	17.47***
Sargan test	50.85	70.44***	75.7***	48.7
Serial correlation test	-1.85**	-2.57***	-2.6***	-1.91**
Nb. of countries	53	53	53	53
Nb. of observations	1109	1109	1109	1109

This table presents the results of GMM-in system estimation for the full sample of the considered countries over the 1980-2007 periods. The number of considered countries in each specification depends on the availability of explanatory variables. The dependent variable is the gross capital formation. The nature of GMM method leads to the introduction of lagged dependent variable (Gross Fixed Capital Formation(-1)). Foreign direct investment is measured through FDI, FPI and Debt variables introduced separately of together.
For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.
For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.
Standard errors are reported in parentheses.
***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 7- GMM-in system estimates of the impact of FDI on domestic investment (Regional dummies)

	Dependent variable : Gross Capital Formation			
	(1)	(2)	(3)	(4)
Constant	0.108**	0.11**	0.121***	0.1***
	(0.0431)	(0.0434)	(0.04)	(0.03)
Gross Capital Formation(-1)	0.468**	0.474**	0.421**	0.509***
	(0.196)	(0.201)	(0.172)	(0.124)
FDI*MENA	0.00206***			0.0016***
	(0.0007)			(0.0006)
FDI*Latin America	0.00141			-0.0005
	(0.00155)			(0.002)
FDI*Asia	0.01***			0.01***
	(0.0032)			(0.0036)
FDI*Africa	-0.002			-0.00245
	(0.0025)			(0.00313)
FDI*CEE	0.0022**			0.001
	(0.001)			(0.0008)
FPI*MENA		0.009		0.02
		(0.04)		(0.065)
FPI*Latin America		0.186		0.296
		(0.12)		(0.191)
FPI*Asia		0.13***		0.05*
		(0.02)		(0.03)
FPI*Africa		0.146		0.172
		(0.167)		(0.223)
FPI*CEE		-0.0144		0.02
		(0.022)		(0.04)
Debt*MENA			0.00065	0.00002
			(0.000542)	(0.0004)
Debt*Latin America			0.00154**	0.003***
			(0.0007)	(0.00111)
Debt*Asia			0.0042***	0.0056***
			(0.0005)	(0.0014)
Debt*Africa			0.00056	0.001
			(0.0005)	(0.000511)
Debt*CEE			0.004***	0.00212**
			(0.000751)	(0.001)
Per capita GDP growth(-1)	0.176***	0.165***	0.149***	0.193***
	(0.05)	(0.052)	(0.052)	(0.055)
Per capita GDP growth(-2)	0.0213	0.0093	0.02	0.042
	(0.06)	(0.05)	(0.05)	(0.0544)
Inflation(-1)	-0.0000455	-0.0000754	-0.00014	-0.0001
	(0.000125)	(0.000131)	(0.00013)	(0.000254)
Change in terms of trade	0.00824	0.012	0.0154	0.03
	(0.015)	(0.0163)	(0.02)	(0.0241)
F-Statistic	26.42***	43.48***	39.23***	18.29***
Sargan test	63.12***	51.14*	93.54***	23.96
Serial correlation test	-3.15***	-3.2***	-2.91***	-2.29**
Nb. of countries	53	53	53	53
Nb. of observations	1109	1109	1109	1109

This table presents the results of GMM-in system estimation for the full sample of the considered countries over the 1980-2007 periods. The number of considered countries in each specification depends on the availability of explanatory variables. The dependent variable is the gross capital formation. The nature of GMM method leads to the introduction of lagged dependent variable (Gross Capital Formation(-1)). Foreign direct investment is measured through FDI, FPI and Debt variables introduced separately of together. In order to differentiate the impact of FDI, FPI and/or Debt according to regions,

regional dummies for MENA, Latin American, African, Asian and CEE countries are introduced as interaction variables with FDI, FPI and/or Debt.
For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.
For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.
Standard errors are reported in parentheses. ***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 8- GMM-in system estimates of the impact of FDI on domestic investment (Regional dummies)

	Dependent variable : Gross Fixed Capital Formation			
	(1)	(2)	(3)	(4)
Constant	0.116**	0.103***	0.128***	0.149***
	(0.046)	(0.0314)	(0.0403)	(0.06)
Gross Fixed Capital Formation(-1)	0.415*	0.473***	0.364*	0.195
	(0.216)	(0.152)	(0.193)	(0.272)
FDI*MENA	0.00105			0.003
	(0.0008)			(0.002)
FDI*Latin America	0.000552			0.002
	(0.0016)			(0.0032)
FDI*Asia	0.01***			0.013*
	(0.002)			(0.007)
FDI*Africa	-0.0035			0.00043
	(0.0023)			(0.0065)
FDI*CEE	0.000065			0.0086
	(0.00154)			(0.006)
FPI*MENA		0.05		0.275**
		(0.033)		(0.121)
FPI*Latin America		0.171*		0.32
		(0.102)		(0.797)
FPI*Asia		0.09**		0.1**
		(0.035)		(0.0322)
FPI*Africa		0.0513		0.643
		(0.195)		(0.886)
FPI*CEE		0.014		0.121
		(0.04)		(0.242)
Debt*MENA			0.000951*	0.003***
			(0.000513)	(0.0011)
Debt*Latin America			0.001**	0.007*
			(0.0005)	(0.0042)
Debt*Asia			0.004***	0.005*
			(0.00042)	(0.003)
Debt*Africa			0.00044	0.004
			(0.0004)	(0.0035)
Debt*CEE			0.001	-0.005
			(0.00124)	(0.01)
Per capita GDP growth(-1)	0.162***	0.189***	0.116**	0.1
	(0.0444)	(0.04)	(0.05)	(0.221)
Per capita GDP growth(-2)	0.05	0.0644	0.032	0.07
	(0.05)	(0.0403)	(0.04)	(0.08)
Inflation(-1)	0.00007	0.00014*	-0.000052	0.00222
	(0.0001)	(0.0001)	(0.00011)	(0.002)
Change in terms of trade	0.002	0.02	0.0082	0.117
	(0.0145)	(0.0235)	(0.02)	(0.1)
F-Statistic	35.23***	13.97***	30.71***	12.41***
Sargan test	63.07***	4.95	99.56***	26.19
Serial correlation test	-2.52***	-1.94**	-2.35***	-2.99***
Nb. of countries	53	53	53	53
Nb. of observations	1109	1109	1109	1109

This table presents the results of GMM-in system estimation for the full sample of the considered countries over the 1980-2007 periods. The number of considered countries in each specification depends on the availability of explanatory variables. The dependent variable is the gross capital formation. The nature of GMM method leads to the introduction of lagged dependent variable (Gross Fixed Capital Formation(-1)). Foreign direct investment is measured through FDI, FPI and Debt variables introduced separately of together. In order to differentiate the impact of FDI, FPI and/or Debt according to regions,

regional dummies for MENA, Latin American, African, Asian and CEE countries are introduced as interaction variables with FDI, FPI and/or Debt.
For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.
For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.
Standard errors are reported in parentheses. ***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 9- OLS estimates of the impact of FDI on wage inequality

	Full sample	*Regional dummies*
Constant	0.125	-1.311***
	(0.434)	(0.352)
Latin America		0.118***
		(0.04)
Asia		0.0053
		(0.03)
Africa		0.116***
		(0.033)
CEE		-0.127***
		(0.05)
Log of real per capita GDP	0.336	0.997***
	(0.261)	(0.211)
Log² of real per capita GDP	-0.056	-0.152***
	(0.0402)	(0.033)
FDI	1.778***	
	(0.512)	
FDI*Latin America		1.06*
		(0.56)
FDI*Asia		2.274***
		(0.548)
FDI*Africa		1.764**
		(0.863)
FDI*CEE		0.717
		(0.741)
Government consumption	-0.167	0.252**
	(0.272)	(0.11)
Employment in agriculture (% of total employment)	-0.193**	-0.0041
	(0.08)	(0.0421)
Openness	-0.05*	-0.02
	(0.03)	(0.02)
Per capita GDP growth	-1.07**	0.187
	(0.46)	(0.21)
Schooling	-0.201***	0.09*
	(0.07)	(0.0515)
F-Statistic	7.75***	30.02***
R-squared	0.497	0.883
Nb. of observations	48	48

This table presents the results of OLS estimation for the full sample of the considered countries in cross section. The dependent variable is the GINI coefficient. Foreign direct investment is measured through FDI. In order to differentiate the impact of FDI according to regions, regional dummies for MENA, Latin American, African, Asian and CEE countries are introduced alone as well as interaction variables with FDI. MENA is considered as reference region.

Standard errors are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Part 3 : Foreign capital flows and competitiveness: an International Comparison

Abstract:

Attracting capital flows is crucial to enhance investments and cover current account deficits in developing countries. On the other hand, capital inflows could lead to real exchange rate appreciation and loss of competitiveness, jeopardizing export-led-growth efforts. Our study investigates this dilemma by identifying the impact of disaggregated capital flows on real exchange rate behavior in a sample of 57 developing countries, covering Africa, Central and Eastern Europe, East Asia, Latin America, MENA and the GCC. We use the Generalized Method of Moments (GMM) estimator as we believe it is well adapted to emphasize the nexus between REER and capital inflows. Our results reveal that portfolio investments, foreign borrowing, aid, and income lead to real exchange rate appreciation and loss of competitiveness; remittances have disparate results depending on their nature and size, while foreign direct investments have no effect on the real exchange rate, and in some cases even enhance competitiveness. We conclude that dedicating particular efforts to attracting FDI compared with the other types of capital flows could resolve the above dilemma.

1. Introduction

Maintaining a high level of competitiveness is an important objective for developing and emerging economies, as it enhances their exports and growth and contributes to their economic diversification. Therefore, investigating the determinants of competitiveness and identifying the factors that might undermine them is essential.

An important determinant of the loss of competitiveness is capital inflows. The relevant literature confirms that an increase in capital inflows leads to the appreciation of the real effective exchange rate (REER) and a loss of competitiveness (Corden, 1994). On another hand, developing and emerging markets need capital flows to enhance investments and finance current account deficits.

Resolving this dilemma requires identifying which capital flows lead to the least significant appreciation of the REER or have no impact on the REER at all, and thus do not undermine competitiveness. Our review of the empirical literature revealed a gap in addressing this issue in a broad perspective as most papers focus on a single country/region or on a single type of capital flows.

To our knowledge, our study is the first attempt to fill this gap. Our value added to the literature lies in investigating the impact of disaggregated capital inflows on REER in a large set of developing and emerging countries, using cross-regional comparisons to draw useful lessons. We decompose capital flows into six different types: the three components of the financial account— foreign direct investments, portfolio investments and other

investments— and three other capital flows in the current account — remittances, aid and income. We apply our tests to a panel of 57 countries covering 6 distinctive regions, namely Africa, Central and Eastern Europe (CEEC), East Asia, Latin America, Middle East and North Africa (MENA), and the Gulf Cooperation Council (GCC).

We use the Generalized Method of Moments (GMM) estimator to emphasize the relation between each type of capital inflows and REER appreciation. This estimator has the particularity of dealing with omitted variable and endogeneity biases, often presented as two sources of inconsistency in the literature on REER and capital inflows.

The most significant finding of our paper reveals that foreign direct investments (FDI) do not lead to the appreciation of REER in almost all regions and even lead to its depreciation in Central and Eastern Europe and Middle East and North Africa. This makes a strong case for implementing policies encouraging FDI which might improve emerging markets' competitiveness and mitigate the overall negative impact of aggregated capital flows on REER appreciation.

The next section summarizes the main findings available in the literature related to the impact of different types of capital flows on the REER. Section III presents the theoretical determinants of the REER behavior and explores each capital flow across the six regions. Section IV discusses the appropriateness of the GMM estimator approach and describes the econometric methodology. Section V presents the results, and section VI concludes.

2. Capital inflows and the real exchange rate nexus: related literature

The Salter (1959), Swan (1960), Corden (1960) and Dornbusch (1974) paradigm serves as the theoretical underpinning to test empirically the incidence of capital inflows on the REER in emerging economies. The model explains how a surge in capital inflows would generate an appreciation of the REER (Corbo and Fisher, 1995). A rise in capital inflows increases real wages, which in turn bring out a rise in global demand and hence in prices of nontradable goods relative to tradable goods that are exogenously priced. Since the REER is generally defined as the value of domestic prices of nontradable goods relative to prices of tradable goods, a rise in the relative price of nontradable goods corresponds to a real exchange appreciation (spending effect). This is indicative of the presence of 'Dutch Disease effects' (Corden and Neary, 1982). It describes the side effect of natural-resource booms or increases in capital inflows on the competitiveness of export-oriented sectors and import-competing sectors. However, different types of capital inflows may have different effects on the REER because they affect it through different channels.

REER determinants have been the subject of numerous theoretical and empirical studies, and are used mainly to estimate the level of misalignment. Capital flows are included

as a determinant in most of the studies (Aron et al., 1998, Elbadawi and Soto, 1997, and many others). However, recent studies have tried to assess the impact of capital inflows per se on the REER using the latter variable as a measure of competitiveness. Some of them distinguish FDI and other capital inflows, some have concentrated on specific flows such as aid and remittances, and some have interacted capital inflows with economic policy variables.

For the papers related to the impact of foreign direct investment (FDI) versus other inflows, Athukorala and Rajapatirana (2003) have provided a comparative analysis of the nexus of REER and capital inflows in Latin America and Asia. They find that the composition of capital inflows matters in determining the impact on the REER. According to their results, non-FDI capital flows lead to real exchange rate appreciation, while FDI tends to depreciate the real exchange rate. Moreover, non-FDI flows bring about a far greater degree of appreciation of the real exchange in Latin America compared to Asia. Lartey (2007) reveals that FDI causes the REER to appreciate in Sub-Saharan Africa but to a lesser extent compared with aid flows.

For the studies that focus on workers' remittances, Amuedo-Dorantes and Pozo (2004) indicate that doubling the transfers of workers' remittances leads to an appreciation of the REER by 22 percent in a panel of 13 Latin American countries. In the same vein, Lopez et al. (2007) provide estimates of the impact of workers' remittances on the REER in a large cross-country dataset and tests whether Latin America is different in this context. Their analysis reveals that surges in remittances cause the REER to appreciate in Latin America. The findings indicate also that the observed changes in the REER are not solely driven by natural appreciation but that some changes are linked to misalignment.

More recently, Lartey et al. (2008) have shown that an increased level of remittances in developing countries can entail a large spending effect that causes a rise in relative prices of nontradables and REER appreciation. The study also found that the Dutch Disease effect is more acute in the presence of fixed exchange rate regimes.

Rajan and Subramanian (2005) study the impact of remittances and find that they have no side effects on external competitiveness. They explain this surprising result by the argument that remittance inflows are mainly directed toward unskilled-labor activities and tradable sectors such as manufacturing. Their analysis also concludes that aid inflows have systematic adverse effects on a country's competitiveness, as reflected in a decline in the share of labor intensive and tradable industries in the manufacturing sector. They find evidence suggesting that these effects stem from the real exchange rate overvaluation caused by aid inflows.

Numerous other articles focus their attention on aid too. Gupta et al. (2005) demonstrate that the impact of aid inflows on the REER depends on the uses of aid, its contents, and its assumed policy response. If foreign aid is spent on imports, there is no effect on the REER. However, if the proceeds are sold by the government to the central bank, the

impact on REER will depend on how much the central bank will sell of the aid-related foreign exchange in the domestic market and on how much of this amount of local currency counterpart is spent domestically. Adam and Bevan (2004) and Nkusu (2004) point out that the more elastic the supply response, the smaller the real exchange appreciation needed, which emphasizes the mitigating role of excess output capacity. Atingi-Ego (2005) confirms the above argument in finding that excess capacity in the nontraded sector of some African countries limits the potential of price increases stemming from aid inflows. Additionally, Adam and Bevan (2004) demonstrate that the reaction of the REER to aid inflows depends on the variation of the composition of aid expenditures.

For individual country studies, White and Wignaraja (1992) conclude that aid flows have caused REER appreciation in Sri-Lanka. Falck (1997) and Nyomi (1998) examine the impact of aid inflows on the REER in Tanzania. Flack's ordinary least squares (OLS) estimation indicates real exchange appreciation, while Nyomi's error correction model finds that foreign aid generates depreciation in the REER. Opoku-Afary et al. (2004) examine the case of Ghana using vector autoregression (VAR) econometric modeling and find no short-run effect, but the impact of aid in the long run is strong and conducive to real exchange appreciation. More recently, Bourdet and Falck (2006) find that aid inflows in the Cape Verde Islands cause some REER appreciation with an elasticity of less than 10 percent.

IMF (2005) studies report an absence of appreciation of the exchange rate in five African countries following the surge of aid inflows. The study concludes that part of the reason that real appreciation (and consequently, Dutch disease) was not observed in those cases is precisely because authorities were concerned with competitiveness and restricted aid absorption accordingly. Adenauer and Vagassky (1998) find that aid contributes substantially to real exchange appreciation in the countries of the West African Economic and Monetary Union. Kang et al. (2007) on a large sample of developing countries find that aid inflows have a negative effect on exports linked to REER overvaluation for half of the sample and positive impact on growth and exports for the other half of the sample. Using a conditional VAR for 10 Pacific economies to assess whether aid inflows lead to real exchange appreciation, Fielding (2007) reached mixed results.

In a multi-country setting, Elbadawi (1999) finds that a 10 percent increase in the aid inflows contributes to a rise of one percent in the REER in a panel study of 62 developing countries. Later on, Elbadawi et al. (2008) using a behavioral real exchange model on a sample of 83 countries between 1970 and 2004 find that although post-conflict countries receive larger aid inflows, they exhibit moderate REER overvaluation. Along the same line,

Prati and Tressel (2006) found in a sample of developing countries that foreign aid inflows have a negative impact on exports of poor countries as implied by the Dutch Disease theory.

One aspect that seems to have received little attention is whether portfolio investment inflows cause a REER appreciation. Elbadawi and Soto (1994) disaggregate capital flows for the case of Chile into four components: short-term capital flows, long-term capital flows, portfolio investment, and foreign direct investment. They find that short-term capital flows and portfolio investment have no effect on the equilibrium real exchange rate, but long-term capital inflows and foreign direct investment have a significant appreciating effect. To our knowledge, the analysis of income/debt flows on competitiveness has been so far relatively neglected.

We can conclude that our literature review shows not only gaps in the analysis on the subject but also rather ambiguous results regarding the effect of any of the disaggregated capital flows on the REER, which calls for further research on the subject.

3. Capital flows and other REER determinants

In order to emphasize the impact of each capital flow on REER behavior in developing countries we are applying our tests to 57 developing and emerging markets (Appendix 1), covering six different regions; Africa, CEEC, East Asia, GCC, Latin America and MENA. Our data are calculated using mainly the World Economic Outlook (WEO) database, complimented with the data from the International Financial Statistics, especially for the capital flows data drawn from the balance of payments. The period under investigation runs from 1980 to 2007.

We empirically examine the factors that explain the difference in real effective exchange rate (the measure of competitiveness) by estimating a number of variants of equation (1), depending on the assumption made about the error term and the exogeneity of the independent variables:

$$REER_{i,t} = \alpha_{1+} \alpha_2 \text{Capital Inflows}_{i,t} + \alpha_3 Policy_{i,t} + \alpha_4 Control_{i,t} + \varepsilon_{i,} \qquad (1)$$

Where *i* refers to the country and *t* refers to the time period from 1980 to 2007.

REER Index

The REER index we use is calculated by the IMF staff and available in the IMF's database. It represents the multilateral REER based on the weights of each country's trading partners. This index is widely used as an indicator of competitiveness.

In our analysis of the REER behavior, we use the average of each region in comparison with other regions, and we use the year 2000 as a common base year for all

countries. Even though the year 2000 does not represent a particular equilibrium level for any country or region, it is a convenient base to inform us on the time trends in the REER.

When comparing the behavior of the REER across regions (Figure 1), we can clearly see that the REER had much higher values in Africa, reaching 600 percent in the mid-1980s, and then stared to depreciate after the mid-1980s, fluctuating around the 100 percent threshold.

To get a better idea of the behavior of REER in other regions, we remove Africa from the graph to get a less skewed scale (Figure 2).

We can see from this second graph that Asia had the highest values for the REER in the beginning of the period, close to 200 percent of its value of year 2000, compared with 120 to 150 percent in the other regions. We can say that Asia had a lower degree of competitiveness in the early 1980s compared with the other regions.

Over time, REERs depreciated in all regions and oscillated around 100. We can also see that Asia was an exception, with REER being higher until the Asian crisis in 1998. It is possible that the higher REER compared with the competitors in other regions reduced the competitiveness of the Asian countries and contributed to the emanation of the crisis.

In the following sub-sections, we will identify the determinants of the REER behavior in each country, in order to flesh out the similarities or differences of the impact of each determinant. We focus our attention on capital flows indicators, the policy variables (monetary, budget, and trade-openness variables) and on some other control variables.

Capital Flows Variables

Our definition of capital flows includes flows in both the current account and the financial account. As noted in the literature review, aid and remittances are recognized to have an impact on REER behavior, often leading to appreciation and loss of competitiveness. The remaining capital flow in the current account that is not directly related to trade in goods and services is investment income. The impact of investment income on REER is rarely analyzed and we consider it worth investigating, as it adds to the originality of our research.

We calculate the aggregated capital flows as the inverse sign of the balance of goods and services, of which we subtract the change in reserves to get only the total capital flows without any government intervention through reserves.

The net capital flows (NKF) in our different regions have been following close trends, except for the case of the GCC (Figure 3). While the other five regions witnessed positive capital inflows over the period from 1980 to 2007, the GCC had an opposite pattern, with massive capital outflows reaching almost 27 percent of GDP, especially in recent years. The

year 1991 is an exception owing to the first Gulf war and represents a recurrent outlier in almost all the data related to the GCC.

The MENA region seems to have attracted the highest ratio of NKF to GDP over the period, oscillating on average between 10 and 20 percent. The second region is Africa, joined by the CEEC by the end of the period. Asia and Latin America received the lowest NKF that oscillated between +/- 5 percent.

We will now move to the analysis of each type of capital flows, starting with those in the current account (income, aid, and remittances), followed by the capital flows in the financial account (FDI, portfolio investments, and debt).

The GCC enjoyed the highest level of income to GDP all over the period (Figure 4), reaching almost 18 percent in the early 1980s. This level could be due to the investment of oil revenue abroad that allowed the GCC countries to receive high returns in their income account, without having to pay any interest on foreign debt. In almost all other regions, income was negative, reflecting higher amounts of interest paid on debt than returns on investments.

The second variable is the public portion of the net unilateral current transfers from the balance of payments as a proxy for grants. We refer to this variable in our paper as AID, calculated as a percentage of GDP (Figure 5).

The GCC have a unique figure as represented by the Gulf war in 1991. As we already mentioned, we expect the data to show an outlier for this particular year as these countries witnessed extraordinary movements in their capital flows. By excluding the GCC from the figure 6, we can better visualize the aid inflows in the other regions. We can see that Africa received the highest ratios of aid to GDP, reaching more than 6 percent in 1993, followed by MENA, CEEC since 1992, Latin America, and finally Asia.

The third capital flow we include from the current account is private unilateral transfers to GDP as a proxy for remittances. All regions except the GCC have seen increasing or stable remittances inflows to their economies (Figure 7). Owing to the nature of the GCC economies which rely mainly on foreign labor, these countries face constant remittances outflows between 5 to 10 percent of GDP. The MENA countries are the most important recipients of remittances, reaching more than 5 percent of GDP since the early 1990s, followed by Africa at 3 percent, Asia, Latin America, and CEEC.

From the financial account, we include FDI as percent of GDP, representing the net FDI inflows minus outflows; portfolio investments to GDP (PORT); and other investments to GDP (DEBT).

FDI inflows to emerging markets have been increasing steadily over the past three decades. Figure 8 shows that the level of FDI to GDP has been lower than 2 percent in the 1980s and started to pickup in the beginning of the 1990s. Since the second half of the nineties, the CEEC were on average the highest receivers of FDI, followed by Latin America, MENA, East Asia, Africa, and the GCC respectively; with the share of MENA increasing in recent years.

Next, we include portfolio investments as a percentage of GDP, also measured as net inflows minus outflows. Again, we can see from Figure 9 that the GCC are a special case with increasing portfolio investment outflows since 1996. This is mainly owing to the creation of sovereign wealth funds that invest part of the oil revenues in the international capital markets. With the increase of oil prices and the increase in the GCC oil revenue surplus, portfolio outflows from these countries have been steadily increasing, reaching more than 16 percent of GDP. The other regions have been receiving higher levels of portfolio inflows since the early 1990s, but they never exceeded 2 percent of GDP in any region (Figure 10).

As we can see, portfolio investments were marked by an increasing volatility and episodes of massive outflows, like in Asia in 1997 and 1998, in Latin America in 2003 and 2004, and in the CEEC in 2005. MENA and Africa were also subject to portfolio investment outflows but at a lower degree, not exceeding 1 percent of GDP.

Finally, we include the other net investments from the financial account as a percentage of GDP as a proxy for the increase of debt from abroad (Figure 11). The GCC remain a special case with an outlier in 1991. Before that date, the GCC had negative debt to GDP ratio reflecting the capacity of these countries to lend to other countries using their excess oil revenue. In the other regions, we witness a change in the pattern of debt flows over the period (Figure 12). In the 1980s, Africa was the most important recipient of debt flows, reaching almost 9 percent of GDP, while other regions received less than 5 percent, until the end of the 1990s.

Since then, Asian countries started lending, with their exports of debt capital reaching 5 percent of GDP, followed by Latin America in some years, and to a lower extent, Africa, which has seen massive debt outflows in 2006 owing to debt forgiveness that reached almost 13percent of GDP. Conversely, the CEEC witnessed a continuous increase of debt inflows since 2002, reaching almost 10 percent of GDP in 2007.

Control variables

Government Consumption

The relation between the prices of tradable to nontradable goods is proxied by the government consumption (GCON) that represents an important part of the demand for both tradable and nontradable goods. If that consumption is biased in favor of the non-tradables, an increase in GCON will lead to increase in the prices of nontradable goods and an appreciation of the REER (an increase in the value of REER). If the government consumption is dominated by tradables, the effect of an increase in GCON on the REER is likely to be in the direction of depreciation. We use in our model the variable government consumption over GDP as a proxy for the fiscal policy.

Trade Openness

The growing degree of openness is consistent with decreasing capital controls, which in return creates higher possibilities for capital flows fluctuations. Therefore, to measure the degree of the country's trade openness we use the variable total trade as percentage of GDP (OPEN**)**. The increase of openness will lead to higher capital flows, both for import, export, and investment concerns. Yet, the economic theory is rather ambiguous concerning the exact effect of commercial liberalization, so no *a priori* sign is given to that variable (Edwards, 1992). We use as well another proxy for openness measured by imports to GDP (IMP). This allows us to isolate the impact of oil prices fluctuations that affect GCC exports and could therefore engender misleading interpretations of openness (Kamar and Ben Naceur, 2007). When oil prices increase, exports increase, and then the proxy OPEN calculated above will increase, giving a misleading impression of more openness, while the decrease in oil prices would wrongly suggest a decrease in openness (Kamar and Bakardzhieva, 2005).

Productivity

Balassa (1964) and Samuleson (1964) noted that differences in technological progress could affect REERs. Since technological progress is more likely to take place in the traded relative to the nontraded sector of an economy, the increase in productivity in the traded sector raises wages in that sector, requiring that relative prices of nontraded goods increase. In this paper, we use GDP per capita (PROD) as a proxy for the Balassa-Samuelson effect. We anticipate that countries with higher per capita incomes will experience a real appreciation in their currencies.

Terms of Trade

Shocks to the external terms of trade (TOT) may also elicit REER movements. An increase in the relative price of exports relative to imports induces contraction of the non-traded goods sector and encourages labor flows to the export sector and REER appreciation. We employ the terms of trade variable which is the price of exports of goods and services to the price of imports of goods and services as published in the WEO database.

3. Empirical Methodology

Logarithms are taken of all variables—except *capital flows* indicators since these variables display negative values— and the estimated equation is therefore specified as follows:

$$Ln(REER)_{it} = \alpha_0 + \alpha_1 * (Capital\ Flows)_{it} + \alpha_2 * Ln(GCON)_{it} + \alpha_3 * Ln(OPEN)_{it} + \alpha_4 * Ln(PROD)_{it} + \alpha_5 * Ln(TOT)_{it} + \varepsilon_{it} \quad (2)$$

In equation (1) i=1,2,…,57 refers to each of the 57 developing economies in our sample (Appendix 2) and t=1980-2007 denotes the time period. $Ln(REER)_{it}$ is the logarithm of the real effective exchange rate, and capital flows are incorporated according to the model we investigate.

The first studies on the nexus of REER and capital inflows suffer from two sources of inconsistency: omitted variable and endogeneity biases. With this in mind, we first describe how these biases affect cross-section and panel data estimators and then present the Generalized Method of Moments (GMM) estimator, which corrects for both of these biases and takes into account the dynamics of economic growth. Besides, according to Ouattara and Strobl (2008), the GMM deal well with the dynamics of REER and addresses the presence of unit roots in data.

Pure cross-section regressions give inconsistent estimations because they suffer from both the omitted variable and endogeneity biases. Cross-section economic growth analyses lead to biased estimates because the country-specific error term ε_i is likely to contain unobserved country effects and is correlated with the lagged dependent variable. Therefore, cross-section regressions give inconsistent estimates as the assumption that the regressors and the error term are not correlated is violated.

Combining cross-section and time-series data is useful for three main reasons. First, it is necessary when analyzing real exchange rate behavior because it varies over time, and the time-series dimension of the variables of interest provides a wealth of information ignored in cross-sectional studies. Second, the use of panel data increases the sample size and the gain

in degrees of freedom is particularly relevant when a relatively large number of regressors and a small number of countries are used, which is the current case under investigation. Third, panel data estimation can improve upon the issues that cross-section regressions fail to take into consideration, such as potential endogeneity of the regressors, and controlling for country-specific effects.

One issue that may arise from the use of panel data is whether the individual effect is considered to be fixed or random. On one hand, while random effects estimation addresses the endogeneity issue by instrumenting potentially endogenous variables, it also assumes that the individual country effects are uncorrelated with the exogenous variables. On the other hand, the fixed effect estimation deals successfully with the correlated effects problem, yet it fails to account for potential endogeneity of regressors. Furthermore, as shown by Nickell (1981), owing to the correlation between the time varying component of the error term and the lagged dependant variable, in a finite dynamic panel model with fixed *T*, the parameter estimates under fixed effects estimation will be biased and inconsistent. In summary, both fixed and random estimations address only one of the two biases, and thus give inconsistent estimates.

Following Ouattara and Strobl (2008), we use the GMM system model, as suggested by Blundell and Bond (1998). First, GMM models allow past levels of REER to affect current levels of REER. Second, the lagged dependent variable is most likely to be correlated with the country specific effects and the estimation using OLS gives inconsistent and biased estimates (Hsiao, 1986). To obtain consistent estimates, we use a first-differenced model to estimate the fixed effects (eliminates the need to make any probabilistic assumptions on the country effect) and then, we instrument all the right-hand side variables using their lagged values (which eliminates the inconsistency arising from potential endogeneity of the regressors).

Since our *T* is large enough (*T*=27), it is more appropriate to use the system GMM estimator of Arellano and Bover (1995) and Blundell and Bond (1998). The basic idea behind this estimator is: 1) the unobserved fixed effects μ_i are removed by taking first differences in equation, 2) the right hand side variables are instrumented using lagged values of the regressors, and the equation in first differences and in levels are jointly estimated and 3) the validity of the instruments is tested using a Hansen test of over-identifying restrictions and a test of the absence of serial correlation of the residuals.

Although the two-step estimator is asymptotically more efficient in presence of heteroskedasticity of the error term, Arellano and Bond (1991) and Blundell and Bond (1998) show that the two-step estimates are biased in small samples, like in our case. So, we prefer to display the one step results.

4. Interpretation of the Results

First we apply our test using the determinants of the REER behavior we exposed earlier, including the aggregated capital flows proxied by NKF[23] (net capital flows excluding reserves), along with our control variables: terms of trade, openness, government consumption, and productivity (Table 1, column 1).

The results show that NKF has a positive impact on REER, which means that an increase in the aggregated capital flows to GDP will lead to the appreciation of REER and to a loss of competitiveness. The increase of the terms of trade and of productivity also leads to the appreciation of the REER, while the increase of openness and government consumption tends to depreciate REER; enhancing competitiveness.

We continue our analysis by decomposing the aggregated capital flows (NKF) used in model 1 into different types of flows, namely FDI, portfolio investments, debt, income, aid, and remittances. The results reported in Table 1, column 2 emphasize that all capital flows except FDI have a significant positive impact on the REER. The coefficients of debt, portfolio investments, income, aid and remittances are consistent with the coefficient of NKF we obtained in model 1.

The fact that FDI has no significant impact on the REER confirms our intuition that while this type of flow might lead to REER appreciation in the short run when the economy receives the inflows, the impact is diluted over time as part of the flows start to leave the country in the form of imports of machinery and other capital goods. Also, the increase in production induced by the FDI can lead to downward pressure on prices and to REER depreciation.

<Insert Table 1 near here>

[23] Exact calculation of NKF is available in Table (1)

The second battery of models (Table 2) highlights the impact of the aggregated NKF (first model in Table 2) and also of each type of capital flows (models 2 to 7) on REER across our six regions. To assess these relations, we create interaction variables between each capital flow and each of the five regions. The aim is to identify for each region how each of the capital flows affected the behavior of the REER. In each model (2 to 7 in Table 2), we include the interaction variable between each region and the capital flow we study, the control variables we are using, and the other capital flows aggregated. For example, for portfolio flows (PORT) in model 4 of Table 2, we included an interaction dummy between each region and portfolio investments, taking the value of 1 for each group of countries and 0 for all other countries, the control variables, in addition to NKF minus PORT to control for the impact of the other capital flows (aggregated) on the REER.

The results we see in model 1 of Table 2 confirm that NKF has a positive and significant impact on REER in all regions except the CEEC. The impact is the highest in Latin America, followed by Africa, Asia, GCC and finally MENA, where the impact is significant only at 10 percent confidence interval. We can infer from these results that for CEEC and to a lesser extent MENA, NKF did not harm competitiveness. The case of the CEEC is particularly interesting as not only NKF has no significant impact on REER, but it also has a negative sign. The explanation could be that these countries have been receiving massive FDI inflows compared to other capital flows, which, as explained earlier, have no effect on the REER appreciation in the long run.

When analyzing the impact of the different types of capital flows on REER in each region using the interaction variables, the results reveal a relatively similar impact across regions leading to REER appreciation (with a varying magnitude). FDI is the only exception as it seems to have a non significant and negative effect on REER in almost all regions.

The impact of FDI on REER (Table 3, column 2) is negative and nonsignificant in Latin America, followed by Asia, CEEC, and MENA, and nonsignificant with a positive sign in GCC. These results confirm that FDI does not lead to an appreciation of the REER; it could even be leading to its depreciation and to an improvement of competitiveness as suggested also by Athukorala and Rajapatirana (2003). Only Africa is showing significant positive impact of FDI on the REER, leading to a loss of competitiveness, which corroborates the findings of Lartey (2007).

Debt has a significant positive impact with almost similar coefficients in all regions except for the CEEC where the coefficient is again negative and nonsignificant. The results for the CEEC are consistent with those for the overall impact of NKF on REER and of those of the impact of FDI. An explanation could be that DEBT, which represents the other investments, is oriented towards financing productive investments that have a similar impact as that of FDI, requiring importing machinery and intermediate goods, leading to an outflow of the capital received.

<Insert Table 2 About here>

The results of the models including portfolio investments (model 4 of Table 2) show a stronger impact of portfolio investment on the REER appreciation in Asia, followed by Latin America, GCC, and to a lesser extent CEEC at the 10 percent significance level. Portfolio investments have no significant impact in Africa, perhaps because of the relatively low portfolio investments in this region.

In Asia and Latin America, capital markets are more developed compared to the other regions, and they attract international investors willing to diversify their portfolios. The result is mainly a capital inflow that might not necessarily be translated into an increase of production or of imports of machinery and intermediate goods. In addition, these two regions witnessed reversal capital outflows, accompanied or followed by massive nominal exchange rate depreciation, leading to REER depreciation. Therefore, the impact of portfolio capital inflows would most probably lead to the appreciation of the REER as we see from the positive sign in our model for these two regions.

Surprisingly, the impact of portfolio investments is significant but negative in the MENA countries. This might be because MENA capital markets are still young and that most of the portfolio investments to the region are driven by the privatization of public enterprises. Portfolio investments inflows are used to modernize the privatized firms through buying new imported machinery, increasing the production and importing intermediate goods. This behavior is close to that of FDI, leading to the depreciation of the REER.

The results for income show no impact on the REER in all regions except Latin America and MENA, and the effect is non-significant but negative in Africa. Income flows consist mainly of the net revenue on investments abroad (both direct and portfolio) and interest paid on public debt. As all regions except GCC were more indebted than they were net foreign investors, income used to be mainly in the form of capital outflows as could be shown in Figure 4. Therefore, we should be very careful with the interpretation. In the cases of CEEC and Asia, the income outflows were relatively low, which explains their non-significance. In Africa, the fact that the region received other types of capital inflows that led to the appreciation of the REER, the outflows of interest had to be of negative sign yet non-significant. In Latin America and MENA, it is the decline in interest payments and consequently in capital outflows that contributed to the appreciation of the REER, consistent with the overall impact of NKF.

The impact of aid is positive and significant in CEEC and GCC, followed by Asia and Africa, both significant only at 10 percent. Its impact is not significant in MENA and Latin America, which can be explained if aid is spent on imports (Gupta et al., 2005) or if its absorption is very low and it is accumulated in reserves, so there is no need for a real exchange rate appreciation to mediate a fall in net exports and thereby absorb the aid (IMF, 2005). It is well known that the CEEC received important amounts of aid from the European Union to help them restructure their economies. Africa also has been receiving massive aid inflows and the literature has demonstrated that aid contributed to the appreciation of the REER in this region. The case of the GCC is less obvious as this region has seen mainly aid outflows to other countries. This might have played a role in depreciating the REER, consistent with the positive sign for the relation we have in our model.

Finally, remittances reveal disparate results. It is generally expected that an increase in remittance receipts would result in an appreciation of the economy's equilibrium real exchange rate, as analyzed in detail in Chami et al (2008). We obtain this expected positive and significant impact in the cases of GCC, Asia, and Africa, and a positive and nonsignificant impact in MENA. Yet our results point to a negative and nonsignificant impact in Latin America, and negative and significant impact in CEEC. These diverging results reflect that remittances could have different impacts depending on their nature and magnitude. As suggested by Rajan and Subramanian (2005) a nonsignificant impact could result from remittances being directed mainly toward unskilled-labor activities and tradable sectors. A deeper analysis of the particular impact of remittances across regions could elucidate how the nature and size of the remittances could affect competitiveness differently.

The disparity of the results of the impacts of different capital flows on REER behavior across regions calls for further investigations. We believe that the policies implemented by the different governments in different regions might have affected the impact of capital flows on REER behavior and intend to address this issue in a future research.

5. Conclusion and policy implications:

Our study of the impact of different types of capital flows on REER across regions reveals interesting findings that represent a significant addition to the literature and allow one to draw insightful policy implications. To our knowledge, this is the first attempt to compare the impact of the different types of capital flows on competitiveness across 57 emerging markets.

Our first conclusion is that aggregated capital flows (NKF) have a positive impact on REER in all regions under investigation, except the CEEC. These findings confirm the contention of existing literature that capital flows lead to REER appreciation and loss of competitiveness. Still, this relation seems stronger in Latin America, followed by Africa, Asia, GCC and finally MENA. In contrast, the CEEC had a nonsignificant and negative relation between NKF and REER. The explanation could be that these countries have been receiving massive FDI inflows compared with other capital flows.

In the long run, FDI inflows are used to import machinery and raw materials from abroad, partially offsetting the impact on REER. Also, the increase in production induced by the FDI could lead to downward pressure on prices and REER depreciation.

When disaggregating capital flows into foreign direct investments, portfolio investments, debt, income, aid, and remittances, we found that, for the entire sample, income has the strongest impact on REER appreciation, followed by remittances, aid, portfolio investments, and debt. Here again, the results are in line with the literature on the determinants of competitiveness. Interestingly, FDI is the only variable that has no significant impact on REER appreciation. This result confirms the explanation given above.

The cross-region comparison of the impact of each of these six capital flows on REER reveals disparate results. Portfolio investments, debt, aid, and income show close results,

pointing towards an appreciation of the REER, except for the case of MENA where portfolio investments have a negative sign. The fact that MENA capital markets are young and that portfolio investments were encouraged by the privatization of public enterprises could reveal behavior similar to that of FDI. Remittances reveal disparate results, probably owing to the diversity of their nature and size across regions.

The results for FDI are highly interesting as they clearly point towards no positive impact on REER appreciation in any region, except in Africa. This means that encouraging FDI can enhance competitiveness in emerging markets in general. These results could be very useful for policy makers in their aim to reconcile the dilemma of attracting capital flows to compensate the current account deficit and enhance investment, on one hand, while maintaining competitiveness to enhance exports and economic growth.

Figure 1. REER for all Six Regions Including GCC

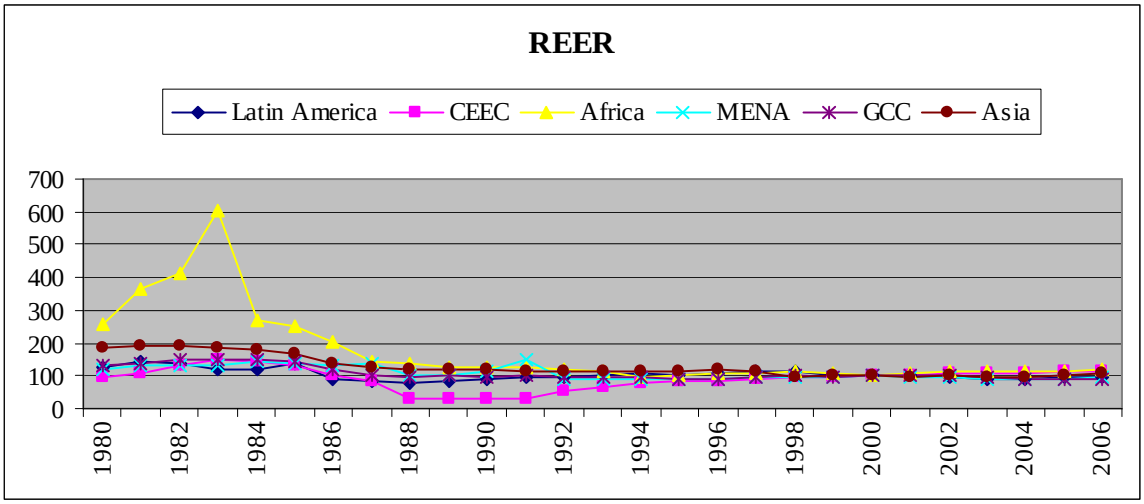


Figure 2. REER for Five Regions (Excluding Africa)

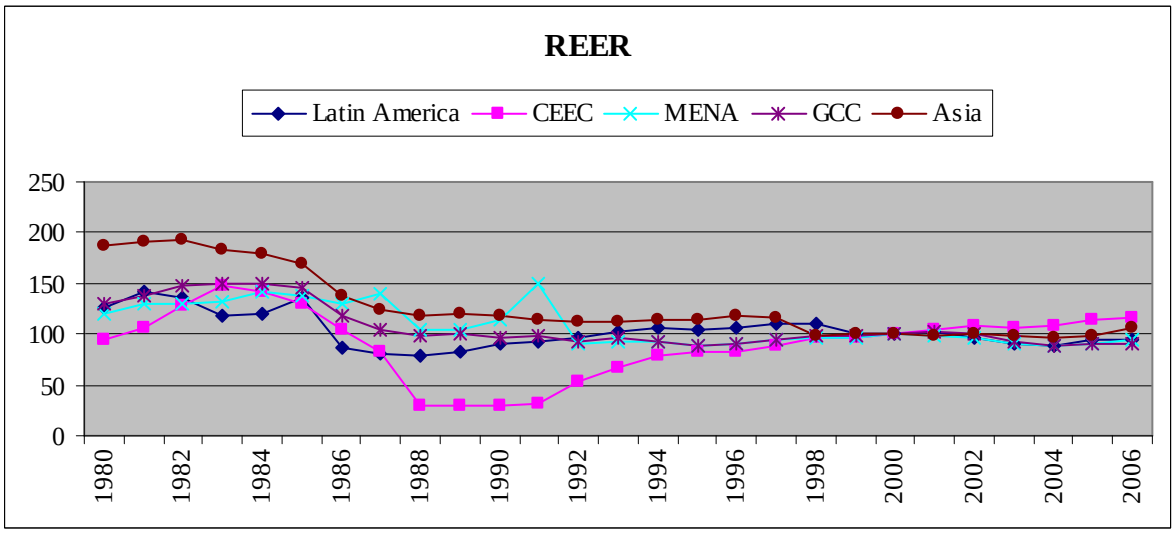


Figure 3. Aggregated Capital Flows

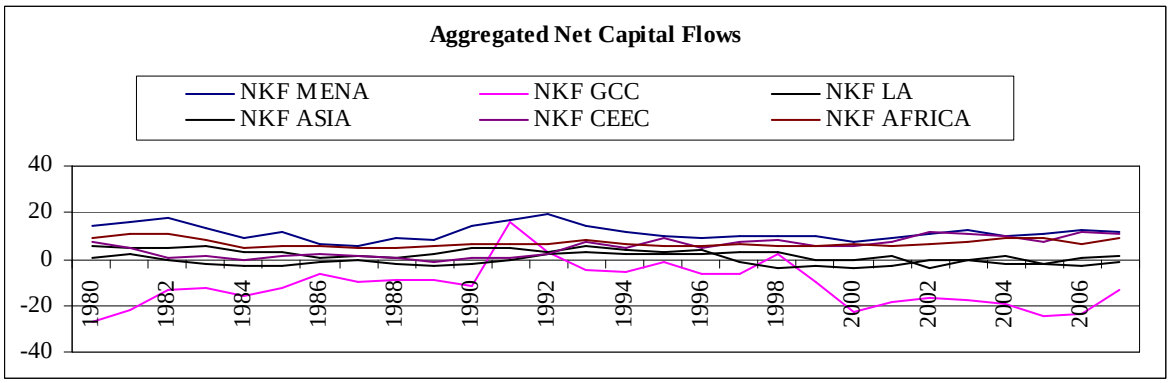


Figure 4. Income

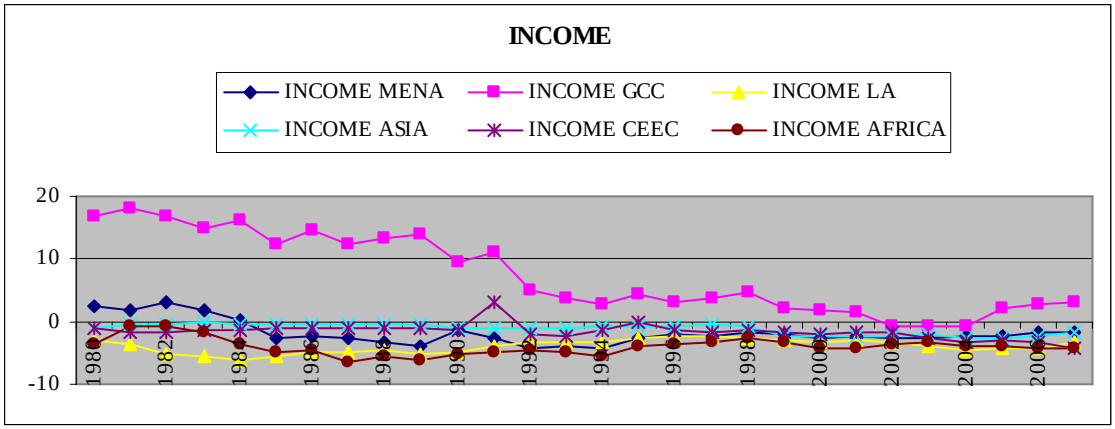


Figure 5. Aid

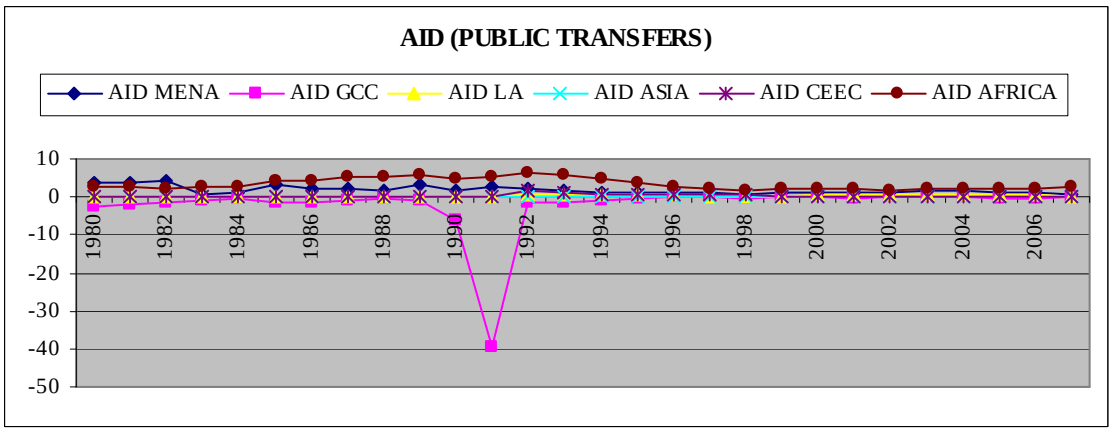


Figure 6. Aid in All Regions Excluding GCC

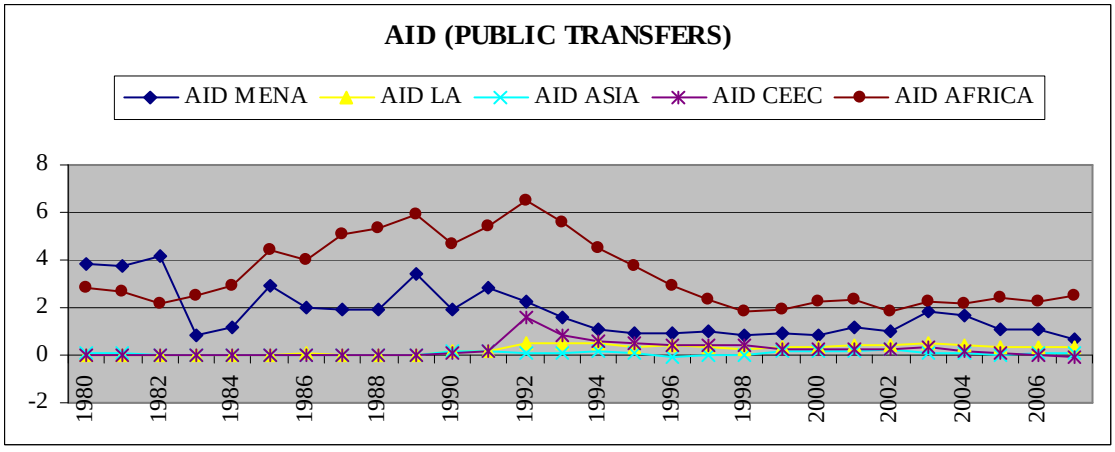


Figure 7. Remittances

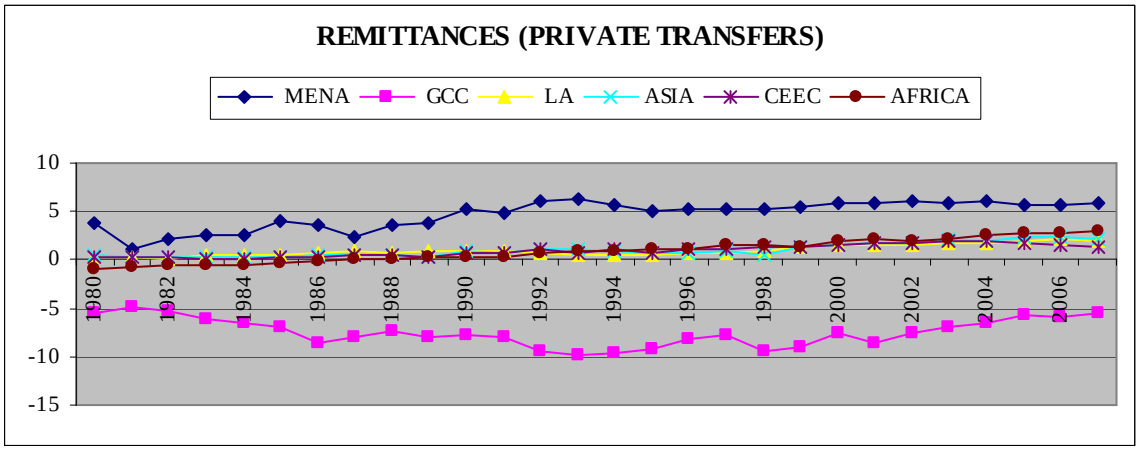


Figure 8. FDI

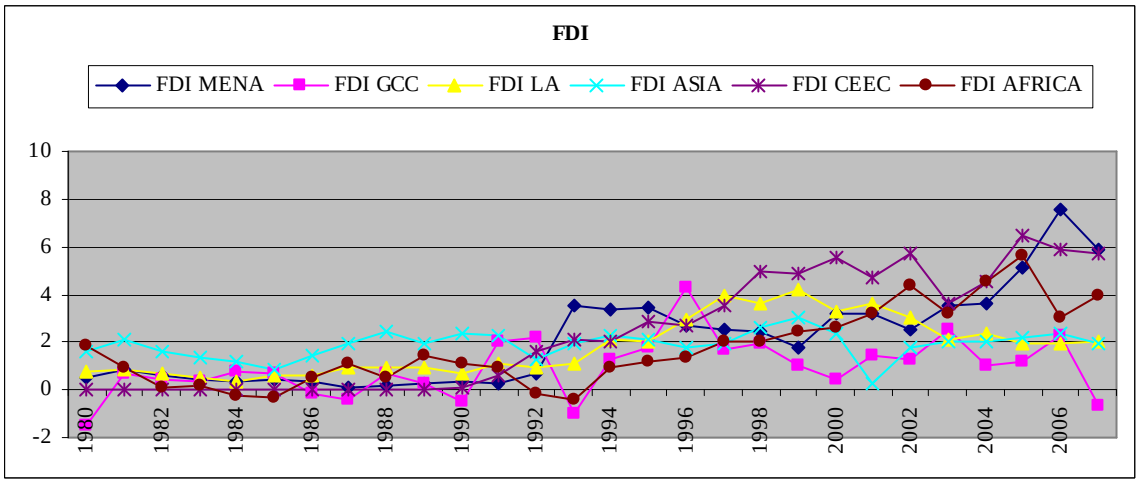


Figure 9. Portfolio Investments

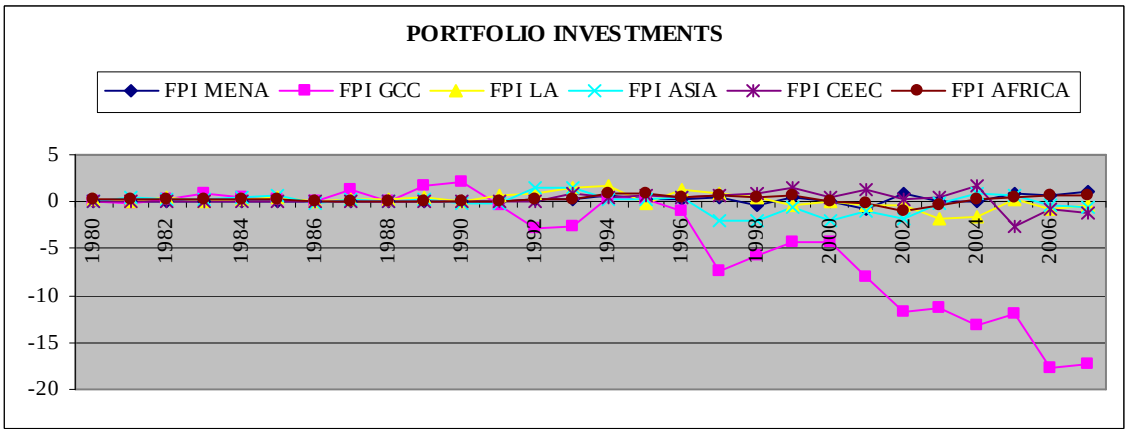


Figure 10. Portfolio Investments Excluding GCC

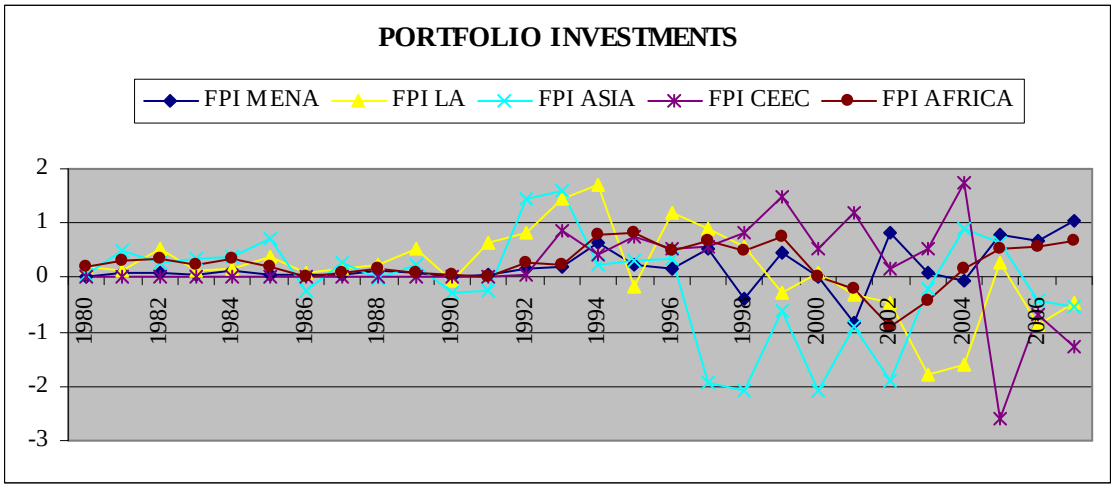


Figure 11. Debt

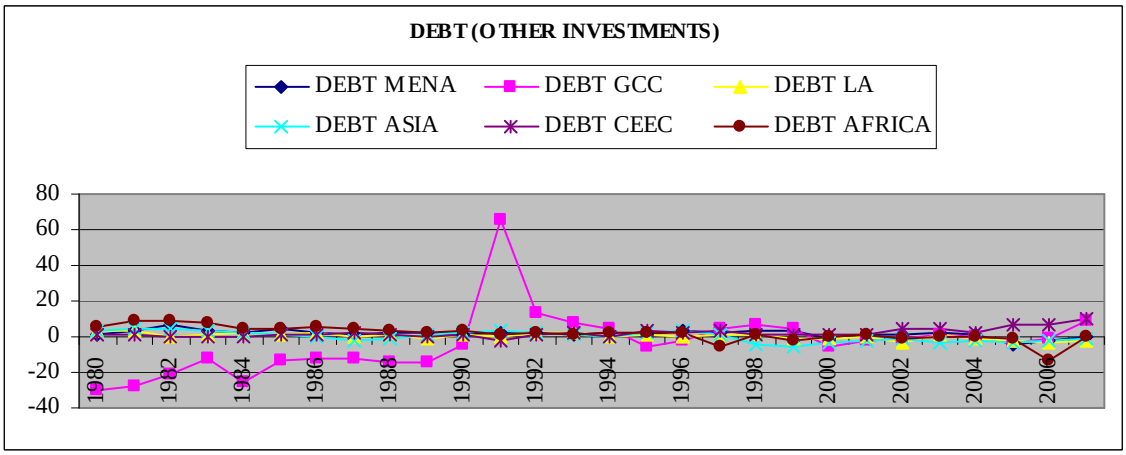
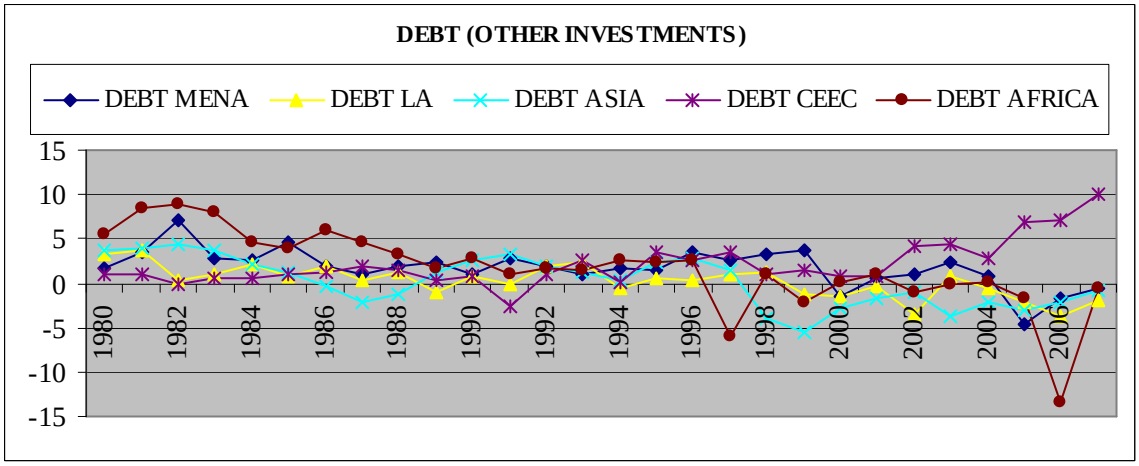


Figure 12. Debt Excluding GCC



Appendix 1: List of Countries Included in our Sample

Africa	CEEC	East Asia	Latin America	MENA	GCC
Cameroon	Bulgaria	China	Argentina	Egypt	Bahrain
Côte d'Ivoire	Croatia	India	Bolivia	Iran	Kuwait
Ghana	Czech Rep.	Indonesia	Brazil	Jordan	Oman
Kenya	Estonia	Korea	Chile	Lebanon	Qatar
Mali	Hungary	Malaysia	Colombia	Morocco	Saudi Arabia
Mozambique	Latvia	Pakistan	Ecuador	Sudan	UAE
Nigeria	Lithuania	Philippines	Mexico	Syria	
Senegal	Poland	Singapore	Peru	Tunisia	
South Africa	Romania	Thailand	Uruguay	Turkey	
Tanzania	Slovak Rep.		Venezuela		
Zambia	Slovenia				

Appendix 2: List of Variables Included in our Model

Variable	Definition	Source
REER	Real Effective Exchange Rate Index	IMF Staff database
GCON	Government Consumption = Public Consumption Expenditure / GDP (current, local currency)	Authors' Calculation based on WEO data
BUDG	Budget Balance = General government balance / GDP (current, local currency)	Authors' Calculation based on WEO data
PROD	Productivity = GDP per Capita	WEO
LIQ	Liquidity = Broad Money / GDP (current, local currency)	Authors' Calculation based on WEO data
TOT	Terms of Trade (Price of Exports to the Price of Imports), Index 2000=1	WEO
OPEN	Degree of Openness = (Imports + Exports) / GDP (Constant, Local Currency)	Authors' Calculation based on WEO data
IMP	Degree of Openness = Imports / GDP (Constant, Local Currency)	Authors' Calculation based on WEO data
NKF	Net Capital Flows = Balance of goods and services [-(Exports . Imports) / GDP] - Change in Gross international reserves (including gold, in current US Dollars] / GDP (Current, Billion USD)	Authors' Calculation based on WEO data
FDI	FDI = Foreign Direct investments / GDP (Current, USD)	Authors' Calculation based on IFS data
PORT	Portfolio = Portfolio investments / GDP (Current, USD)	Authors' Calculation based on IFS data
DEBT	Debt (Other Investments in the Financial Account)= Other investments / GDP (Current, USD)	Authors' Calculation based on IFS data
INCOME	Income (Current Account) = Income / GDP (Current, USD)	Authors' Calculation based on IFS data
AID	Aid = Official unrequited transfers (Current Account) / GDP (Current, USD)	Authors' Calculation based on IFS data
REMIT	Remittances = Other unrequited transfers (Current Account) / GDP (Current, USD)	Authors' Calculation based on WEO data

Table 1: GMM-in System Estimates of the Impact of Capital Flows on Real Effective Exchange Rate

	(1)	(2)
Constant	0.603	0.311
	(0.437)	(0.610)
LagREER	0.785***	0.751***
	(0.049)	(0.057)
LNGDP	0.134***	0.094***
	(0.031)	(0.030)
LTOT	0.158**	0.224**
	(0.074)	(0.111)
LGCON	-0.104**	-0.064
	(0.049)	(0.047)
LOPEN	-0.051*	-0.024
	(0.031)	(0.027)
NKF	0.006***	
	(0.001)	
FDI		0.002
		(0.002)
DEBT		0.003**
		(0.001)
PORT		0.006***
		(0.002)
INCOME		0.009**
		(0.004)
AID		0.006***
		(0.002)
REMIT		0.008*
		(0.004)
Hansen test	0.139	0.242
Serial correlation test	0.654	0.888
No. of countries	57	57
No. of observations	1347	1313

This table presents the results of GMM-in system estimation for our sample of 57 countries over the 1980-2007 period. The dependent variable is the Real Effective Exchange rate. Two specifications are estimated one assessing the global impact (column 2) and the other assessing rather the impact of each capital flow. The nature of GMM method leads to the introduction of lagged dependent variables. For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals. For the test of serial correlation, the null hypothesis indicates that the errors in the first difference regression exhibit no second-order serial correlation. Standard errors of estimates are reported in parentheses. Serial correlation and Hansen tests show *p*-values.

***, ** and * refers to levels of significance of 1 percent, 5 percent and 10 percent, respectively.

Table 2: GMM-in System Estimates of the Impact of Capital Flows on Real Effective Exchange Rate by Region

	(NKF)	(FDI)	(DEBT)	(PORT)	(INCOME)	(AID)	(REMIT)
Constant	0.193	0.330	0.351	0.235	0.075	0.054	0.155
	(0.522)	(0.512)	(0.442)	(0.460)	(0.445)	(0.415)	(0.541)
LagLREER	0.773***	0.779***	0.771***	0.788***	0.784***	0.792***	0.780***
	(0.051)	(0.049)	(0.051)	(0.051)	(0.054)	(0.053)	(0.054)
LNGDP	0.127***	0.137***	0.135***	0.124***	0.111***	0.115***	0.118***
	(0.034)	(0.036)	(0.035)	(0.032)	(0.034)	(0.036)	(0.031)
LTOT	0.239**	0.219**	0.217***	0.220***	0.261***	0.248***	0.210**
	(0.090)	(0.088)	(0.074)	(0.079)	(0.082)	(0.073)	(0.103)
LGCON	-0.078*	-0.105*	-0.089*	-0.089*	-0.066	-0.072	-0.023
	(0.051)	(0.057)	(0.051)	(0.049)	(0.042)	(0.047)	(0.041)
LOPEN	-0.042	-0.043	-0.048	-0.041	-0.056**	-0.045	-0.036
	(0.032)	(0.032)	(0.033)	(0.029)	(0.027)	(0.028)	(-0.003)
NKF or Flow-MENA	0.004*	-0.002	0.007**	-0.007**	0.010***	0.009	0.003
	(0.002)	(0.004)	(0.004)	(0.004)	(0.003)	(0.011)	(0.003)
NKF or Flow - GCC	0.006***	0.003	0.006***	0.009***	0.001	0.007***	0.021***
	(0.002)	(0.003)	(0.002)	(0.002)	(0.001)	(0.002)	(0.008)
NKF or Flow - L.A.	0.012**	-0.010	0.008*	0.013***	0.022**	0.017	-0.010
	(0.005)	(0.012)	(0.005)	(0.005)	(0.010)	(0.012)	(0.016)
NKF or Flow - ASIA	0.007***	-0.004	0.009***	0.015***	0.002	0.106*	0.017**
	(0.002)	(0.007)	(0.003)	(0.005)	(0.007)	(0.056)	(0.007)
NKF or Flow - CEEC	-0.001	-0.003	-0.003	0.006*	0.009	0.047**	-0.04***
	(0.002)	(0.004	(0.002)	(0.003)	(0.008)	(0.019)	(0.013)
NKF or Flow - AFRICA	0.009***	0.014**	0.007***	0.009	-0.045	0.014*	0.018**
	(0.003)	(0.006)	(0.002)	(0.006)	(0.005)	(0.007)	(0.008)
Other-K. flows		0.007***	0.007***	0.006***	0.006***	0.005***	0.005***
		(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)
Hansen test	0.177	0.108	0.161	0.205	0.259	0.298	0.199
Serial correl. test	0.836	0.703	0.836	0.792	0.817	0.815	0.844
No. of countries	57	57	57	57	57	57	57
No. of observations	1347	1347	1347	1347	1347	1308	1308

This table presents the results of GMM-in system estimation for our sample of 57 countries over the 1980-2007 period. The dependent variable is the Real Effective Exchange rate. Two specifications are estimated one assessing the global impact (column 2) and the other assessing rather the impact of each capital flows. The nature of GMM method leads to the introduction of lagged dependent variables. For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals. For the test of serial correlation, the null hypothesis indicates that the errors in the first difference regression exhibit no second-order serial correlation. Standard errors of estimates are reported in parentheses.

***, ** and * refers to levels of significance of 1%, 5% and 10%, respectively.

References:

Adenauer, I., and L. Vagassky, 1998, "Aid and the Real Exchange Rate: Dutch Disease Effects in African Countries," *Review of International Trade and Development,* Vol.33, pp.177-85.

Adam, C., and D. Bevan, 2004, "Aid, Public Expenditure and Dutch Disease," Development and Comp Systems 0409027, EconWPA.

Amuedo-Dorantes, C., and S. Pozo, 2004, "Workers' Remittances and the REER: A Paradox of Gifts," *World Development*, Vol. 32(8) August, pp. 1407-17.

Aron, J., I. Elbadawi, and B. Kahn, 1998, "Determinants of the REER in South Africa," Working Papers Series 98-16, Centre for the Study of African Economies, University of Oxford.

Arellano, M., and O. Bover. 1995, "Another Look at the Instrumental Variables Estimation of Error Component Models," *Journal of Econometrics*, Vol. 68, pp. 29-52.

Athukorala, P.C., and S. Rajapatirana, 2003, "Capital Inflows and the REER: A Comparative Study of Asia and Latin America," *The World Economy*, Vol. 26(4), pp. 613-37.

Atingi-Ego, M., 2005, "Choice of Appropriate Monetary Policy Instrument Mix by Bank of Uganda" (unpublished; Kampala: Bank of Uganda).

Baffes, J., I. Elbadawi, and S. A. O'Connell, 1999, "Single-Equation Estimation of the Equilibrium Real Exchange Rate," *Exchange Rates Misalignment: Concepts and Measurement for Developing Countries*, ed. by L. Hinkle and P. Montiel, World Bank Policy Research Paper (Washington: World Bank).

Balassa, B., 1964,"The Purchasing Power Parity Doctrine: A Reappraisal," *Journal of Political Economy*, Vol. 72, December, pp. 584-96.

Blundell, R., and S. Bond, 1998, "Initial conditions and moment restrictions in dynamic panel data models," *Journal of Econometrics*, Vol. 87(1), pp. 115-43.

Bourdet Y., and H. Falck, 2006, "Emigrants' remittances and Dutch Disease in Cape Verde," *International Economic Journal*, Korean International Economic Association, Vol. 20(3) September, pp. 267-84.

Chami, R., A. Barajas, T. Cosimano , C. Fullenkamp, M. Gapen, and P. Montiel, 2008, "Macroeconomic Consequences of Remittances," IMF Occasional Paper 259 (Washington, DC: International Monetary Fund).

Corbo, V. and S. Fisher (1995), 'Structural Adjustment, Stabilisation and Policy Reforms: Domestic and International Finance' in Jerry Behrman and T. N. Srinivasan (eds), *Handbook of Development Economics*, Volume III, pp. 2846-2924.

Corden, W. M., 1960, "The Geometric Representation of Policies to Attain Internal and External Balance," *Review of Economic Studies*, 18(1), pp. 1-22.

_____, 1994, Economic Policy, Exchange Rates and the International System, Oxford: Oxford University Press.

_____, and J. P. Neary, 1982, "Booming Sector and De-industrialization in a Small Open Economy," *Economic Journal*, Vol. 92, pp. 1–24.

Dornbusch, R., 1974, "Tariffs and nontraded goods," *Journal of International Economics*, Vol. 4(2) May, pp. 177-85.

Edwards, S., 1992, "Exchange Rates as Nominal Anchors," NBER Working Paper No. W4246 (Cambridge, Massachusetts: National Bureau of Economic Research).

Elbadawi, I., 1999, "External Aid: Help or Hindrance to Export Orientation in Africa," *Journal of African Economies*, Vol. 8(4), pp. 578-616.

_____, and R. Soto, 1997, "REERs and Macroeconomic Adjustment in Sub-Saharan Africa and Other Developing Countries," *Journal of African Economies*, Vol. 6(3), pp. 74-120.

_____, and R. Soto, 1994, "Capital Flows and Long Term Equilibrium Real Exchange Rates in Chile," WB Policy Research Working Paper WPS1306 (Washington, DC: World Bank).

_____, L. Kaltani , and K. Schmidt-Hebbel, 2008, "Foreign Aid, the REER, and Economic Growth in the Aftermath of Civil Wars," *World Bank Economic Review* 22: pp. 113-40.

Falck, H., 1997, "Aid and Economic Performance-The Case of Tanzania," Department of Economics, University of Lund.

Fielding, D., 2007. "Aid and Dutch Disease in the South Pacific," UNU-WIDER Research Paper, World Institute for Development Economic Research (UNU-WIDER).

Gupta, S, R. Powell, and Y. Yang, 2005, "The macroeconomic challenges of scaling up aid to Africa," IMF Working Paper 05/79 (Washington, D.C.: International Monetary Fund).

Hsiao, C, 1986, *Analysis of Panel Data* (Cambridge: Cambridge University Press).

International Monetary Fund, 2005, "The macroeconomics of managing increased aid inflows: experiences of low-income countries and policy implications," (Washington, D.C.: International Monetary Fund).

Kamar, B., and D. Bakardzhieva, 2005, "Economic Trilemma and Exchange Rate Management in Egypt," *Review of Middle East Economics and Finance*, 3 (2), pp. 91–114.

Kamar, B., and S. Ben Naceur, 2007, "GCC monetary union and the degree of macroeconomic coordination," IMF Working Paper 07/249 (Washington, D.C.: International Monetary Fund).

Kang, J.S., A. Prati, and A. Rebucci, 2007, "Aid, exports, and growth: A time series perspective on the Dutch disease hypothesis," International Monetary Fund.

Lartey, E.K., 2007, "Capital Inflows and the Real Exchange Rate: An Empirical Study of Sub-Saharan Africa," The Journal of International Trade & Economic Development, Volume 16(3), pp. 337–57.

_____, F. S. Mandelman, and P. A. Acosta, "Remittances, Exchange Rate Regimes, and the Dutch Disease: A Panel Data Analysis," Federal Reserve Bank of Atlanta Working Paper 2008-12.

López, H. L. Molina, and M. Bussolo, 2007, "Remittances and the REER," World Bank Policy Research Working Paper 4213.

Nickell, S.J., 1981, "Biases in Dynamic Models with Fixed Effects", *Econometrica*, Vol. 49, pp. 1417-26.

Nkusu, M., 2004, "Aid and the Dutch Disease in Low-Income Countries: Informed Diagnoses for Prudent Prognoses," IMF Working Paper 04/49 (Washington, D.C.: International Monetary Fund).

Nwachukwu, J., 2008, "Foreign Capital Inflows, Economic Policies and the Real Exchange Rate in Sub-Saharan Africa: Is There an Interaction Effect?" Brooks World Poverty Institute Working Paper No. 25.

Nyomi, T.S., 1998, "Foreign aid and economic performance in Tanzania," *World Development*, Vol. 26, pp.1235-40.

Opoku-Afari, M, O. Morrissey, and T. Lloyd, 2004, "Real Exchange Response to Capital Inflows: A Dynamic Analysis for Ghana," CREDIT Research Paper 04/12.

Ouattara, B., and E. Strobl, "Aid, Policy and Growth: Does Aid Modality Matter?" *Review of World Economics*, Vol. 144, No. 2 (1 July 2008), pp. 347-65.

Prati, A., and T. Tressel, 2006, "Aid volatility and Dutch Disease: is there a role for macroeconomic policies?" IMF Working Paper 06/145(Washington, D.C.: International Monetary Fund).

Rajan, R., and A. Subramanian, 2005, "What Undermines Aid's Impact on Growth?" IMF Working Paper 05/126 (Washington, D.C.: International Monetary Fund).

Salter, W.E, 1959, "Internal and external balance: The role of price and expenditure effects," *Economic Record 35*, Vol. 71,, pp. 226–38.

Samuelson, P. 1964, "Theoretical Notes on Trade Problems," *Review of Economics and Statistics*, Vol. 23.

Swan, T.W, 1960, "Economic control in a dependent economy," *Economic Record 36*, Vol. 73, pp. 51–66.

White, H., and G. Wignaraja, 1992. "Exchange Rates, Trade Liberalisation and Aid: The Sri Lankan Experience," *World Development* 20(10), pp.1471-80.