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***Does Capital Account Liberalization Spur Economic
and Financial Performance? New Investigation for
MENA Countries***

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FEMISE

FINAL REPORT

FEM 33-06

DOES CAPITAL ACCOUNT LIBERALIZATION SPUR ECONOMIC AND FINANCIAL PERFORMANCE? NEW INVESTIGATION FOR MENA COUNTRIES

Team Leader:

Mondher Cherif

ESC SFax & University of Rheims

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Résumé du projet

Ce projet examine l'impact de la libéralisation du compte capital sur la performance économique des pays de la région MENA. Nous suivons une approche multidimensionnelle du fait que notre étude s'intéresse à la fois au secteur réel et financier.

Le projet objectif de cette étude est de comprendre pourquoi certains pays libéralisent leur compte capital et d'autres pas. Le second objectif est d'analyser l'impact controversé de la libéralisation du compte capital sur l'économie réelle, et en particulier son incidence sur la croissance économique, les taux de change et les IDE. Le dernier objectif est de mesurer l'impact de cette ouverture sur le secteur financier à travers son incidence sur le développement du secteur bancaire.

Principaux resultants du projet

- Les deux mesures de la libéralisation du compte capital (CAL) ont un impact significatif sur la croissance économique, tandis que la crise bancaire a un effet négatif. Nos résultats indiquent que l'ouverture du compte capital dans les pays de la région MENA a fortement contribué à la croissance économique ce qui est en accord avec d'autres résultats comme par exemple Honig (2008) et Quinn et al. (2008). Ce résultat positif peut être expliqué par le fait que la majorité des pays de la région ont adopté une libéralisation partielle de leur compte capital comme expliqué dans Ben Gamra (2009). Ce résultat peut également s'expliquer par la bonne qualité des institutions dans ces pays (Klein, 2005).
- Les deux mesures de la libéralisation du compte capital (CAL) ont un impact positif et significatif sur la compétitivité, ce qui est en accord avec le phénomène Dutch Disease et les conclusions d'autres auteurs tels que Bakardzhieva et al. (2010) par exemple.
- Dans nos modèles, l'ouverture du compte capital a un impact positif et significative sur les IDE ce qui peut s'expliquer par le fait que les investisseurs accordent une importance cruciale à la possibilité de rapatrier leurs investissements et les dividendes à n'importe quel moment, et préfèrent ainsi investir dans les pays où l'ouverture du compte capital est forte.
- Nos résultats montrent clairement que d'une manière générale l'ouverture du compte capital a un impact positif sur le développement financier étant donné les proxy que nous avons utilisé dans nos modèles (sauf lorsque nous avons utilisé la mesure de l'IMF avec le crédit au secteur privé, les résultats sont significatifs seulement au seuil de 10 %). Ces résultats attendus confirment le fait que des flux des capitaux entrants et sortants et en forte croissance indiquent une forte intégration avec les marchés financiers, ce qui accroît les pressions sur les pays afin que ces derniers renforcent les institutions et le fonctionnement de leurs secteurs financiers.

Executive Summary

This project will focus on assessing the impact of capital account openness on the economic performance of MENA countries. Our approach will be multidimensional since we will focus both on the real economy and on the financial sector

The first objective of this study is to understand why some countries liberalize their capital account and others not, and how the speed of the liberalization process could be explained.. The second objective is to investigate the controversial impact of capital account liberalization on the real economy, especially its incidence on economic growth, competitiveness and foreign direct investment. The last objective is to assess the incidence of capital openness on the financial sector through its impact on banking sector development.

To address all these objectives, we use the dynamic GMM panel data modelling in order to account for the persistence of the dependent variables and some endogeneity issues. Additionally, we use two measures of capital account liberalization the IMF measure of capital liberalization and the Chinn-Ito index (Chinn and Ito, 2002).

Some theoretical studies have suggested that the gains from capital openness is not limited to providing access to foreign capital, and comes mainly from the decrease of domestic distortions in economic reforms brought by openness (Gourinchas and Jeanne, 2002). The recent empirical literature on this issue has looked into an extensive set of potential dimensions related to capital account liberalization, such as the role of financial depth and development, the quality of institutions, the sequence of reforms, and the composition of capital inflows. However, little agreement has been reached so far on the fundamental forces that make financial openness a source of economic performance.

The absence of evidence in favor of a strong positive openness–growth relationship is confusing in several respects. The key question therefore does not seem to be *whether* countries benefit from liberalization in the (very) long run, but the timing and the circumstances under which they could benefit. A key hypothesis that has received little attention in the empirical literature is that there may be a tradeoff *over time* between openness and growth. The theoretical work by Gourinchas and Jeanne (2002) implies that financial liberalization yields only a one-off benefit for economies in the short term. McKinnon and Pill (1997, 1999) contend that, in the short run, better access to foreign funds may lead to "over borrowing," i.e. an investment boom, and thus temporarily higher growth. However, to the

initial bubble may succeed a severe bust, a financial crisis, and an economic recession as the boom becomes unsustainable. Similarly, Eicher and Turnovsky (1999) develop a model in which capital market imperfections, in the form of debt subsidies, lead to an initial acceleration in investment and growth, but also to a subsequent increase in debt service costs and slower growth. In general, the theoretical explanation provided by these authors suggests a short-run gain and either no gain or a *medium- to long-run pain* from financial liberalization.

Within the broader debate over the increasing importance of international capital flows in the world economy, some have alleged that the IMF has encouraged member countries to liberalize their capital accounts prematurely without ensuring that adequate institutions and prudential regulations were in place (see Williamson, 1990 and the 10 policy reforms that the author considered as forming the « Washington Consensus »). Others argue that rapid liberalization, with insufficient attention to sequencing and establishing the appropriate preconditions, has been responsible for much of the financial instability and economic distress experienced by many emerging market countries (Desai, 2003; Stiglitz, 2000, 2002 and 2004 ; Wade, 1998-99 ; and Wade and Veneroso (1998)).

Very few papers have studied the impact of capital account openness on FDI inflows. While neo-classical modeling indicates that capital account liberalization will increase FDI inflows, this might not be the case if the neo-classical assumptions of perfect information, and competitive markets are relaxed. Developing countries, with their underdeveloped financial markets, lack of corporate transparency, insufficient national data collection and susceptibility to large fluctuations in exchange rates—might be particularly vulnerable to perverse effects stemming from capital account liberalizations. In this project, we aim to examine macroeconomic data to investigate the relationship between capital account liberalization and the inflows of foreign direct investment.

For an emerging market country with a relatively closed capital account, private capital outflows are too limited to provide a safety valve to relieve the pressure of inflows. Were it not for government intervention, exchange rates would need to appreciate sharply. In fact, such sharp appreciation and the resulting overvalued exchange rates caused many emerging market countries to run large current account deficits in the 1980s and 1990s. Eventually, these deficits proved unsustainable, foreign investors stopped pouring capital in, and boom turned to bust. No wonder then that countries attempt to slow appreciation, or in the case of some countries with fixed exchanges rates, counter it completely.

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. Among the several measures of competitiveness, we use the REER index calculated by the IMF as it has been the most widely used in the literature in recent years.

Capital flows induced by capital account liberalization are an important determinant of the possible loss of competitiveness. Theoretically, a rise in capital flows increases real wages, which in turn bring out a rise in domestic 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), which describes the side effect of natural-resource booms or increases in capital flows on the competitiveness of export-oriented sectors and import competing sectors. Our project here intends to assess whether the capital account liberalization impacts the competitiveness of the country, and to what extent, using Behavioral Equilibrium Exchange Rate (BEER) models.

Recent years have witnessed a revival of interest in financial development as a key driver of economic growth. At the same time, the effects of capital openness have been the focal point in a number of policy debates, especially in the wake of the East Asian currency crises. Hence, it appears timely to give analytical care to the issue of whether capital controls contribute to financial development. The analysis of this project departs from that found in much of the relevant literature. The analysis skirts the financial development-growth versus capital liberalization-growth debate, and restricts its attention to the linkage between capital account liberalization and financial development.

Main results of the project

- Both measures of capital account liberalization have a significant positive impact on growth, while banking crisis has a significant negative impact. These results indicate that in MENA countries capital account liberalization strongly contributed to enhancing growth, which is in line with many researches, such Honig (2008) and Quinn et al. (2008). This positive impact can be explained by the fact that the majority of MENA countries adopted partial capital account liberalization as explained by Ben Gamra (2009). Another explanation could be that MENA countries' institutions are of good quality (Klein, 2005).
- Both measures of capital account liberalization have the expected significant positive impact on competitiveness, which is in line with the Dutch Disease phenomenon and the findings of previous research (see Bakardzhieva et. al, 2010, for a thorough analysis of capital flows on competitiveness).
- In our models, capital account liberalization has a significant positive impact on FDI that could be explained by the fact that investors look for the assurance that they can repatriate their investment at any time so they prefer to invest in countries with more open capital account.
- There is clear evidence that capital account liberalization has a significant positive impact on financial development, regardless of the proxies we used in our models; except when using the IMF capital account liberalization measure with credit to private sector: then the significance is only at 10% level. These expected results confirm the wisdom that growing two-way capital flows indicate an increasing integration with international capital markets, which increases the pressures for strengthening the institutional infrastructure of the domestic financial sector.

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Samy Ben Naceur is a Professor of Finance at ESSEC Tunis (Tunisia) but also associated researcher in Université de la Méditerranée (France). He co-founded the laboratory of applied Economics and Finance in the University of Tunis. He was Former Director and Dean of the Faculty of Economics and Business at the Free University of Tunis. He is author of more than 20 papers published in referred journals to quote a few: Applied Economic letters, Applied Financial Economics, International Review of Finance, Economic Notes, Emerging Market Review, Journal of Comparative Economics, Journal of Economics and Business, International Review of Financial Analysis, Review of Middle East Economics and Finance, Research in International Business and Finance, Frontiers in Economics and Finance, Managerial Finance, Afro-Asian Journal of Finance and Accounting, Middle East Development Journal, Banque et Marchés, Mondes en Développement,... He also served as a referee for journals referenced in EcoLit. Finally, he served as a consultant on missions and studies on banking and finance with European Commission, the African Development Bank and the World Bank.

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Bassem Kamar is a Professor of Economics at the International University of Monaco and General Manager of Global Economic and Financial Consulting in Monaco. He has five years experience as Economist at the International Monetary Fund, and five years in academia. He is consulting for the World Bank, the IMF, the Arab Monetary Fund, and the African Development Bank. He obtained his PhD in Economics from the University of Nice-Sophia Antipolis, France. He is an elected board member of the Middle East Economic Association, and Research Associate at the Economic Research Forum. He's the author of a book on "Exchange Rate Policies and Globalization", of numerous scientific articles, and serves as referee for several journals referenced in Econlit.

Introduction:

Capital account liberalization was once viewed as an important component of the process of economic development, especially since it held out the promise of money flowing to capital-poor developing countries and growth convergence. While many developing countries have indeed benefited from inflows of foreign capital, sudden stops and reversals of these flows have precipitated costly crises in some of these countries. This had led to a reconsideration of the benefits of capital account liberalization, with capital controls regaining some of their lustre among certain academics and policymakers as effective tools to limit outflows.

Prior to the mid-1990s, literature tended to emphasize the benefits to developing countries of greater access to international capital flows, and to pay comparatively less attention to the potential risks of capital flow volatility. More recently, however, academic research has been more interested in various risk factors, including the linkage between industrial country policies and international capital flows, as well as the more fundamental causes and implications of their boom-and-bust cycles. Still, the focus of the analysis remains on what emerging and developing markets countries should do to cope with the volatility of capital flows (for example, in the areas of macroeconomic and exchange rate policy, strengthened financial sectors, and greater transparency).

Economic belief suggests that free international capital flows can provide a more efficient allocation of resources, give wider possibilities for risk diversification, and spur financial development. In recognition of these favorable outcomes, developed countries have liberalized their capital account over the past 30 years. Many consider efficiency improvement, better diversification opportunities, and financial sector performance in these countries to be linked to liberalizing financial markets. A natural policy prescription, therefore, is to encourage less developed or emerging markets to pursue the openness of their capital markets. But this line of reasoning has been quite polemical. Some argue that, while capital account openness is worthy, it is important to act tardily. Others call into question the desirability of unbound capital flows irrespective of the liberalization process on the basis that unfettered capital flows could ease the happening and transmission of currency disorders. Granted the potential value of countries' policies on capital account openness, and the various

lessons one might reap based on which paper one reads in this booming literature, it appears that the time is right to assess its impact on developing countries.

We provide new evidence on the role of capital account liberalization on growth, on FDI, on competitiveness, and on the financial system in the MENA region using GMM dynamic panel data over the period 1984-2008.

Our project is divided in two parts. The first one is intended to highlight the relevant literature on capital account liberalization (chapter 1), and the empirical methodology (chapter 2). The second one provides a statistical analysis on our panel countries (chapter 3), and a presentation of our empirical results (chapter 4).

Part 1: Related Literature and Empirical Methodology

Chapter 1: Related Literature

Within the broader debate over the increasing importance of international capital flows in the world economy, some have alleged that the IMF has encouraged member countries to liberalize their capital accounts prematurely without ensuring that adequate institutions and prudential regulations were in place (Williamson, 1990). Others argue that rapid liberalization, with insufficient attention to sequencing and establishing the appropriate preconditions, has been responsible for much of the financial instability and economic distress experienced by many emerging market countries (Desai, 2003; Stiglitz, 2000, 2002 and 2004 ; Wade, 1998-99 ; and Wade and Veneroso (1998).

The theoretical rationale for capital account liberalization is based primarily on the argument that free capital mobility promotes an efficient global allocation of savings and a better diversification of risk, hence greater economic growth and welfare (Fischer, 1998). An opposing view has held that there is a considerable information asymmetry in international financial markets, so that free capital mobility – especially when significant domestic distortions exist – does not necessarily lead to an optimal allocation of resources (Stiglitz, 2000 and 2004). Between these two opposing positions is the view that, while the idea that free capital mobility enhances economic welfare is an appealing concept to many economists, there has been surprisingly little empirical evidence to date to either support or refute conclusively such a view.

Our project will be based on four complementary studies on capital account liberalization in MENA countries. The first study concentrates mainly on the evaluation of the impact of capital openness on economic growth through the use of empirical studies inspired by Quinn (1997), Gourinchas and Jeanne (2002), Edison and Warnock (2003), Prasad et al. (2003), Klein (2005), Henry (2007) and Quinn and Toyoda (2008). The second one focuses on the potential relationship between capital account liberalization and inflows of foreign direct investment in MENA countries (see Noy and Vu (2007)). The third study assesses, using updated econometric techniques and variable definitions, the incidence of capital account liberalization on financial development following studies from Chinn and Ito (2002) and Klein and Olivei (2005). The fourth study intends to assess the capital account

liberalization impact on the competitiveness of the country using Behavioral Exchange Rate models (see for example Kim et al. (2004)).

1. Capital account liberalization and growth

Early studies were generally not supportive of a link between capital account liberalization and growth. The first contribution goes back to Alesina, Grilli and Milesi-Ferretti (1994), according to which growth effects of capital account liberalization are small and insignificant. Considering a larger cross section of 61 countries Grilli and Milesi-Ferretti (1995) find that there is no relation between capital account liberalization and economic growth.

Rodrik (1998) also casts doubt on the effect of capital account liberalization on growth. Using a sample of 100 developed and developing countries, he finds no significant effect of capital account liberalization on economic growth over the period 1975 to 1989.

Contrary to the above authors, Quinn (1997) is one of the first studies to identify a positive link between capital account liberalization and economic growth. He examines the impact of both capital account openness and the change in openness on economic growth in a sample of 64 countries over 1960-1989. Quinn's empirical results show that capital account liberalization has a strongly significant effect on the growth of real per capita GDP.

Examining the impact of Quinn's measure of capital account openness on three different measures of economic growth (the average annual growth of real GDP per capita, capital stock per worker, and output per worker), Krol (2001) provides evidence that capital account liberalization promotes long-run economic growth.

Similar to Krol (2001), Edwards (2001) also adopted a Quinn index of capital account liberalization. Using weighted least squares for a 60 countries, he concludes that countries that had more open capital account liberalization perform better than countries that had less capital account liberalization. Including both the capital account liberalization and an interactive term representing the product of the variables and the logarithm of income per capita in 1980, he provides evidence that an open capital account positively affects growth only after a country has achieved a certain degree of economic development.

Analyzing the stock market liberalization in 18 emerging markets, Henry (2003) finds that stock market capitalizations decrease the cost of capital, which leads to greater investment and increased per worker output, at least in the immediate aftermath of liberalization.

In light of these divergent findings, scholars considered the possibility that the effects of liberalization are contingent on the presence or absence of other variables (Quinn and Toyoda, 2008).

Kray (1998) is one of the first studies that have examined whether capital account liberalization influences growth under economic preconditions. He used a variety of measures of capital account openness including, *Share*, Quinn's capital account liberalization and a measure based on actual net capital flows. He didn't find a significant effect of *Share* or Quinn's indicator on growth, but, when these indicators are interacted with the average balance of the financial account he found some significant effects.

Klein and Olivei (1999) show that capital account liberalization promotes economic growth, but only for advanced industrial nations; yet, they do not find evidence that capital account liberalization promotes growth in any industrial country.

Edwards (2001) supports the view that the growth effects of capital account liberalization depend on the economic preconditions. Using a sample of about 60 countries, and considering the Quinn index as measure of capital account liberalization, he provides evidence that an open capital account positively affects growth only after a country has achieved a certain degree of economic development.

Edwards' methodology is scrutinized in Arteta, Eichengreen and Wyplosz (2001). Their estimations suggest that Edwards' results may be sensitive to a variety of factors, and therefore they conclude that there is little evidence that capital account liberalization has more favorable effects in high income and middle-income countries than in poorer developing countries. They also find that there is some evidence that the positive growth effects of liberalization are stronger in countries with strong institutions, as measured by standard indicators of the rule of law, but only weak evidence that the benefits grow with a country's financial depth and development.

Finally, introducing two interactive terms¹, they find that while trade openness has a positive impact on growth, the effect of capital account liberalization is not contingent on openness trade. Rather it is contingent on the absence of a large black market premium². In the presence of such imbalances, capital account liberalization is as likely to hurt as to help.

The study of Edison et al. (2004) also finds evidence of regional heterogeneity on the growth effect of capital account liberalization. They include three different measures of capital account liberalization (Quinn 1982, Share, and Bekaert, Harvey and Lundblad (2001)) for the period of 1976-1995. Their estimates show that capital account liberalization promotes economic growth in middle-income countries. However, this effect is neutral on both rich and poor countries.

O'Denollo (2001) also considers the possibility of differing effects of capital account liberalization across countries. In this vein, Chanda (2005) investigates the sociological contingencies in the capital account liberalization-growth relationship. His findings show that while countries with higher levels of ethnic heterogeneity benefited from capital openness, more homogenous societies did not.

Klein (2005) has developed a theoretical model that attempts to capture the link between institutional quality and the responsiveness of growth to capital account liberalization through the effect of institutional quality on the return to savings. This model demonstrates the possibility of an inverted-U shaped relationship between the responsiveness of growth to capital account liberalization and institutional quality. The empirical results of Klein (2005) are consistent with the theoretical model. In fact, using three empirical specifications (OLS, instrumental variables and the non-linear least squares estimates) for a panel of 71 countries over 1976 to 1996 period he finds that the effect of capital account openness on growth tends to be significant for about one-quarter of the countries in the sample, and these countries tend to be the ones with better (though not the best) institutions. Klein (2005) suggests that there is a strong correlation between institutional quality and income per capita, and the countries that tend to benefit significantly from capital account liberalization are mostly upper-middle-income countries.

Eichengreen and Leblang (2002) examine the growth effect of capital account liberalization in presence of international crisis over different periods. Using two different

¹ Multiplying the Quinn's openness measures by both the Sacks Warnes (1995) openness measure and the black market premium.

² Absence of macroeconomic imbalances.

data sets: a panel of historical data for 21 countries covering the period 1880-1997, and a panel covering 47 countries over the period 1975-1997 - they find strong evidence that the impact of capital account liberalization on growth is more likely to be positive when the domestic financial markets are well developed and regulated, and the operations of the international financial system are smooth and stable. However, it is more likely to be negative when domestic and international markets are subject to crises. In fact, they demonstrate that while crises depress growth when the capital account is open, controls neutralize this effect. However, controlling for sample selection bias (differences in terms of macroeconomic stability, financial and institutional development), Glick, Guo et Hutchison (2006) provide the opposite conclusion. In fact, they find that capital account liberalization reduces countries' vulnerabilities to currency crisis.

Bekaert, Harvey and Lundblad (2005; henceforth BHL) have also sustained the view of heterogeneity of the growth effect. They conclude that not all countries experience the same increment to growth after equity market liberalizations. Their findings show that the effects of capital account liberalization on economic growth are enhanced by higher levels of financial development, good institutions, and investor protection.

In a more recent study Quinn and Toyoda (2008) have offered a new dataset that contains more precise *de jure* measures of capital account openness for a wide sample of countries (94) for up to 50 years (1950 to 1999). Using this new indicator to replicate prior studies in the literature (Grilli and Milesi-Feretti (1995), Quinn (1997), Edwards (2001), Edison et al. (2004), and BHL (2005)), they find that part of the conflicting results appear to have been derived either from measurement errors or from estimations done on differing periods. In fact, when this indicator is entered into six different analyses, it has a positive and significant coefficient.

They have also used pooled-time series, cross sectional OLS and system GMM estimators to examine economic growth ratios for 1955-2004 period. Their results show that capital account liberalization had a positive association with growth in both developed and emerging market nations. Finally, Quinn and Toyoda (2008) have provided evidence that equity market liberalization has an independent effect on economic growth. In effect, they have not found robust effects on economic growth from interaction terms between capital account liberalization and other finance or political economy variables.

Economic theory suggests a number of benefits that may accompany capital account liberalization. Edwards (2001) suggests that capital account liberalization has the potential to

lower the cost of capital, increase risk sharing, raise financial market liquidity, and improve the efficiency of the financial sector of the economy. These changes introduced by liberalization can increase investment, change the type of investments undertaken, increase productivity and accelerate economic growth.

Using the Quinn (1997) measure of capital account, Krol (2001) finds that open capital accounts promote long-run economic growth. However, illustrating the fundamental predictions of the neoclassical growth model about the impact of capital account liberalization on developing countries, Henry (2006) finds that this model does not predict that countries with open capital account will have higher long-run growth rates than countries with closed capital accounts.

Similar to Krol (2001), Edwards (2001) also adopts a Quinn index of capital account liberalization. He provides evidence that an open capital account positively affects growth only after a country has achieved a certain degree of economic development. Bekaert, Harvey and Landblad (2005) have also sustained the view of heterogeneity³ of the growth effect. However, Quinn and Toyoda (2008) provide evidence that equity market liberalization has an independent effect on economic growth.

Edison et al. (2004) demonstrate that there is a positive and significant effect of capital account liberalization and stock market liberalization on economic growth for middle-income countries but not for rich or poor countries. Using a sample of 18 emerging markets, Henry (2003) finds that the cost of capital falls, investments booms and growth rate of output per worker increases when countries liberalize the stock market. Henry and Sasson's (2007) analysis shows that capital account liberalization has a positive and significant impact on both productivity and real wage growth.

The intended contribution of Bussière and Fratzscher (2008) in this trend of literature is to test the presence of an inter-temporal trade-off between growth and financial liberalization. Both *de jure*⁴ and *de facto*⁵ measures of capital account liberalization are adopted in this study for a set of 45 countries over 1980-2002. Using different techniques of estimations (the differences GMM, the country fixed effects and a pooled estimator) they find that countries

³ BHL (2005) relate the heterogeneity of the growth effect 'to the comprehensiveness of reforms, the legal environment, the quality of institutions, the investment conditions, and the degree of financial development'.

⁴ For *de jure* measure of capital account liberalization, Bussière and Fratzscher (2008) have used the data from Kaminky and Schmuckler (2003).

⁵ For *de facto* openness measures the paper of Bussière and Fratzscher (2008) look at different flow variables, four based on FDI and portfolio flows, two proxies related to the size and composition of foreign debt and trade openness.

tend to grow more quickly immediately after liberalization and slower in the medium term. More specifically, they show that countries that gain in the initial five-year period after liberalization are those that experience an investment boom, have large portfolio investment and debt inflows and have larger current account deficits. Bussière and Frutzsher (2008) have concluded that the quality of institutions as well as the size and composition of capital inflows are two key determinants for way some countries benefit from financial liberalization in the medium to long run.

By the end of the 1990s industrial countries had accomplished high degree of financial liberalization, with daily international financial transactions exceeding \$1.6 trillion. Yet, as the industrial nations get rid of restrictions to international capital flows, many developing countries that were long beset by unavailability of domestic capital stayed substantially shut. This discrepancy turns to be a puzzle, granted that scholars ascribe the rapid speed of capital account openness in the industrialized countries to potent balance-of-payments constraints, competition for investment, and financial sector lobbying. In addition, as progress in communications technology reduced the cost of financial transactions, capital controls were said essentially to have "lost their viability." If market forces and technological strides were effective in boosting financial liberalization among the developed countries, should we not anticipate these same pressures to obligate developing countries moving even more strongly toward openness? Why then have developing countries, especially MENA countries, lagged behind the advanced nations in the liberalization of international capital flows?

2. Capital Account Liberalization and Financial Development

Some theoretical studies have contended that the main gains from openness may not occur from having access to foreign capital, but chiefly from the fact that the process of liberalizing results in a decrease of domestic distortions in economic reforms (Gourinchas and Jeanne, 2002). The recent empirical literature on the issue has looked into an extensive set of potential distortions, such as the role of financial depth and development, the quality of institutions, the succession of reforms, and the make-up of capital inflows. In spite of this effort, however, unusually little agreement has so far been attained about the fundamental forces that enable financial openness to improve economic development. The absence of evidence in favor of a strong openness–growth relationship is confusing in several respects. In particular, a significant fact to look at is that all of today's most industrialized economies have open capital

accounts and liberalized domestic financial sectors. Besides, those developing countries that have opened up did so relatively recently, mostly between the late 1980s and the mid-1990s. The key question therefore does not seem to be *whether* countries benefit from liberalization in the (very) long run, but the timing and the circumstances under which they benefit. A key hypothesis that has received little attention in the empirical literature is that there may be a tradeoff *over time* between openness and growth. The theoretical work by Gourinchas and Jeanne (2002) implies that financial liberalization yields only a one-off benefit for economies in the short term, which subsequently return to their long-term growth path. McKinnon and Pill (1997, 1999) contend that, in the short run, better access to foreign funds may lead to "overborrowing," i.e. an investment boom, and thus temporarily higher growth. However, the initial bubble may succeed a severe bust, financial crisis, and economic recession as the boom becomes unsustainable. Similarly, Eicher and Turnovsky (1999) develop a model in which capital market imperfections, in the form of debt subsidies, lead to an initial acceleration in investment and growth but a subsequent increase in debt service costs and slower growth. In general, the theoretical explanation provided by McKinnon and Pill (1997, 1999) and by Eicher and Turnovsky (1999) suggests a short-run gain and either no gain or a *medium- to long-run pain*, from financial liberalization.

Recent years have witnessed a revival of interest in financial development as a key driver of economic growth. At the same time, the effects of capital openness have been the focus point in a number of policy debates, especially in the wake of the East Asian currency crises. Hence, it appears timely to give analytical care to the issue of whether capital controls are suitable for financial development. The analysis of this project departs from that found in much of the existent literature. The analysis skirts the financial development-growth versus capital liberalization-growth debate and restricts its attention to the linkage between capital account liberalization and financial development.

While an important strand of literature has focused on the impact of capital account liberalization, very little empirical work looked to capital account liberalization from the financial development perspective.

Klein and Olivei (2005) have analyzed a link from capital account liberalization to financial depth. Using a sample of industrial and developing countries (21 OECD and 74 non-OECD) over the period of 1986 to 1995, and over 1976 to 1995, they show that there is a statistically significant and economically relevant effect of open capital accounts on financial development and economic growth. However, the significant effect of capital account

liberalization on financial depth is concentrated among OECD, because these countries enjoy better institutional and macroeconomic environments. Klein and Olivei (2005) conclude that the benefits of capital account liberalization are not unconditional, but are likely to depend upon the environment in which the liberalization occurs.

Similar to Klein and Olivei (2005), Chinn and Ito (2002) have also examined the link between capital account liberalization, and financial development. Using aggregate data on a large sample of countries over 1977-1997 they find that the magnitude of the effect of financial openness is quite different between the less developed countries and emerging market group subsamples. In fact, both bank credit and equity market development are significantly associated with financial openness in emerging markets. However, only stock market value traded is significantly affected by financial openness in less developed countries. Chinn and Ito (2002) provide also confirmation to the hypothesis that financial systems with higher degree of institutional development benefit more on average from financial liberalization.

Baltagi et al. (2009) addresses the empirical question of whether trade and capital account openness can help explain the recent pace in financial development, as well as its variation across countries in recent years. It also addresses the related question of whether the simultaneous opening of both trade and capital accounts is necessary to promote financial development. The empirical approach involves regressing two of the most important indicators of financial development—private credit and stock market capitalization. They use two measures of capital account openness which are an indicator constructed by Lane and Milesi-Ferretti (2006), and that of Chinn and Ito (2006). The results of dynamic GMM estimations show that capital account openness is a statistically significant determinant of banking sector development. Their findings also suggest that there is no evidence to affirm that opening up capital account without opening trade could have a negative impact on financial sector development.

Using data from 27 economies during 1980-2001, Law and Habibullah (2009) examine the determinants of financial development. As measures of capital account liberalization, Law and Habibullah (2009) consider the indices constructed by Kaminsky and Schmukler (2003). The dynamic panel data analysis does not support the hypothesis that capital account liberalization promotes financial development. In fact, capital account liberalization does not appear a significant determinant of private sector credit and stock market development.

Klein and Olivei (2005) show that capital account liberalization affects positively and significantly financial depth but this effect is not unconditional: it depends upon the environment in which the liberalization occurs. Chinn and Ito (2002) provide also confirmation of the hypothesis that financial systems with a higher degree of institutional development on average benefit more from financial liberalization than those with a lower one. Noy and Vu (2007) find that capital account liberalization is positively but only very moderately associated with the amount of FDI inflows after controlling for other macroeconomic and institutional measures. Glick, Guo and Hutchisen (2004) conclude that even after controlling for sample selection bias, a liberalized capital account is associated with a lower likelihood of currency crises. Using the Cagan money demand relationship, Sen Gypta (2007) builds a theoretical model, which predicts that there is a negative link between capital account liberalization and inflation. The empirical analysis shows that capital account liberalization generates lower inflation rates.

Among studies that quantify the effect of capital account liberalization on economic growth or policy discipline, Edison and Warnock (2003) support the view that removal of restrictions provides developing countries with increased access to international capital markets, but find no evidence that capital controls create a bias in favor of domestic capital. An occasional paper by Prasad and others (2003) finds no strong relationship between capital account openness and growth (but suggests the importance of the quality of domestic institutions in defining that link), while Tytell and Wei (2004) suggest no robust or causal relationship between liberalization and fiscal discipline (although there is a weak discipline effect on inflation).

3. Capital Account Liberalization and FDI

Very few papers have studied the impact of capital account openness on FDI inflows. While neo-classical modeling indicates that capital account liberalization will increase FDI inflows, this might not be the case if the neo-classical assumptions of perfect information, a complete menu of contingent contracts, and competitive markets are relaxed. Developing countries, with their underdeveloped financial markets, lack of corporate transparency, insufficient national data collection and dissemination, and susceptibility to large fluctuations in exchange rates—might be particularly vulnerable to perverse effects stemming from capital

account liberalization. In this project, we aim to examine macroeconomic data to investigate the relationship between capital account liberalization and the inflows of foreign direct investment.

Using firm level data, Desai, Foley, and Hines (2004) find that American multinationals manage to circumvent capital controls by adjusting their reported intra-firm trade, affiliate profits, and individuals' repatriations. On the other hand, they identify a number of ways in which capital controls make operations more costly to the foreign affiliate, and thereby reduce FDI inflows significantly.

The study of Asied and Lien (2004) is the first that systematically examines the impact of capital controls on FDI in a broad panel. They examine the effect of three types of capital control policies on FDI: (a) the existence of multiple exchange rates; (b) restrictions on capital account, and (c) restrictions on the repatriation of export proceeds. Using a dataset that covers 96 developing countries over the period 1970–2000, they find that the impact of capital controls on FDI varies by region, and has changed over time. In the 1970s and 1980s, none of the policies had a significant impact on FDI. In the 1990s, all three were significant. Furthermore, capital controls have no effect on FDI to Sub-Saharan Africa and the Middle East, but affect FDI to East Asia and Latin America adversely.

Noy and Vu (2007) examine the foreign direct investment and capital account liberalization relationship using an annual dataset for 62 developing countries and 21 developed countries for 1984 to 2000. They find that capital account liberalization is positively but only very moderately associated with the amount of FDI inflows after controlling for other macroeconomic and institutional measures. Their results show that an increase of one standard deviation in the capital openness will increase FDI inflows by 0.71% and 0.32% for the developing countries and developed countries samples, respectively. They have also found that the degree of association between capital account liberalization is affected by the institutional factors - corruption and political stability. Noy and Vu (2007) provide evidence that the liberalization of capital account is only efficient in generating more inflows in an environment of low political risk.

4. Capital Account Liberalization and Exchange Rate

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 diversification⁶.

Competitiveness can have different measures, including labor productivity, the real effective exchange rate (REER), unit labor cost, terms of trade, Balassa's index of revealed comparative advantage, and the World Economic Forum competitiveness index. The paper uses the REER index calculated by the IMF as it has been the most widely used measure for competitiveness in the literature in recent years (Eyraud, 2009; Bennett and Zarnic, 2008; and Monfort, 2008).

Capital flows induced by capital account liberalization are an important determinant of the possible loss of competitiveness. The Salter (1959), Swan (1960), Corden (1960) and Dornbusch (1974) paradigm serves as the theoretical underpinning to test empirically the incidence of capital flows on the REER in emerging economies, as the model explains how a surge in capital flows would generate an appreciation of the REER (Corbo and Fisher, 1995). A rise in capital flows increases real wages, which in turn bring out a rise in domestic 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), which describes the side effect of natural-resource booms or increases in capital flows on the competitiveness of export-oriented sectors and import competing sectors.

For an emerging market country with a relatively closed capital account, private capital outflows are too limited to provide a safety valve to relieve the pressure of inflows. Were it not for government intervention, exchange rates would need to appreciate sharply. In fact, such sharp appreciation caused many emerging market countries to run large current account deficits in the 1980s and 1990s. Eventually, these deficits proved unsustainable, foreign

⁶ Though competitiveness is not a goal in itself, relatively fast growing countries need improved competitiveness to sustain high output growth without straining the balance of payments, (e.g. Lipschitz and McDonald, 1991).

investors stopped pouring capital in, and boom turned to bust. No wonder then that countries attempt to slow appreciation, or in the case of some countries with fixed exchange rates, to counter it completely.

The empirical literature in this area is quite limited, with few works published on the effects of CAL on the exchange rate and competitiveness of an economy (For a comprehensive analysis of the impact of capital flows on competitiveness, refer to Bakardzhieva et. al, 2010). Most of the earlier research focused on the nature and processes surrounding CAL and on its benefits and disadvantages. However, Altar et al. (2005) examined the impact of CAL on the exchange rate and competitiveness of the Romanian economy. The variables used were the productivity differential between Romania and the European Union, the proportion of net foreign assets to GDP, and the degree of openness of the Romanian economy. These variables were formulated in a model using the Johansen cointegration technique in order to determine the long-run equilibrium relation between the selected variables and the exchange rate. The results showed that an increase in productivity of the tradable sector yields an appreciation of the real effective exchange rate, and a growth in the net foreign assets to GDP of the banking system causes a long-term depreciation of the real effective exchange rate.

In this line, Greenidge and Morgan (2008) investigate the economic competitiveness – liberalisation nexus in Barbados, Jamaica, and Trinidad and Tobago by examining the impact of capital account liberalisation on the real effective exchange rate, over the period 1980Q1 to 2007Q4. They estimate a model of the real effective exchange rate, which also includes an appropriate measure of capital account liberalization. The results show that the direct effects of capital account liberalization on economic competitiveness varied across the countries. In fact, while capital account liberalization has a positive impact on competitiveness in Trinidad and Barbados, in Jamaica, a significant and negative impact on competitiveness is observed.

Examining the macroeconomic effects of capital account liberalization in Korea, Kim and Christian (2004) find that capital account liberalization substantially changes the nature and composition of capital flows, and appreciates the nominal and real exchange rates. Consumption and investment increase (due to expanded credit availability), which in turn raises the real GDP. The increase in income and the exchange rate appreciation led to deterioration of the current account. These effects are consistent with the predictions of boom-bust cycle models.

Morgan and Greenidge (2008) examine the impact of capital account liberalization on different exchange rate regimes in three Caribbean territories (Barbados, Jamaica and Trinidad and Tobago), and their economic competitiveness. For this respect, a model of the real effective exchange rate (a common indicator of economic competitiveness), which also includes an appropriate measure of CAL, is estimated. The paper thus attempts to gauge the effects of CAL on the exchange rate and competitiveness and what are the likely effects of further liberalization. The main finding of the paper is that the direct effects of CAL on economic competitiveness varied across the countries and appear to reflect the pace at which such policies were implemented. For Barbados, which took a very gradual approach to the liberalization process, results showed that CAL had a positive impact on competitiveness via depreciation in the real effective exchange rate. However, in Jamaica, where the pace of CAL was quite rapid and the domestic financial sector unprepared for it, they find a significant and negative impact on competitiveness. In the case of Trinidad, CAL occurred at a pace faster than in Barbados but much slower than in Jamaica, they find a positive effect.

Following the same line of analyses, *Herciu and Toma (2007)* showed that the equilibrium exchange rate is crucial as it directly influences external competitiveness, especially through export prices. For Romania, the competitiveness can be improved through the economic freedom growth and the real exchange rate appreciation. But this appreciation must be accompanied by a rise in productivity and in the quality of the products offered on the external markets in order not to affect Romania's external competitiveness. A loss of competitiveness can rapidly be reflected in an increase of the current account deficit.

Patnaik1 and Shah (2009) examined structural change in the Chinese and Indian de facto exchange rate regimes, focusing on the period from 1998 to 2007, indeed, China and India have both sought control over the exchange rate in order to maintain export competitiveness, manage current account balance, and pursue independent monetary policy. With increasing capital account openness, exchange rate inflexibility has been associated with significant monetary policy distortions. In both countries, the short-term rate expressed in real terms dropped and achieved very low values, in the unprecedented business cycle expansion of the early 2000s. In the Indian case, difficulties of sterilization led to a modification of the exchange rate regime, moving towards greater flexibility. In China, in contrast, the exchange rate regime did not change.

Chapter 2: Research Methodology

Our aim is to investigate the effect of capital account liberalization on economic growth, financial development, foreign direct investment and competitiveness (real effective exchange rate).

1. Data and Issues

Studies of the effects of capital account liberalization on development are distinguished both by the specification employed and by the variable used, especially the indicator for the capital account liberalization. For the capital openness-growth nexus, Quinn et al. (2008) argue that measurement error in capital account openness indicators, joined with clustering and collinearity among other independent variables, can lead to inconsistent results, and might contribute to inflated standard errors and biased coefficient estimates. Consequently, we employ alternative indicators of capital account liberalization. The separate use of two indicators represents an effort to assess the robustness of the results.

Capital account liberalization indicators

A fundamental problem is the choice of indicators systems that allow for a better characterization of the degree of openness of the capital account. The most popular source data on this subject is the IMF Annual Report on Exchange Arrangement and Exchange Restriction (AREAR). Most authors use a binary variable, IMFB, on the existence /absence of restrictions on the capital account taken from the AREAR data⁷. The problems with using the IMFB indicator are well known, since there are a variety of ways and grades in which the capital account can be restricted. Besides, because of data limitation, we consider two alternative continuous indicator of the capital account openness that includes other components of external policies for which data is available in the AREAR database. The first indicator was developed by Chinn and Ito (2006). They created a measure (KAOPEN) based on principle component analysis of three financial current binary indicators in AREAR: multiple exchange rates, current account, and surrender of exports proceeds; and the five-year average of IMFB (called SHARE, as also in Klein (2003)). This index is available for 181

⁷ For a recent survey about the limitations in measurement of capital account openness, see Quinn et al. (2008).

developed and developing countries for the period 1970-2005. It ranges from -2 in case of most controlled to 2.5 in case of most liberalized. Data for FDI are taken from IMF's Balance of Payments Statistics database.

Capital account liberalization and growth

To assess the relationship between privatization and economic growth in our dynamic panel, we use the System GMM estimator proposed by Arellano and Bover (1995) and Blundell and Bond (1998). The basic regression takes the form:

$$GROWTH_{it} = \alpha_i + \beta CAL_{it} + \gamma X_{it} + \mu_{it} \quad (1)$$

Where:

- **GROWTH** is our dependent variable which equals real per capita GDP growth.
- **CAL** is one of the two measures of capital account liberalization discussed above (IMFB and KAOPEN).
- **X** represents a matrix of control variables: to assess the relationship between economic growth and capital account liberalization we control for other potential growth determinants, and also examine whether CAL influences growth only under particular, economic, financial, institutional and policy environments:
 - ✓ *Initial income* (RGDPG) equals the logarithm of real per capita GDP in the initial year of the period under consideration.
 - ✓ Financial development: We examine both financial intermediary development and the stock market development. As indicator of financial intermediary, we consider *CPS* which equals the logarithm of credit to the private sector by deposit money banks and other financial institutions as a share of GDP. The second indicator of financial intermediary, *LIQ*, measures the amount of liquid liabilities of the financial system, including liabilities of banks, central banks and other financial intermediaries.
 - ✓ Macroeconomic stability: We consider *Inflation* which equals the growth rate of consumer price index (INF).
 - ✓ *Trade Openness*: The trade openness (*TO*) is proxied by the share of exports and imports to GDP.
 - ✓ *Government Consumption* (*GC*): this variable is collected from WDI and equal to government wages bills and supplies and services.
 - ✓ Institutional development (*INST*): The institutional data set employed in the analysis was assembled by the International Country Risk Guide, published by the PRS group. Following Knack and Keefer (1995), three PRS indicators are used to

measure the overall institutional environment, namely (i) corruption, (ii) rule of law, and (iii) bureaucratic quality.

Capital account liberalization and financial development

The aim of this section is to examine the effect of capital account liberalization on financial development.

Dependent variables:

- ✓ The banking sector development is proxied by *CPS* which equals the logarithm of credit to the private sector by deposit money banks and other financial institutions as a share of GDP. The second indicator, *LIQ*, measures the amount of liquid liabilities of the financial system, including liabilities of banks, central banks and other financial intermediaries.

Explanatory variables:

To examine the financial development effect of capital account liberalization we control for other potential determinants of financial development:

- ✓ *Income level (RGDPG)*: Real income has been found to be highly correlated with the size of the stock market. To avoid the causality problem, we simply use last year's income level.
- ✓ *Trade Openness*: The trade openness is proxied by the share of exports and imports to GDP.
- ✓ *Macroeconomic stability*: We consider *Inflation* which equals the growth rate of consumer price index (*INF*).
- ✓ *Institutional development (INST)*: The institutional data set employed in the analysis was assembled by the International Country Risk Guide, published by the PRS group. Following Knack and Keefer (1995), three PRS indicators are used to measure the overall institutional environment, namely (i) corruption (*CORR*), (ii) rule of law, and (iii) bureaucratic quality (*BURR*).

The model to be estimated is the following:

$$FD_{i,t} = \alpha_i + \beta CAL_{i,t} + \gamma Z_{i,t} + \varepsilon_{i,t}, \quad (2),$$

for $i = 1, 2, \dots, N$, $t = 1, 2, \dots, T$,

where *FD* is the dependant variable, presented alternatively as *Private Credit* and *LIQ*, *CAL* is the indicator of capital account liberalization defined above, *Z* is a standard set of conditioning variables that includes *Income Level*, *Trade Openness*, *Inflation* and *Institutional development (INST)*, ε_{it} is the error term for each observation.

Capital Account Liberalization and Foreign Direct Investment

Our objective is to examine how capital controls (or the liberalization of capital controls) affect FDI flows.

Dependent variables:

Our dependant variable is foreign direct investment (*FDI*). As is standard in the literature, the dependent variable is the ratio of net FDI flows to GDP.

Explanatory variables:

To investigate the effect of capital account liberalization on foreign direct investment we control for other potential determinants of foreign direct investment:

- ✓ Openness of the host country (*TO*): It is a standard hypothesis that openness promotes FDI (cf., Asiedu, 2002; Morrisset, 2000; Noorbakhsh, Paloni, & Yousseff, 2001). We therefore include trade/GDP in our regressions to examine the impact of capital account liberalization on FDI.
- ✓ Attractiveness of the host country market: The argument here is that higher domestic income and higher growth rates imply a greater demand for goods and services and therefore make the host country more attractive for FDI. Thus, we include the logarithm of GDP per capita.
- ✓ Macroeconomic variables (inflation), competitiveness index (REER) and the financial development indicator (*Private Credit*).

The empirical specification is as follows:

$$FDI_{it} = \alpha_i + \beta CAL_{it} + \gamma X_{it} + \varepsilon_{it} \quad (3),$$

where *FDI* is the dependant variable, *CAL* is the indicator of capital account liberalization defined above, *X* is a standard set of conditioning variables that includes GDP per capita, inflation, competitiveness index, credit to private sector. Besides, we take into account the impact of bank and currency crises (*BANKCURR*). ε_{it} is the error term for each observation.

Capital Account Liberalization and Real Exchange Rate

We examine the impact of capital account liberalisation on competitiveness measure by the Real Effective Exchange Rate.

Dependent variable

The dependent variable is the REER. We define at the beginning, the Real Exchange Rate (RER) as: $\frac{P}{EP^*}$ where:

P = Domestic price index, expressed by the consumer price index (as it has an important weight of non-exchangeable goods)

P^* = Foreign price index, expressed by the consumer price index of the U.S. (as it has an important weight of exchangeable goods).

E = Nominal exchange rate, defined as the average price of dollar in local currency. An increase (decrease) of the RER means a real appreciation (depreciation) of the relevant currency.

We use annual data to construct the real effective exchange rate index for country i at period t , $TCREF_{it}$, as the nominal exchange rate index multiplied by the relative price of the rest of the world (in U.S. dollars) to the domestic price index,

$$TCRF_{i,t} = \frac{\frac{P_{it}}{P_{i0}}}{\left[\frac{E_{it}}{E_{i0}}\right] \prod_{k=1}^n \left[\frac{P_{kt}^* E_{k0}}{P_{k0}^* E_{kt}}\right]^{w_k}}$$

- E_{it} and P_{it} are nominal exchange rate and consumer price index respectively of the country i , in period t ,

- E_{kt} and P_{kt} are nominal exchange rate and consumer price index respectively of k -commercial partners, in period t .

- Price level at time 0 represents the base period of our index numbers, and

- W_k , the weights, are computed as the ratio of the bilateral trade flows of country i to the trade-flows of its main commercial partners.

Explanatory Variables:

- ✓ The logarithm of real GDP per capita (RGDPG)
- ✓ The logarithm of government consumption (GC)
- ✓ The trade openness (TO) as the ratio of total imports and exports on the total domestic expenditure.
- ✓ Capital Account Liberalization (CAL) described above
- ✓ Financial Development Index: LIQ as described above.

- ✓ Currency Crises is a dummy variable equal 1 in time of currency or bank crisis and 0 otherwise (*BANKCURR*).

Our baseline model has the following specification:

$$y = \alpha_{it} + \beta X_{it} + \gamma CAL_{it} + \delta Z_{it} + \varepsilon_t \quad (4)$$

Where y represents the REER; X_{it} is the vector of control variables, which comprises the standard deviation of shocks to real output, domestic investment, government consumption, money, and terms of trade; CAL_{it} represents the measures of capital account liberalization, while Z_{it} represents the matrix of control variables.

2. Detailed Presentation of the econometric framework:

The econometric procedure is common for all the specifications presented above. We use the Dynamic Panel System GMM estimator proposed by Arellano and Bover (1995) and Blundell and Bond (1998). We can write the traditional dynamic panel data model as follows:

$$y_{it} = \alpha y_{it-1} + X'_{it} \beta + \vartheta_i + \varepsilon_{it} \quad (I)$$

where y is the endogenous variable, X represents the set of explanatory variables, other than lagged endogenous variable and including our indicators of stock market and bank development, ϑ is an unobserved country-specific effect, ε is the error term, and the subscripts i and t represent country and time period, respectively.

Arellano and Bond (1991) propose to difference equation (I):

$$y_{it} - y_{it-1} = \alpha(y_{it-1} - y_{it-2}) + (X'_{it} - X'_{it-1})\beta + \varepsilon_{it} - \varepsilon_{it-1} \quad (II)$$

While differencing eliminates the country-specific effect, it introduces a new bias. By construction, the new error term $\varepsilon_{it} - \varepsilon_{it-1}$ is correlated with the lagged dependent variable, $y_{it-1} - y_{it-2}$. Under the assumptions that (a) the error term, ε , is not serially correlated, and (b) the explanatory variables, X , are weakly exogenous (i.e., the explanatory variables are assumed to be uncorrelated with future realizations of the error term), Arellano and Bond propose the following moment conditions.

$$E[y_{i,t-s}(\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0 \quad \text{For } s \geq 2; t = 3, \dots, T \quad (\text{III})$$

$$E[X_{i,t-s}(\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0 \quad \text{For } s \geq 2; t = 3, \dots, T \quad (\text{IV})$$

Using conditions (III) and (IV), Arellano and Bond (1991) propose a two-step GMM estimator, commonly called difference GMM. Although asymptotically consistent, Monte Carlo simulations suggest that the difference GMM estimator displays large finite sample biases and very low precision in the estimation of the autoregressive parameter, especially when it is close to unity (Blundell and Bond, 1998; Alonso-Borrego and Arellano, 1999).

Blundell and Bond (1998) address these shortcomings of the difference GMM estimator by introducing a new estimator called system GMM, which we shall use in our analysis.

This estimator combines, within a system, the regression in differences (II) and the regression in levels (I), each with its specific set of instruments. For the equation in levels, the country-specific effect is not eliminated but must be controlled for with the use of instrumental variables. The instruments for the regression in differences remain as described above (i.e. lagged endogenous and exogenous variables previous or equal to $t-2$). For the regression in levels, the instruments are the lagged differences of the endogenous and exogenous variables. For these exogenous variables to be considered appropriate instruments, Blundell and Bond (1998) and Arellano and Bover (1995) set the following additional moment conditions:

$$E[(y_{i,t-s} - y_{i,t-s-1})(\vartheta_i - \varepsilon_{i,t})] = 0 \quad \text{for } s = 1 \quad (\text{V})$$

$$E[(X_{i,t-s} - X_{i,t-s-1})(\vartheta_i - \varepsilon_{i,t})] = 0 \quad \text{for } s = 1 \quad (\text{VI})$$

Thus, we use the moment conditions presented in equations (III)–(VI) and employ the system panel estimator to generate consistent and efficient parameter estimates.

The consistency of the GMM estimator depends on the validity of the assumption that the error terms do not exhibit serial correlation and on the validity of the instruments. To address these issues we use 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 by analyzing the sample analogue of the moment conditions used in the estimation process. The second test

examines the hypothesis that the error term ε_{it} is not serially correlated. We test whether the differenced error term is second-order serially correlated (by construction, the differenced error term is probably first-order serially correlated even if the original error term is not). Failure to reject the null hypotheses of both tests gives support to our model.

Part 2: Empirical results

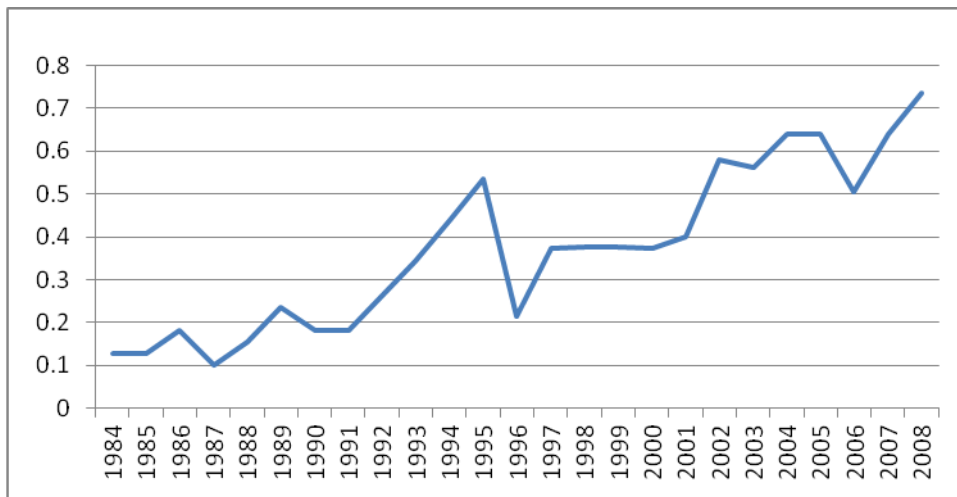
Chapter 3: MENA survey: a statistical analysis

1. Capital Account Liberalization

Capital account liberalization can bring significant benefits to a country including increased access to international capital markets, greater FDI inflows and greater discipline in the exercise of economic policy, stronger economic growth, and competitiveness. Recognizing the importance of capital account liberalization MENA countries have adopted a process of financial liberalization.

Figure 1 shows the capital account liberalization picture in the MENA region over 1984-2008, indicating the considerable variation and periods of alternating liberalization and repression. In fact, the MENA average captures the fitful nature of liberalization. Moreover, the capital account liberalization experienced an expansion starting in 1984, and attaining a score of 0.53 in 1995 before falling to 0.21 in 1996. Since 1997, there is a pronounced increase in capital account liberalization, which reached 0.73 in 2008.

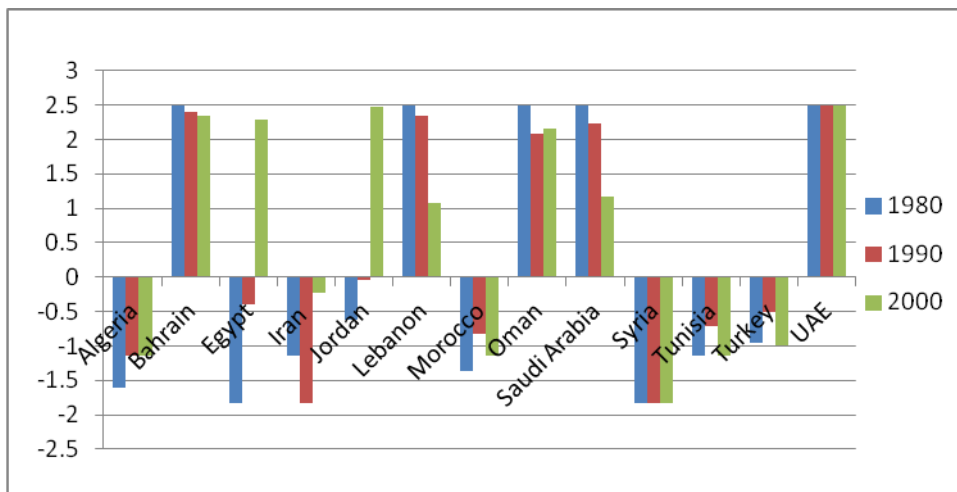
Figure 1: Capital Account Liberalization in MENA Region



Source: World Development Indicators (World Bank 2007); and author's calculations.

Figure 2 shows that there is a notable difference in the process of capital account liberalization in MENA countries. In fact, while some countries have seen considerable liberalization such as Bahrain, Oman, Lebanon, Saudi Arabia and UAE, others like Algeria, Tunisia, Morocco, and Syria retain significant restrictions.

Figure 2: Capital Account Liberalization in MENA countries

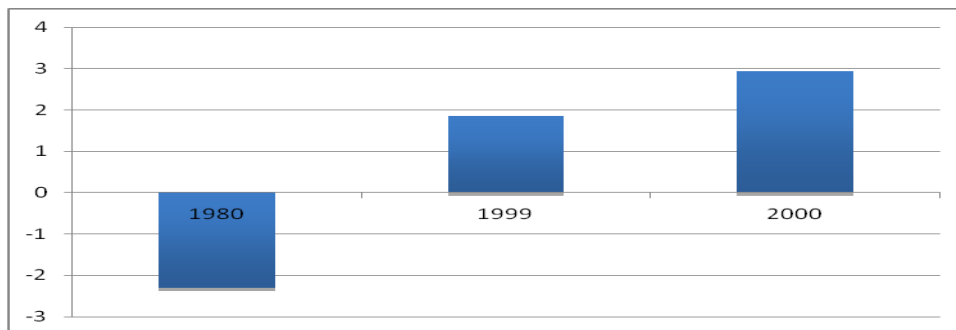


Source: World Development Indicators (World Bank 2007); and author's calculations.

2. Economic Growth

Figure 3 traces the evolution of GDP per capita growth in MENA countries over the last three decades. The main findings are that the real per capita GDP has increased considerably in the last years. In fact, real per capita GDP growth has increased from -2.23% in 1980 to around 3% in 2000s.

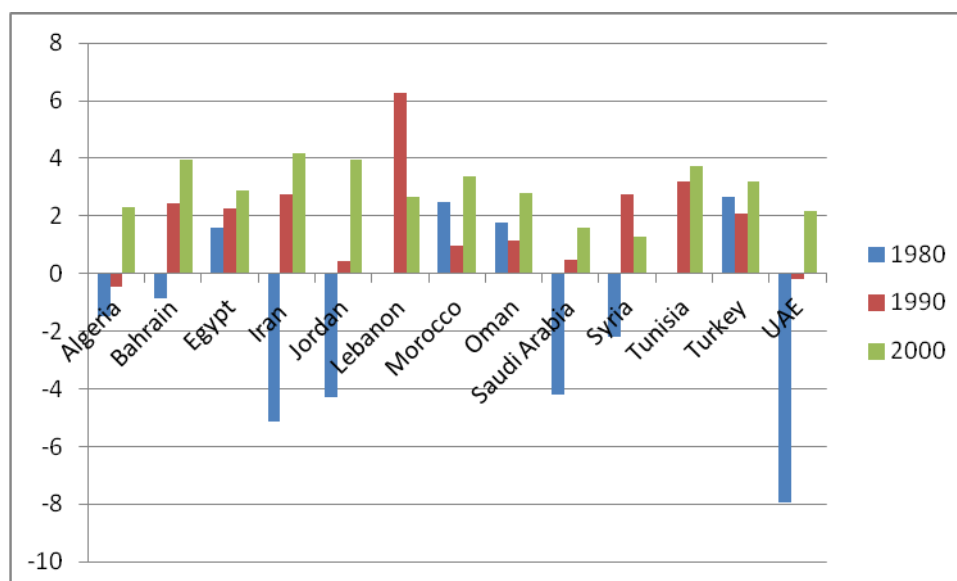
Figure 3: GDP per capita growth in MENA region



Source: World Development Indicators (World Bank 2007); and author's calculations.

Figure 4 shows that while growth performance has improved in most MENA countries in the last three decades, there is a notable difference in the level of economic growth among the MENA countries. Indeed, Bahrain, Iran and Jordan have achieved the best score in terms of economic growth, with real GDP per capita growth reaching 3.93, 4.16 and 3.95 percent respectively in the last decade (2000s). Tunisia is in the second rank with real GDP per capita growth reaching 3.71 in 2000s. The GDP per capita growth has fallen in Syria and Lebanon.

Figure 4: GDP per Capita Growth in MENA countries



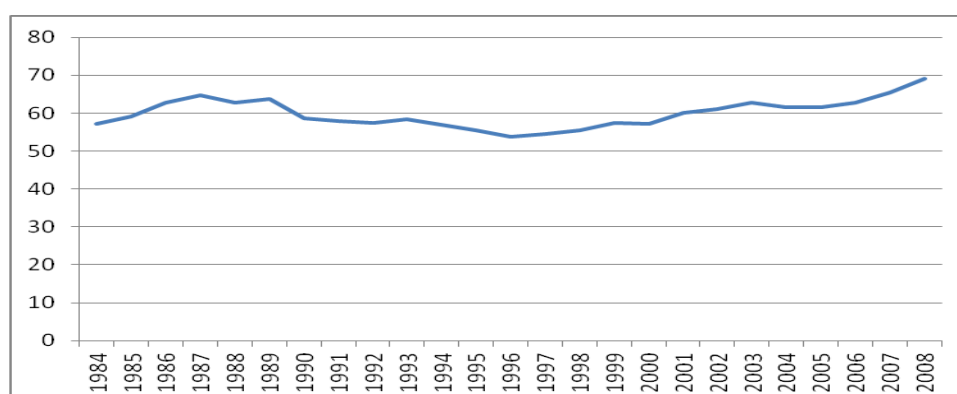
Source: World Development Indicators (World Bank 2007); and author's calculations.

3. Financial Development

The MENA region has undertaken several financial reforms in order to promote financial system. To describe the performance of MENA region in term of financial development we consider first liquid liabilities to GDP ratio, which is a general indicator of financial intermediaries' size relative to the economy. As shown on Figure 5, liquid liabilities to GDP have increased from 57% in 2000 to around 70% in 2008.

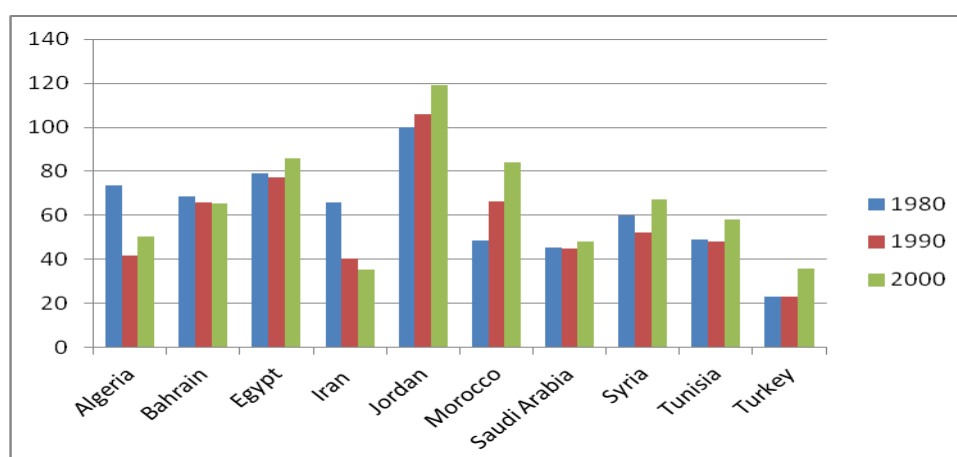
Among MENA countries, Jordan has the largest financial system, since its liquid liabilities to GDP ratio has increased from 105% in 1980s to around 120 % in 2000s. Egypt and Morocco are in second rank. In Algeria and Iran the liquid liabilities to GDP ratio has fallen in the last three decades.

Figure 5: Liquid Liabilities to GDP ratio in MENA region



Source: World Development Indicators (World Bank 2007); and author's calculations.

Figure 6: Liquid Liabilities to GDP ratio in MENA countries

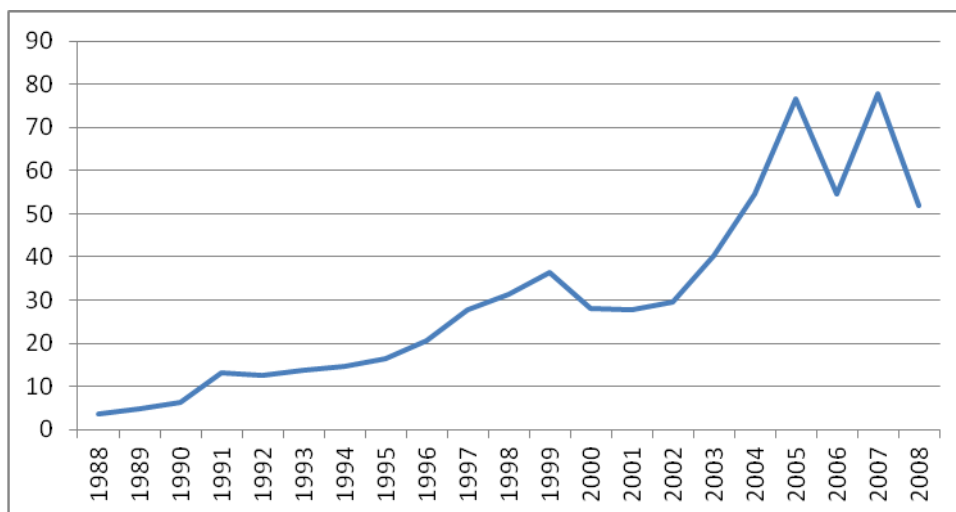


Source: World Development Indicators (World Bank 2007); and author's calculations.

Likewise, figure 7 illustrates that MENA stock market capitalization to GDP ratio experienced a rapid expansion starting in 2002 to attain 76 % in 2005 before shrinking to 54% in 2006 and to 51.83% in 2008.

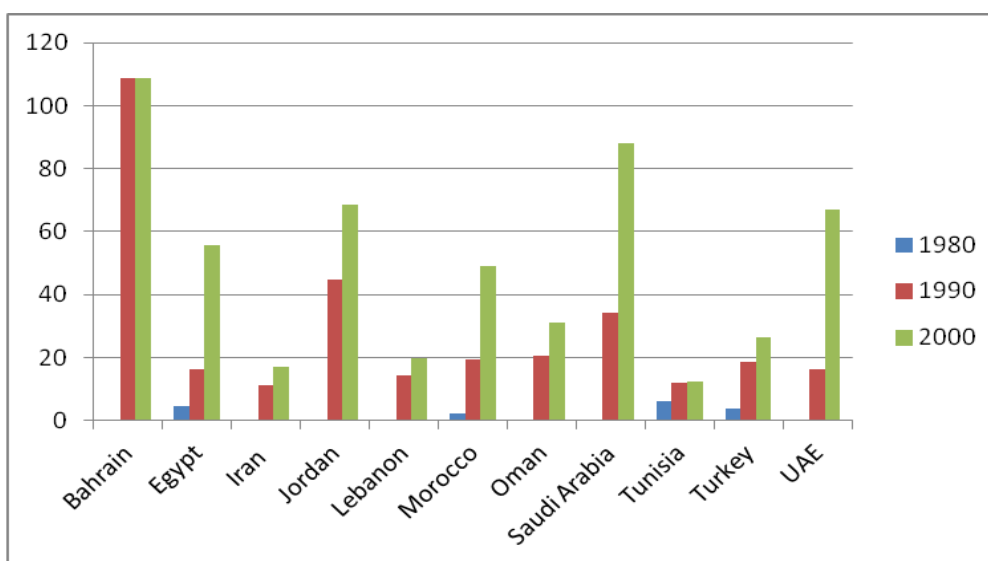
Figure 8 illustrates that market capitalization performance has increased in most MENA countries in the last three decades. For example, the Saudi Arabia stock market capitalization to GDP ratio has increased from 34 % in 1990s to 88.22% in 2000s. Similar trends are observed in Egypt, Jordan and UAE. Bahrain has the largest stock market. While the ratio has increased in Lebanon, Iran, and Turkey, the stock market remains very small in these countries, where the ratio of stock market to GDP is around 20%, 16%, 26% respectively in 2000s. Tunisia has relatively the biggest stock market.

Figure 7: Market Capitalization to GDP ratio (%) in MENA region



Source: World Development Indicators (World Bank 2007); and author's calculations.

Figure 8: Market Capitalization to GDP ratio (%) in MENA countries



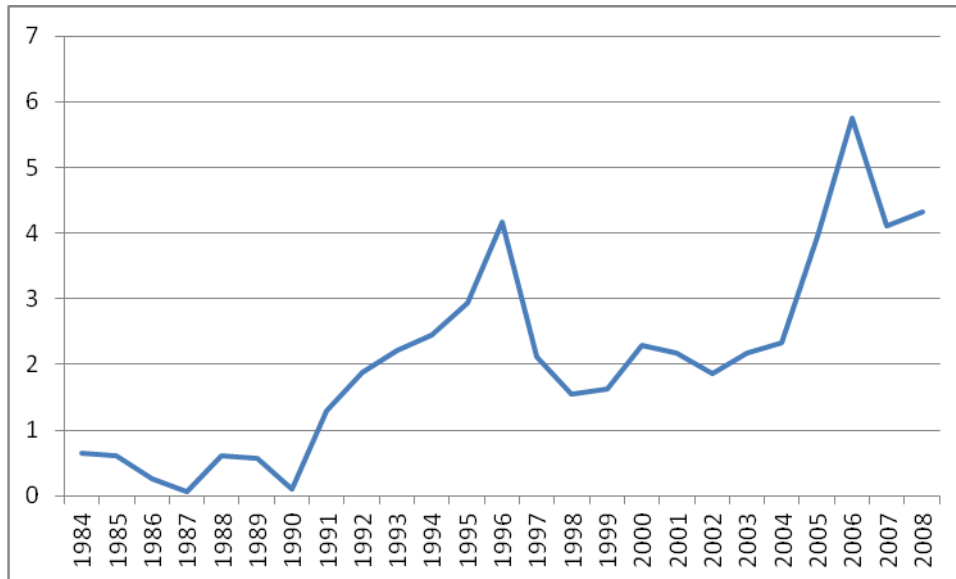
Source: World Development Indicators (World Bank 2007); and author's calculations.

4. Foreign direct investment

The MENA foreign direct investment performance has shown a considerable improvement since 2002, since the foreign direct investment to GDP ratio reached 5.76% in

2006. However, since 2006 the reverse trend is observed, and the ratio of foreign direct investment has achieved 4.1% in 2007 (Figure 9).

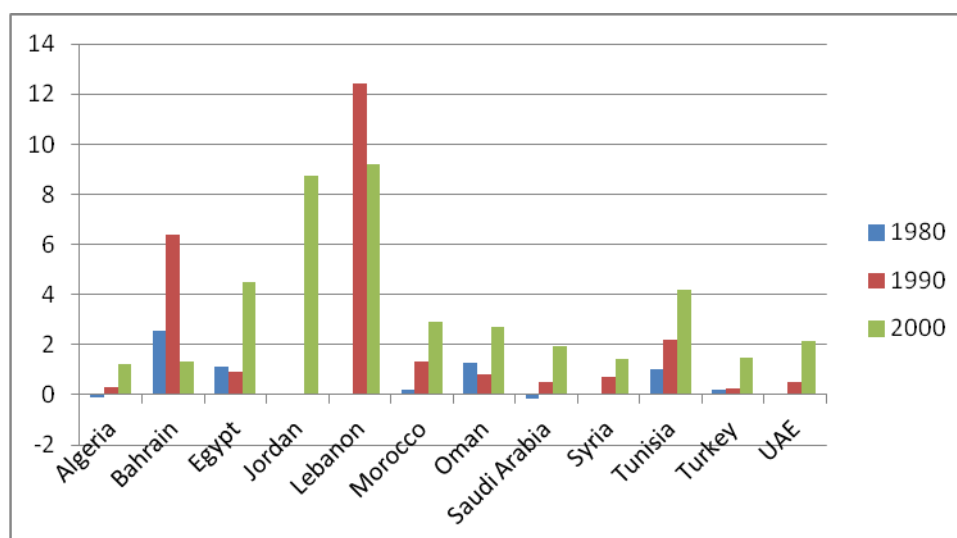
Figure 9: Foreign direct investment in MENA region



Source: World Development Indicators (World Bank 2007); and author's calculations.

While the performance of MENA countries in term of foreign direct investments has improved in most MENA countries, there is a notable difference in the level of FDI among them. For example, in Jordan the ratio of FDI to GDP has increased from 0% in 1990s to 8.73% in 2000s, while in Algeria it has increased from 0.29 % to 1.24%. While Lebanon's ratio has fallen from 12.41% in 1990s to 9.21% in 2000s, it still outperforms the other MENA countries (Figure 10).

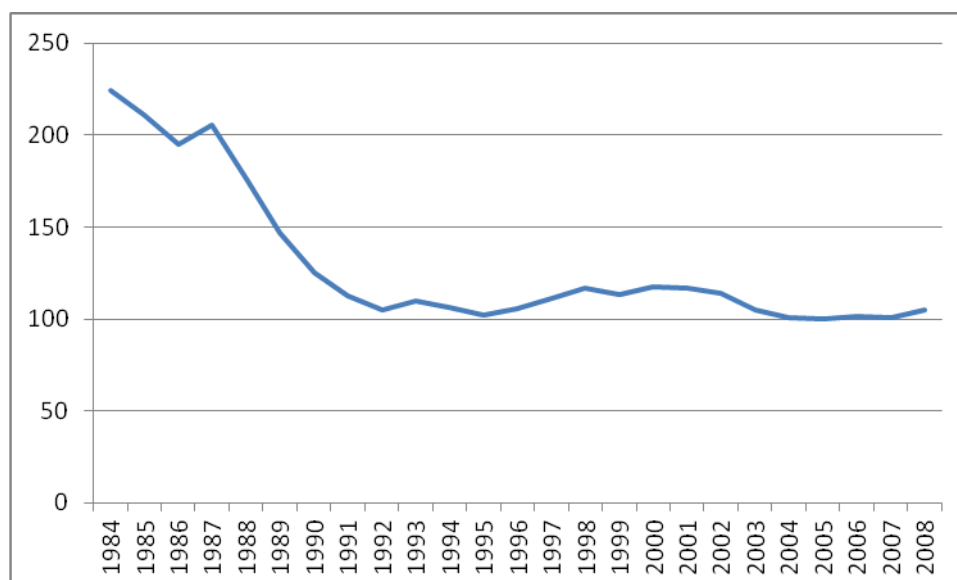
Figure 10: Foreign direct investment in MENA countries



Source: World Development Indicators (World Bank 2007); and author's calculations.

5. Real Effective Exchange Rate

Figure 11: Real Effective Exchange rate in MENA region



Source: World Development Indicators (World Bank 2007); and author's calculations.

Figure 11 suggests that the real exchange rate has depreciated from 1984 to 1990 to correct for the overvaluation of the MENA currencies, and thus improve their competitiveness. However, we should notice that from 1991 till 2008 the real exchange rate

has stabilized with some small appreciations and depreciations during the late 1990's and early 2000's.

6. Descriptive Statistics

Table 1 presents mean, standard deviation, minimum and maximum values of selected variables: *GROWTH* stands for real per capita GDP growth, *KAOPEN* for capital openness, *LIQ* for liquid liabilities to GDP ratio, *CPS* for deposit credit to private sector, *FDI* for foreign direct investment to GDP ratio and *REER* for real effective exchange rate. The GDP per capita growth has a mean of 1.53% with a standard deviation of 5.79%. Capital account liberalization has a mean of 37% with a standard deviation of 1.77%.

Table 1: Summary Statistics

Variable	Obs	Mean	Std.Dev	Min	Max
GROWTH	286	1.53	5.79	-56.00	29.72
KAOPEN	305	.373	1.77	-1.83	2.5
LIQ	226	59.90	24.61	19.71	127.85
CPS	228	38.788	22.288	4.4	94.18
FDI	305	2.134	4.31	-6.03	28.57
REER	299	127.77	70.965	50.89	569.52

Table 2 provides the correlation matrix for the selected variables used in this study. The capital account liberalization indicator is correlated positively with liquid liabilities to GDP ratio, domestic credit to private sector, and foreign direct investment. The highest coefficient of correlation is between capital account liberalization and domestic credit to private sector (44%). The coefficient of correlation between capital account liberalization and economic growth is negative (-0.7%). Capital account liberalization and real effective exchange rate are correlated negatively.

Table 2: Correlation Matrix

Variables	GROWTH	KAOPEN	LIQ	CPS	FDFDI	REER
GROWTH	1					
KAOPEN	-0.007	1				
LIQ	-0.073	0.180	1			
CPS	-0.011	0.440	0.570	1		
FDI	0.115	0.256	0.283	0.299	1	
REER	-0.238	-0.171	0.132	-0.053	-0.148	1

Chapter 4: Empirical Results

This section describes the empirical impact of capital account liberalization on growth, on FDI, on financial development, and on competitiveness. As noted earlier, we use the system GMM methodology with alternative specifications for robustness check of our results. An important advantage of the GMM over other methods like the PMG is that it allows including a larger number of control variables in the specifications, which in turn increases the reliability of the impact coefficients of the KAOPEN variable under investigation in the project.

All the econometric results retained below report the Arellano-Bond test for serial correlation. The values of the test of second order correlation present no evidence of model misspecification, accepting the null hypothesis of serial correlation in the first-differenced errors at order 2. Besides, system GMM estimators are consistent only if the moment conditions used are valid. Although there is no method to test if the moment conditions are valid, we can test whether the over-identifying moment conditions are valid by implementing the Sargan test discussed in Arellano and Bond (1991). Tables 3-6 present strong evidence that the over-identifying restrictions are valid which confirms the validity of the instruments, at 5% level of significance.

1. Capital Openness and Economic Growth

Tables 3a and 3b include two equations where two measures of capital account openness - KAOPEN and IMFB - are used alternatively with the same set of control variables that would theoretically affect growth. These variables include macroeconomic indicators such trade openness, inflation, government consumption, liquidity; and institutional proxy for bureaucracy, a variable capturing the impact of banking and currency crisis.

Table 3a: Capital Openness and Economic Growth. DPD System GMM.

Variables	(1)	(2)	(3)
RGDPG(-1)	-0.108*** (0.05)	-0.124** (0.078)	-0.139** (0.071)
KAOPEN	0.00578*** (0.0023)	0.00533*** (0.002)	
IMFB			0.0184*** (0.007)
BANKCURR	-0.0157** (0.0094)	-0.0243*** (0.009)	-0.0236*** (0.009)
TRADE	0.0190*** (0.0068)	0.0177*** (0.008)	0.0176*** (0.0077)
INF	0.0164 (0.0257)	-0.0251 (0.028)	-0.0416 (0.029)
GC	-0.065*** (0.01)	- 0.0739*** (0.011)	-0.0745*** (0.011)
CPS	-0.0025 (0.005)		
LIQ		-0.0142* (0.0082)	-0.0119 (0.0087)
Constant	-0.0964** (0.0182)	-0.0423 (0.0397)	-0.0620 (0.042)
AR(1) Test	Z ₁ = -2.79 p= 0.05	Z ₁ = -7.9 p= 0.01	Z ₁ = -6.21 p= 0.00
AR(2) Test	Z ₂ =1.17 p=0.24	Z ₂ =1.5 p=0.24	Z ₂ = 1.25 p=0.21
Sargan/Hansen Test	Chi ² = 9.49 p=1	Chi ² = 168.4 p=0.46	Chi ² = 129.4 p=0.64

*, **, *** estimated coefficients are respectively significant at 10%, 5% and 1%.

Both measures for capital account liberalization have a significant positive impact on growth, while banking crisis has a significant negative impact. These results indicate that in MENA countries capital account liberalization strongly contributed to enhancing growth, which is in line with previous research such as Honig (2008) and Quinn et al. (2008). This positive impact can be explained by the fact that the majority of MENA countries adopted partial capital account liberalization as explained by Ben Gamra (2009). Another explanation could be that MENA countries' institutions witnessed a significant decline in bureaucracy, which is supported by its positive and significant impact on growth.

Table 3b: Capital Openness and Economic Growth. DPD System GMM.

Variables	(1)	(2)
RGDPG(-1)	-0.131** (0.067)	-0.134** (0.071)
KAOPEN	0.0039** (0.0021)	
IMFB		0.0139** (0.007)
BANKCURR	-0.025*** (0.009)	-0.0233*** (0.009)
TRADE	0.0153** (0.008)	0.0145*** (0.007)
INF	-0.036 (0.028)	-0.0494 (0.029)
GC	-0.077*** (0.011)	-0.0785*** (0.011)
LIQ	-0.0122 (0.008)	-0.0083 (0.008)
BUR	0.0123** (0.006)	0.0125** (0.0058)
Constant	-0.08*** (0.044)	-0.104*** (0.048)
AR(1) Test	Z ₁ = -8.11 p= 0.00	Z ₁ = -6.19 p= 0.00
AR(2) Test	Z ₂ = 1.52 p=0.127	Z ₂ = 1.26 p=0.21
Sargan Test	Chi ² = 167.5 p=0.475	Chi ² = 130.22 p=0.62

*, **, *** estimated coefficients are respectively significant at 10%,5% and 1%.

While trade openness also has the expected positive impact, inflation and liquidity both have no significant impact on growth. Government consumption has a negative impact on growth, which might be due to its bias towards non-tradable goods. Another explanation could be that government consumption requires financing that might lead to the crowding-out of private sector investments, which are known to have a strong positive impact on growth. Banking and currency crises also have the expected negative impact on growth in the specifications.

In both equations, all variables keep the same level of significance and almost the same coefficient except the two measures of capital account liberalization, where the IMFB coefficient shows a stronger positive impact on growth.

From the above results obtained using the system GMM econometric approach, we can say that in the MENA region capital account liberalization has a positive impact on growth, along with trade openness. On the other side, government consumption should be contained in the long-term to avoid its negative impact on growth.

2. Capital Openness and Competitiveness

Many proxies are used to express competitiveness in the literature. In our models, we decided to use the REER as it is the most widely used indicator of competitiveness in the literature.

Table 4: Capital Openness and Competitiveness. DPD System GMM.

Variables	(1)	(2)
REER(-1)	0.842*** (0.045)	0.859*** (0.044)
KAOPEN	0.0321** (0.0148)	
IMFB		0.106** (0.054)
CURRCRISIS	-0.114*** (0.029)	-0.132*** (0.030)
TRADE	-0.176*** (0.056)	-0.138** (0.056)
GC	-0.171** (0.071)	-0.149** (0.074)
GDP	0.132** (0.061)	0.126* (0.077)
LIQ	0.166 (0.113)	0.114 (0.108)
Constant	- 0.569 (0.652)	-0.628 (0.777)
AR(1) Test	Z ₁ = -4.93 p= 0.00	Z ₁ = -5.01 p= 0.00
AR(2) Test	Z ₂ =-0.51 p=.0.62	Z ₂ =-0.45 p=0.66
Sargan/Hansen Test	Chi ² = 13.3 p=0.21	Chi ² = 13.3 p=0.35

Table 4 also includes two equations where two measures of capital account openness - KAOPEN and IMFB - are included alternatively with the same set of control variables that would theoretically affect competitiveness. These variables include macroeconomic indicators such as trade openness, income, government consumption, liquidity, and a variable capturing the impact of currency crisis.

Both measures for capital account liberalization have the expected significant positive impact on competitiveness, which is in line with the Dutch Disease phenomenon and the findings of previous research (see Bakardzhieva et. al, 2010, for a deep analysis of capital flows on competitiveness).

Liquidity seems to have no significant impact on competitiveness, while currency crisis leads to the depreciation of REER and enhances competitiveness. This is expected as currency crises usually are characterized by the depreciation of national currency, which in turn depreciates the REER. Trade openness and government consumption both have a negative impact on the REER. The negative impact of trade openness joins the general wisdom that trade liberalization tends to depreciate the REER (Dornbusch, 1974; Edwards, 1994; Khan and Ostry, 1992; Williamson, 1994). The negative impact of government consumption on REER could be due to the fact that in non-industrialized countries like the ones under investigation in this research, increases in public wages may come from public spending, and government consumption can indirectly depreciate the real exchange rate if the rise in private spending owing to the higher wages falls stronger on tradable goods. Also, an increase in government spending would deteriorate the fiscal balance and is therefore liable to put downward pressure on the exchange rate (for a summary of similar findings see Kim and Roubini, 2008, and Kim, 2010).

Finally, income (GDP) has positive impact on REER, harming competitiveness. An increase in income might lead to an increase in consumption, which seems to be biased toward non-tradable goods and services, leading to REER appreciation.

In both equations, all variables keep the same level of significance except GDP that is only borderline significant in the specification using IMFB. All variables have almost the same coefficient except the two measures of capital account liberalization, where the IMFB's coefficient, like in the case of growth, shows a stronger impact on the appreciation of the REER.

3. Capital Openness and FDI

Table 5 includes three equations where capital account openness (KAOPEN) is included with a set of control variables that would theoretically affect FDI. These variables include macroeconomic indicators such as trade openness, inflation, government consumption, real effective exchange rate, GDP, and a variable capturing the impact of banking and currency crisis. Equations two and three include two different institutional proxies – corruption and bureaucracy respectively, in addition to the previously mentioned variables. Also, equation two includes an additional variable to control for the effect of credit to the private sector.

In our models, capital account liberalization has a significant positive impact on FDI that could be explained by the fact that investors look for the assurance that they can repatriate their investment at any time so they prefer to invest in countries with more open capital account. Also, FDI usually look for financing possibilities on the world market, so liberalizing the capital account will allow them to borrow freely and more efficiently from foreign financial institutions. This is valid for portfolio investments too, as FDI might get financing from the capital market that becomes more liquid and offers a much higher potential if the capital account is liberalized. While these results confirm those of Noy and Vu (2007), they contradict those of Asiedu and Lien (2003) where capital account liberalization in the Middle Eastern countries had no significant impact on FDI.

The second variable that has a positive effect on FDI is credit to private sector in model two, but it is only borderline significant. The higher the credit to the private sector, the higher the possibility to get financing on the local market, which is also attractive for FDI when they seek expansion of their production capacity and growth. A well functioning and expanding credit to the private sector is also an indicator of a healthy growing economy. These results are in line with those of Resende Jr. (2010) but contradict the findings of Kirkpatrick, Parker and Zhang (2004), which they explain by the hypothesis that foreign investment will be greater where the capacity of the private sector to finance its investment is constrained by an underdeveloped domestic financial sector.

To the opposite, inflation, government consumption, bureaucracy, and, to a lesser extent, real effective exchange rate, all have a strong significant negative impact on FDI in our sample. The results are robust across the three models with a coefficient that is much higher than that of the capital account openness.

Table 5: Capital Openness and FDI. DPD System GMM.

Variables	(1)	(2)	(3)
FDI(-1)	0.543*** (0.067)	0.519*** (0.068)	0.516*** (0.068)
KAOPEN	0.00569*** (0.0023)	0.00527** (0.0024)	0.00665** (0.0024)
BANKCURR	0.0058 (0.0073)	0.00364 (0.0073)	0.00591 (0.0072)
TRADE	-0.0018 (0.0058)	-0.00544 (0.0069)	0.003 (0.0057)
INF	-0.0454** (0.0205)	-0.0356* (0.022)	-0.0436** (0.020)
GC	-0.021** (0.01)	-0.0228** (0.01)	-0.0186** (0.0098)
REER	-0.0064 (0.006)	-0.0131 (0.011)	-0.0118* (0.0065)
GDP	-0.0107 (0.0071)	-0.026 (0.064)	-0.0355 (0.070)
CPS		0.0095* (0.005)	
INSTITUTIONNALS			
CORR		0.003 (0.0027)	
BURQ			-0.0124** (0.0042)
Constant	0.0045 (0.0374)	0.0340 (0.061)	0.0605 (0.04)
AR(1) Test	Z ₁ = -5.4 p= 0.00	Z ₁ = -3.27 p= 0.00	Z ₁ = -4.32 p= 0.00
AR(2) Test	Z ₂ =-1.36 p=0.174	Z ₂ =-1.32 p=0.186	Z ₂ = -1.57 p=0.12
Sargan/Hansen Test	Chi ² = 114.1 p=0.53	Chi ² =135.63 p=0.188	Chi ² = 117.3 p=0.45

*, **, *** estimated coefficients are respectively significant at 10%,5% and 1%.

Inflation usually has a negative sign reflecting possible economic instability. As a main indicator of economic stability, FDI always privilege low and controlled inflation (Kamar and Bakardzhieva, 2003). A stable inflation means well functioning monetary and fiscal policy management and coordination, allowing for a clear forecast of business

operations. This builds a confidence in the capacity of the government to respond to exogenous and endogenous shocks, and reduces the level of uncertainty that investors seek to minimize (Michalet, 2000).

The robust negative impact of government consumption on FDI is ambiguous, and could be explained by the fact that government consumption in the MENA countries is dominated by non-tradable goods, which is not a sector that attracted too many FDI. Also, a higher level of government consumption can lead to an increase in the budget deficit, which is a negative indicator when assessing the attractiveness of an economy. FDI might see that the government plans to increase taxes in order to decrease the budget deficit generated by the government consumption, which will be negative for their profits and returns. Additionally, a higher public consumption and a higher budget deficit will require financing, leading to the crowding out of private investment, which might as well raise the concerns of FDI.

Bureaucracy has an unexpected negative sign on FDI. Nevertheless, it is clear that more efforts towards reducing the procedures for establishing new business is necessary for attracting more FDI in the MENA region. In fact, most of the countries in our sample have implemented recently relevant measures to reduce bureaucracy and facilitate starting business. The “unique gate” is an example where investors can go directly to a unique official who is in charge of collecting all the documents for creating a new business, and who will get all the required approvals and signatures from all the ministries and institutions in the country; so that the investor doesn't have to go and waste time getting all the approvals from many ministries and many employees by himself. The consequences of the policies implemented in our MENA sample to reduce bureaucracy might not be reflected in our estimations as they were implemented recently. Nevertheless, an important effort of modernization is still needed to improve bureaucracy even more, aiming at improving the business environment, attracting FDI and promoting equal growth.

The real effective exchange rate, which is also a measure of the country's competitiveness, also has the expected negative effect on FDI. An increase of the REER index means that the country's goods are becoming more expensive and less competitive vis-à-vis similar goods produced by competitors in other countries. A country with increasing or appreciating REER will be less attractive to FDI as the investors will believe that over time they might lose competitiveness. These results are in line with the findings of Caves (1988), Froot and Stein (1991), Blonigen (1995) and Ang (2008). Nevertheless, the impact of REER on FDI is only significant in equation three and only at the 10% level. Therefore, we might

consider that in our sample, its impact is very limited and wouldn't really affect the decision of FDI. The remaining variables, trade openness, GDP, corruption and banking and currency crisis all have no significant impact on FDI.

In all equations, all variables keep the same level of significance and almost the same coefficient except the REER that becomes only significant in the equation where we added bureaucracy.

From the above results obtained using the system GMM econometric approach, we can say that in the MENA region capital account liberalization has a moderate positive impact on FDI, along with credit to private sector. Both policies can play a significant role in mitigating the negative impact of inflation, government consumption and bureaucracy on FDI. Sound economic policies, along with improving bureaucracy will help attracting more FDI in the future, reinforced by the liberalization of the capital account.

4. Capital Openness and Financial Development

To assess the impact of capital account liberalization on financial development, we use two different measures of capital account openness - KAOPEN and IMFB - and two different measures of financial development – credit to private sector and liquidity; which makes four combinations.

In table 6a we present the estimation of the impact of the two different measures of capital account liberalization on credit to private sector, and in table 6b we present the impact of the two different measures of capital account liberalization on liquidity; along with a fixed set of the same control variables in the four models. These variables include macroeconomic indicators such as trade openness, inflation and GDP, an institutional proxy for bureaucracy, and a variable capturing the impact of banking and currency crisis.

There is clear evidence that capital account liberalization has a significant positive impact on financial development, regardless of the proxies we used in our four models; except when using IMFB with credit to private sector, where the significance is only at 10% level. These expected results confirm the wisdom that growing two-way capital flows indicate an increasing integration in international capital markets, which increases the pressures for

strengthening the institutional infrastructure of the domestic financial sectors (Buiter and Taci, 2002; Klein and Olivei, 2005; Baltagi et al., 2009).

Table 6a. : Capital Openness and Financial Development. DPD System GMM.

Variables	(1)	(2)
CPS(-1)	0.922*** (0.033)	0.960*** (0.028)
KOPEN	0.0346** (0.017)	
IMFB		0.0977* (0.059)
BANKCRISIS	-0.099** (0.045)	-0.092** (0.045)
TRADE	-0.038 (0.036)	0.021 (0.031)
INF	-0.239*** (0.077)	-0.304*** (0.084)
GDP	-0.00055 (0.026)	-0.0665** (0.031)
INSTITUTIONNALS		
BURQ	0.028 (0.019)	0.0465** (0.0176)
Constant	-0.123 (0.078)	0.105 (0.104)
AR(1) Test	Z ₁ = -6.2 p= 0.00	Z ₁ = -1.63 p= 0.10
AR(2) Test	Z ₂ = -1.23 p=0.22	Z ₂ =-1.07 p=.0.29
Sargan/Hansen Test	Chi ² = 97.3 p= 0.24	Chi ² = 5.65 p=1.00

*, **, *** estimated coefficients are respectively significant at 10%,5% and 1%.

Inflation has a robust significant negative impact on financial development in all four models, which is in line with the findings of Boyd, Levine and Smith (2000). The explanation is that inflation interferes with the ability of the financial sector to allocate resources

efficiently. Therefore, low and stable inflation is a necessary step to achieve a deeper and more active financial sector with all its attached benefits, as explained by Bittencourt (2008).

Table 6b: Capital Openness and Financial Development. DPD System GMM.

Variables	(1)	(2)
LIQ(-1)	0.887*** (0.272)	0.903*** (0.029)
KOPEN	0.0126** (0.0058)	
IMFB		0.0554*** (0.025)
BANKCRISIS	0.0036 (0.025)	0.0007 (0.026)
TRADE	0.0396** (0.0196)	0.0435 (0.022)
INF	-0.153*** (0.051)	-0.161*** (0.056)
GDP	-0.0397** (0.0152)	-0.0435** (0.018)
INSTITUTIONNALS		
BURQ	-0.0056 (0.012)	-0.005 (0.012)
Constant	0.0913** (0.047)	0.112 (0.048)
AR(1) Test	Z ₁ = -2.29 p= 0.02	Z ₁ = -2.32 p= 0.00
AR(2) Test	Z ₂ = -1.39 p=0.17	Z ₂ =-1.33 p=0.19
Sargan/Hansen Test	Chi ² = 5.8 p= 1.00	Chi ² = 2.32 p=1.00

*, **, *** estimated coefficients are respectively significant at 10%,5% and 1%.

The level of significance of the control variables varies across our four specifications. Banking crisis is significant in the specifications where the dependent variable is credit to private sector, but not when using liquidity. The explanation could be that liquidity is managed by the central bank as a monetary policy tool, especially in times of crisis, and

therefore might not be the optimal proxy to reflect the financial sector development; while credit to private sector is more probable to be affected by a currency or banking crisis as this type of crisis affects the capacity of banks to give credit.

Trade openness is only significant in one specification which is when the dependent variable is liquidity, and non-significant elsewhere. This result is supported by the findings of Ito (2005) where he explains that trade openness is a prerequisite to enhance the positive impact of capital account liberalization on financial development. Similarly, Law and Demetriades (2006) explain that trade openness contributes significantly to financial development when implemented in tandem with capital account liberalization, especially for middle income countries.

GDP is significant and negative in three specifications out of four (non significant when used with credit to private sector and KAOPEN), but this result is counter intuitive and contradicts the endogenous growth theory and the work of Levin and Zervos (1996).

Bureaucracy has no significant impact on financial development except when used with credit to private sector and IMFB. In this particular case, the relation is positive, suggesting that an improvement in bureaucracy is sustaining financial development. These results are inline with those of Nee and Opper (2009) and of Chinn and Ito, and also with our results in the growth equation.

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