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EMPIRICAL INVESTIGATION ON THE ILLICIT FINANCIAL FLOWS FROM MENA REGION

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ABSTRACT

This paper aims to define measure and identify the determinants of illicit financial flows from MENA region. Various indicators were used to evaluate the level of illicit financial flows and a panel data model was estimated on the basis of 160 observations covering 16 countries and 10 years (2000-2010). The results shown that the growth of GDP, the current account balance, corruption and public debt are the main determinants of illicit financial outflows from MENA region.

Keywords: Illicit financial outflows, MENA region, Panel Data.

JEL classification : E44, H20, E02.

1. INTRODUCTION

According to Syd forum (2011), 1260 to 1440 billions of U.S dollars are lost each year in developing countries due to illicit capital outflows. The amount of money that leaves each year from these countries is equivalent to ten times annual global aid and double the debt that they pay. Thus, the repression of illicit capital flows is a strategic policy for developing countries since it allows to support programs against illegal activities, traffics and corruption. In addition, massive amounts of illicit capital outflows mean loss of funds in the presence of significant needs for investment and socio-economic infrastructure.

The paper is organized as follows: sections two and three present the definition and assessment of illicit capital outflows. Section four reviews the literature concerning the theoretical and empirical determinants of illicit capital outflows. Section five examines the evolution of illicit capital outflows in the MENA region. Section six presents the empirical results. The last section summarizes and presents some struggles measures against illicit capital outflows.

2. DEFINITIONS

According to the Global Financial Integrity (2006), illicit financial flows refer to capital earned from illegal activities as corruption, smuggling and criminal activities, as well as, transfers through informal channels of capitals acquired by legal activities in order to escape the control of the origin country tax authorities.

Regarding to this definition, illegal capital flight have certain similarities that Kapoor (2007) listed in the following points: (i) illicit capital flows are not recorded in official statistics on the balance of payments (ii) They are crated by a desire to disguise the origin, destination and beneficial owners of the funds, (iii) They are often associated with losses in the public sector and gains for individuals (iv) and finally, profits from illicit financial flows are not generally repatriated to their origin country.

Whatever their origins, illicit financial flows use the same channels to cross illegally borders taking advantage of a global financial system increasingly integrated. This concerns mainly tax havens and financial centers practicing strict banking secrecy and offering a wide and diverse range of financial products (Chêne, 2009). These techniques often require the help of professional intermediaries, such as lawyers, accountants, import-export agents and agents specialized in the creation of companies and fiduciaries (Global Witness, 2009).

However, financial flows that pass through unofficial channels do not always mean illicit financial flows (Reed and Fontana, 2011). In fact, many cross-border flows include shipments of legitimate migrant's remittances through informal banking systems. These systems are used because of the difficulties encountered by the suppliers of funds in the opening of bank accounts, or because the beneficiaries of these flows do not have bank accounts (often illiterate and living in remote areas). Meanwhile, capital flight is a concept often used to designate illegal capital flows while he describes, generally, the flow of funds that aims for better return or looking for more stable environment due to adverse events in the origin country. Also, money laundering is always confused with illicit financial flows while laundering can be realized by investing locally (real estate, hotels, restaurants ...) aiming for the legalization of illegally acquired funds.

3. ASSESSMENT

Dangers from increased illicit financial flows have encouraged the emergence of large economic literature dedicated to the development of techniques for the flows measurement in order to monitor them. Overall, these techniques can be grouped into two broad categories: the first is based on cash flows while the second focuses on the flow of goods.

In terms of cash flow, residual approach of the World Bank compares the country's financial resources with the uses that are made. Funding sources include capital inflows in the form of increased public external debt and net flows of foreign direct investment. The use of resources is materialized by the coverage of the current account deficit and rising foreign exchange reserves. Thus, whenever the country's resources exceed the expenses related thereto, a residue occurs. From the moment that this residue is not reflected in the external accounts, it may be an illegal capital outflow.

Furthermore, in order to enrich and strengthen the analysis, the Global Financial Integrity adopts a modified residual World Bank model CED (Change in External Debt) considering only outflows version, while the classical model traces the difference between inflows and outflows.

$$\text{Illicit capitals outflows } CED_t = \Delta ED_t + FDI_t - (CAB_t + \Delta IR_t) \quad (1)$$

With ΔED_t changes in the external debt, FDI_t net foreign direct investment, CAB_t current account balance and ΔIR_t changes in international reserves.

A simpler alternative approach is to analyze and monitor the error component and omissions in the balance of payments in order to detect the movement of capital unregistered and statistical errors. Thus, a negative net worth of errors and omissions consistently high is seen as a sign of illicit flows (UNODC, 2011).

$$\text{Balance of payments} = \text{Current account balance} + \text{Financial transactions} + \text{Net errors and omissions} \quad (2)$$

Regarding the flow of goods, the trade misinvoicing model GER (Gross Excluding Reversals) proposed by the GFI, traces the overvaluation of imports and the undervaluation of exports. To approach the level of capital flight by this method, the level of the country exports is compared with the level of imports from the rest of the world after adjusting for costs of insurance and freight. Also, the level of the country's imports from the rest of the world is compared with what the rest of the world traced as exports to the country. Any differences that occur indicate a difference of invoicing which is a source of illicit capital flight.

$$\text{Illicit capitals outflows } GER_t = (IMP_t^w - EXP_t^x) + (IMP_t^x - EXP_t^w) \quad (3)$$

With IMP_t^w representing rest of the world imports (FOB) from country (x), EXP_t^x country (x) exports to the rest of the world, IMP_t^x country (x) imports (FOB) from the rest of the world and EXP_t^w world exports to country (x).

However, the relevance of trade misinvoicing model (GER) remains conditioned by the existence of a contradictory record at the importer and the exporter of the same commodity. Indeed, it seems extremely difficult to detect fraudulent billings under bilateral agreements between buyers and sellers. In order to remedy this deficiency, an alternative measure was developed from the analysis of international commercial transactions to develop risk indicators for suspect countries (Zdanowicz, 2005). Illicit financial flows can be evaluated by assessing the difference between the invoiced value of the transaction and the observed value in the international market.

$$\text{Illicit capitals outflows} = \text{invoiced value of goods} - \text{observed value on the international market} \quad (4)$$

Note that the estimates of illicit financial flows are only approximations and cannot cover all the transition channels. Similarly, data on some key variables in the analysis are sometimes unavailable or inaccurate.

Indeed, the approaches presented above do not include smuggling activities which are completely beyond the control of public authorities. The cash flows generated by these activities are often the source of massive illicit financial flows since smugglers are seeking to secure the funds generated by their traffics in other countries.

In addition, some specialists interpret trade misinvoicing by maneuvers seeking to escape high taxation rather than illicit outflows. This practice remains widespread in some multinationals handle bills business transactions to understate the benefits and cross-border capital.

Finally, the existence of a foreign currency developed black market is likely to compromise the correlation between trade misinvoicing and illicit transfers. Indeed, for importers the attractiveness of the exchange rate on the black market may encourage them to overcharge their transactions to reduce taxable income and increase profits funds converted from the currency black market.

4. DETERMINANTS

Understand the main factors that regulate the intensity of illicit financial flows remain a crucial phase for efforts to stop them. However, the complexity of this phenomenon is intensified because studies have shown that structurally indebted countries around the world are the ones who suffer the most by illicit outflows (Ndikumana and Boyne, 2001). Worse, consolidating their debt indicators by calculating the difference between external borrowing and illicit capital outflows reveals that these countries are net creditors vis-à-vis the rest of the world. In other words, these economies emit excess funding and should instead support countries that need foreign savings.

On the other hand, the theoretical literature explaining the cross-border movement of capitals by a rational behavior of investors seeking to maximize profits given the rate of return and their aversion to risks. Thus, in a global economy where the costs of transactions are becoming weaker, rates of return should be almost equal to those investors may be indifferent about the decision to invest locally or abroad. Therefore, illicit outflows may be motivated by the search for a better profitability abroad, while the illicit nature of the transaction channel is justified by restrictions on capital account in many emerging and developing countries. However, the natural decay rate of profit that characterizes advanced countries should make emerging and developing countries more attractive to investors and not the reverse. Therefore, it is extremely relevant to deepen reflection on the significance of the contribution of the different risks faced by domestic investors if they invest their capital locally compared with foreign investment less profitable but safer.

Thus, in a seminal article published by Ndikumana and Boyce (2003), in addition to the external debt, five different factors have been identified following the analysis of 17 empirical studies concerning emerging and developing countries. These factors have their source in capital inflows, macroeconomic environment stability, fiscal policy, risks and returns on investments, financial development and, finally, political institutions quality.

With regard to the external debt, the significant contribution of international loans flows remains a determinant which has been cited by the majority of studies that have examined the determinants of illicit financial outflows. This is true for studies that have focused on a particular country as evidenced by studies conducted by Boyce (1992) on the Philippines, Olopoenia (2000) on Uganda, Nyoni (2000) on Tanzania and Ngeno (2000) on Kenya. As for the studies conducted by regressions on a panel of countries like Mikkelsen (1991), Murinde, Hermes and Lensink (1996) and Lensink, Hermes and Murinde (1998).

Other empirical studies have examined the impact of the stock of external debt on illegal capital flows for the reason that the debt can accelerate the deterioration of the macroeconomic environment in connection with the increase of the debt crisis probability (Ndikumana and Boyce, 2003). At the same time, a high level of external debt can be interpreted by investors as an indicator of good macroeconomic outlook since the government can easily borrow on international markets. In such contexts, the increase in the stock of external debt is expected to contribute to the reduction of illicit financial outflows. Thus, a study by Vos (1992) on the Philippines concluded that the stock of debt has no significant impact on capital flight, while in a more recent study on a panel of 50 countries (Collier, 2001), a statistically significant correlation was identified between the accumulation of foreign debt and illicit capitals outflows.

Further papers have focused on the positive correlation between the volume of illicit financial flows and the fiscal deficit of the central government. The objective of these studies is to show that the increase in the public deficit sends signs of imminent increase in taxation. In such contexts, domestic residents often seek to transfer their capital out of the country to escape higher taxes. However, from the studies of Hermes and Lensink (1992), Anthony and Hallett (1992) and Henry (1996), the link between budget deficits and illegal capital flows has not proved significant in all countries and during all periods. The irregularity of the results can be explained by the fact that the increase of the deficit is often accompanied by the deterioration of other macroeconomic indicators like higher interest rates, higher inflation and the depreciation of the exchange rate.

Some additional studies have focused on the exploration of other indicators, other than the budget deficit, in order to understand the dynamics that can connect fiscal policy and illicit outflows. A consensus seems to favor the use of taxation as a proxy for fiscal policy for three reasons (Ndikumana and Boyce, 2003). First and all things being equal, higher tax rates may cause a decrease in expected net returns on local investments. Second, the volatility of tax rates increases the risk premiums and also contributes to reduce the anticipated return on investment. Third, the tax benefits granted to foreign investors may discourage local investors and encourage them to look for more attraction on the international markets. Empirically, if the analyzes conducted by Pastor (1990) and Vos (1992) do not point to a significant link between tax revenues and illicit capital outflows, Hermes and Lensink (2000) conclude in their studies to a positive and significant correlation between higher taxes and illicit capital flows.

Risk aversion and the return on investment can be regarded as determinants of capital flight (Nkudima and Boyce, 2003). Indeed, investors are looking to maximize their profits by making arbitrage between domestic and foreign investment on the basis of risk and domestic *vs.* foreign profitability. Various indicators have been used to test this correlation, including the interest rates spreads, movements in exchange rates and composite indices of risk perception. Empirically, Dooley (1988) showed that low levels of local interest rates on deposits are an important determinant of capital flight. However, other studies, focusing in particular African countries, found no significant link between interest rates and the extent of capital flight (Hermes and Lensink, 1992; Murinde et al, 1996 Nyoni, 2000).

Also, an overvalued exchange rate could lead to the acceleration of capital flight. Indeed, when the national currency is overvalued, expectations about its depreciation lead investors to change the composition of their portfolio by acquiring more foreign assets (Cuddington, 1986, 1987). On the same register, Olopoenia (2000) and Nyoni (2000) used the "black market" (the difference between the exchange rate on the black market and official exchange rates) as an explanatory variable, but its impact is proved insignificant compared to changes in capital flight.

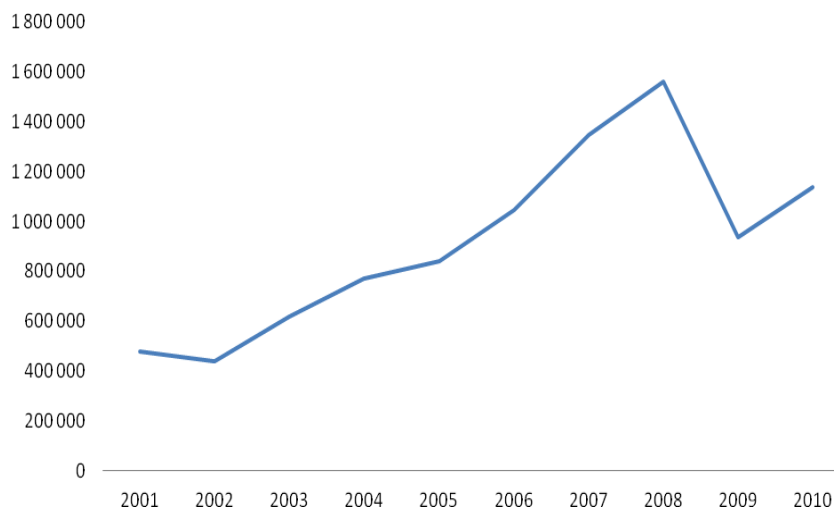
Otherwise, financial development reduces capital flight as long as it provides more opportunities to diversify assets portfolios. However, the development of the financial system may also encourage capital flight if it facilitates international capital movements. Indeed, if financial markets are liberalized and deregulated, it is possible that domestic capital moves to foreign markets as long as yields, risk-adjusted, are higher. Empirically, Lensink and al. (1998) find a negative and significant effect of deposits on capital flight. However, using the M2 to GDP ratio as a measure of financial development, Collier and al. (2001) found no significant effect of financial development on capital flight.

In addition to macroeconomic factors, the empirical literature has identified other determinants such as the proliferation of corruption, expansion of informal activities, political instability and inadequacies in governance. Indeed, these phenomena can lead to poor economic performance, high uncertainty and unfavorable investment climate. This environment is likely to discourage domestic investment and to promote enhancement of capital flight (Nkudima and Boyce, 2003). Although, these determinants are difficult to measure or approximated by variables and measurable indicators, some studies such as those conducted by Hermes and Lensink (2000) found that political instability and armed conflicts are the sources of increased capital flight. Also, Le and Rishi (2006) identified a positive and significant correlation between corruption and illicit financial outflows in most developing countries.

5. EVOLUTION OF ILLICIT FINANCIAL FLOWS FROM MENA REGION

The analysis of illicit capital flight in developing countries shows that this phenomenon has significantly risen during the last decade (see Figure 1). The impact of the financial crisis probably explains the decrease observed between 2008 and 2009. However, a rebound of illicit financial seems to appear from 2010.

Figure 1: Evolution of illicit financial outflows from developing countries (2001- 2010 Billions of U.S. Dollars)



Source: Global Financial Integrity, 2012 report

Concerning the sharing of these outflows by region (see Figure 2), the latest statistics published by the Global Financial Integrity in 2012 show a high dominance of Asia with a contribution approaching almost half of total illicit outflows. The MENA region is ranked second with a contribution of 18%. European developing countries are ranked 3rd with a share of 16%. The countries of Western Hemisphere also contribute significantly with a proportion of 15%, while Africa close the ranking with a share of 6% only.

Figure 2: Geographic sharing of illicit financial outflows by region (cumulative 2001-2010)

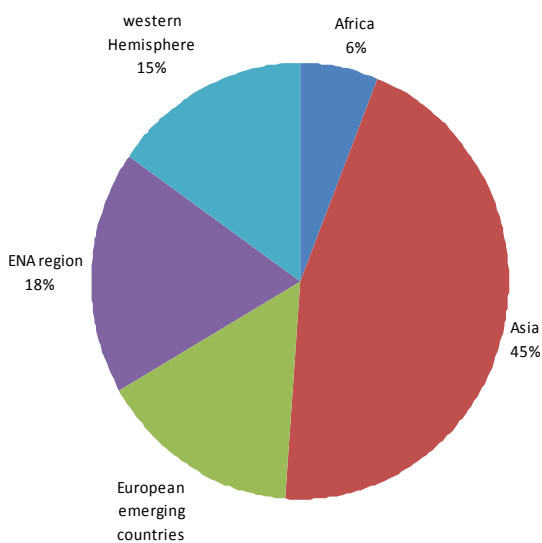
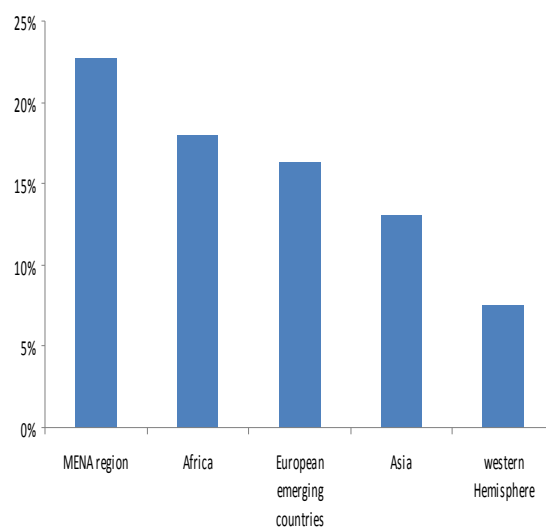


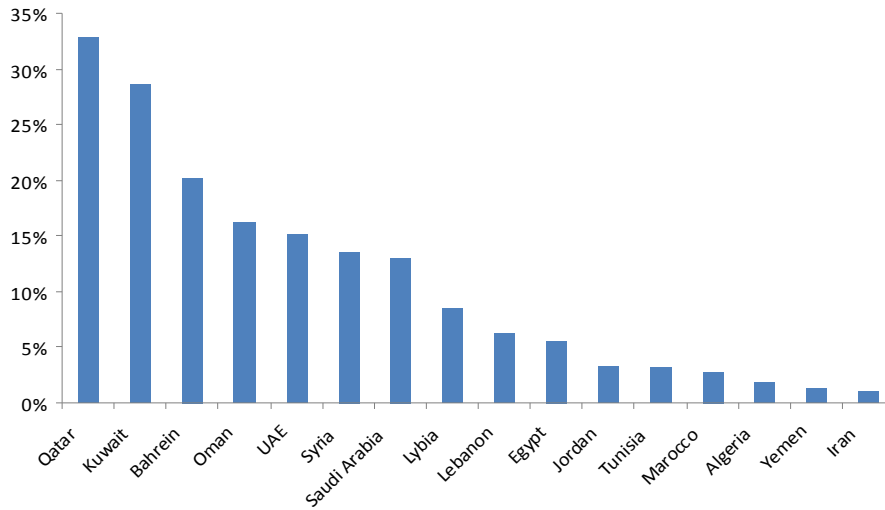
Figure 3: Average growth of illicit financial outflows by region (2001-2010)



Source: Global Financial Integrity (2012 report), authors' calculations

Regarding the evolution of illicit financial flows over the period 2001-2010 (see Figure 3), MENA region grew at an average of around 23% per year, followed by Africa (18%) and developing European countries (16%). Note that unlike the analysis of contributions to the total illicit flows, Asia occupies the penultimate position in terms of growth rate with an average annual increase of 13%. The countries of the Western Hemisphere show the lowest rate with an average growth of only 8%.

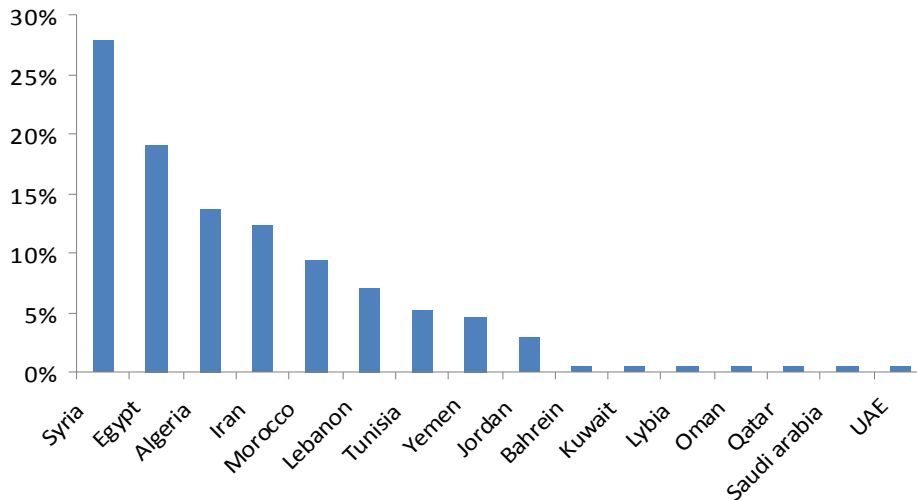
Figure 4: Illicit capital outflows as % of GDP (average 2001-2010)



Source: Global Financial Integrity (2012 report), authors' calculations.

For the countries of the MENA region, we are interested particularly in the context of this paper; the analysis of the illicit outflows relative to GDP over the period 2001-2010 identified three groups of countries. The first group has an average of between 15% and 35%. It is dominated by Qatar, Kuwait and Bahrain. Illicit outflows in the second group of countries are moving on average in the range of 13% to 15%. This group is composed by Oman, the United Arab Emirates, Syria and Saudi Arabia. The third group includes the largest number of countries in the MENA region with a share of illicit financial flows between 1% and 10%. Note that Libya, Lebanon and Egypt are the most important countries in this group.

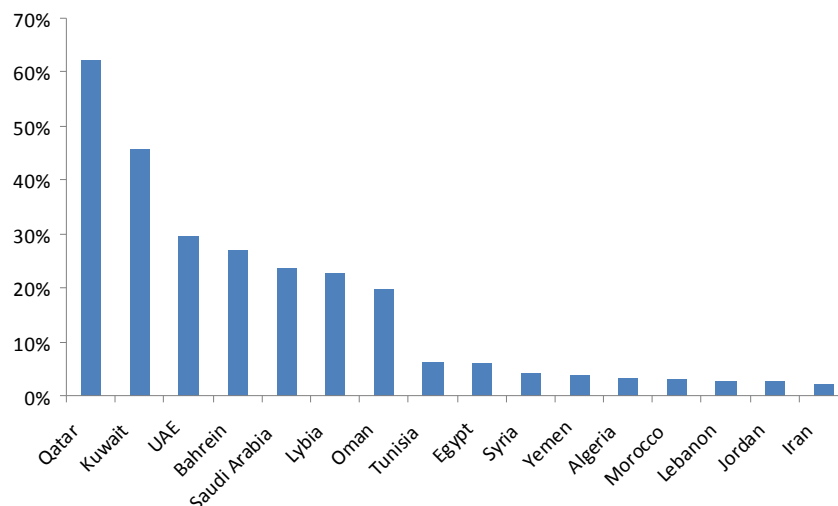
Figure 5: illicit outflows from the MENA region as % of external debt (average 2001-2010)



Source: Global Financial Integrity (2012 report), authors' calculations.

The assessment of illicit financial outflows in relation to the external debt illustrates the importance of opportunity costs caused by this phenomenon in the MENA region. Indeed, countries with financing needs or suffering from erosion of foreign exchange reserves are forced to borrow internationally and to pay interest (sometimes excessive) on their loans while they can finance a large part their needs from the local capital. The ratio of illicit outflows to external debt reveals, once again, the existence of three distinct groups. The first, compound of Syria and Egypt, has very high ratios (between 15% and 30%). The second group composed by countries that exhibit intermediate ratios between 5% and 10% (including Algeria, Iran and Morocco). The third and final group shows ratios close to zero, however, this performance stems from the low level of the external debt in the major oil-exporting countries than from the moderation of illicit financial outflows.

Figure 6: illicit outflows from the MENA region as a % of the money supply (average 2001-2010)



Source: Global Financial Integrity (2012 report), authors' calculations.

Furthermore, analysing the ratio of illicit outflows to the money supply can provide information on the proportion of local capital that could consolidate national savings and banking system depth and thus, ultimately, financing the needs of economies in investment. The results from the calculations (see Figure 6) point to the formation of three homogeneous groups. The first group (Qatar and Kuwait) displays extremely high ratios as they oscillate between 45% and 65%. The second group shows a profile with a median loss of liquidity between 20% and 35%. This group includes the United Arab Emirates, Bahrain and Saudi Arabia. The last group has relatively moderate ratios (below 10%) as evidenced by the average rates of Morocco, Lebanon, Jordan and Iran.

6. ESTIMATES AND RESULTS

Based on the empirical literature, a number of determinants can be considered to identify the most critical variables in the evolution of illicit financial outflows in the MENA region. In general, the macroeconomic environment, fiscal policy, the vulnerability of the current account and governance are the most influential determinants. To quantify their effects, these determinants are approached by specific variables. The following table shows the determinants and the variables used as proxies.

Table 1: Main empirical determinants of capital outflows

Déterminants	proxy variables
Macroeconomic Environment	Real GDP Growth Inflation
Fiscal Policy	Budget balance / GDP Public debt / GDP
Vulnerability of the current account	Current account balance / GDP
Governance	Corruption Index Index of political stability
Risks and tradeoffs	Exchange rate

The estimation was carried out using panel data on a sample of 16 countries covering almost all of the MENA region and over a period of 10 years from 2000 to 2010. After several estimates, the variables that were significant are the growth of GDP, the current account balance, corruption and public debt:

Table 2: Estimation Results

	Fixed effet model	Random effect model
GDP Growth	0.6 (2.99)*	0.6 (3.11)*
Current account balance	0.46 (4.19)*	0.48 (5.56)*
Corruption Index	0.04 (1.35)	0.07 (3.73)*
Public debt	0.06 (2.01)*	0.05 (2.40)*
Constant	0.02 (1.53)	0.03 (1.65)**
R²	0.45	0.47
F-test	8.42*	-
Wald chi2	-	68*

*, ** signifiante at 5% and 10%.

On the theoretical side, GDP growth is negatively related to illicit capital flight. Indeed, sustained growth is likely to increase the profitability of investment and thereby strengthening the confidence of economic agents in the national economy which should encourage them to invest locally rather than expatriate their funds abroad. Nevertheless, our estimates showed that economic growth positively and significantly impact the illicit capital flight in the MENA region. This could be explained, on the one hand by the will to escape to authorities control since funds come from illicit activities. On the other hand, low confidence of economic agents in public institutions could also contribute to the explanation of this finding.

Regarding the current account balance, the economic literature suggests the existence of a positive correlation between the widening current account deficit and illicit outflows capital. Indeed, the external balance deterioration encourages economic agents to expatriate their funds to safer countries since the risks are expected to increase and the depreciation of the local currency is more likely to occur. The estimation results corroborate this observation and indicate the existence of a positive and significant correlation between the current account deficit and illicit capital flight in the MENA region.

At the institutional level, good governance in the public sector could reduce the illicit capital flight since it reinforces the confidence of economic agents in the national economic and financial system. The estimation results indicate that corruption, widespread phenomenon in the countries of the MENA region, is positively related to illicit capital flight.

Finally, the worsening of the public debt is also likely to increase illegal capital flight. Indeed, in case of worsening public debt economic agents expect an increase in taxation in the future that would entice them to transfer their funds to safer destinations. The empirical study in this paper has confirmed this intuition insofar as the correlation between public debt and illicit capital is positive and significant.

7. MEASURES AGAINST ILLICIT FINANCIAL FLOWS

The Illegal financial outflows induce adverse effects on developing economies since they divert from the economy important financial resources that can be used in socioeconomic development programs. The study showed that MENA region is not an exception to this rule and the different measuring techniques exposed illustrate that the dynamics of illicit capital outflows is very important in this region. Also, our panel data estimations shown that the GDP growth, the current account balance, corruption and public debt are the mean determinants of illicit capital outflows from MENA region. Therefore, and due to the magnitude of this phenomenon, a number of measures should be considered in order to combat this flail.

Concerning capital movements, it seems appropriate to ensure the transparency of these flows, especially from banks through the disclosure of transactions in cases of suspected fraud. It is also important to establish a guideline for intermediaries, as well as a black list of providers involved in the concealment of illegal sources of revenues (lawyers, accountants, company formation agents ...).

Finally, the fight against illicit capital flows inevitably involves strengthening politics against corruption, especially at the level of senior officials.

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ANNEXES

1. Fixed effect estimation

```
. xtset pays
      panel variable:  pays (balanced)

. xtreg sortiesdecapitaux corruption croissancedupib dettepublique comptecourant, fe

Fixed-effects (within) regression              Number of obs   =   160
Group variable:  pays                          Number of groups =   16

R-sq:  within = 0.1940                          Obs per group:  min =   10
        between = 0.7034                          avg           =  10.0
        overall = 0.4535                          max           =   10

corr(u_i, xb) = 0.2323                          F(4, 140)       =   8.42
                                                Prob > F        =  0.0000
```

sortiesdec~x	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
corruption	.0480738	.0355262	1.35	0.178	-.0221634	.118311
croissance~b	.6069982	.2027193	2.99	0.003	.2062112	1.007785
dettepubli~e	.0663981	.0329872	2.01	0.046	.0011807	.1316154
comptecour~t	.4642193	.1108348	4.19	0.000	.2450929	.6833456
_cons	.0279409	.0183095	1.53	0.129	-.0082579	.0641398
sigma_u	.05566695					
sigma_e	.08846011					
rho	.2836698	(fraction of variance due to u_i)				

F test that all u_i=0: F(15, 140) = 3.12 Prob > F = 0.0002

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. estimates store fixed
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2. Random effect estimation

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. xtreg sortiesdecapitaux corruption croissancedupib dettepublique comptecourant, re

Random-effects GLS regression              Number of obs   =   160
Group variable:  pays                          Number of groups =   16

R-sq:  within = 0.1910                          Obs per group:  min =   10
        between = 0.7495                          avg           =  10.0
        overall = 0.4787                          max           =   10

Random effects u_i ~ Gaussian              wald chi2(4)    =  68.00
corr(u_i, X) = 0 (assumed)                 Prob > chi2     =  0.0000
```

sortiesdec~x	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
corruption	.0709413	.019043	3.73	0.000	.0336177	.1082649
croissance~b	.6023096	.1936055	3.11	0.002	.2228499	.9817694
dettepubli~e	.0528241	.0219992	2.40	0.016	.0097065	.0959418
comptecour~t	.4842094	.0871412	5.56	0.000	.3134158	.655003
_cons	.0325545	.0197874	1.65	0.100	-.0062282	.0713371
sigma_u	.04953295					
sigma_e	.08846011					
rho	.23869867	(fraction of variance due to u_i)				

3. Hausman test

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. hausman fixed
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	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fixed	(B) .		
corruption	.0480738	.0709413	-.0228675	.0299912
croissance~b	.6069982	.6023096	.0046885	.0601002
dettepubli~e	.0663981	.0528241	.0135739	.0245802
comptecour~t	.4642193	.4842094	-.0199901	.0684892

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
 = 0.83
 Prob>chi2 = 0.9341