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# **Analyzing Effective Factors of Capital Outflow from the Middle East and North African Countries (MENA)**

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## **Abstract**

Our objective in this study is to analyze effective factors of capital outflow from the Middle East and North African countries. Despite a high rate of unemployment, budget deficits, low per capita income, foreign debts and high inequality, the MENA countries are now facing with capital outflow problem and therefore to work out a solution for this problem we should recognize the factors which affect it.

In this research, we have postulated the variables showing economic conditions including Gross Domestic Product (GDP) Growth, Inflation and Foreign Exchange Rate Fluctuations, institutions quality variables including economic freedom index, governance and ruling index (The Right to Comment and Responsibility, Political Stability, Government Efficiency and Effectiveness, Rules and Regulations Quality), oil rents, political risks, (Arab Spring and the Global Financial Crisis) as important factors affecting capital outflow from the Middle East and North African countries.

The model has been estimated using the GMM method from 2000 to 2018. The results show that improvement of an economic condition such as an increase in economic growth and an increase in the transparency of the governments can be known as good options for reducing the capital outflow from MENA countries.

## **Key Words**

Capital Flight, Capital Outflow, MENA countries, Middle East Countries, GMM

## **Introduction**

The capital flight phenomenon has been a very significant matter since the beginning of 1980s in the developing countries and the said countries had faced with a very remarkable rate of capital flight over the past three decades (Alam and Quazi, 2003, Johannesen and Zucman., 2014). There are now many concerns in the developing countries regarding the capital flight phenomenon due to its devastative effects thereof on the economic growth, welfare, macroeconomic stability, income distribution, illegal activities and other social development issues (Zheng and Tang, 2009).

Based on a common definition, the capital flight involves some compounds that try to run away from the national borders in search of a shelter (Gunter.,2004). The capital flight can be considered as a worrying matter according to the researchers which implicitly denotes and indicates the illegal movement of capital from a country to another one (Adesoye et al., 2012).

The capital flight which may happen based on any type or form can put some negative effects on the process of investment due to the illegal and abnormal foreign events because that capital which is better to be used for financing the current balance deduction, increasing the formal and official reserves and for preparing the required infrastructures such as roads, energy and security (So that it could make the economic atmosphere more interesting and attractive for the investors) is transferred abroad by the rich and ultimately there will be a drop in the investment rate (Adesoye et al., 2012).

With regards to the importance of more understanding the capital flight phenomenon and then specifying the rate thereof, such study can help the literature of this matter while analyzing the factors effective on the capital flight in the Middle East and North African countries (MENA). In this analysis, the area of study includes Iran, Iraq, Saudi Arabia, Yemen, Djibouti, Oman, Qatar, Kuwait, Bahrain, United Arab Emirates, Syria, Jordan, Lebanon, Israel, West Bank and Gaza, Egypt, Libya, Tunisia, Algeria and Morocco which they will be studied over the period from 2000 to 2018.

Most of the countries in the MENA region are now suffering a high unemployment rate and the budget deficits, low per capita income, high foreign debts and liabilities and income inequality (Almansour., 2008). Analyzing the capital flight case in the foregoing countries can be known as an interesting

sample of the notes relevant to such phenomenon because most of these countries have witnessed the serious steps of the economic and institutional reforms and the structural changes for the economic development. Such reforms may cause a quick capital outflow from the country because these have found their way into the global economy (Brada et al., 2011).

### **Capital Flight Definition**

The capital flight is an idiom that is applied and used for the unregistered domestic events which include a wide range of both legal and useful economic activities and illegal and harmful economic activities. According to the researchers, the instability and the lack of political confidence can play an important role in explaining the capital flight (Lensink et al., 2000) . The capital flight, the unregistered private output currents that can be legal and very useful for the economy (Al-Fayoumi et al., 2012). The capital flight is defined as the output capital and by the logical investors who are searching for a better balance between the risk and turn over (Output or Efficiency) and the portfolio diversity as well (Buiters and Szegvari, 2002). The capital flight may cause taking some illegal actions and measures for concealing the money laundering such as the medicine distribution (Brada et al., 2011). A part of the capital flight reflects the re-allocation of capital from one's own country to the other countries for creating an appropriate atmosphere for the turn over (Output or Efficiency) and risk and diversifying the asset portfolio and other parts thereof are related to the money laundering which means performing the transactions which can hide the assets illegal source or origin and then change them to a legal income (Brada et al., 2008). Of course, all the foreign financial assets and properties can't be considered as a reason for the capital flight. Some of them may be essential for facilitating foreign trading (Gunter., 2004). The capital flight theory is predominantly focusing on the portfolio decision makings. With regards to this viewpoint, when the risk's adjusted turn over (Output or Efficiency) is at higher levels abroad accordingly the investors make decisions for investing abroad to maximize the profit. Therefore, the capital flight can be known as a response into the changes of an individual portfolio package which is now being increased arising out of some factors such as the

fear of economic and political uncertainty and instability (Mohamed and Finnoff, 2004). The capital flight happens when the assets and properties leave a country quickly and due to the economic consequences. So, the capital movement is for more certainty and or increasing the turnover and the individuals, companies and funds conceal the illegal capitals in the accounts of foreign banks (Muchai and Muchai, 2016). The capital flight, the illegal transfer of capital to somewhere out of a country's boundaries and such concept is different from the capital exports expression. Because the capital exports will be done with regards to a country's legal terms and provisions. Therefore, the capital export is a normal economic phenomenon but the capital flight is taken into consideration as an abnormal one (Grigoryev, and Kosarev, 2000). The capital flight can be defined as the capital moved from a developing country with scarce sources and for avoiding social control. The capital flight is measured as the net unregistered or remained capital outflow between the registered official sources and budget registered official consumptions. A short term investment and foreign debts and liabilities are among the main reasons for the capital flight in the developing countries. The capital flight can be defined as the private capital outflows from the developing countries and with the deficits of foreign exchange reserves. The capital outflows follow the turning method of foreign debts and liabilities which change to the capital flight due to the debt increase and augmenting predicted risks of them (Beja, 2006). If the government applies for borrowing money from abroad and the private sector could simultaneously apply for investing abroad, therefore, the capital flight and government borrowing both can recompense each other but the domestic taxes must increase to pay the debts and liabilities that such a thing can lead to the capital flight increase as well (Brada et al., 2008). Of course, the probable increases in the income tax arising out of investment will not necessarily lead to the capital flight (Bhattacharya, R., 1999).

## **Capital Flight Measuring Methods**

There are some different standards which have been presented for measuring the rate of capital flight with regards to the different definitions into the capital flight. Generally speaking, the common approaches for measuring capital flight are disclosed as follows:

Residual measure (World Bank, Morgan Guaranty and Cline), measuring the stock of unreported foreign assets (Dooley's Method), hot money measure and the measuring trade misinvoicing. So, there are some changes for every one of them which may lead to some small changes. The payments balance figures and statistics can be considered as a starting point for the entire methods (Claessens et al., 1993).

The so-called residual (Resources and Expenditures) method is a common approach for estimating and evaluating the capital flight. Such a method is based on a deduction and inference on the capital flight and based on the payments balance statistics. If the sources of capital inflows namely the (Net) increase in the foreign debts and liabilities and the (Net) increase in the Foreign Direct Investment (FDI) are more than using the capital inflows which means the country's current account deduction and foreign reserves increase accordingly this matter could be done due to the capital transfer to the foreign countries and by the private sector (Individuals). This balance is because of the capital flight rate (Johannesen and Pirttilä 2016).

The balance or remnant method has been widely applied by the international organizations such as the World Bank and the United Nations Organization (Claessens and Naudé 1993; UNDP 2011) and also the Academic Studies (Pastor 1990; Boyce 1992; Lensink et al., 2000; Al-Fayoumi et al., 2012 Genda and Yimer, 2016; Mpenya et al., 2016; Efobi and Asongu, 2016) for measuring the capital flight values and also specifying the economic and political factors thereof.

In the residual method, the budget sources are more than the budget consumptions. The budget sources include the net official inflows (An increase in the government's foreign debts and liabilities) and the net current of the foreign direct investment. The budget consumptions involve the current account deduction and the reserves increase. The capital flight abroad will be done when the budget

sources are more than the budget consumptions and contrary to this manner will be done for capital flight to the country itself. In the inventory method of unreported foreign assets, the inventory of private retained foreign assets will be measured but their incomes are not normally reported to the local authorities and officials. This matter will be performed by collecting the capital's known and recognized outflows in the accounts of payments balance and then creating three adjustments (Errors, omissions, the difference between the annual changes of foreign debts and liabilities and with regards to World Bank's data and the least registered and official rate of them, calculating the foreign assets reserves which are required for paying the investment income (Payments Balance) applying the interest rate of international market). The hot money measure directly calculates the private capital currents considering (Negative) the errors and omissions and the short term private investment which is arising out of the balance of the payment. The rate of short term private capital (From a country to another one) can be different in those studies which apply the said method. The commercial mistakes method can conceal the capital flight through announcing the exports which are less than the bill and notifying the imports which are more than the bill and therefore the statistical differences of reporting country and the trading partner thereof can help to recognize such difference and discrepancy (Difference in the commercial statistics can be done due to the capital flight (Exporting less than the bill and importing more than the bill), tax evasion (Exporting and importing less than the bill), the bad and contradictory methods in reporting.) (Claessens et al. 1993).

### **Capital Flight Reasons**

Empirically speaking, some various factors have been recognized as capital flight reasons. Most of the researchers maintain that the foreign debts and liabilities, short term investment and financing can reinforce and boost the capital flight (Saxena et al., 2005; Chipalkatti and Rishi, 2001; Beja, 2006; Ndikumana and Boyce, 2008). However, other ones believe that the factors such as the real growth of Gross Domestic Product (GDP), foreign direct investment, interest rate difference, inflation rate, foreign exchange rate and the lack of confidence, assurance and unreliability can play the important roles as well (Hermes and Lensink 2001; Ndikumana and Boyce, 2003; Fedderke and Liu, 2002;

Ljungwall and Wang, 2008). The said difference has not been solved through experimental research in highlighting the capital flight motivations because each approach can benefit from some of the experimental supports (Kutan et al., 2009).

There are some direct and indirect factors which can put effects on the capital flight and foreign debts and liabilities and its direct effect means that the foreign debts and liabilities can change to the capital immediately. Another time, it passes a time process because the debts and liabilities get accumulated and the sources thereof become bigger and bigger by the default risk augmentation (Beja, 2006). The indirect effect of the same may occur because of the economic mismanagement and political mistakes which these things lead to the foreign debts and liabilities and eventually the capital flight but none of them may cause creating the other one. For example, McKinnon (1993) reminds that performing the early control policies and the financial release strategies may lead to the debts and liabilities increase and ultimately the capital flight. Lessard and Williamson., 1987 maintain that the capital flight is arising out of anxiety into the local and domestic losses incurred to the capital due to the risks of ownership deprivation, reduction in the foreign exchange rate, capital control, taxation and the financial stagnation. Hence, if the capital leaves the country due to the better opportunities of the capital turnover and efficiency, it does not only lie and stay on the classification of capital flight but also it is considered as a tenable capital outflow. The most important factors related to the capital flight can be divided into four principal groups as follows:

1-Macroeconomics

2-Political Conditions

3-Institutional Factors and

4-Natural Resources

#### ***1- (Mismanagement) Macroeconomics (Indirect Effects)***

***-Inflation:*** Increasing the inflation, those individuals who have the domestic assets react into their wealth value resolution through investing abroad, therefore, there will be a kind of positive and meaningful relationship between the inflation and capital flight (Pastor, 1990; Geda and Yimer, 2016;

Ndikumana, 2016; Muchai and Muchai, 2016; Moulemvo, 2016; Ayamena et al., 2016; Ramiandrisoa, 2016; Murinde et al., 1996; Lensink et al., 1998; Nyoni, 2000; Ndikumana and Boyce, 2003).

*-Money Devaluation:* Capital flight can be known as one of the effects of the fall of national currency and the capital flight will be done by devaluating the money (Cheung and Qian., 2010).

*-Macroeconomics Uncertainty:* Macroeconomics features can be taken into consideration as some motivations for the capital flight. In another word, the uncertainty of the macroeconomics indexes in one society may cause the capital flight and so using the capitals existing in the economy will decrease (Ndikumana, 2016; Geda and Yimer, 2016).

*-Budget Deficit:* Government can compensate the existing deficit using the currency volume increase and publishing and printing the banknotes and or applying the higher taxes and or exerting a change in the customs tariffs and or using some other ways which every one of them can be considered as an obstacle for the investors and capitalists accordingly they prefer to transfer their own assets and properties abroad and then invest there so that they could prevent the capital potential loss, also, to use the tax exemption as well (Muchai and Muchai, 2016; Ndikumana and Boyce, 2003; Hermes and Lensink, 1992; Boyce, 1992).

*-Domestic Credit:* The lack of conferring and granting the special credits and distinctions or advantages and or the tax exemptions can encourage the individuals and capital owners to the capital flight (Boyce and Ndikumana, 2001; Collier et al., 2004; Ndikumana and Boyce, 2008).

*-Macroeconomics Mismanagement:* Mismanagement in the macroeconomics and the strategic mistakes can put effects on the foreign loan and capital flight at the same time (Muchai and Muchai., 2016).

*-Real GDP Growth:* The gross domestic product growth is one of the most significant effective factors on the capital flight rate which has been mentioned in the relevant literature (Ndikumana and Boyce, 2003, 2008).

*-Monetary Policy Variables:* Foreign exchange rate difference (Harrigan et al. (2002), excessive rate of the calculated value (Geda and Yimer., 2016), effective real foreign exchange rate (Al-Fayoumi and et al.,2016) all have stated the foreign exchange rate as one of the most important factors for determining an appropriate model in the model of provided and controlled variables in the related literature.

*-Financial Policy Variables:* Financial policy variables have been considered as some important and drastic motivations of the capital flight in the relevant literature and these factors have been applied in the related researches for estimating the capital flight rate: Investment (Ndikumana and Boyce, 2008) and the foreign direct investment (Claessens Johannesen., 2016), capital record (Chipalkatti and Rishi, 2002), foreign debts and liabilities (Ndikumana., 2015) (Direct Effect), foreign financing (Collier et al., 2002), development official assistances (Geda and Yimer., 2016), real interest rate (Alam and Quazi, 2003), interest rate difference (Ndikumana., 2016), adjusted turnover based on the investment risk (Ndikumana et al., 2015), government's consumption (Ndikumana and Boyce., 2003), tax (Higher rate, tax fluctuations, encourager and the discriminatory tax behaviour for attracting the foreign capital (Muchai and Muchai., 2016)).

## ***2- Political Conditions***

Political risks and dangers (War, civil conflicts, terrorism: civil and international one and uncertainty and instability), the unpredictability of the political conditions, regime change and political events, civil, regional and international tensions and conflicts, all are effective in the capital flight process (Lensink et al., 1998; Collier et al., 2001; Ndikumana and Boyce, 2003; Ndiaye, 2009; Vespignani, 2009; Cerra et al., 2005).

## ***3- Institutional Factors***

The institutional factors include the government's inability and helplessness, poor institutions, immorality and corruption, embezzlement, capital trafficking, illegal proprietorship of the national resources wealth and then transferring such resources abroad, foreign ownership of the natural resources, revolving door (Which means a phenomenon that the public administrators and managers

refer to the private sectors following the end of their term of service or vice versa the afore-said administrators and managers refer to the public sector after leaving the private one. The effects and results of such phenomenon will be the change in the policies towards the personal interests and creating the economic rent), the lack of democracy, ownership deprivation risks, bad and inefficient management of the general resources, changing the foreign loans to the private assets and properties, capital controls, improper implementation of deregulation and the financial release strategy at the same time with absorbing the foreign capital which is among one of the effective factors on the capital outflow and capital flight (Ndikumana, 2016; Geda and Yimer, 2016; Ramiandrisoa, 2016; Efofi and Simplice, 2016).

#### ***4- Operating the Natural Resources Especially the Oil***

According to the existing evidence in the literature of African countries which have some rich natural resources, these countries are remarkably placed on top of the list of countries with high capital flight and it seems that such connection is stronger for the oil compared with the other natural resources including the minerals (Ndikumana, 2016).

#### **Capital Flight Consequences**

The case studies which have been prepared in relation with the capital flight from the developing countries can be indicative of some outstanding and various economic consequences that the said capital flight can lead to the economic and political uncertainty as disclosed below:

*1-Putting some Effects on Economic Growth:* The capital flight can be a hindrance for economic growth, increasing the government's expenses and poverty decrease. In the other words, there is a negative contact between the economic growth and capital flight (Ajayi, 2012; Ndiaye, 2014).

*2-Putting some Effects on the Domestic Investment:* Increasing the capital flight may reduce the appropriate chances for performing the domestic and international investments (Fofack and Ndikumana, 2010; Yalta, 2010; Adetiloye, 2012; Ndikumana, 2014).

*3-Macroeconomics Conditions:* Mismanagements in the macroeconomics have to lead to the intensification of uncertainty and instability in the macroeconomics and this may cause the capital flight to increase at the same time with the foreign debts and liabilities increase (Boyce and Ndikumana, 2012).

*4-Political Conditions:* Capital flight and the uncertain political conditions are of positive contact with each other (Geda and Yimer., 2016).

*5-Income and Welfare Distribution (Poverty increase, reduction in the public and social expenses especially water, health, sanitation and education):* Capital flight increase has put some remarkable effects on the rate of social and public expenses and therefore the economic and social inequalities will appear more than ever by the capital flight augmentation (Boyce and Ndikumana, 2012; Ndikumana and Boyce, 2011a; Boyce and Ndikumana, 2012; AfDB and GFI, 2013; Ndikumana, 2016).

*6-Current Account Deduction:* Current account deduction must be done by the private sector (Individuals) due to the transference of capital to the foreign countries (Johannesen and Pirttilä, 2016; Geda and Yimer, 2016; Ayamena et al., 2016; Al-Fayoumi and et al.,2016).

*7-Financial Prosperity:* Capital flight may cause failure in the financial improvement on the economic growth and the reduction of destitution in Africa (Ndikumana and Boyce, 2011a; Boyce and Ndikumana, 2012; AfDB and GFI, 2013).

## **Literature Analysis**

Several research essays and dissertations have studied the reasons for capital flight in the developing countries. Most of such studies are indicative of some evidence that the macroeconomics variables including the foreign debts and liabilities, foreign direct investment, interest rates, interest rate difference, inflation and tax rates all are among the factors which determine the.

The capital flight literature applies the capital flight estimations for analyzing the determinant factors of the same. There is some evidence based on the capital flight motivation due to the inflation and

the risk of money devaluation (Pastor 1990) and the capital inflows in the form of foreign loans (Boyce 1992., Ndikumana et al. 2013).

Most studies, which have been done concerning African countries, have identified macroeconomics and political conditions as an important factor in capital flight. (Lensink et al., 1998; Collier et al., 2001; Ndikumana and Boyce, 2003; Ndiaye, 2009; Vespignani, 2008; Cerra et al., 2005). The concerned examples include countries with rich economic resources (Cameroon, the Republic of Congo, Zimbabwe), microeconomics without economic resources (Kenya and Ethiopia), and low-income economies without economic resources (Burkina Faso and Madagascar).

A study done by Mucha and Muchai about Kenya in connection with the study of capital flight factors has focused on the role of fiscal policy and changes in macroeconomic policy regimes since 1970. Such study is a detailed account of the changes in fiscal policy and its financial consequences (expenses, revenues and budget deficits) and shows the method of their connection with the trend and volatility of capital flight under different regimes in the country over the past four decades. This study provides compelling evidence that government spending and tax policies and their consequences have a significant impact on Kenya's capital flight rates and plans.

The study, made by Ramiandrisoa and Rakotomanana, is probably the first study to provide a detailed analysis of the factors for capital flight from Madagascar. Using a qualitative analysis based on the details of the country's political and economic history, this study explains the trend and fluctuations of capital flight from 1970 to 2012. This study is completed by using the quantitative analysis, time series data of econometrics and self-regression modeling. This study shows that the political periods and crises are the determining factors in both the illegal flow of capital and the flight of capital from the country, as well as its smuggling into the country or the return of capital. The results of the econometric analysis of time series show that external debt is the most important and only potent determining factor in the outflow of capital from Madagascar.

The analysis of the determinants of capital flight from Ethiopia by Geda and Yimer emphasizes the role of institutions and political periods in expressing the amount and trend of capital flight during

the period 1970-2012. In this study, developments related to organizational and economic conditions under the two main regimes, the military regime (Dreg) from 1974 to 1991 and the regime of the Democratic Federal Republic of Ethiopia (EPRDF) after 1991 are examined. The study shows that the country has lost more capital than the military government during the federal government; One million dollars per year in the federal government and half a million dollars per year in the military government. Econometric analysis of time series reveals key motivations for capital flight from Ethiopia as macroeconomic uncertainty, foreign debt, and political uncertainty.

The study regarding Zimbabwe by Kwaramba et al. explains the role of macroeconomics and institutional conditions in capital flight. This study focuses on trade errors in the mining sector, which is a key part of Zimbabwe's economy, and estimations related to trade errors in production and major trading partners has been done. Such research shows that there is a significant decrease in the number of export invoices, which leads to a net increase in capital flight, along with a significant decrease in the number of import invoices, which indicates the smuggling of imports. The authors argue that the predominant foreign ownership of mining companies has made this sector vulnerable due to smuggling and illegal financial flows, as well as weak laws and management.

Regarding the relationship between capital flight and other foreign flows, Gankou et al. examined the existence of the 'revolving door' phenomenon in Cameroon and whether this phenomenon applies to other capital flows in addition to external debt or not? This study emphasizes the role of organizational environments in providing 'revolving door' conditions in foreign direct investment (FDI) and official development assistance (ODA). The authors confirm that external loans strengthen capital flight. Thus, a dollar increase in foreign debt will cause a 47 to 62 cent increase in capital flight. In contrast, this study does not find a significant relationship between capital flight and ODA and FDI. Such study shows that increasing the quality of institutions and political certainty helps reduce the outflow of foreign resources through capital flight.

In the second study about Cameroon, the role of natural resource supply as a motivator for capital flight is examined. In such a study, Mpenya et al. focus on trade errors on Cameroon's major exports,

namely oil and wood, using *UNCTAD (United Nations Conference on Trade and Development)* data of the COMTRADE database. In this study, the total trade errors are estimated using the product and major trade partners. The results show that Cameroon experienced an amount less than USD 45 billion in export invoices and, to a lesser extent, an amount more than imports (USD 9 billion) from 1994 to 2012. Such study emphasizes the necessity to strengthen the regulation of the natural resources section as a strategic centre for restraining and preventing capital flight from Cameroon. An important innovation in such study is an accurate analysis of political regimes and economic policies and tries to understand how institutional and political innovations lead to capital flight and making the relationship between capital flight and tax revenue.

A study concerning the Republic of the Congo made by Moulemvo helps the literature about the impact of capital flight on the resource economy by simulating its opportunity costs in terms of general expenses not incurred on education and health. The Republic of Congo, despite its large investments in natural resources, especially oil, has high levels of poverty, inequality and weakness in accessing to social services such as education, health, water and hygiene. The results of this simulation indicate that capital flight has helped to delay the achievement of goals 4 and 5 of the Millennium Development Goals (MDGs).

Ndikumana and Boyce (2003) show the determinants of capital flight in 30 countries in sub-Saharan Africa, including 24 classified countries as highly indebted and low-income countries from 1970-96, by analyzing the economies of the countries. In this study, external loans have a positive and significant effect on capital flight, which indicates a large amount of capital flight due to external debt. Also, capital flight has had a high degree of persistence in its interruptions in the past, which is related to its present and future levels.

In another study, Beja (2007) examines the impact of external debt on capital flight in Indonesia, Malaysia and Thailand. The results show the major inflows and outflows of capital that follow a revolving door mechanism. This means that external debt motivates capital flight. More debt increases service and debt risk, and as a result, causes capital flight. The capital that *flows out* the

country may be returned to the country in the form of external investment or debt. The findings also show that good indicators of economic growth and sufficient international reserves prevent external borrowing and capital flight.

The importance of external debt in explaining changes in capital flight is also discussed in the study of Ljungwall and Wang's (2008). Using the balance of payments data from 1993 to 2003 in China, the authors examined several factors involved in capital flight. The result obtained from China is similar to the experience of Latin America, where external debt has caused capital flight (Mckinnon 1993). Weak factors include exchange rate and interest rate. These two factors are not determinants in China (Al-Fayoumi et al., 2012).

Another part of capital flight literature focuses on methods to measure the amount of capital flight. For example, Ndikumana and Boyce (2003) provide estimations of capital flight from 25 low-income countries in sub-Saharan Africa between 1970 and 1996. The capital flight is considered as a criterion of private external assets and the net external assets are calculated through deducting private external assets from public external debt. So sub-Saharan Africa is a creditor to the rest of the world.

Moghadam et al. (2003) examine and expands various definitions and approaches to measuring capital flight and also redefines the remaining method for measuring capital flight. Then, capital flight estimations from developing countries in East Asia for the period 1977 to 1987 are calculated and reported. The authors conclude that the openness of most accounting methods in the public sector is essential to reduce the impact of capital flight in emerging economies.

Zheng and Tang (2009) have applied a modified method to measure capital flight compared to traditional methods. Capital flight versus money accumulation is measured instead to be compared to gross domestic product (GDP) because capital is not a real financial source. This paper shows that capital flight is much more serious in low-income Asian countries than in previous research articles. Several articles attempt to present stronger results to the determinants of capital flight using various econometric techniques. For instance, Chipalkatti and Rishi (2002) used the simultaneous equation models to examine the relationship between capital depressions and external debt in the Indian

economy during the period 1971-1997. This paper confirms the existence of a financial revolving door relationship between the two endogenous variables.

Alam and Quazi (2003) identified and studied the determining elements of capital flight in Bangladesh from 1973 to 1999 through applying restrictive tests and a self-regression pattern with a distributed interruption, a new generalized accumulation technique by et al. (2001) Pesharan. The findings show that political uncertainty is the most important influential factor influencing capital flight.

Other factors that are considered significant include corporate income tax, differences of higher real interest rate, and lower growth rate of gross domestic product (GDP). The exceptional importance of macroeconomic principles in Malaysia from 1970 to 1976 is also reported by (2002) Harrigan et al. The results show that real GDP growth rate and foreign direct investment are associated with a decrease in capital flight, while a decrease in the value of a common currency and an increase in external debt are connected to an increase in capital flight.

Cheung and Qian (2010) examined the experimental determinants of capital flight from China during the period 1999-2008. In addition to interest rate differences, their experimental activities include a complete list of macroeconomic variables and several organizational variables. In general, regression analysis shows that the capital flight of China is affected by its history as well as interest rate differences. Other determining factors provide a relatively small additional explanatory power.

Al-Fayoumi, et al. (2012) have examined and studied the factors affecting on capital flight in seven countries in the Middle East and North African in 1981-2008 using four econometric techniques: *Ordinary Least Squares (OLS)*, *Fixed Effect*, random effects, and seemingly unrelated regression models. The findings of this study show that capital flight in MENA countries is mainly due to previous periods of capital flight, external debt, foreign direct investment, real GDP growth and uncertainty.

Specifically, the list of determinants includes capital depressions, capital inflows and capital stocks (according to debt flow, debt and financial *donation* flow), macroeconomic uncertainty (based on

overvalued exchange rates, budget deficits, Inflation rate and current account deficit), rate of return differentials, financial development, governance and institutional quality, political and war risks, and uncertainty of public policies (based on government consumption costs, tax, budget deficit and real interest rate) (Ajayi, 1992; Hermes and Lensink, 2001; Hermes et al., 2002; Cerra et al., 2005; Ndikumana and Boyce, 2003, 2008; Ndiaye, 2009 ; Le and Rishi, 2006).

Based on previous discussions, case studies presented in connection with capital flight have presented a new perspective and enlightenment on determinants of capital flight which have provided significant contributions to existing literature. These studies are mainly based on cross-sectional and panel data analysis. The key added value of case studies is the analysis of the economic and political history of countries to emphasize on the explanation of events and to examine the trend and pattern of capital flight; while a large number of countries in the study area did not have these articles. However, these careful historical and institutional analyses provide a valuable perspective for designing policies to prevent capital flight. Besides, the most previous research has been done about the causes of capital flight from sub-Saharan Africa, Latin America, and Southeast Asia and little attention have been paid to study of this issue in the MENA countries.

## **Data and Method**

According to the made studies, capital flight is a function of economic uncertainty (GDP growth, inflation and exchange rate fluctuations), Index of Economic Freedom, governance index, oil price, political risks (Arab Spring and global financial crisis). In the model of this research, instead of the capital flight variable, the net variable of foreign direct investment is used. So:

$$nfdi = fdiinflows - fdioutflows \quad (1)$$

Where in:

*nfdi* : foreign direct investment, net outflow

*fdiinflows* : Foreign direct investment, net inflows (% of GDP)

*fdioutflows*: Foreign direct investment, net outflows (% of GDP)

$$nfdi = f(gdpg.inf.efi.voac.psav.goef.requ.coco.rula.oilr.cvex.gfc.arabs) \quad (2)$$

Where in:

*gdpg* : GDP growth (annual %)

*inf* : Inflation, consumer prices (annual %)

*efi* : Economic Freedom Index

Governance Indices (*voac*: Index of Voice and Accountability, *psav*: Index of Political Stability/No Violence, *goef*: Index of Government Effectiveness, *requ*: Index of Regulatory Quality, *coco*: Control of Corruption, *rula*: Rule of Law index).

*oilr*: Profits from oil sales (income minus production costs)

*cvex*: Exchange rate fluctuation of USA dollar (average / standard deviation)

*gfc*: The global financial crisis

*arabs* : Arab Spring

According to the notification of World Bank, the higher the governance indices in a country, the higher the rate of economic growth and the more effective the growth of the private sector and the increase in external capital inflows. The double importance is that capitalists decide whether or not to invest in the country via referring to the information of this institution and other international institutions. The range of changes for each of the above indices is approximately between 2.5 (weak) to 2.5 (strong).

The Economic Freedom Index is one of the indices in evaluating and analyzing the business environment of countries. According to The Heritage Foundation, for economic freedom, the government's presence in the economy can only be justified in order to protect the rights of economic agents and citizens. The Heritage Foundation considers twelve sub-indices in calculating the economic freedom index. These twelve sub-indices are divided into four groups: the rule of law (property rights, government integrity, and the efficiency of the judiciary), government size (financial health, tax burden, government spending or expenditure), and the efficiency of laws (business freedom, labour freedom, monetary freedom), the degree of market openness (trade freedom,

investment freedom, financial freedom). The ranking of countries based on the Economic Freedom Index is as follows: free (80-100), mostly free (70-79.9), Moderately free (60-69.9), Mostly Unfree (50-59.9) and Repressed (40-49.9).

According to the said topics, the concerned model of this research is estimated using the generalized method of moments (GMM) and the validity of the estimated model is examined through Serial Correlation Test and Sargan test:

$$\begin{aligned} nfdi_{ijt} = & \alpha + \beta_1 nfdi_{ijt-1} + \beta_2 gdp_{ijt} + \beta_3 inf_{ijt} + \beta_4 efi_{ijt} + \beta_5 rula_{ijt} + \beta_6 coco_{ijt} + \\ & \beta_7 gfc_{ijt} + \beta_8 arabs_{ijt} + \beta_9 oilr_{ijt} + \beta_{10} cvex_{ijt} + \beta_{11} voac_{ijt} + \beta_{12} psav_{ijt} + \beta_{13} requ_{ijt} + \\ & \beta_{14} goef_{ijt} + \varepsilon_{ijt} \end{aligned} \quad (3)$$

The required data for estimating the above model for the countries of the MENA region from 2000 to 2018 were collected from the databases of the World Bank, the Heritage Foundation and IFS (International Featured Standards) and estimated using STATA15 software.

### **Study of Past Process**

Characteristics of the period from 2000 to 2018 are the global financial crisis (2007-2008) and the Arab Spring (from 2011 to the present). The following table shows the average data of each model variables in the countries of the MENA region:

Table 1: Study of Past Process of Research Model Variables

<b>nfdi</b>									
Kuwait	Iraq	WBG	Libya	Qatar	Yemen	Syria	UAE	Iran	Algeria
3.63	0.52	0.29	0.04	-0.34	-0.47	-0.50	-0.65	-0.83	-1.03
<b>gdp</b>									
Qatar	Djibouti	Iraq	Libya	Syria	Jordan	Bahrain	Egypt	UAE	Morocco
9.45	7.47	5.08	5.07	4.78	4.58	4.55	4.33	4.30	4.19
<b>inf</b>									
Iran	Iraq	Yemen	Egypt	Syria	Algeria	Qatar	Jordan	Kuwait	WBG
16.48	13.51	11.11	9.84	7.30	4.04	3.86	3.39	3.38	2.99
<b>oilr</b>									
Kuwait	Iraq	Libya	Saudi Arab	Oman	Qatar	Yemen	Syria	Iran	Algeria
47.62	47.61	47.26	39.63	35.82	27.90	23.90	23.26	22.89	21.95
<b>cvex</b>									
Syria	Iran	Egypt	Tunisia	Iraq	Lebanon	Libya	Algeria	Malta	Morocco
157.99	73.19	53.67	25.32	22.26	19.61	19.08	18.19	13.08	10.95
<b>efi</b>									
Bahrain	UAE	Qatar	Jordan	Israel	Oman	Malta	Kuwait	Saudi Arab	Morocco
73.86	69.84	67.03	66.92	66.88	66.07	65.55	65.15	62.90	58.72
<b>voac</b>									
Malta	Israel	Kuwait	Tunisia	Lebanon	Morocco	Jordan	UAE	Qatar	Algeria
1.20	0.68	-0.53	-0.60	-0.63	-0.65	-0.69	-0.91	-0.93	-0.94
<b>psav</b>									
Malta	Qatar	UAE	Oman	Kuwait	Djibouti	Tunisia	Saudi Arab	Morocco	Jordan
1.26	1.03	0.83	0.80	0.25	-0.25	-0.30	-0.36	-0.39	-0.40
<b>goef</b>									

Authors' elaboration, using the WDI, WGI and Heritage Foundation dataset.  
 Note: WBG is West Bank and Gaza

According to the information in the table above, from 2000 to 2018, the maximum and minimum average data of the indicators were separately for the countries of the MENA region:

- Foreign direct investment, net inflows (% of GDP) (nfdi): maximum for Kuwait and minimum for Malta
- GDP growth (annual %) (gdp): maximum for Qatar and minimum for Yemen
- Inflation, consumer prices (annual %)(inf): maximum for Iran and minimum for Israel
- Oil Profits (oilr): Maximum for Kuwait and Minimum for Jordan, Israel, Djibouti and Malta
- Exchange rate fluctuation (cvex): maximum for Syria and minimum for Djibouti, Bahrain, Qatar, UAE, Saudi Arabia and Oman
- Economic freedom (efi): maximum for Bahrain and minimum for Iraq
- Voice and Accountability (voac): Maximum for Malta and minimum for Syria

- Political Stability/No Violence (psav): maximum for Malta and minimum for Iraq
- Government Effectiveness (goef): the maximum for Israel and the minimum for Iraq
- Regulatory Quality (requ): Maximum for Malta and minimum for Libya
- Control of Corruption (coco): the maximum for the United Arab Emirates and the minimum for Iraq
- Rule of Law (Rula): The maximum for Malta and the minimum for Iraq

### Results of Model Estimation

Before estimating the model, first, the unit root test of all the concerned variables was performed using Fisher-type based on Augmented Dickey-Fuller tests and the results showed that there is no unit root for the concerned variables.

After the unit root test, the model was estimated using the Arellano-Bond dynamic panel-data estimation method, the results of which are given in the following table:

Table 2: Results of Research Model Estimation

Variable (var)	Coefficient (coeff)	Statistics Z (stat Z)	Probability (prob)
<i>Interval</i> of Foreign direct investment, net outflows (nfdi-L1)	-0.19*	-95.47	0.000
Inflation, consumer prices (annual %)(inf)	-0.02**	-1.69	0.090
GDP growth (annual %) (gdpg)	0.08*	3.40	0.001
Economic freedom (efi)	-0.74*	-5.63	0.000
Rule of Law (Rula)	3.83	1.03	0.302
Control of Corruption (coco)	-10.33*	-4.43	0.000
The global financial crisis (gfc)	-1.72*	-3.63	0.000
Arab Spring (arabs)	4.39	1.32	1.188

Notes: \*p < 0.05, \*\*p < 0.1

Instrumental variables with an interruption are: Oil Profits (oilr), Exchange rate fluctuation (cvex), Voice and Accountability (voac), Political Stability/No Violence (psav), Regulatory Quality (requ), Government Effectiveness (goef)

Upon estimating the model, in order to ensure the validity of the model and instrumental variables, a serial correlation absence test and a Sargan test was performed. The results of the first test indicate that there is no correlation and the second test confirms the validity of instrumental variables.

## **Discussion**

1- The interruption of the dependent variable is significant but its effect is negative (AR with negative coefficient) which shows the intermittent and dynamic flow of capital outflow from the countries of the MENA region, which could be the cause of political crises.

2- Growth of GDP in the level of 10% is significant and its coefficient is negative. In other words, by increasing GDP growth, fewer capital outflows are made. Conversely, inflation is the rate at which inflation rises as capital flight increases. In general, increasing economic growth and declining inflation slow down capital outflows.

3- The rule of law is meaningless, but economic freedom and corruption control have a negative effect on capital outflow, indicates that these two variables have a significant impact on capital outflows, and that the issue of economic freedom and corruption control is more important than the rule of law.

4- The global financial crisis has a negative impact on capital outflow. In other words, in the event of a global financial crisis, due to declining security and return on investment in industrialized countries, capital outflows from countries in MENA region to developed countries will decrease or capital return from industrialized countries to countries in MENA region will increase.

5- Despite the positive effect of the Arab Spring variable on capital outflow, this variable is not significant.

## **Conclusion**

During the last three decades, capital flight has been a major concern for developing countries due to its destructive effect on economic growth, welfare, macroeconomic continuity, income distribution and other issues of social development. In the countries in the MENA region, despite high unemployment rate, budget deficits, low per capita incomes, external debt and inequality; they are also facing the problem of capital outflows.

Most studies have been done on capital flight from developing countries. In these researches, the most important factors of capital flight are divided into four main categories: macroeconomic mismanagement, political mistakes, structural weakness and mismanagement of natural resources and its consequences, in general, include economic uncertainty and social uncertainty.

In the recent research, with respect to the variables used in previous studies and also due to the importance of examining the effect of institutional variables on capital flight, model variables are economic uncertainty (GDP growth, inflation and exchange rate fluctuations), Economic freedom index, governance index (right to Voice and Accountability, Political Stability/No Violence, Government Effectiveness, Regulatory Quality), oil profits, political risks (Arab Spring and the global financial crisis). Also, in this research model, instead of the capital flight variable, the net foreign direct investment variable has been used. The concerned model was estimated between the years of 2000 and 2018 using the GMM method.

The estimation results show that during the period under analysis, there was an intermittent but dynamic flow of capital outflow, which could be due to political crises in the MENA region. Increasing economic growth and declining inflation have slowed the speed of capital outflow, and economic freedom, control of corruption and the global financial crisis have had a negative impact on capital outflow. Also, the global financial crisis indicates a negative impact on capital outflow. This means that in the event of a global financial crisis, due to declining security and return on investment in industrialized countries, capital outflow from MENA countries to developed countries will decrease or capital returns from industrialized countries to MENA countries will increase.

Despite the positive impact of the Arab Spring variable on capital outflow, this variable has not had a significant effect on capital outflow.

Therefore, if the economic conditions improve, the existence of business freedom, control of corruption in the countries of the MENA region and also the absence of financial crises, the flow of capital outflow from the countries of the concerned region to industrialized countries will occur less frequently.

### **Proposed Scenario**

In order to reduce the capital outflow from the countries of the Middle East and North African to the destination countries, improving economic conditions, the existence of business freedom, improving economic opportunities, the absence of financial crises and transparency can be the best options. In other words, increasing economic power, increasing economic growth, and increasing enlightenment on behalf of the governments can be suitable barriers to preventing capital outflows from the MENA region.

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