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Determinants of FDI Flows to Developing Countries: An Empirical Study on the MENA Region

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Abstract Many studies have provided evidence that foreign direct investment (hereafter FDI) can convey great advantages to host countries and can have important positive effects on their development efforts and economic growth. This paper contributes to the extant literature by providing evidence on the main determinants of FDI inflows and exploring the hindering factors that may have a negative influence on FDI and consequently economic growth. Our focus is the Middle East and North Africa (MENA) region over the period 2006 to 2013, a period of great economic and political turbulence and uncertainty. To conduct this study, regression with time series data on stationary and dynamic variables was done using random effect panel data analysis. Availability of resources, market openness, human capital, infrastructure, political stability, lagged FDI, are all used to determine which of these factors are significant determinants of FDI. We find that infrastructure, human capital, lagged FDI and market openness are the significant determinants of FDI in the MENA region. Our results suggest that FDI for MENA is primarily market based. Hence, MENA region nations should strive to utilize these determinants to improve the competitive environment and attract FDI flow. Our findings would be of use to market participants, regulators and policy makers as they support the view arguing that MENA region is an important trade hub and thus should remove all trade barriers and restrictions to capitalize on their strategic location in the world to facilitate trade to Europe, Africa and Asia.

Keywords: FDI, MENA region, panel data analysis, economic performance

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1. Introduction

Nations constantly strive to achieve economic growth. Much attention has been devoted to the relationship between foreign direct investment (FDI) and economic growth with many academics, regulators and policy makers contending that FDI can have an important positive influence on the economic growth and development of the host country. Borensztein, *et al.* [10] argues that FDI promotes economic growth by increasing the volume and/or efficiency of investment. In addition to the direct capital financing, FDI can be a source of valuable technology and know-how while fostering linkages with local firms. FDI is also linked with

increasing competition in the host country’s market, increasing exports and creation of foreign exchange in addition to other positive externalities. Firebaugh and Beck (1994) believed that economic growth is a means to an end; real development and improvement of living standards does not occur without economic growth.

With respect to MENA region, economic success in the past quarter century has been largely driven by the legacy of economic policy and price of oil. It is worth mentioning here that the economies of region’s nineteen countries vary significantly from oil-rich nations to resource scare countries. O’ Sullivan, *et al.* [35] classified them according to the availability of oil resources and their population. Based on this classification the countries can be grouped into three categories as shown in Table 1:

Table 1. categories of Countries based on population and oil availability

Category	Description
Resource-rich, and labor abundant	Large oil producers and exporters and have a large native population (Iraq, Syria, Yemen, Algeria)
Resource-rich but labor-importing	Large oil producers and exporters but contain a large segment of foreign or expatriate in their population. (Saudi Arabia, UAE, Qatar, Kuwait, Oman, Bahrain, Libya)
Resource-poor	Minor producers of oil and gas. (Egypt, State of Palestine, Lebanon, Jordan, Djibouti, Mauritania, Tunisia, Morocco)

Source: [35].

The recent uprising in the Arab world late 2010-early 2011 has brought to light many of the palpable issues facing the MENA region. The protests and reform

demands have led to the toppling of many longstanding political regimes including Egypt’s Hosni Mubarak, Libya’s Muammar Qaddafi, and Tunisia’s Zine El Abidine

Ben Ali. Nonetheless, political change cannot be detached from economic reforms. A direct result was a decline in the region's GDP growth rate from 4.2% in 2010 to 2.2% in 2011, which is more than 1% less than the world average [49]. But, maintaining macroeconomic stability and sustaining economic growth has long been an issue in the region. O' Sullivan, *et al.* [35] view that these challenges are both structural and interrelated, and can

only be resolved through comprehensive and coordinated strategies that include governments, civil society, the private sector and the international community, especially that emerging countries and developing countries utilize FDI as a source of economic modernization and growth, as reported by the OECD (2002). Figure 1 shows the global FDI net inflows.

Foreign Direct Investment (FDI), net inflows

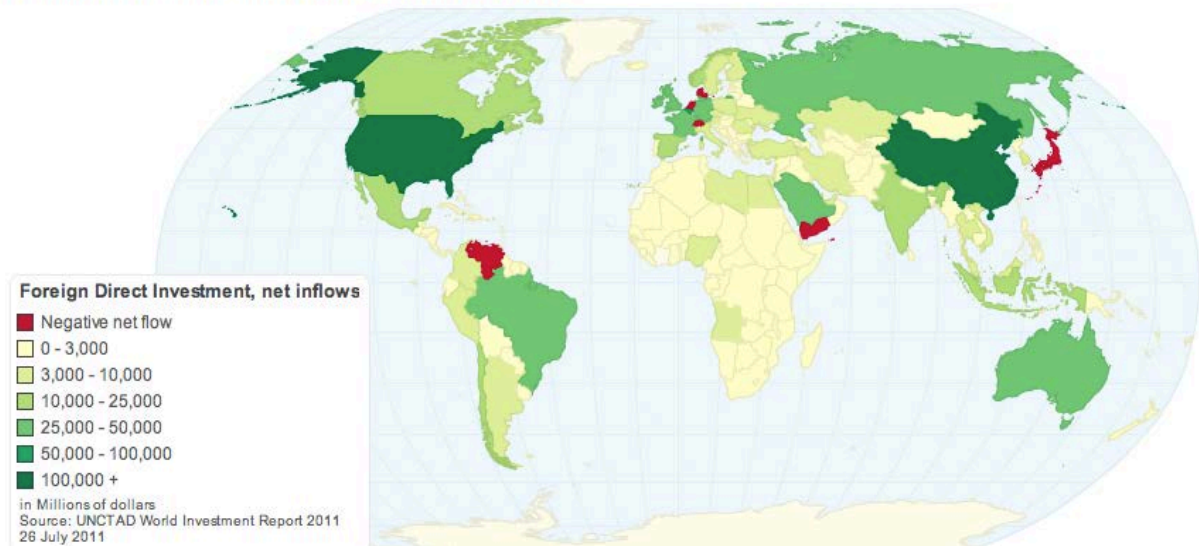


Figure 1. Foreign Investment (FDI), net inflows (Source: [46])

Figure 1 brings to the forefront the puzzling problem, which is the fact that the MENA region is located strategically between the Western World (including the world's largest economy; the United States), Asia (including the world's fastest growing economy; China) and Europe (including numerous developed nations), yet it receives minimal FDI. It is important to note that resource poor nations suffer greatly from underinvestment in infrastructure and industry, which can compound the problem. However, and as noted by Rivlin [38], the MENA region is also home to some of the world's richest-oil producing countries and has undergone massive structural reforms in the last two decades.

The Arab Spring severely deterred FDI inflow into the region. O' Sullivan, *et al.* [35] noted that of the \$64 billion deployed into the region in 2010, 66% was received by the resource high, labor-importing nations. Alternatively, resource poor nations suffered from a decline in investor confidence and a reduction of FDI inflow by 46% to \$11.4 billion. Ucal *et al.* [45] claim that this accelerated downward global trend in FDI inflows had begun since the global economic crisis, mainly because of tight credit conditions, lower corporate profits and reduced available funds for overseas activities. On the other hand, Onyeiwu [34] asserted that the MENA region's FDI woes did not occur recently. In the 1990's the MENA regions FDI/GDP ratio was only 0.9%, which was approximately 2% less than East Asia and 2.5% less than Latin America; this is despite Asia and Latin America experiencing a heavier impact of the global financial crisis compared to the MENA region.

The above facts raise main questions which are our motive in this paper; what is/are the key driving force(s) beneath the growth of foreign direct investments to the

MENA region especially in periods of political economic and financial distress? What are the main determinants of FDI flows to the MENA region and what could be the factors hindering FDI's growth?

This paper is motivated by the lack of studies examining the main determinants of FDI flows in emerging countries in periods of Crisis. In addition, the focus of the paper is restricted on the MENA region, which as far as the authors knows, one of the pioneer studies to examine those determinants in the periods of crises (the global financial crisis and the Arab spring after mass).

To examine this dynamic panel data regression model is used with time series data on stationary and dynamic variables in which FDI as a percentage of GDP is regressed against availability of resources, quality of infrastructure, lagged FDI, human capital, and market openness.

As a preview to our findings, the study found that market openness, human capital, lagged FDI, and infrastructure are all significant determinants of FDI. Alternatively, both variables, the availability of resources and political stability are found to have a statistically insignificant relationship to FDI.

The rest of the paper is organized as follows. Section 2 reviews previous literature. Sections 3 and 4 present the methodology and data used. Section 5 presents the results and discussion. Finally, section 6 concludes the study and presents the implications and areas of future research.

2. Literature Review

The role of FDI as a crucial instrument in promoting economic growth and restructuring economies in transition

have always attracted interest. Numerous empirical studies at the firm, industry and economy levels confirm that FDI is an important determinant of economic growth.

Economic growth of a country can be expressed as the growth in that country's Gross Domestic Product. Since Solow's [43] pioneering work to growth theory, a theoretical basis for growth accounting was generated in which the contribution to output growth is primarily decomposed into the growth rates of inputs as technology, capital, labor, efficiency of production, in addition to a vector of other ancillary variables as imports, exports, institutional dummies...etc. Findaly [18] later assumed that the growth rate of technology diffusion in Solow's equation is an increasing function of FDI. Grossman and Helpman [20] agree with Romer [39] in that FDI accelerates economic growth through strengthening human capital, the most essential factor in RandD effort; which in turn will increase competition and innovation that will subsequently speed up the technological progress and increase productivity and, thus, promote economic growth in long run. On a micro-level, Feldstein (2000) and Razin and Sadka [37], argue that firms undertake FDI as it results in the transfer of technology, improving productivity, and training; thus, implying that firms undertake FDI to improve efficiency. Loungani and Razin [27] assert that FDI allows a firm to diversify and seek the greatest return for their capital. Thereby, increasing global competitiveness and inferring that FDI is resource and market based

FDI can take many forms. Wang [47] proposes FDI is typically done through the use of multinational corporations or ownership of an equity stake in a company, allowing for managerial control. Razin and Sadka [37] and Bosworth and Collin [11] studied the influence of three different forms of capital flows, FDI, loans, and portfolio investment and concluded to prefer FDI than the other forms since it is a longer term investment, based less on speculation on exchange rate and interest rate differences. Bosworth and Collin's [11] study found that FDI resulted in significant increases in domestic investment which would signify that FDI could be highly attributed to directly influencing and indirectly influencing economic growth, which is supported by Carkovic and Leverage, [14] and Wang [47].

There are several theories attempt to explain why enterprises in general commence FDI. The international product life cycle as explained by Wild and Wild [48] could be a reason in which a company begins by exporting a product, and then undertakes FDI as the product moves along its life cycle. However, this theory is limited as it fails to identify why firms would undertake FDI instead of other forms of market entry as licenses or franchises. Next, the market imperfections theory suggesting that when an imperfection in the market occurs whereby a transaction is less efficient, a firm may undertake FDI to internalize the transaction and remove the imperfection as trade barriers like tariffs and specialised knowledge. This theory is supported by Harris and Ravenscraft's [22] study concluding that cross-border acquisitions increased rapidly in high-tech industries, due to the specialized knowledge and high capital requirements. In addition, the market power theory explains that firms undertake FDI to try dominant market presence in an industry. Boulding and Staelin [12] view that market power facilitates a

company to be the one dictating prices rather than accepting other companies' charges. The eclectic paradigm is another theory attempting to clarify why companies decide to invest in foreign countries. Rugman, [40] argue that companies going abroad tend to consider the competition of the entry market and possible advantages it might obtain over others. This paradigm entails three features, ownership advantage, location advantage' and internalization advantage. Wild and Wild [48] asserted that the ownership advantage elaborates on a firm's core competence as know-how, efficiency and technology. The location advantage is about certain actions, which are executed in particular locations, due to the locations attributes. Internalization advantage means that occurring benefits are a result coming from the inside of a company and not through a market. Wild and Wild [48] argue that this particular theory supports the flows to Mexico's region, which attracts nearby US technology and capital rich investor's to utilize Mexico's cheap labor.

With respect to studying the determinants of FDI flows, there is a general consensus on what determines the flow of FDI to one country rather than another. Hunya [24] after an extensive display of literature, views those countries attracting large amounts of FDI have generally good economic fundamentals, high degree of macroeconomic and political stability, good infrastructure, skilled labor, good legal system which actually enforce laws and have favorable growth prospects. Location, country (market) size and natural resources are generally important as well. Quere *et al.* [36] proposes tax differentials to play an additional significant role in understanding foreign location decisions and thus influencing FDI flows. Alternatively El-Wassal's [17] study on 16 Arab countries, from 1970 to 2008, found that FDI did not have any significant impact on economic growth and argued that human capital, infrastructure, and financial development were not found to be a factor in FDI inflow. This contradicts the study by Okafor [32] and Borensztein, Gregorio, and Lee [10], which contends that multinational corporations capitalize on their superior technology and knowledge in foreign countries, but require sufficient levels of human capital to implement these elements. Furthermore, Omanwa [33] proposes skilled workers can implement technology faster and are generally more productive, thus offsetting their higher cost. Supporting this view, Borensztein, Gregorio, and Lee's [10] concluded that FDI had a stronger influence on economic growth in countries with higher human capital. On further examination of El-Wassal's [17] results, human capital was measured using secondary school enrolment, which quantifies the number of participants, but does not engross any records of the quality of the education and skills acquired. In our opinion, this could have limited the strength of his findings.

Many studies view FDI as a forward-looking activity heavily reliant on investor's future expectations, especially related to economic and political conditions. As Brada, Kutin, Yigit [13] propose political stability to directly affect investments since domestic instability can seriously disrupt operations or future cash flows. Contrary to the previous findings, Omanwa [33] found different results. In his study of 80 countries across Asia, Africa and South America Omanwa [33] identified openness and size of market as the major variables influencing FDI,

while factors such as quality of labor, political stability, inflation, infrastructure, and corruption are found to be statistically insignificant. Tun, Azman-Saini, and Law [44] view that institutional policies play an important role in setting the market environment for investment. It is a result of their policies that the level of market openness is set, and thereby the type and amount of trade that will take place in and out of the country. Moreover, since FDI is a long-term investment, which cannot easily be reversed, it tends to drive agglomeration more than the other forms of financial investments as firms capitalize on knowledge and resource spillovers [26]. Thus, lagged FDI becomes a vital determinant.

A study by Mina [29] using panel data on GCC countries from 1980-2002, provided another determinant as oil potential and oil utilization and provided evidence to have significant negative influence on FDI flow. On the other hand, Okafor's [32] study on US inflow into 23 sub-Saharan Africa countries from 1996-2010, found availability of oil as a primary factor for positively influencing FDI. Hailu's [21] study supports the latter view, arguing that firms seek Africa for its abundance of resources, but the lack of financial development restricts FDI flow to the region. Financial development is highly correlated with infrastructure development. Sengupta [42] argue that the sound financial structure of an economy improves economic performance and infrastructure development as it distributes the right funds to the right people. But, the relationship works the other way as well as Ball [7] proposes; for financial markets to operate efficiently certain levels of infrastructure development is required to support adequate disclosure, reporting, and governance.

Evidently the literature highlights that FDI is influenced by an array of factors. Nevertheless, there is no empirical consensus on the drivers of FDI inflow; hence, the need for further research exists. It is not practicable to investigate all those factors; because all data may not be available and even if available, their combined impact may be irrelevant. Hence, based on the literature and global economic conditions we presume availability of resources, market openness, human capital, infrastructure, political stability, lagged FDI, could be all used to determine the influences of FDI into the MENA region, thereby improve their economic growth.

After the thorough review of literature, it was noticed that there is a strong agreement that the flow of FDI is dependent on macroeconomic factors, but there is no consensus on which variables. We now present the methods and model considered in our study.

3. Methodology

A dynamic panel data model is estimated and used to analyse the data. To conduct this study regression with time series data on stationary and dynamic variables is done using random effect panel data analysis. FDI as a percentage of GDP is regressed against availability of resources, quality of infrastructure, lagged FDI, human capital, and market openness. This study has largely been influenced by the work of Omanwa [33] and Anyanwu [5] in selecting the variables and developing the model. FDI as a percentage of GDP is used to allow for comparability

and eliminate bias due to size of a country [28]. Next, a dynamic variable is a variable that is linked to another variable in another period [9]. In this case the dynamic variable used is the lagged FDI, as it is the one-year lag of the dependent variable, while the remaining variables are stationary. Lagged FDI is essential to be included on the right side of the model to reduce the possibility of auto correlation in the panel data model, which is assessed further in the Durbin-Watson test.

We use the following panel data model in estimating the factors that may determine FDI flows:

$$\begin{aligned} \text{Log}(FDI_{it}) = & B_0 + B_1 \text{Log}(RES_{it}) \\ & + B_2 \text{Log}(MOP_{it}) + B_3 \text{Log}(INF_{it}) + B_4 \text{Log}(POL_{it}) \\ & + B_5 \text{Log}(HUC_{it}) + B_6 \text{Log}(LFDI_{it}) + \varepsilon_{it} \end{aligned}$$

The subscript i refers to an individual country and t refers to years.

FDI:	Dependent variable FDI as a percentage of GDP
B_0	The intercept of the model
B_1	Coefficient for natural log function independent variable Availability of Resources (RES)
B_2	Coefficient for natural log function independent variable Market Openness (MOP)
B_3	Coefficient for natural log function independent variable Infrastructure (INF)
B_4	Coefficient for natural log function independent variable Political Stability (POL)
B_5	Coefficient for natural log function independent variable Human Capital (HUC)
B_6	Coefficient for natural log function independent variable Lagged FDI (LFDI)
ε_{it}	Is the error term over the time t

4. Data

The data for foreign direct investment along with the other variables is taken from World Investment Report series [49]. Panel data is used to assess the cross-sectional data across multiple time periods. Our data set comprises 13 countries in the MENA region over the period 2006 to 2013. There are 93 total observations and the data is balanced as it contains the same number of observations per country. There were eleven missing observations across the different variables, which were treated using mean imputation. This uses the mean of the observations for that cross section to estimate the missing values [8]. The countries examined are Algeria, Bahrain, Egypt, Jordan, Lebanon, Morocco, Mauritania, Oman, Qatar, Saudi Arabia, Syria, Tunisia, and Yemen. Natural logarithms were used to transform the variables, to reduce the risk of heteroscedasticity, which is highly prevalent in cross-country analysis. Moreover, the coefficients of log linear models are preferred as they can be interpreted in the form of percentages and thus can provide output with greater relevance and broader application [5].

4.1. Data Description

Dependent Variable (FDI): For this study World Bank data is used to measure each country's FDI [49]. FDI was

taken as a percentage of GDP to accommodate the differences in the economic size of each country as done by Sankaran [41].

Independent Variables:

Availability of Resources (RES): generally, economies need natural resources to grow. The vast differences in availability of resources for the MENA region ensures that measuring its role in the determination of FDI flow is crucial. Measuring the share of minerals and oils to total exports, from the World Bank, is a strong measure for this variable as applied by the previous studies of Musa and Ibrahim [30], Asiedu [6].

Market Openness (MOP): Market openness is the degree of openness of a market as a function of economic policies that facilitate trade and investment in and out of the country [33]. To measure the level of market openness and following the work of Anyanwu [5] the percentage imports and exports as a percentage of GDP was used using the World Bank data.

Infrastructure (INF): As defined by Sengupta [42], infrastructure is a set of economic, social, and institutional framework of facilities needed for economic activities to take place. To proxy a country's infrastructure, we followed Anyenwu's [5] study in using the number of fixed telephone lines per 100 people. The use of the number of fixed telephone lines is assumed to be suitable as it facilitates communication between the host and home country. Moreover, as Addison and Heshmati [1] have exhibited, ICT infrastructure is a strong measure of quality of infrastructure and it is applicable for manufacturing and services firms.

Political Stability (POL): The political stability index by the World Bank [49] is used as it collects data from citizens and experts in industrialized and developing economies reflecting the perception of the likelihood the

government will be destabilized or overthrown. Nations are given a score between -2.5 to 2.5 and then ranked according to their percentile based on the perception of level of political stability. A higher score will therefore lead to a higher percentile rank and greater perception of political stability. This measure has been used in Omanwa's [33] study on the determinants of FDI inflow in Kenya.

Human Capital (HUC): Skilled workers can implement technology faster and are generally more productive, thus offsetting their higher cost. To measure human capital World Bank data is used. The data consists of the total enrollment in tertiary education, as a percentage of the total population [49]. This data has been used similarly in Akin and Vlad's [2] study on the relationship between education and FDI.

Lagged FDI (LFDI): the procedure of using the previous year's FDI to measure its effect on attracting future FDI as previously used by Kinoshita and Campos (2002) is followed in this study. Moreover, by putting a variable that is depended on the dependent variable on the right side of the equation the possibility of auto correlation in the panel data model is reduced.

5. Findings and Results

5.1. Tests for Multicollinearity

To test for multicollinearity a co-relational study was conducted on the dataset and the results are summarized in Table 2. Moreover, the Variance Inflation Factor was calculated and presented in Table 3 to assess the effect of correlation between the variables on each other and ensure that the model is efficient.

Table 2. Correlations between dependent and independent variables.

	Log(FDI)	Log(RES)	Log(INF)	Log(HUC)	Log(MOPP)	Log(LFDI)	Log(POL)
Log(FDI)	1.000000	-0.232716	-0.181626	-0.062890	0.272860	0.133925	0.032146
Log(RES)	-0.232716	1.000000	-0.085411	0.092266	0.190614	0.022069	0.162607
Log(INF)	-0.181626	-0.085411	1.000000	0.619475	-0.008005	0.377521	0.116717
Log(HUC)	-0.062890	0.092266	0.619475	1.000000	-0.156466	0.433523	-0.101520
Log(MOPP)	0.272860	0.190614	-0.008005	-0.156466	1.000000	-0.373645	0.357640
Log(LFDI)	0.133925	0.022069	0.377521	0.433523	-0.373645	1.000000	0.134746
Log(Pol)	0.032146	0.162607	0.116717	-0.101520	0.357640	0.134746	1.000000

Upon testing for multicollinearity in Table 2, it was found that Human Capital and Infrastructure are moderately correlated, with a $Corr(HUC, INF) = 0.619$. The inclusion of variables with high correlation in the model can affect their coefficients and the coefficient of determination of the model as multicollinearity can reduce the significance of the variables, while the coefficient of determination of the model can increase. But, as their correlation is moderate, inclusion is not expected to not violate the OLS assumptions. However, to examine the effect of the multicollinearity and ensure that multicollinearity has not affected the efficiency of the model the Variance Inflation Factor was calculated. This was done to ensure that the inclusion of the variables in the model would not affect its preciseness. The results are presented in Table 3.

Table 3. Variance inflation factor of the independent variables

Independent Variable	VIF	\sqrt{VIF}
Availability of Resources	1.11	1.05
Market Openness	1.17	1.08
Lagged FDI	1.21	1.10
Human Capital	1.37	1.17
Infrastructure	1.34	1.16
Political Stability	1.44	1.20

The square root of the VIF will inform us how much larger the standard error is, in comparison to what it would be if the variable was uncorrelated with the other independent variables included in the model. A VIF of 1 indicate that there is no relation between the examined variable examined and the other independent variables. In

this test political stability had the largest VIF at 1.44, with a square root of 1.2. This indicates that the standard error for political stability is 20% higher than what it would be if were completely uncorrelated to the other variables. But, it is not until a VIF of 2.5 that we begin to worry about the effects of multicollinearity. Hence, we are not concerned with the effects of multicollinearity with the inclusion of these variables in the model.

5.2. Regression Results

The regression results from the dynamic panel data model are presented in [Table 2](#).

Table 4. The regression results from the dynamic panel data model

Cross-section random effects test equation:
 Dependent Variable: LOG(FDI as percent of GDP)
 Method: Panel Least Squares
 Sample: 2006- 2013
 Periods included: 8
 Cross-sections included: 13
 Total panel (unbalanced) observations: 93

Variable	Coefficient	Std. Error	t-Statistic	p-value
C	-18.14051	3.164133	-5.733168	0.000*
LOG(Availability of resources)	0.002182	0.096858	0.022530	0.982
LOG(Infrastructure)	-0.500415	0.148673	-3.365875	0.001*
LOG(Human Capital)	-0.759205	0.447074	-1.698164	0.094*
LOG(Lagged FDI)	0.296816	0.093535	3.173329	0.002*
LOG(Market Openness)	2.992748	0.594116	5.037310	0.000*
LOG(Political stability)	-0.130719	0.090555	-1.443532	0.153
Adjusted R-squared	0.69			
Durbin Watson	2.03			
Standard Error of Regression	0.49			
F-statistic (P-value)	0.00			

Significant p-values at *10%.

[Table 4](#) shows that when testing for the overall significance of the model, it was found to be significant at the 99% level as the probability (F-statistic) was 0.00. Moreover, the adjusted R^2 was found to be 69.4% meaning that 69.4% of the variation in the dependent variable FDI could be explained by the variation in the six independent variables. The Durbin Watson test was applied to ensure that the model is efficient and the coefficients are not biased, and there is no serial correlation in the model.

Both variables, the availability of resources and political stability were found to have a statistically insignificant relationship to FDI. Alternatively, infrastructure development, have a significant negative relationship with FDI that is for every 1% increase in infrastructure development there is a decrease in FDI by 0.5%, if all else remains constant. As for examining the effect of human capital, the regression results show that there is a significant negative relationship with FDI flows. Lagged FDI and market openness both have significant positive relationship with FDI meaning for every 1% increase in market openness would result in an almost additional 3% increase in FDI inflow to the MENA region. As for lagged FDI, although we cannot interpret the value

of it coefficient in a similar manner as we did in the other variables as it is not possible to increase previous years FDI, but the results for lagged FDI show evidence that this variable is a significant determinant of FDI flows to MENA.

Our results although are surprising at parts but are explainable in literature. First, with respect to the insignificant influence of resource availability, our results are consistent with Akpan, Isihak, and Asongu's [3] who proposed that resource based nations can have protectionist policies to protect their industries, which would deter FDI. Asiedu and Lien [6] proposed another justification for this negative coefficient implying that resource booms can cause an appreciation in the local currency, which would make the country's exports less competitive in the global market. Hence, export oriented firms would be deterred by the availability of resources in a country. Next, natural resources and specifically oil are vulnerable to booms and busts, which may result in volatility to the exchange rate. Moreover, a greater percentage of minerals and fuels to total exports imply less diversification which again may make the country vulnerable to external shocks and eventually would deter FDI. Hence, our results suggest that FDI flow is market based rather than resource based for the MENA region nations.

It was anticipated that infrastructure would have positive relationship with FDI flow as it increases productivity and reduces the costs for firms [6]. Our results are contradictory to the previous argument. Our results suggest that for every 1% increase in infrastructure development there was a decrease in FDI by 0.5%, if all else remains constant. Our results are consistent with Pradhan's (2008) study in India who found infrastructure having a negative relationship with FDI proposing that investing in infrastructure increased domestic investment and decreased FDI flow at least in the short term. Our results are also consistent with Kamara's [25] study, arguing that in developing countries infrastructure tends to be sole funded by the public sector. Hence, it would not be opening opportunities for investment for foreign firms.

When examining human capital, it was found to be statistically significant as an explanatory variable with a negative relationship to FDI. Our results are consistent with Dutta and Osei-Yeboah's [16] study that highlighted the importance of human capital not only for FDI flows but also for economic growth, arguing that inadequate skill and training level will reduce the return on investment by FDI. However, the negative coefficient would generally imply that firms did not come to the MENA region in search of its strong knowledge base in the work force. Thus, it is not resource based in this sense, but an uneducated workforce is associated with cheap labor.

The significant positive result on lagged FDI indicates that agglomeration benefits are crucial for foreign firms when making location choices. Moreover, it demonstrates the positive effect that the initial FDI flow has as it sets in and perpetuates to attract further FDI. These findings are similar to Head, Ries, and Swenson [23] study, which found Japanese manufacturing plants in the US were positively linked to agglomeration when selecting locations. Moreover, FDI flow increased in certain regions in China as Chen and Kwan [15] found that this resulted

in a positive increase in FDI flow for the years to come as firms capitalized on vast supplier networks and labor markets.

With respect to market openness, our results on the significance of market openness in determining FDI flows are consistent with Al-Khouri and Abdel Khalik [4] viewing that as import and export levels increase relative to GDP it is implied that trade costs and trade restrictions are decreasing, which would decrease the controls and constraints faced by investors operating in the country and would motivate firms to undertake FDI, to exploit advantages and capitalize on economies of scale.

Finally, in light of the Arab spring, political stability was an intriguing variable to assess. Surprisingly, political stability was found to be insignificant in determining FDI flows which is consistent with Okafor [32] and Omanwa's [33] studies. But, still the negative coefficient was somewhat surprising. Upon further assessment Haksoo's (2010) study on Political Stability and FDI provided great insight. His interesting argument highlighted the fact that developing countries attract capital flows from developed countries with higher political stability. As FDI is a long-term interest in the management of a firm, as the level of political stability decreases, which thereby deteriorates the currency, firms are able to capitalize on lower initial investment costs. Next, with the ability to manage exchange risk either through the use of derivatives, favorable tax benefits or repatriation of profits when conditions are more favorable, FDI becomes negatively correlated with political stability.

6. Conclusion

The Arab spring has brought to light many of the palpable issues facing the Middle East. With the MENA region's economic growth continuing to wane relative to the world, it is important to assess the anchors of growth. This study found that market openness, human capital, lagged FDI, and infrastructure were significant determinants of FDI. Availability of resources was found to have an insignificant positive relation to FDI. This can be attributed to the primary resource in the MENA region being oil, which represents a large portion of the oil-based countries total GDP. This result may imply that these countries might have protectionist policies on this resource that may deter FDI. The significant negative result of infrastructure brought to light the tradeoff of FDI. Infrastructure being mainly supported by domestic investments would decrease FDI. Next, human Capital was somewhat surprising as it was found to be significant and negative. The negative coefficient demonstrated that firms did not come to the MENA region in search of its strong knowledge base in the work force. Thus, it is not resource based in this sense, but an uneducated workforce is associated with cheap labor. Hence, the MENA region can utilize this to their advantage as China has allowing it to become the world's largest recipient of FDI [15]. But, it is important to understand there is still a minimal threshold that is required for human capital to positively support FDI, for the workers to be able to implement the technology. Factors of production require manipulation by competent humans to achieve economic growth. Thus, it goes without saying that human capital is a necessary

element for economic growth. The positive significant relationship of market openness to FDI flows, confirms the market imperfections and eclectic theory that FDI in the MENA region are market based. Moreover, the relatively large coefficient supports that the MENA region is a trade hub. In addition, the significant positive between relationship between FDI and lagged FDI confirmed that agglomeration exists, implying that FDI can steadily grow in the region supply networks. While political stability, availability of resources were both found to be insignificant, reasons exist. The negative insignificant result of political stability brought to light an obvious issue in the region, corruption. As corruption and political stability have long been known to have strong negative relation, it is feared that foreign firms could be utilizing their superior resources and capital to sway markets in their favor. Thus, as political stability increased FDI would decrease. This would be detrimental to domestic investors and reduce the competitive environment, ultimately reducing productivity and economic growth. Moreover, as the data used for political stability

The study recommends further collaborative effort from nations in the MENA region ideally through the Arab League to remove trade barriers and restrictions, to capitalize on their strategic location in the world to facilitate trade to Europe, Africa and Asia. Further research is recommended with the application of a dummy variable to account for the political uprisings effect as our analysis did not take into account that certain countries such as Egypt, Tunisia, Morocco, Mauritania, Syria, and Yemen encountered political turbulence due to the Arab spring. Our findings to FDI flows to these countries in specific are limited in this sense.

Another area of future research is possible by applying the fixed effect model. In this study, random effects panel data was used assuming the variation across the different cross sections to be random. The use of a fixed effect model would allow us to assume that something within each county may impact the dependent variable, such as oil as a percentage of GDP or political turbulence. We can then control for this effect using multiple dummy variables and analyze the net effect of the independent variables on the dependent variable.

To sum it up, economic growth in the region has continued to lag behind the world. By utilizing FDI to acquire the valuable sources of resources, capital and other necessary factors of production, economic growth can be achieved. Utilizing this model provides insight into the determinants of FDI. Moreover, the significant and insignificant variables allowed us to infer that FDI flow in the MENA region is market seeking. Thus, they can be used to improve the competitive environment for the MENA region markets to increase FDI and ultimately remove the anchors of economic growth.

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