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Shah, Mumtaz Hussain and Azam, Ayesha

Institute of Management Studies, University of Peshawar, Institute  
of Management Studies, University of Peshawar

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**FINANCIAL DEVELOPMENT AND INVESTORS LOCATION CHOICE IN THE  
ARAB WORLD**

Dr. Mumtaz Hussain Shah<sup>1</sup> and Ms. Ayesha Azam<sup>2</sup>

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<sup>1</sup>. Assistant Professor at Institute of Management Studies, University of Peshawar.

<sup>2</sup>. Post Graduate research scholar at Institute of Management Studies, University of Peshawar.

# **Financial Development and Investors Location Choice in the Arab World**

## **Abstract**

There are a number of variables/factors which play an important role in influencing investors' location choice. In this paper, we gauge the impact of financial development (FD) along with other variables i.e. market size, development level, openness and human capital on Foreign Direct Investment (FDI) in the Arab World. Using fixed effects panel method for 8 Arab countries i.e. Bahrain, Egypt, Jordan, Kuwait, Morocco, Qatar, Saudi Arabia and Tunisia from 2003 to 2016 it is shown that there is a significant effect of financial development on FDI in the Arab World. Whether this relationship is positively significant or negatively significant, it depends on the proxy used for measuring FD. Domestic credit to private sector is negatively significant and market capitalisation of listed companies positively. Hence, depending on the multinationals objective both are plausibly possible. Among the conventional FDI determinants market size and openness have a positive effect on FDI, whereas development level and human capital negatively influence the overseas investors. However, like financial development these results are sensitive to the use of proxy measures.

**Key Words:** *Financial Development, Multinational Firms, Panel Data and FDI*

**JEL Classification Codes:** *C230, F130, F140, F210 and G150*

## **1. Introduction**

Foreign Direct Investment (FDI) plays a vital role in engendering technological and economic growth in an economy (Shah, 2009). According to International Monetary Fund FDI is an investment exclusively made for acquiring long term / lasting interest in companies which operate outside investor's economy. When a firm's 10% investment is received from a foreign country intending to control that firm, it is known as FDI; otherwise it is considered as portfolio investment (Shah, 2018a). FDI is the main source of external finance for many developing nations (Shah, 2017b). This implies that countries which do not have enough capital can get finance from richer countries (Shah, 2016a; Shah, 2018b). The World Bank emphasises that two features required for private sector development and poverty reduction in developing economies, are micro financing and FDI. Four major FDI determinants in a particular country are human capital, economic progress, market size and liberalisation of the economy (Shah & Ali, 2016). Other FDI determinants include double taxation treaties, political stability, trade agreements, financial development, macroeconomic stability, infrastructure, institutions and bilateral investment treaties (Shah, 2012b; Shah, 2017d). Role played by one of them i.e. Financial development in attracting FDI is selected for the present

study and the region being chosen is Arab world. Out of 22 countries included in Arab World by World Bank, 8 countries are selected for the time period 2003 to 2016 as a sample for present study. In emerging markets and the developing economies financial sector progress is part of private sector developmental strategy to enhance economic growth and reduce poverty. Financial sector concerns all related institutions, instruments and markets. Financial sector development is concerned with reducing information acquisition costs, enforcement of contracts and speedy execution of transactions. It plays an important role in economic development by promoting economic growth through technological advancement and capital accumulation. Nations with established financial structures witness continuous economic growth. Literature manifests the positive effect of FDI on economic growth. Nonetheless, this positive influence is subject to the host economy's absorptive capacity, principally financial development (FD).

Since, the beginnings of 1990s Arab states are receiving lesser inward FDI flows in comparison to other developing countries. Several researchers like Bolbol and Omran (2003), Krogstrup and Matar (2005), Shah (2016b) and Zenasni and Benhabib (2016) conducted research to find relationship of FDI and financial development in Arab countries by using different variables like broad money provided to private sector, domestic credit provided to private sector etc. The current research work contributes to literature by including two variables of financial development i.e. domestic credit provided to banking sector (DCBS) and market capitalisation of listed companies (MCLC). Furthermore, some light is also shed on general determinants of FDI like market size, development level, openness and human capital of the host country by collecting data for the relevant proxies.

### **1.1 Research Question:**

What is financial development's influence on overseas investors' location choice in the Arab world?

### **1.2 Research Objectives:**

Major research objectives are:

- To investigate financial development's role in attracting FDI to Arab countries.
- To find out the impact of market size, development level, openness and human capital in influencing investors' location choice in the Arab world.

### **1.3 Scope of the Study:**

Findings of this research are generally relevant to Arab World comprising of 22 countries that are: Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia,

United Arab Emirates (UAE) and Yemen. However, they are specifically applicable only to the ones included in the sample, which are: Bahrain, Egypt, Jordan, Kuwait, Morocco, Qatar, Saudi Arabia and Tunisia.

#### **1.4 Methodology:**

Data set for this research is secondary in nature. Two sources, which are: World Bank, World Development Indicators (WB, WDI) and Barro and Lee (2013) education attainment data sets are being used for collecting data. Various statistical tools are employed i.e. descriptive statistics, correlation between variables and fixed effects panel method/model to answer the research question.

#### **1.5 Research Hypothesis:**

The following hypotheses are set for this research work:

H<sub>0</sub>: There is no effect of financial development on FDI flows to Arab World.

H<sub>1</sub>: There is a significant effect of financial development on FDI flows to Arab World.

H<sub>0</sub>: There is no role of human capital, development level, market size and openness of the host country in attracting FDI to Arab World.

H<sub>1</sub>: Market size, development level, openness of economy and human capital of host country has a significant sway in attracting FDI to Arab World.

#### **1.6 Limitations:**

Like any other research this work also has its limitations. Due to inaccessibility of complete data set for particular variables, only 8 out of 22 Arab countries are selected for this study. Consequently, the findings of the study are applicable only to the 8 Arab World members for the period considered.

#### **1.7 Scheme of the Study:**

The paper has six parts. Introduction is followed by literature review in the second one. Research methodology is discussed in part three and estimation issues in section four. Part five presents the empirical analysis. The paper finishes with conclusion in the sixth one.

## **2. Literature Review**

This part explains views of different researchers regarding impact of human capital, development level, market size, openness and the variable primarily focused in this study, that is, host economy's financial development in persuading investors to invest.

Borensztein, Gregorio and Lee (1998) conducted research to find relationship between growth and FDI. Sample used consisted of 69 countries and period selected was 1970 to 1989. Their results proved that FDI only promoted growth in those nations which had a minimum threshold level of human capital. Bailliu (2000) found relationship between private capital flows, economic growth and financial development in 40 developing countries by

using panel data for period of 1975 to 1995. Unlike previous studies, he focused on impact of broad measure i.e. capital flows on growth, instead of specific measure like FDI. He provided evidence, that due to capital inflows economic growth increased only in those economies whose banking sector had attained certain development level and suggested that domestic financial sector played important role to make sure, international capital flows improved economic growth in developing world.

Alfaro, Chanda, Ozcan and Sayek (2003) postulated that the 1980's debt crises and 1990's emerging markets financial chaos changed the attitude of developing countries toward FDI, because FDI was believed to help countries in their development efforts and to play important role in promoting growth. FDI was encouraged by lower labour wages and their productive efficiency and effectiveness in the host economy. Whilst, the host country, perspective apropos FDI benefits included improvement in natural resource use, and labour force spill over effects etc. Both the developing and developed countries enacted investment governing institutions to formulate policies offering financial and fiscal incentives to effectively lure FDI but local conditions could restrict benefits provided by FDI to just capital brought and wages generated. They examined different links among FDI, economic growth and financial markets by using cross-country data for the period 1975 to 1995. They maintained that non-existence of established native financial markets could reduce the host economy's potential to benefit from FDI. They empirically showed FDI played important role in enhancing economic growth and for realising these positive effects, development level of local financial markets was essential. This was never shown before in literature. They also showed that FDI and Growth had causal relationship and FDI promoted growth via financial markets. This paper suggested, good local conditions attract foreign investors as well as prompt host economies to maximize advantages provided by foreign investments. Bolbol and Omran (2003) supported the hypothesis that positive impact of FDI on growth was dependent on absorptive capacities, especially efficient human capital and financial development, and local conditions by analysing correlation between FDI, economic growth and financial development (FD) in Arab countries for period 1975 to 1999, by conducting pooled OLS (ordinary least squares) and causality tests. Arab countries had bank-based financial system. It was found that in these countries, FDI would have positive impact on growth by interacting with threshold level of FD. This implied in order to attract FDI countries should reform their domestic financial system. But, even in countries which had attained these thresholds, FDI could have less growth potential than domestic investment, which indicated improvement in investment environment by offering better institutional and economic incentives to all

investors, must become a policy guideline. FDI could improve FD in countries having credible reforms. Stock market could help in increasing FDI, but it was more feasible to rely on commercial policy initially because it helped in reforming trade regime before fully liberalising capital account. Campos and Kinoshita (2003) conducted research to find major FDI determinants. They used panel data set, the sample selected was 25 transition economies and the period chosen was 1990 to 1998. They found inward FDI's major determinants were: trade openness, agglomeration and institutions.

Hermes and Lensink (2003) explained relationship of FDI, economic growth and financial development. They empirically investigated the role played by development of financial system in improving positive relation between economic growth and FDI, which was not mentioned in previous literature, focusing only on human capital and export orientation of recipient country. Role played by domestic financial system for causing FDI to positively affect Growth was illustrated through a simple model of technological change which contained three agents' i.e. final good producers, consumers and innovators, and assumed growth was affected by domestic financial system through level of technology. Sample used in this paper consisted of 67 less developed countries (LDCs) and period selected was 1970 to 1975. Estimations were carried with balanced data set. 37 out of 67 selected countries had developed financial system for letting FDI positively impact economic growth and most of them were part of Asia and Latin America while Sub-Saharan African countries did not have developed financial systems, so foreign direct investment did not positively contributed towards growth. Subsequently, this research showed, for FDI to positively affect growth of a country, it was necessary for it to have a developed financial system. However, this research may not be applicable to highly developed countries. Kokko and Blomstrom (2003) discussed FDI-human capital relationship, and noted that they had a complex and non-linear relationship. Potential for knowledge spill over to domestic labour force was created because of FDI inflows. Host markets offering superior human capital successfully attracted a large number of technology, knowledge and machinery intensive MNCs, due to which labour skills developed further. However, nations with comparatively unskilled labour failed to lure MNCs and the ones that made FDI usually brought basic technologies which had no or a very weaker role in refining local skill and learning. Although, there is a huge volume of evidence explaining links between human capital and FDI, still further research is required for providing more detailed and an accurate picture of FDI-human capital relationship. This paper suggested following topics for future research. Macro studies including human capital and education, human capital and FDI structure, and

multinational corporations (MNCs) training and educational activities in East Asia and Latin America, and human capital spill over considerations. Case studies included multinational corporations and business institutes international diffusion, managerial knowledge diffusion to local firms from MNCs etc.

Nonnenberg and Mendonca (2004), evaluated 38 developing countries by using panel data analysis for the period of 1975 to 2000 and found there was strong correlation between FDI, openness of the economy, level of schooling and inflation. Krogstrup and Matar (2005) investigated the relationship between FDI, absorptive capacity and growth in the Arab World. Arab countries except Morocco, Tunisia and Jordan, received a meagre portion of total FDI received by developing countries. Furthermore, FDI inflows to developing countries increased significantly in 1990's, but this was not the case with Arab world. However, diversified Arab countries were able to attract comparatively more FDI inflows. Major portion of gross fixed capital formation in Arab region was financed domestically; therefore contribution of FDI was very small. According to different theories, FDI might possess positive externalities which were absent in investment financed domestically, but for utilising these externalities, host countries must possess a certain degree of absorptive capacity. Hence, in this paper four aspects of absorptive capacity were used for analysing data i.e. educational levels, technology gaps, institutional development and financial sector development in Arab countries, and it was found that except for Gulf Cooperation Council (GCC) countries, Tunisia and Lebanon, all Arab countries lacked absorptive capacity to benefit from FDI. Country specific research is needed to attain more strong conclusions. Therefore, instead of implementing costly incentive programs, Arab countries should implement policies for improving their absorptive capacity to reap more benefits from FDI. Alternatively, countries having high degree of absorptive capacity would benefit from their FDI inflows and stocks.

Alsan, Bloom and Canning (2006) analysed 74 developing and industrialised countries for the time period 1980 to 2000 by using panel data and found that inward FDI was strongly and positively influenced by life expectancy (proxy of human capital), in countries having low and middle income. Asiedu (2006) examining FDI determinants by using a data set of 22 Sub-Saharan African countries for the period of 1984 to 2000 found that countries with natural resources, huge markets, and educated skilled labour and liberalised economies attracted and promoted supplementary FDI.

Dutta and Roy (2008) examined the role played by political risk in FD-FDI association. They selected 97 countries as sample, for 20 years period and showed non-linear relationship

between FDI and financial development. Financial development was important but not sufficient determinant of FDI flows to a country. Besides, financial development, political stability was also necessary for attracting FDIs, through internalising spill overs and speeding up adopting new technologies, hence enhancing confidence of investors. This hypothesis was supported by citing example of Chile where there was good financial infrastructure, but in eighties there was political instability due to which there were less FDI inflows. Later, when political stability was restored, FDI influx increased. Results of this paper showed that beyond critical or threshold level, FD had negative impact on FDI flows. However, political risk, by changing this threshold level, affected relationship between FDI and FD. In presence of political stability, FDI benefits could be absorbed by FD more efficiently. Factors like socio-economic conditions, government stability and investment profile were more important compared to others. Hence, even if a country had well developed financial system, it should not attract much FDI, in case of political instability. Mateev (2008) analysed Foreign Direct Investment (FDI) determinants in South Eastern and Central European (SECE) countries for the period of 2001 to 2006 and identified both policy factors such as openness, corporate tax rates, labour market arrangements, infrastructure, and trade barriers as well as Non-Policy factors like distance costs, market size of the recipient country, factor endowments and economic and political stability. He found significant relationship of FDI flows with both gravity factors, for example, population, GDP i.e. gross domestic product and distance along with non-gravity factors like corruption, risk and labour costs. Institutional variables significantly affected FDI flows to selected countries. Economic factors did not have significant relationship with FDI flows. Oladipo (2008) investigated FDI inflow determinants in Nigeria for time period of 1970 to 2005. He found that market size; degree and extent of export orientation and human capital are imperative FDI determinants.

Gomes and Nasser (2009) analysed 15 Latin American countries for the period of 1978 to 2003. They found that FDI inflows had positive and significant relationship with degree of private credit by banking sector and were directed to countries that had strong institutions and are developed financially. Kinda (2010) also analysed FDI determinants. She used firm level data for 77 developing countries, and found, investment climate related constraints such as financing limitations, restrained FDI and disheartened the MNCs.

Cattaneo and Ezeoha (2011) studied financial development, macroeconomic and institutional factors effect on inward FDI for 30 Sub-Saharan African (SSA) nations by using panel data set for the period of 1995 to 2008. FDI to SSA in 1990's increased but still FDI attracting capacity of Africa was less and majority of investors were natural resource seekers.

Thus, little growth was made in appealing efficiency and market seeking investors. Henceforth, SSA is facing policy formulating challenges to attract the right type of FDI. There are limited studies relating to inward FDI in Africa, therefore, this study focused on SSA nations, and on FDI conventional location pull factors, which, despite being highly important were lacking the needed attention, e.g. financial development. So financial development was introduced as one of FDI determinants and robust estimation model was applied which addressed multicollinearity, endogeneity and heterogeneity. Financial development could have impact on FDI through: allocative channel, liquidity channel, reduction in transaction cost channel and contract of financial enforcement channel. SSA region has underdeveloped financial structures with limited business innovation and poor legal systems, which could limit its capacity of taking advantage from FDI benefits. This study showed that market size, financial development, urban agglomeration and infrastructural development are strongly and positively correlated with FDI flows in selected regions. However, market size and financial development had a stronger impact. In contrast to previous researches, it was found that corruption and inflation are also positively and significantly related with FDI flows. Furthermore, it was found that trade openness, infrastructural development and financial development is more important in attracting foreign investment to non-resource endowed countries as compared to resource endowed states. But positive relation of corruption with FDI is comparatively stronger in resource endowed states. In light of this paper findings SSA republics in order to attract more FDI must focus on following policy areas i.e. improving monetary system, improving market openness by signing different trade agreements, and taking steps for infrastructure development. Limitations of the study included, FDI's historical determinants in SSA countries were not examined, and effect of corruption on FDI was controversial, for which strong econometric model was needed. Mughal and Akram (2011) conducted research on effect of market size in attracting FDI to a developing country like Pakistan, by using time series data for the period of 1984 to 2008. Four variables were used. The dependent variable was FDI and independent variables are market size, corporate tax rate and exchange rate. Market size resulted in a number of incentives like economies of scale etc.; therefore investors showed interest in this variable. Corporate tax rate is generally believed to have negative impact on FDI inflows but some studies showed its insignificant impact on FDI (Shah, 2013b).

Adeniyi and Omisakin (2012) examined FDI, economic growth and financial development causal linkages for a sample of five Economic Community of West African States (ECOWAS) countries, for the period 1970 to 2005, by employing vector error

correction (VEC) model. Previously it was argued that FDI positively affected economic growth depending on presence of factors like human capital, market size etc., in the recipient economy, but recently attention was shifted to an important factor i.e. domestic financial system. Therefore, the present paper also used financial deepening as intervening factor for finding relationship between FDI and economic growth and handled this issue differently by selecting entirely ECOWAS sample, by adopting country-by-country time series approach and by using a number of financial development measures i.e. domestic credit by banking sector as percentage of GDP, domestic credit provided to private sector and total liquid liabilities. VECM provided indication about direction of causation as well as helped in identifying short run and long run causality. Results showed FDI flows did not influenced economic growth in both short and long run in Sierra Leon economy in presence of credit to private sector. However, in Ghana, FDI and growth were better linked. In Gambia and Ghana, presence of liquid liabilities affected interaction between FDI and Growth. In Nigeria there were resource-seeking FDI flows and had little interaction with growth, irrespective of financial development level. As there was heterogeneity in these countries' economic structures, and different measures of financial deepening were found important in different countries, therefore relevant components must be improved in specific countries. Anyanwu (2012) investigated factors causing FDI flows to a particular country/region. The Sample selected was 53 African countries and period used was 1996 to 2008. In comparison to other regions FDI flows to Africa were always less. The author conducted feasible generalised least squares (FGLS) and ordinary least squares (OLS) for time series cross-sectional data. The empirical model predicted degree of FDI inflows depending on different factors like, human capital, market size etc. It was found that market size and FDI were positively related. Similarly, trade openness, foreign aid, agglomeration and natural resource exploitation also has a positive impact on FDI inflows. However, financial development (FD) and FDI inflows were negatively related in the selected region. These findings helped in making a number of policies for increasing FDI flows to a region e.g. foreign aid and FDI were found to be positively related. This aid depended on factors like social and economic conditions of the host country. Therefore, for attracting FDI, African host countries should implement policies for improving economic relations with countries providing them with foreign aid. It was also found that financial development (FD) and FDI were negatively correlated. Thus, for making multinational corporations (MNCs) to invest in African countries, domestic financial system of Africa must be improved. Furthermore, for attracting FDI, market size should be increased by improving regional cooperation.

Shah (2016b) used a comprehensive set of five financial development proxy measures to gauge its effect on Middle East and North African (MENA) countries for 28 years. Using panel estimation techniques it was found that financial development is instrumental in luring in overseas investors to the region.

### 3. Research Methodology

#### 3.1 Type of Research

There are various types of research. This research is empirical in nature as panel fixed effects method is applied to check the significant effect of the explanatory variables used in the study on the dependent variable.

#### 3.2 Population

Population of the study consists of all 22 countries included in the Arab World: Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates and Yemen.

#### 3.3 Sample

The nations chosen for this research among the Arab world is based on availability of complete data set. Eight countries namely Bahrain, Egypt, Jordan, Kuwait, Morocco, Qatar, Saudi Arabia and Tunisia are selected for the time period of 2003 to 2016.

#### 3.4 Data

All the variables, the proxies used and the sources of data are listed below in table one.

**Table 1: Variables, Proxies and Data Sources**

Variable	PROXY USED	SOURCES
FDI	FDI Inflow (lnfdi inflow)	World Development Indicators, World Bank (2013)
Market size	GDP (Current US\$) (lnGDP)	
	Population (lnPop)	
Development level	GDPPC (lnGDPPC)	
Openness	Trade (lntrade%GDP)	
	Imports (lnImports)	
Human Capital	Average Years of Schooling,(Tertiary) (lnAYOS)	Barro & Lee Data Set (2013)
	Tertiary Education (lnTEdu)	
	Life Expectancy (lnLE)	World Development Indicators, World Bank (2013)
Financial Development	Domestic Credit to Banking Sector (lnDCBS) Market Capitalisation of listed Companies (lnMCLC)	

#### 3.5 Models / Equations of the Research Study

Two equations, Equation 1 and Equation 2 are used to estimate the effect of financial development on FDI.

### 3.5.1 Equation I.

Mathematical equation for this research is:

$$(FDI)_{jt} = f(\text{market size, development level, openness, human capital and financial development})_{jt}$$

Where

$j = 1, 2, \dots, 8$  representing the countries

$t =$  Time period from varies from 1 to 13 for the years 2003 to 2016

### 3.5.2 Equation ii.

By putting the suitable proxies for the variables used in equation I and taking natural log we get the following equation.

$$\ln FDI_{inflow}_{jt} = \alpha_0 + \beta_1 \ln gdp_{jt} \text{ or } \ln pop_{jt} + \beta_2 \ln gdppc_{jt} + \beta_3 \ln trade_{jt} + \beta_4 \ln ayos \text{ or } \ln tedu_{jt} \text{ or } \ln le_{jt} + \beta_5 \ln dcbs_{jt} \text{ or } \ln mclc_{jt} + \varepsilon_{jt}$$

Where,

Ln FDI inflow = log of FDI inflow

LnGDP = log of gross domestic productivity

LnPop = log of total population

LnGDPPC = log of GDP per capita

Lntrade = log of trade

LnAYOS = log of average years of schooling

LnTEdu = log of tertiary education

LnLE = log of life expectancy

LnDCBS = log of domestic credit to banking sector

LnMCLC = log of market capitalisation of listed companies

Ln = natural log

$\beta_1$  to  $\beta_5$  = Coefficients for regression

$\alpha_0$  = constant

$\varepsilon_{jt}$  = error term

### 3.6 Research Variables:

There are two types of research variables in this study, that is, dependent and independent variables

#### 3.6.1 Dependent Variable: FDI

The FDI inflow to the Arab world is used as the dependent variable in this paper.

#### 3.6.2 Independent Variables

Independent variables included in the study are as follows:

##### 3.6.2.1 Market Size:

The number of possible buyers is usually the criterion for market size of the host economy (Shah, 2010). Irrespective of the product being manufactured or service, the usual proxies used for market size are population and gross domestic product of the economy (Shah & Gulelala, 2017). The economic size of a nation is determined by its GDP (Shah, 2011a).

Based on the prior literature a positive rapport is assumed between market size and inward FDI.

### **3.6.2.2 Development Level:**

Different proxies like income per capita, production per capita and rate of literacy etc., are used for measuring development level of a country (Shah & Khan, 2016; Shah, 2018d). In this study GDP per capita is used as development level proxy. Positive relationship is assumed between FDI inflow and development level.

### **3.6.2.3 Openness:**

Investors prefer open economies (Shah, 2015) to freely import the raw materials and export finished goods (Shah, 2017a). Trade (% of GDP) and host country imports are used as proxies for openness (Shah & Jamil, 2016). It is assumed that openness will positively affect multinationals.

### **3.6.2.4 Human Capital:**

Availability of skilled and trained educated labour force helps multinationals to optimally use their technology in the developing host economy (Shah, 2014a). Average years of schooling (tertiary), tertiary education and life expectancy are used as proxies for Human Capital.

### **3.6.2.5 Financial Development:**

Domestic credit to banking sector (DCBS) and market capitalisation of listed companies (MCLC) are proxies used for the variable of our interest, financial development (Shah, 2016c; Shah & Zeb, 2017). Relationship of financial development and FDI is supposed to be significant, irrespective of whether it is positive or negative.

## **4. Estimation Issues**

This part consists of statistical diagnostics tests such as Hausman specification test, Breusch-Pagan / Cook-Weisberg test, variance inflation factor and correlation Matrix.

### **4.1 Hausman Specification Test**

This test is used for checking the use of random effect or fixed effect model (Shah, 2011b). Probability equals 0.000. P-value  $0.000 < 0.05$  meaning we can reject the null hypothesis according to which both random effect (re) and fixed effect (fe) fails to give the same result and hence both cannot be used (Shah, 2012a; Shah, 2013a). Therefore, we will use only the fixed effect panel estimation method for regression analysis.

### **4.2 Heteroscedasticity: Breusch - Pagan / Cook - Weisberg Test**

Heteroscedasticity means variance in the error terms is not constant (Shah & Khan, 2018). It tests the null hypothesis that variances are constant being homoscedastic, contrary to

the alternate one that variances are not constant or they are heteroscedastic (Shah & Afridi, 2015). P-value of 0.05 or less than 0.05 provides evidence of Heteroscedasticity (Shah, 2014b). For checking Heteroscedasticity Breusch-pagan / Cook-Weisberg test is performed. This test yields Chi-square value of 121.16 and P-value of  $0.000 < 0.05$ . Therefore, the null hypothesis of constant variance is rejected and hence there is a need to control for heteroscedasticity while making estimations (Shah & Samdani, 2015).

### **4.3 Multicollinearity**

Excessive linearity between the independent variables makes it difficult to infer the influence of each one of them on the dependent variable (Shah, 2011e; Shah, 2012c). This phenomenon leads to problematic multicollinearity (Shah & Khan, 2017). Two methods are used to diagnose its extent.

#### **4.3.1 Correlation Matrix**

Correlation matrix shows correlation of dependent variable with itself and with independent variables as well as correlation of individual independent variables with themselves and with other independent variables. Table two shows that all the correlations are less than 80% which means there is no problematic multicollinearity and hence no need to control for it (Shah & Faiz, 2015).

#### **4.3.2 Variance Inflation Factor (VIF)**

Variance inflation factor is the second mechanism applied to detect collinearity (Shah, 2011f; Shah, 2012d). With independent variables  $\ln gdp$ ,  $\ln pop$ ,  $\ln gdp pc$ ,  $\ln trade$ ,  $\ln imports$ ,  $\ln ayos$ ,  $\ln tedu$ ,  $\ln le$ ,  $\ln dcbs$  and  $\ln mclc$ , the value of Mean VIF is 7.37. This value is not greater than 10 (Shah, 2011c). It means the problem of severe multicollinearity doesn't exist.

### **4.4 Descriptive Statistics**

Prior to starting the regression analysis it's necessary to get a summary of all the descriptive measures regarding different statistics related to the variables used in the research study (Shah & Qayyum, 2015). This includes number of observations, lowest value, highest value, mean, median and variance etc. They are given in table 3.

## **5. Empirical Results and Analysis**

Starting with regression one in table four, it is evident that population used as a proxy for market size is insignificant, however, the alternate proxy gross domestic product signifying the economic size of a host is all the way through positively significant, This highlights the importance of larger host market for overseas investors (Shah, 2011d). Development level is altogether negatively significant this shows that as a country gets richer the workers asks for a higher wage which is something that deters the overseas investors.

**Table 2: Correlation Matrix**

No.	Variable	Proxy	1	2	3	4	5	6	7	8	9	10	11
1.	FDI	LnFDI	1.00										
2.	Market Size	lnGDP	-0.26	1.00									
3.		lnPop	-0.13	0.51	1.00								
4.	Development Level	LnGDPPC	-0.06	0.08	-0.25	1.00							
5.	Openness	lnTrade	0.31	-0.42	-0.06	0.48	1.00						
6.		lnImports	0.55	-0.66	-0.26	-0.18	0.65	1.00					
7.	Human Capital	lnAYOS	0.41	-0.25	-0.08	0.02	0.51	0.58	1.00				
8.		lnTEdu	-0.04	0.23	0.23	-0.09	-0.24	-0.25	0.00	1.00			
9.		lnLE	-0.04	0.04	0.56	0.51	0.63	0.01	0.14	-0.03	1.00		
10.	Financial Development	lnDCBS	-0.10	-0.36	0.12	-0.13	0.02	0.08	-0.18	-0.03	0.20	1.00	
11.		lnMCLC	0.22	-0.03	-0.12	0.46	0.51	0.25	0.24	-0.22	0.30	0.02	1.00

Values are rounded off to two decimal places

**Table 3: Descriptive Statistics**

No.	Variables	Proxy	No. Of Obs	Minimum	Maximum	Mean	Median	Variance
1.	FDI	LnFDI	104	-6.332	2.964	1.178	1.363	1.298
	Market Size	lnGDP	104	22.545	26.889	24.529	24.417	1.200
		lnPop	104	2.013	18.211	15.576	15.604	4.338
3.	Development Level	lnGDPPC	104	2.013	12.611	8.923	8.657	2.855
4.	Openness	lnTrade	104	2.013	5.176	4.459	4.497	0.176
		lnImports	104	3.150	4.556	3.711	3.648	0.148
5.	Human Capital	lnAYOS	104	1.846	2.506	2.212	2.236	0.038
		lnTEdu	104	0.908	2.669	1.900	1.884	0.195
		lnLE	104	2.013	4.371	4.283	4.305	0.051
6.	Financial Development	lnDCBS	104	-1.607	4.748	4.052	4.241	0.790
		lnMCLC	104	2.013	5.704	4.104	4.311	0.658

Values rounded are off to three decimal places

**Table 4: Estimation Results Using Panel Fixed Effects**

No.	Variables	Proxy	Reg 1	Reg 2	Reg 3	Reg 4	Reg 5	Reg 6	Reg 7	Reg 8	Reg 9	Reg 10
1.	Market Size	lnpop	-0.0172 (0.0290)									
		lngdp		0.6707* (0.299)	0.7506* (0.3271)	1.4371*** (0.2389)	0.6141** (0.2167)	1.4509*** (0.2072)	1.4113*** (0.1644)	1.0779 (0.6189)	1.2419*** (0.1299)	1.0934*** (0.1627)
2.	Development Level	Lngdppc			-0.1077 (0.0581)	-1.6022*** (0.2879)	-0.1753 (0.0468)	-1.6085*** (0.2589)	-1.6976*** (0.2039)	-1.0201 (0.9387)	-1.4395*** (0.1583)	-1.4522*** (0.1783)
3.	Openness	Intrade				3.4352*** (0.6388)		3.4667*** (0.5008)	3.7008*** (0.4578)	3.4341*** (0.6089)	3.2842*** (0.2943)	3.0442*** (0.3953)
		Inimports					2.9282*** (0.7948)					
4.	Human Capital	lnayos						-0.1954 (1.2694)				
		Intedu							-0.5455** (0.2264)		-0.3595** (0.1135)	-0.6654* (0.2940)
		Inle								-1.5059 (1.8758)		
5.	Financial Development	Indcbs									-0.2372*** (0.0668)	
		Inmclc										0.4514** (0.1454)
<b>No. of Observations</b>			104	104	104	104	104	104	104	104	104	104

Values are rounded off to three decimal places. \*\*\* Significance at 1%, \*\* significance at 5%, \* significance at 10%

The proxy for openness of the economy, that is, aggregate trade is positively significant. It means that investors seek open economies that are facilitating and helping multinationals in their operations in the developing host (Shah, 2017c). The FDI activities of the overseas investors seem to be of vertical nature as the coefficients for imports as well as aggregate trade both are positive. It means they are importing raw materials or partly finished products from abroad and after partial or complete value addition re-export them.

Among the three measures used for human capital, only tertiary education is negatively significant. It points to the possibility that multinationals are carrying out low skilled, labour intensive operations in the Arab World and are not in need of highly educated expensive labourers.

Testing for the financial development proxies, both of them are significant but one is positive and the second negative. Domestic credit to banking sector exhibits a significant negative coefficient. This is understandable, because it shows the possibilities of the local firm getting support from the banking sector and competing with the multinationals. On the contrary, the second proxy: Market capitalisation of listed companies is positively significant. The investors from abroad are happy with the possibilities of selling part of the shares on the domestic stocks market. This provides them with the possibility of financing from the local market especially in cases of privatisation where the investors make periodic payments.

## **6. Conclusion**

The objective of this research work is to observe the probable effect of financial development on overseas investors' foreign location site in the Arab world. Dependent variable is FDI. In addition to the primary variable of interest, that is, financial development, other independent variables included in the study are market size, development level, openness and human capital. According to the literature studied, host market size has a positive and significant liaison with FDI. Results of present study also justify previous studies and show positive and significant relationship of market size with FDI which means that bigger the economic size of host country, greater will be FDI inflow to that country (Shah, 2018c). Second independent variable, development level of the host country shows a negative significant relationship with FDI inflow. In the literature, it was shown that relationship of FDI with economic growth (development level) of a country depends on its financial development i.e. FDI positively contributes to economic growth in only those countries having a developed financial system and vice versa.

Furthermore, results of the present study show positive and significant relationship of openness of an economy with FDI. This result is also consistent with results of previous

studies. Hence, it is concluded that with increase in trade between the countries, FDI inflow to those countries increases and vice versa. Negatively significant relationship is found between human capital and FDI in Arab world. Proxy used for human capital is tertiary education, which means that with increase in highly educated labour who usually asks for relatively higher wages, FDI inflow to Arab world decreases. This result contradicts with literature which shows positively significant relationship of human capital and FDI. However, it is also mentioned in literature that interaction between human capital and FDI is complex and non-linear and a number of outcomes are possible.

Mix results were got from financial development, the variable primarily focused. By using domestic credit provided to banking sector (DCBS) as proxy of FD, negatively significant relationship between FD and FDI is found. Whereas, using market capitalisation of listed companies (MCLC) as a proxy for FD, a positively significant relationship is found between FD and FDI. It means that FD has significant relationship with FDI, regardless of whether this relation is positive or negative.

The current findings are in accordance of many past researches who also termed financial development as one of the primary factor causing inward FDI in a country. According to most of these studies FD and FDI has positive and significant relationship; however some of these studies showed negatively significant relationship between FD and FDI. But these results are applicable only to Arab world for the period of 2003-2016 and cannot be generalised to the rest of the world. Nonetheless, this study can be helpful for future researchers, policy makers and governments in their efforts to understand multinational behaviour and formulate policies for attracting them to invest in their respective domestic markets.

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