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Original Research

Financial Development and FDI Nexus- Evidence from One Belt One Road Economies

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Abstract

Financial development has recently been captured the attention of researchers as in important element of economic prosperity. As foreign direct investment can have an important role in the economic achievements, this study investigates the role of financial development in attracting FDIs. Unlike earlier studies, it considers the most comprehensive proxy of financial development which overcomes the shortcomings due to ignorance of many economic components by earlier researchers. In this connection, this study uses panel of 39 countries from One Belt One Road (OBOR) economies. The empirical findings provide evidence in favor of financial sector reforms so as to benefit from foreign investment. The results are robust to the alternative measures of financial deepening under instrumental variable estimation. Therefore, the research specifically suggests countries to concentrate on developing their financial systems. Proper policy formulation can be done to reconstruct the weaker systems and to ensure wider and safer public access to the financial systems.

Keywords: Financial Deepening, FDI, OBOR

JEL Classification: C23, E44, F21, F36, G15, P45

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Introduction

Countries strive to attract considering it a major opportunity for increased economic (M. A. Islam, Khan, Popp, Sroka, & Oláh, 2020; Khan, Islam, & Akbar, 2020; Liu, Islam, Khan, Md Ismail, & Pervaiz, 2020; Sultanuzzaman, Fan, Mohamued, Hossain, & Islam, 2019) and financial advancement (M. A. Islam, Liu, Khan, Islam, & Sultanuzzaman, 2021). Most countries view the spillover effects driven from FDI with most importance (Yahia, Haiyun, Khan, Shah, & Islam, 2018). The inflow of FDI does not only means inflow of money, it also means for inward transfer of improved technologies, technical knowhow and management skills (Fan, Hossain, Islam, & Yahia, 2018; M. A. Islam et al., 2018). The new technologies borne by FDI embedded multinational companies (MNCs) improves the production efficiency. At the same time the local people who works with those MNCs, gradually improves skills in using the technologies and become capable to imitate those.

Often it has been found that the deployment of advanced technologies by the MNCs in host country causes advancements in the local technologies as well (Hermes & Lensink, 2003). The entrance of new technologies and technical knowhow indirectly benefit local firms and as the human resources working in the MNCs develop their expertise and may start working at domestic firms' latter on. The education sector of the host country also adopt the changes in demands with due course as the educations experts can redesign the modules in accordance with the expectations of the new business situations (Liu et al., 2020) which in turn results in human resource development. The development in human resources and financial system improve the absorptive capacity of the economy and cause FDI attraction into the economy.

In an overall, the financial system of a country collects surplus money form the surplus units and allocates it into the deficit units by extending credits (Hasan, Shiming, Islam, & Hossain, 2020; Liu et al., 2020) and low cost credit always induce investors to do business (Hermes & Lensink, 2003). Foreign firms often look for external sources of finance to meet the upfront fixed expenses (M. A. Islam et al., 2020) which may be met by the financial sector of the host country. If the Banking and financial organizations of the host country is developed and efficient enough, they can offer sufficient funds to the potential investors (M. A. Islam, Hassan, & Rana, 2019). The stock market may also play an important role in this era as the MNCs often are willing to float their stocks in the domestic stock market and collect capital (Yahia et al., 2018). The operations of MNCs also promotes the export potential of the host country (Sultanuzzaman et al., 2019). The financial sector of the potential host country plays an immense role for the MNCs to decide upon their investment destination (Liu et al., 2020).

In addition to these considerations, a developed financial system creates backward linkages with the suppliers, provides timely information, reduce risks, facilitate trading and hedging and so on (M. R. Hassan, Das, & Islam, 2016; Levine, 1997; Liu et al., 2020). All these activities make the business environment (including production, distribution and marketing) of the host country smoother and easier, which attracts the potential MNCs.

Hanif and Shariff (2016) and Khan et al. (2020) contended that a country can enjoy the real benefits driven by FDI projects only when the financial sector of the country is

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developed enough. Among others, Choong, Yusop, and Soo (2004) and Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2004) are some of the notable authors who contended that a low depth of financial system could hamper the economy's harvesting capacity from FDI. All these evidence explain the importance to the financial system of the host country to attract FDI.

Despite the handsome amount of literature on investigating the relationship of financial deepening and economic growth, and FDI and economic growth, research that examines the direct impact of financial deepening on the attraction of FDI is still scarce (M. A. Islam, Hossain, Khan, Hasan, & Hassan, 2021). The current study is an endeavor to fill this knowledge gap. Therefore, our empirical study adds value in several ways. First, to the best of our knowledge, this is the first effort that considers a comprehensive dynamic panel of one belt one road (OBOR) network. OBOR is a new group of countries which is built with the moto of mutual developments (M. A. Islam et al., 2020) initiated by the Chinese president Xi Jinping. The countries partnering the initiative are divergent in nature, culture and locations. It covers Asia, Europe, Africa and Latin America and covers more than 120 countries (M. A. Islam, Liu, et al., 2021). It accounts for more than 60% world population and 30% global GDP. All these refers the diversity and vastness of the project area which is sometimes considered as world representative sample (M. A. Islam, Hossain, et al., 2021). Alternatively the project is named as Belt and Road initiative (BRI). As the prior efforts are directed to a single country, or a country group with similar locational, and development characteristics (Omar M Al Nasser & Gomez, 2009; Desbordes & Wei, 2017; Hanif & Shariff, 2016; Kaur, Yadav, & Gautam, 2013), this study takes the biggest stress to investigate the issue on a world representative sample. Second, we use the most comprehensive index of financial development developed by the International Monetary Fund (Khan et al., 2020; Svirydzenka, 2016), "the financial development index". The traditional finance depth proxies used in the literature are conflicting due to several limitations (M. A. Islam, Hossain, et al., 2021; M. A. Islam et al., 2018; Levine, 1997; Svirydzenka, 2016). On contrary, the financial development index encompasses two segments of the system- marker and institutions and evaluate through accessibility, depth, and efficiency dimension for the both segments. Further, in line with M. A. Islam et al. (2018), we prefer this measure of financial development along with some frequently practiced traditional measures which further validates the index under discussion. Finally, the empirical findings shed light on the dynamics of finance-FDI nexus that may help stakeholders of the OBOR economies to better understand the multidimensional nature of financial system depth and, ultimately effective formulation of policies.

Our empirical results show that regardless of the proxy used, financial depth has a significant positive effect on FDI. Among other proxies of financial deepening, "the new broad-based index of financial development" is found to explain the relation better. Moreover, the results also evident that domestic capital, openness to foreign trade, domestic infrastructure, market size have an incremental impact on inward FDI stock. These results suggest that FDI is attracted to the countries with a deep financial system. More interestingly, we found that human capital is not an attractor of FDI in our panel.

Remaining paper is organized as follows. Section 2 presents the materials and methods used for the research. Section 3 elaborates the results revealed upon the empirical

exercises of the study. The results of the empirical study are presented in section 4. Section 5 provides appropriate policy guidelines for the concerned policymakers and potential investors as well as suggesting potential future research and finally concludes the paper.

Brief Review of Literature

In recent years FD is talked upon with importance by researchers and policymakers for economic prosperity (Omar M Al Nasser & Gomez, 2009) whereas positive linkages between these two were cited by many researchers (Zhang, Zhang, & Tao, 2016). Schumpeter (1911) is the first one who talked about FD and showed it potential effect on the real economy. The latter seminal authors (for example, Bittencourt, 2012; Goldsmith, 1969; King & Levine, 1993) also acknowledged the Schumpeterian thought. However, King and Levine (1993), Rousseau and Wachtel (2011) recognized some potential cases of non-linearity in the relations between FD and economic growth.

Despite of the researches investigating the impact of FD on economic growth, a very few researchers addressed the importance of FD to attract MNCs which also can contribute to economic prosperity. Among those few, Nkoa (2018), M. A. Islam et al. (2018), Liu et al. (2020) and M. A. Islam et al. (2020) argued that FD can contribute to attract MNCs to invest into the host country in the form of FDI. The key reason for such influence as argued by the authors is the cost efficiency achieved by the organizations due to having a developed financial system (Omar M Al Nasser & Gomez, 2009). However, the evidence on the direct effect of FD to attract FDI is still scarce. Therefore, this is research is an endeavor to fill the gap.

The inflow of FDI creates development opportunities for backward linkage industries as foreign firms significantly have the same input sourcing behavior as domestic firms, and they most of the often source inputs from domestic market in the same proportion of imported inputs (Barrios, Görg, & Strobl, 2011). The local suppliers are in the other way aided by foreign firms to achieve their efficiency (Moran, 2001). Thus backward linkages from FDI spillover occurs in the host economy (Barrios et al., 2011). But the absence of a well-developed financial system in home country can severely negatively affect this spillover (Alfaro et al., 2004). A particular reason for this is a lack of finance can constrain the development of new entrepreneurs (Alfaro et al., 2004). The loss of opportunity to adopt the latest technology and knowledge spillover may result in loss of domestic and export market potentials for local suppliers. A well-developed supply chain is also a key factor to attract foreign investors where the financial system is undoubtedly a key role player. Technology and knowledge spillover, because of the linkage of foreign firms to the domestic firms, can help achieving total factor productivity (TFP) gain. When the economy has a well-developed financial system, it can reap the benefit of FDI via TFP gain (Alfaro, Kalemli-Ozcan, & Sayek, 2009)

A developed and well-functioning financial system represents the sign of vitality, openness and a market-friendly attitude (Hanif & Shariff, 2016). A reasonable amount of work is devoted to explore the linkages between the financial depth, FDI and the real output of the economy. Most of them viewed the financial system as a channel to facilitate FDI. Despite the role of financial sector to attract FDI (which is mostly considered as a

growth factor) a very few empirical endeavors has been taken to trace the power of financial sector to attract FDI (Hanif & Shariff, 2016). In most cases, financial development is found to be a crucial factor to reap the benefit from incoming FDI. While analyzing the comparative FDI growth relationship between developed countries (Japan, UK and USA) and East Asia (Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand) Choong et al. (2004) argued that FDI do have little or no effect on economic growth unless the financial sector is developed up to a certain minimum threshold. Moreover, benefits from technological diffusion could only be achieved along with the attainment of a minimum threshold of financial development in an economy. Their findings mean that financial development is to be considered as the vital channel to effectively realize the economic growth from FDI spillovers not only in developing economies but also in developed economies. The similar result was found by (Hermes & Lensink, 2003). They reported strong, robust results, using bank lending and monitory variable as the proxy of financial development suggesting that a country can significantly gain from technological diffusion associated with foreign investment when the financial system of that country is developed. Some other researchers also concluded the same vein of the importance of the financial system to reap the benefits from FDI for economic excellence. For example Choong and Lim (2009) and Ang (2009) in the case of Malaysia, Sghaier and Abida (2013) on North African countries (namely, Tunisia, Morocco, Algeria, and Egypt).

Omar M Al Nasser and Gomez (2009) analyzed the direct impact of financial development in attracting foreign direct investment in Latin American countries. FDI positively and significantly correlates with market capitalization and domestic value traded and turnover ratio as stock market variables. Also the same with the banking variables - the ratio of liquid liabilities of financial sector to GDP, the ratio of total assets of deposit money banks to GDP, and the value of loans made by banking institutions to private sector as a percent of GDP. He also intuited FDI flows to the countries where financial system is well-developed, and institutions are strong. Kaur et al. (2013) also found a strong and direct influence of financial development in the case of BRIC countries. Omran and Bolbol (2003) investigated the relationship in Middle East where financial system is predominantly bank-based. The authors found that the interaction of financial development and FDI can gain a significant effect on economic growth. Hence they suggested to formulate FDI attractive policies preceded by financial reforms. Liberal commercial policy formulation and equal opportunity for both foreign and domestic investors should be focused. Nkoa (2018) used two types of samples of African countries: one with the countries with existing financial markets and another without formal financial markets. In both cases, they found evidence of the direct effect of financial development on FDI attractiveness. However, they did not find enough evidence for nonlinear FD-FDI relationship.

Hanif and Shariff (2016) studied the direct causal effect of FDI to financial deepening in five ASEAN countries namely Indonesia, Malaysia, Singapore, the Philippines, and Thailand. Although their findings did not show a causal relationship between FDI and banking sector credit, yet the evidence of bidirectional causal flow among FDI and stock market variables is reported. This result gives us the insight of prevailing endogeneity between financial deepening and foreign direct investment. The effect of FDI on financial sector development was also proven by Sghaier and Abida (2013).

In most studies, researchers considered FD as a channel to economic growth while very few studies were undertaken to examine its impact to make FDI attractiveness. Furthermore, those studies, albeit a few, were conducted on individual economies or similar character group of economies. Whereas, our study considers the direct power of FD to attract FDI on a heterogeneous panel from OBOR economies. We also consider the possible endogeneity between these two factors which was mostly ignored in previous studies reflected in existing literature. Moreover, we considered financial development index of the IMF as the most rigorous proxy of FD.

Methodology

This study endeavors to investigate the impact of FD in attracting FDI. Considering literature and econometric rules the following equation is established to represent the relationship:

$$FDI_{it} = \beta_0 + \sum_{i=1}^{p} \beta_1 \, FDI_{i,t-1} + \sum_{i=1}^{p} \beta_2 \, FD_{it} + \sum_{i=1}^{p} \beta_3 \, Controls_{it} + \mu_{it} \qquad (1)$$

Following relevant literature, the control variables can be added and Equation (1) is rewritten as below:

$$\begin{aligned} FDI_{it} = \beta_0 &+ \sum_{i=1}^{p} \beta_1 \, FDI_{i,t-1} + \sum_{i=1}^{p} \beta_2 \, FD_{it} + \sum_{i=1}^{p} \beta_3 \, Life_{it} \\ &+ \sum_{i=1}^{p} \beta_4 \, Ypc_{it} + \sum_{i=1}^{p} \beta_5 \, Inf_{it} + \sum_{i=1}^{p} \beta_6 \, Trade_{it} \qquad (2) \\ &+ \sum_{i=1}^{p} \beta_7 \, Infrus_{it} + \sum_{i=1}^{p} \beta_8 \, M.size_{it} + \mu_{it} \end{aligned}$$

Where FDI_{it} represents the stock of inward FDI per capita in current USD, and $FDI_{i,t-1}$ means the initial balance of FDI stock per capita, FD_{it} represents the proxies of financial deepening and $Controls_{it}$ represents the control variables those used in past literature. The βs are the coefficients of variables.

The principal aim of this research is to investigate the power of financial system to attract and retain FDI. This led us to use the 'stock of foreign direct investment' as dependent variable. We use stock of FDI as it is well acknowledged for finding the cumulative effect of FDI (Cheng & Kwan, 2000; Liu et al., 2020) and frequently used to represent FDI inflows in the literature (Cheng & Kwan, 2000; Popescu, 2014; Sachs, 2018).

The main independent variable of interest is financial development (FD_{it}). Financial Deepening (FD) is represented by the Financial Development Index (FDx) published in an IMF staff discussion note (Sahay et al., 2016; Svirydzenka, 2016). The index is constructed in a combination of both financial market and financial institutions effects,

denoted here as FDx. Alternatively we utilize the most frequently used finance proxies in literature to make our analysis comparable, such as supply of money, and quasi money (broad money or M2) in relation to GDP (Hussain & Haque, 2017; Trabelsi & Cherif, 2017); domestic credit provided by banks to the private sector (Cole, Moshirian, & Wu, 2008; Silva, Tabak, Cajueiro, & Fazio, 2017); domestic credit provided to the private sector as the percentage of GDP (Rousseau & Wachtel, 2011; Tzeremes, 2018); liquid liabilities and financial system deposits to proxy financial deepening following (Nkoa, 2018). Traditionally the monetory and credit aggregates are being used to proxy for financial development. Moreover, some capital market based proxies are also used for the same purpose. However, as utilized separately, the proxies are unable to capture the whole senario of financial sector and suffer from comparability disabilities (Lynch, 1996). Those proxies also remain standalone and not integrative as those independently cannot capture the complex mechanism of financial sector development (M. A. Islam, Hossain, et al., 2021; M. A. Islam, Liu, et al., 2021; M. A. Islam et al., 2018; Khan et al., 2020; Liu et al., 2020).

Our Controls vector includes, the lag dependent variable (Nkoa, 2018) to capture the agglomeration effect. Moreover, it is generally argued that FDI tends to be attracted into the location by the previous existence of FDI due to perceived trust and reliability. Second, we control human capital as high level of human capital can raise the absorptive capacity of the country and reduce the cost of foreign investors to import skilled labor (Nkoa, 2018). Third, GDP per capita (Omar M Al Nasser & Gomez, 2009) which indicates a country's development level and attractiveness of the market. Fourth, inflation variable is used to capture its effect on FDI (Bittencourt, 2012). Fifth, we consider gross fixed capital formation as a proxy of domestic investment to control for the fluctuations of intangible assets (Belloumi & Alshehry, 2018). Six, trade openness is controlled as an important determinant of FDI inflows (Cantah, Brafu-Insaidoo, Wiafe, & Adams, 2018). Seven, we control for infrastructural development (Omar M Al Nasser & Gomez, 2009; Asiedu, 2006). Our final control variable is total population which measures the market size of an economy (Campbell & Hopenhayn, 2005; Desmet & Parente, 2010) and at the same time indicates potential human capital. For the empirical excises we consider a 39 countries panel form OBOR (Appendix) is constructed using data from 1999 to 2016 based upon data availability.

Estimation Strategy

To estimate the effects of FD on FDI on OBOR economies, we first used pooled ordinary least squares (POLS) technique. The pooled data technique is considered as the best way to avoid dispersing information on cross-sectional information over time as well as well-known to reduce multicollinearity among the explanatory variables to (Omar M Al Nasser & Gomez, 2009). The tested following pooled linear mode

$$Y_{it} = \beta_0 + \sum_{k=i}^{k} \beta_k X_{kit} + \mu_{it} \qquad (3)$$

where i is the country unit; t is the period in time series, and k refers to non-constant regressors and parameters for i 1,2,3…….N. Accordingly, Y_{it} and X_{it} refers to the

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dependent and independent variables for country i and time t, μ represents the white noise term, β_0 refers the intercept while β_k refers to the slope of parameters.

Some researchers acknowledged that OLS estimation in pooled time series, and cross-sectional settings, generally exhibits heteroscedasticity (Omar M. Al Nasser, 2007; Omar M Al Nasser & Gomez, 2009; Jones & Manuelli, 2005). Moreover, the pooling of data restricts the intercept terms to be identical which in other words means that the cross-sectional variation is not considered as the intercept is treated as $\beta_{it} = \beta$.

To overcome the limitations of POLS in a panel setting, we use a fixed and random effect model as a base (Ali, Rashid, & Islam, 2010). These techniques are effective when the panel consists of a large number of cross sections with diverse characteristics. In our case, we have 39 countries of OBOR, whereas the economies are diverse in terms of location, development stages, infrastructures, population quality, inter alia. As such, an unrestricted intercept is more plausible (M. K. Hassan, 2003). The general model for fixed and random effect is specified as follows:

$$Y_{it} = \beta_0 + \sum_{k=i}^{k} \beta_k X_{kit} + u_i + \mu_{it} \qquad (4)$$

Where u_i represents the country specific effects and μ_{it} represents the general white noise term. To be more specific the fixed effect and random effect models can be specified respectively as follows:

$$Y_{it} = (\beta_0 + u_i) + \sum_{k=i}^{k} \beta_k X_{kit} + \mu_{it} \qquad (5)$$

$$Y_{it} = \beta_0 + \sum_{k=i}^{k} \beta_k X_{kit} + (u_i + \mu_{it}) \qquad (6)$$

The fixed effect model examines the difference between country-specific intercepts, and the random effect model estimates the variance components by groups (or time) and the error term. The slopes of K-vector are assumed to be unchanged in either of the models. The Hausman test makes a comparison between fixed and random effect models. While the null of the Hausman test is "difference in coefficients not systematic." A significant chi-square leads to the rejection of the null and acceptance of fixed effect model and vice versa.

In all strategies we apply dummy variables for the economic development stages such as Advanced Market, Emerging Market and Low income country. As our analysis is based on a panel of countries included in OBOR with divergent development stages, the dummies captures the differences in the development and provides more reliable estimation.

Results

Table 1 describes the summary statistics of the study, with respect to mean, standard deviation, minimum, and maximum values of each variable. Our sample comprised of a panel of 39 countries. Whereas, the study period covers data for 21 years (1999 to 2019). The number of observations ranges between 741-819.

Table 1: Descriptive Statistics for variables for sample countries

Variables	Obs	Mean	Std.Dev.	Min	Max
FDI	819	6.839	1.95	.948	12.205
FDx	819	.348	.18	.03	.859
FIx	819	.425	.173	.059	.836
FMx	819	.452	.249	0	.949
M2	808	4.004	.95	-6.529	5.589
DCPB	819	3.633	1.078	-7.112	5.095
DCP	819	3.673	1.088	-7.103	5.095
LL	819	3.912	.691	1.823	5.583
FSD	819	3.649	.831	.685	5.493
INIIFDIS	819	6.842	1.949	.948	12.205
HC	819	4.071	.156	3.61	4.455
GDPpc	819	9311.067	11051.73	388.217	53353.84
INFL	819	91.4	34.586	5.973	432.913
DI	812	23.393	1.811	17.972	29.208
TO	819	4.422	.494	3.222	6.09
INFR	817	4.069	1.665	.579	7.776
POP	741	2.807	1.668	-.445	7.222

Here, IFDIS = Inward Foreign Direct Investment Stock, FDx = Financial Development Index, M2 = Broad Money, FIx = Financial Institution Development index, FMx = Financial Market Development Index, DCPB = Domestic credit to the private sector by banks (% of GDP), DCP = Domestic credit to private sector (% of GDP), LL = Liquid liabilities to GDP (%), FSD = Financial System Deposit to GDP, INIIFDIS = Initial Inward Foreign Direct Investment Stock, HC = Human Capital, GDPpc = Per capita GDP at 2010 constant prices, INFL = Inflation, DI= Domestic Investment, TO = Trade Openness, INFR = Infrastructure, POP = Total Population.

Table 2 presents the pairwise correlation coefficients of the variables under consideration. In most cases we have found that the correlations coefficients are within acceptable limits. Furthermore, most of the pairs reveal coefficients which are statistically significant. Therefore, we can get assured that, our models are free form potential multicollinearity and are fit for multivariate regression analysis.

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Table 2. Pairwise correlation coefficients of the variables

	IFDIS	FDx	FIx	FMx	M2	DCPB	DCP	LL	FSD	INIIFDIS	HC	GDPpc	INFL	DI	TO	INFR	POP
FDI	1																
FDx	0.59***	1															
FIx	0.70***	0.85***	1														
FMx	0.41***	0.89***	0.57***	1													
M2	0.31***	0.52***	0.52***	0.45***	1												
DCPB	0.43***	0.63***	0.65***	0.53***	0.91***	1											
DCP	0.42***	0.63***	0.66***	0.52***	0.89***	0.99***	1										
LL	0.42***	0.64***	0.64***	0.55***	0.74***	0.67***	0.65***	1									
FSD	0.50***	0.68***	0.71***	0.54***	0.66***	0.63***	0.62***	0.89***	1								
HC	-0.08**	0.15***	0.01	0.21***	0.01	0.13***	0.12***	0.02	-0.09**	-0.08**	1						
GDPpc	0.65***	0.62***	0.60***	0.49***	0.24***	0.36***	0.35***	0.34***	0.44***	0.60***	0.22***	1					
INFL	0.38***	0.18***	0.31***	0.03	0.27***	0.30***	0.30***	0.27***	0.29***	0.30***	0.03	0.14***	1				
DI	0.28***	0.66***	0.54***	0.64***	0.42***	0.48***	0.48***	0.52***	0.47***	0.24***	0.19***	0.25***	0.28***	1			
TO	0.54***	0.26***	0.24***	0.17***	0.02	0.11***	0.10**	0.12***	0.09**	0.49***	0.11***	0.36***	0.10***	-0.13***	1		
INFR	0.69***	0.46***	0.59***	0.26***	0.08**	0.25***	0.23***	0.18***	0.24***	0.62***	0.05	0.60***	0.18***	0.24***	0.38***	1	
POP	-0.41***	0.15***	-0.04	0.29***	0.16***	0.12***	0.12***	0.16***	0.03	-0.38***	0.12***	-0.37***	-0.04	0.68***	-0.46***	0.35***	1

, * means the significance of the coefficient at 5% and 1% level respectively.

Here, FDI = Inward Foreign Direct Investment Stock, FDx = Financial Development Index, M2 = Broad Money, FIx = Financial Institution Development index, FMx = Financial Market Development Index, DCPB = Domestic credit to the private sector by banks (% of GDP), DCP = Domestic credit to private sector (% of GDP), LL = Liquid liabilities to GDP (%), FSD = Financial System Deposit to GDP, HC = Human Capital, GDPpc = Per capita GDP at 2010 constant prices, INFL = Inflation, DI= Domestic Investment, TO = Trade Openness, INFR = Infrastructure, POP = Total Population.

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Table 3 represents the result of the FDI equation derived from POLS. The finance variables shown in column 1 to column 6 are significant. To be specific, the liquid liability ratio to GDP and financial system deposit ratio to GDP effect on FDI attractiveness at 1% level of significance, whereas domestic credit provided by banks to the private sector, domestic credit to private sector are significant at 5% level and broad money and financial development index variables are significant at 10% level. Interestingly the impact of level of human capital is negative and significant on FDI attractiveness. It may occur due to lack of quality skilled labor (Nkoa, 2018) or the mere labor participation rate may not ensure the quality of labor. In addition, it is also noticeable that the market size variable is also affect the main dependent variable negatively which again indicates that the low quality of skills predominant in those countries. Beyond these, all other control variables positively affect FDI attractiveness.

Table 3. POLS estimation Results from OBOR country panel

	(1)	(2)	(3)	(4)	(5)	(6)
FDx	0.4750**					
	(0.2350)					
M2		0.0596**				
		(0.0268)				
DCPB			0.0549**			
			(0.0250)			
DCP				0.0644***		
				(0.0247)		
LL					0.0826**	
					(0.0417)	
FSD						0.0626*
						(0.0372)
INIIFDIS	0.4110***	0.4180***	0.4110***	0.4090***	0.4150***	0.4160***
	(0.0214)	(0.0215)	(0.0213)	(0.0213)	(0.0212)	(0.0212)
HC	1.1750***	-1.1610***	-1.2240***	-1.2310***	-1.1630***	-1.1270***
	(0.1630)	(0.1650)	(0.1630)	(0.1630)	(0.1640)	(0.1690)
GDPpc	-0.0001***	-0.0001**	-0.0001***	-0.0001***	-0.0001***	-0.0001***
	(0.0000)	(0.0000)	(0.0001)	(0.0000)	(0.0000)	(0.0000)
INFL	0.0041***	0.0035***	0.0036***	0.0035***	0.0037***	0.0037***
	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)
DI	0.5930***	0.5970***	0.6040***	0.6020***	0.5960***	0.5940***
	(0.0472)	(0.0461)	(0.0457)	(0.0456)	(0.0468)	(0.0480)
TO	0.5860***	0.6150***	0.6160***	0.6170***	0.6030***	0.6170***
	(0.0596)	(0.0581)	(0.0576)	(0.0575)	(0.0581)	(0.0577)
INFR	0.0141	0.0211	0.0169	0.0192	0.0227	0.0228
	(0.0225)	(0.0236)	(0.0226)	(0.0227)	(0.0234)	(0.0238)
POP	0.6720***	-0.6580***	-0.6660***	-0.6660***	-0.6600***	-0.6520***
	(0.0492)	(0.0499)	(0.0493)	(0.0492)	(0.0496)	(0.0508)
cons	5.962***	-6.383***	-6.164***	-6.113***	-6.383***	-6.464***
	(1.061)	(1.037)	(1.041)	(1.039)	(1.034)	(1.034)
N	616	605	616	616	616	616
Adj. R2	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210
Values in the parenthesis are standard errors. *, **, *** are significance at 10%, 5%, and 1% level respectively.						

The pooled OLS regression is not sufficient to explain in case of a panel data due to the potential prevalence of fixed effects in the model (M. T. Islam, Afrin, & Islam, 2013). These lead us to check the relationship in fixed and random effect models. To choose between fixed and random effect models we conduct Hausman test. In every case, the tests are in favor of fixed effect model vis-a-vis random effect model. Table 5 incorporates the results drawn from fixed-effect model. The results signify the country-specific effect. The Fixed effect model also shows almost similar results as POLS as we can note from Table 4 that financial deepening variables are showing significant impact in attracting FDI into respective economies. Moreover, the dummy variables exert significant coefficients in the analysis, but are not reported in the table.

Table 4: Fixed Effect Estimation from OBOR Country Panel

	(1)	(2)	(3)	(4)	(5)	(6)
FDx	1.6560***					
	(0.3490)					
M2		-0.0037				
		(0.0239)				
DCPB			0.0204			
			(0.0223)			
DCP				0.0233		
				(0.0222)		
LL					0.6780***	
					(0.0930)	
FSD						0.8430***
						(0.0621)
INIIFDIS	0.1120***	0.1240***	0.1200***	0.1200***	0.1180***	0.1040***
	(0.0165)	(0.0169)	(0.0167)	(0.0167)	(0.0159)	(0.0145)
HC	-	-	-	-	-	-
	(0.4850)	(0.5050)	(0.4960)	(0.4960)	(0.4800)	(0.4320)
GDPpc	0.0001*	0.0001**	0.0001***	0.0001***	0.0001***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
INFL	0.0061***	0.0056***	0.0055***	0.0055***	0.0045***	0.0040***
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0007)
DI	0.7290***	0.7960***	0.7990***	0.7980***	0.6500***	0.5400***
	(0.0417)	(0.0401)	(0.0402)	(0.0402)	(0.0431)	(0.0392)
TO	0.5320***	0.5890***	0.5730***	0.5730***	0.4600***	0.4900***
	(0.0840)	(0.0864)	(0.0853)	(0.0853)	(0.0829)	(0.0741)
INFR	-0.0802**	-0.0524	-0.0575	-0.0579	-0.0847**	-
	(0.0393)	(0.0405)	(0.0398)	(0.0398)	(0.0382)	(0.0349)
POP	-	-	-	-	-0.4290**	-0.0858
	(0.2000)	(0.2070)	(0.2070)	(0.2080)	(0.2020)	(0.1840)
cons	-	-	-	-	-3.7310*	-2.2820
	(2.0540)	(2.1210)	(2.0970)	(2.0980)	(2.0310)	(1.8390)
N	616	605	616	616	616	616
Adj. R2	0.8100	0.7940	0.8030	0.8030	0.8190	0.8510

Values in the parenthesis are standard errors. *, **, *** are the significance at 10%, 5%, and 1% level respectively.

Besides these, we also controlled for other relevant variables. The major findings from the analyses can be identified as a developed financial system can strongly attract MNCs to invest into the host country. The study also finds that 'financial development index' can better explain the financial system of a country and its relationship to FDI. Although strongly believed by some researchers, this study finds economic growth having a limited role in attracting MNCs for FDI.

Conclusions

In empirical settings, this study investigated the impact of financial deepening to attract and retain investment from abroad as this source of investment is largely viewed as a crucial development ingredient for an economy. The study also analyzed the role of initial FDI, human capital, economic growth, domestic investment, inflation, infrastructure, trade openness and market size as control variables in the same setting. The study used "The new broad-based index of financial development" of the IMF as a comprehensive measure of financial deepening. In addition, five other traditional measures of finance are also applied to verify the effect. Taking data from 39 countries of OBOR ranging from 1999 to 2016 the result robustly suggests that financial sector exerts a strong effect in attracting foreign direct investment. It is also plausible to identify that FDx variable shows higher effect to attract FDI as the coefficient of the variable is quite large as compared to other traditional finance measures. This leads us to support the suggestion of M. A. Islam et al. (2018) that it is more comprehensive and trustworthy proxy of the financial sector of an economy in comparison to traditional ones.

These findings have important implications for the policymakers and regulators. As financial deepening is found as an important predictor of foreign direct investment, policymakers should undertake proper strategies to make the financial system more well-functioning so as to draw more external capital. To be specific, more accessibility, reliability and creditworthiness of banking and non-banking financial services, more accessibility to the capital market for foreign firms may be suggested to attract foreign investors. Furthermore, the policymakers of OBOR, in general, and individual country, in particular, should look forward to enhance the quality of the human capital through proper education and training system to ensure absorptive capacity arises from FDI. It is suggested for future researchers to investigate the role of the subsectors of the economy as well as the distinguished constructs or determinants of financial development to attract foreign investors. Furthermore, as OBOR initiative is largely focusing on infrastructure development, future research should analyses the contribution of infrastructure development projects in attracting FDI and developing financial sector of the economies.

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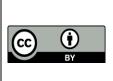
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