

DETERMINANTS OF FDI IN THE ECONOMY OF GCC COUNTRIES: A PMG ARDL APPROACH

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Abstract: *The main determinant of the growth of Gulf Cooperation Council (GCC) countries is inward foreign direct investment stock (FDI). The paper shows the effects of economic growth, cost of living, Economic Freedom Indices, global oil price, and construction value-added on the inward foreign direct investment stock in GCC in the long term and short term for an unbalanced data period of study from 1996 to 2020 (Bahrain, Kuwait, Oman, Saudi Arabia, and the United Arab Emirates) and Qatar from 1999 to 2020. We use the PMG ARDL model to have a long-run and short-run estimate between these variables in the gulf council region. Empirical results evidence positive correlation that economic growth and construction industry volumes and cost of living and economic freedom indices have an inverse relationship in long term on regional FDI stock. At the same time, results confirm that there is Cross-sectional dependence among these countries of GCC.*

Keywords: *Foreign Direct Investment stock, GCC, PMG/ARDL model, GDP, Economic Freedom.*

1. Introduction

Foreign direct investment stock is a form of international capital movement that contributes to more efficient business operations, growth of the international market, and raising the standard of living in society. It contributes to augmenting the knowledge stock through labor training and new technology (De Mello, 1999).

In this context, evaluation efficiency of investments plays the main role in making investment decisions, from one to another country, inside and outside of GCC, to improve business operations. Foreign investments and trade represent an important development factor in the economy today. FDI is a very important means of business operations, organization of production, and supply of goods and services. It reduces the gap between investment and savings (Sabir and Khan 2018). Through foreign

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investments, firms organize production, provide a supply of raw materials and labor input, and then place the products and services as an output in the different markets, in the most efficient way. Based on such business, companies can optimally take advantage of their technology, knowledge, and economies of scale advantages. Foreign direct investment is not just about the transfer of capital from one place to another, but about an investment package that contains new technologies, managerial skills, profitable leadership, and the market. FDI and its relationship with economic growth are well-known phenomena in the research literature, with enough empirical and theoretical evidence. Although a lot of research is done on this topic, there are different opinions and results on how FDI affects growth and vice versa. There is also enough evidence of FDI determinants, Consumer Price Index (CPI), Construction Value-added, Economic Freedom Indices (EFI), and Oil prices in GCC countries. The paper does not test how each determinant affects the other, but we are going to show how the growth of GCC economies affects FDI. It can decrease unemployment and increase the productivity level of the country (Lipseay 2001).

The study aimed to identify the measures at regional and independent country levels which would have magnetic powers for foreign direct investment stock. The study takes into account capital formation from the construction industry as a consideration influencing factor as is it the leading economic activity of the region. The other indicator is Gross domestic product (GDP) per capita at the current price indicates economic growth. Consumer prices indices represent the prices of a basket of goods, hence a representation of the cost of living. The economies run on business and providing business conducive environment helps the country to foster new and existing business, economic freedom indices are a measure of ranking and scoring various nations based 4 main parameters for a degree of freedom to residents indicating a business-friendly environment. Due to the fact these countries are hydrocarbon export countries oil prices were taken as another factor. Hence, for this study, all the above factors were identified to measure the influence on the foreign investor's decisions for FDI stock in the gulf cooperation council and its member states. Considering the absence of such research, it warranted research to understand the causal relationship between FDI stock and other factors GDP per capita at current prices representing the economic growth of the country, Gross Value Added by Construction at current prices - US dollars represent the capital formation due to Construction, CPI is the consumer price index representing cost of living in host countries, EFI is the economic Freedom Indices representing the openness and business-friendly of a country, Oil is Cushing, OK WTI Spot Price FOB (Dollars per Barrel).To determine the causal effect econometric model of Pooled Mean Group (PMG)/ autoregressive distributed-lagged (ARDL) methodology is adopted.

The uniqueness of this paper is our effort to examine the interdependence of GCC countries in responsive parameters understudy to attract foreign direct investment. FDI is a visible driver of the interdependence of these countries. The structure of the paper is divided into the following sections: Section 1 explains the various factors which are important for foreign direct investment. Section 2 the related existing literature reviews, and Section 3 describes the research methodology including data collection. Section 4 interprets the result of the empirical study and Section 5 concludes with future research needs and policy suggestions.

2. Literature review

Foreign Direct Investment and Economic growth or GDP could be studied from two perspectives. One dimension is that FDI affects economic growth and economic growth also affects FDI. Some of the authors agree that Foreign Direct Investment impacts economic growth positively and vice versa, while some authors are of the view that FDI inflows have no positive impact on economic growth and vice versa. The main driver of this positive impact is the technology that is adopted by foreign direct investors.

In their research De Mello (1999), Johnson (2006) Barro (1991), Barro and Sala-i-Martin (1995), Kumari & Sharma (2017), Adnan, Chowdhury, and Mallik (2019), and Shah (2018), have been studied foreign direct investment and economic growth and concluded that there is a positive relationship between these two variables, and FDI has a positive impact on economic growth. If there is an increase in FDI, it will automatically increase demand for the currency of that country and increase the exchange rate. On the other hand, Carkovic and Levine (2002), Sadik and Bolbol (2001), Akinlo (2004), El Heddad (2016), and Alfaro (2003), concluded in their study that FDI has no positive impact on economic growth. They show that there is an opposite direction between economic growth and FDI in which FDI inflow impact negatively economic growth of the country.

Other studies that tested the effect of growth on FDI have also two dimensions. Mencinger (2003,) Chowdhury and Mavrotas (2006), Saha (2005), and Choe (2003) concluded that higher growth of the country will attract more FDI. More foreign investment would come to the fast-growing economy. Considering economic freedom Hamdi & Hakimi (2021) in their research examined twenty-two developed and sixty developing countries. They concluded that openness in the trade may significantly affect the growth of the countries.

Bengoa and Sanchez-Robles (2003) perform panel data analysis in Latin American countries from the period 1970-1999 to see the relationship between economic freedom and FDI. Their results show that economic freedom has a positive and significant effect on FDI in all 18 Latin American countries. (Pearson et al., 2012) have done their research on the impact of economic freedom on FDI in the United States. By using a panel data analysis in the period 1984-2007 they concluded that economic freedom and growth have a significant effect on the FDI. Their results also show that the per capita income of states and the unemployment rate hurt FDI. States whose per capita income is higher prevent FDI inflows because higher income impact higher wages while high unemployment leads to the crime ratio which automatically discourages investors to invest. Dondashe and Phiri (2018) examined the correlation between FDI and Trade in South African countries and concluded that there is a significant correlation between FDI and Trade.

Abdelaziz and Algammal (2019) studied the determinants of foreign direct investment (FDI) in oil-dependent economies. They use panel data for 6 GCC countries in the period from 1990 to 2015. Their results show that there is a positive relationship between oil price, growth, trade openness, and FDI. He concluded that oil reserves hurt FDI. The reason could be according to him that GCC countries have enough financial resources to manage their economic development. In that case, according to this governments put restrictions to protect their resources, reducing the amount of resource-seeking FDI. Asiedu (2011) concluded in his research that

due to oil production and exploration, there is an increase in FDI in extractive industries. He concluded that oil-reliant countries, like the GCC, have a bright future to attract FDI. According to his research, GCC countries should follow less restrictive government policies and reduce barriers to FDI to attract foreign investors. (Corden & Neary, 1982) shows that an increase in the oil price and gas sector hurts the manufacturing sector. An increase in the revenue from oil impacts the real exchange rate by pushing it up, influencing the domestic manufacturing sector less competitive which makes FDI expensive for foreign investors.

Research that has been done by Jadhav (2012) shows the factors affecting FDI attraction in Brazil, Russia, India, China, and southern Africa in the period 2000-2009. His results show that CPI has a positive impact on the attraction of FDI. Hunady and Orviska (2014) researched 27 countries in Europe during the period 2004-2011. Their results show that CPI has no impact on FDI.

Similar research has been conducted by Ali Lamah et al., (2021) on the Indonesian Economy. He examines the impact of CPI and FDI on the growth of the Indonesian economy. He used the data from 2005 to 2019 and concluded that CPI has no positive impact on the GDP of the economy in a short term and long term, while FDI has a positive impact on GDP in the short and long term.

Wigren and Wilhelmsson (2007) studied the relationship between GDP, different groups of construction, and the importance of crowding-out in the construction industry in Europe. The results show there is no crowding-out effect inside the construction industry. Investments in Infrastructure have a filling-in effect by growth in residential and other buildings. Giang and Pheng (2011) study the importance of the construction industry in economic development. The results of his research show a significant relationship between the construction industry and economic growth in developing countries. Ozkan et al., (2012) examined the relationship between economic growth and the construction sector in Turkey. His results show that the construction sector acts as a significant argument catalyzing an economic policy of the country. If there would be a shortage of demand in the economy, in that case, governments would yield GDP by increasing investments of construction investments and stimulating the growth of the sector.

3. Research methodology

The paper shows the effects of EFI, GDP, CPI, construction value-added, and global Oil prices on the inward foreign direct investment stock in GCC (namely Bahrain, Qatar, Kuwait, Oman, Saudi Arabia, and the United Arab Emirates) in the long term and short term. Furthermore, an investigation into the individual nation's effect on the various variables with the annual data is collected for all countries in GCC in the interval period of 1996 to 2020 except Qatar which is from 1999 to 2020. To examine the relationship between the dependent variable inward foreign direct investment held in the receiving country in the forms of equity or loans to domiciled companies in the host countries, and domestic factors i.e. Economic growth, the capital formation due to Construction economic activities, cost of living, a conducive climate for a business and the global oil prices, we apply PMG ARDL for the short and long term:

$$y_{it} = \sum_{j=1}^p \lambda_{ij} y_{i,t-j} + \sum_{j=0}^q \delta_j^i X_{i,t-j} + \mu_i + \varepsilon_{ij} \quad (1)$$

where,

y_{it} = Regressand

X_{it} (KX1) = the vector of explanatory variables (regressors) for the group,

μ_i = represent the fixed effects, the coefficient on the lagged dependent variable

λ_{ij} = scalar coefficients on lagged first-differences of dependent variables

δ_j^i = $k \times 1$ coefficient vectors

To estimate the relationship among the above-mentioned variables we use the following ARDL Model in the following equation:

$$\begin{aligned} \Delta \text{Ln FDI}_{it} = & \alpha_{ij} + \lambda_{1i} \text{Ln FDI}_{i,t-1} \\ & + \lambda_{2i} \text{Ln GDP}_{i,t-1} + \lambda_{3i} \text{Ln CONST}_{i,t-1} + \lambda_{4i} \text{CPI}_{i,t-1} \\ & + \lambda_{5i} \text{EFI}_{i,t-1} + \lambda_{6i} \text{Oil}_{i,t-1} + \sum_{j=0}^q \delta_j^1 \Delta \text{Ln FDI}_{i,t-j} \\ & + \sum_{j=0}^q \delta_j^2 \Delta \text{Ln GDP}_{i,t-j} + \sum_{j=0}^q \delta_j^3 \Delta \text{Ln CONST}_{i,t-j} \\ & + \sum_{j=0}^q \delta_j^4 \Delta \text{CPI}_{i,t-j} \\ & + \sum_{j=0}^q \delta_j^5 \Delta \text{EFI}_{i,t-j} + \sum_{j=0}^q \delta_j^6 \Delta \text{Oil}_{i,t-j} + \mu_i + \varepsilon_{ij} \end{aligned} \quad (2)$$

Where, α = the intercept term λ , δ = subsequent long-term and short-term coefficient

ε = being the error term, μ_i = group effect, Ln FDI represents the foreign direct investment held in the country in form of equity or loans to domiciled companies in the host countries, Ln GDP is the log-transformed GDP per capita at current prices representing the economic growth of the country, Ln Const is the log-transformed Gross Value Added by Construction at current prices - US dollars represent the capital formation due to Construction, CPI is the consumer price index representing cost of living in host countries, EFI is the economic Freedom Indices representing the openness and business-friendly of a country, Oil is Cushing, OK WTI Spot Price FOB (Dollars per Barrel)

To achieve the research objective with the unbalance data we employ the Pooled Mean Group (PMG)/Auto regressive distributed Lag ARDL Models (Pesaran 1997), Pesaran and Shin (1998), (Pesaran et al., 1999) and Pesaran, Shin and Smith (2001) with the variable presented in Table 1.

Table 1. Research Variables

Variables	Measures	Source
FDI	FDI in stock	UNCTAD, FDI/MNE database
GDP	Per capita GDP at current prices - US dollars	United Nations Statistics Division
CONST	Gross Value Added by Construction Activity at current prices - US dollars	United Nations Statistics Division
CPI	annual-consumer price indices (CPI) with the base year 2010	UNCTAD
EFI	Economic Freedom indices	The Wall Street Journal and The Heritage Foundation
OIL	Cushing, OK WTI Spot Price FOB (Dollars per Barrel)	EIA-Refinitiv, an LSEG business

Source: Developed by authors

4. Research Results

The descriptive statistics on the panel data have been presented in Table 2 composed of six countries with a total observation of 147. It is preferred to use the natural logarithm (Ln) of variables of FDI stock and GDP per capita and gross value added by construction activity. The statistics results state that Ln FDI Stock has a mean of 9.53 and maximum of 12.39 and a minimum of 5.95 with a standard deviation of 1.6. The Ln GDP Per capita indicates a mean of 10.08 and maximum of 11.35 and a minimum of 8.73. The Ln Gross value added by construction means is 22.23 and maximum of 24.53 and a minimum of 19.39. The consumer price index calculated annually at the base year of 2010 shows that the mean is 93.34 and maximum of 129.68, and a minimum of 54.12. The countries are ranked based on Economic freedom indices which are formed to include indices of four broad categories namely government size, legal environment, regulatory environment, and the market environment we have included indices of six countries for which the mean is 67.65 with the minimum and maximum at 59.6 and 77.7 respectively. The annual Oil prices are WTI spot prices with a mean of 54.79 and maximum of 99.67 and a minimum of 14.42.

Table 2. Descriptive Statistics

Parameters	LnFDI	LnGDP	LnCONST	CPI	EFI	Oil
Mean	9.53925	10.07846	22.23575	93.34094	67.65986	54.79327
Median	9.74800	10.05780	22.09317	95.69701	66.70000	50.80000
Maximum	12.39576	11.35130	24.52993	129.6481	77.70000	99.67000
Minimum	5.95007	8.734834	19.39695	54.12815	59.60000	14.42000
Std. Dev.	1.60823	0.617912	1.433903	18.97235	4.848297	26.89772
Skewness	-0.32053	-0.052741	-0.088588	-0.179757	0.409431	0.277139
Kurtosis	2.65042	2.422908	1.933116	1.912899	2.039754	1.832379
Jarque- Bera	3.26565	2.107989	7.163994	8.030106	9.754715	10.23221
Probability	0.19538	0.348543	0.027820	0.018042	0.007617	0.005999
Sum	1402.26900	1481.533	3268.655	13721.12	9946.000	8054.610
Sum Sq. Dev.	377.61660	55.74498	300.1874	52552.72	3431.873	105629.2
Observations	147	147	147	147	147	147

Source: Developed by the authors

The correlation between the variables under study is exhibited in Table 3. It is evident from the analysis of the matrices that none of the dependent variables has more than a 0.7 value which indicates the model does not have multi-collinearity amongst the dependent variables. Furthermore, there seems to be a negative correlation between FDI and EFI.

Table 3. Correlation Matrix

Correlations	LnFDI	LnGDP	LnCONST	CPI	EFI	Oil
LnFDI	1.000000					
LnGDP	0.247136	1.000000				
LnCONST	0.767106	0.4048	1.000000			
CPI	0.722729	0.318584	0.431421	1.000000		
EFI	-0.062553	0.100493	-0.133339	0.029813	1.000000	
Oil	0.528009	0.528087	0.36795	0.533709	-0.075806	1.000000

Source: Developed by the authors

To depict the stationarity in time series the unit root test was performed using Levin, Lin, and Chu (2002) Augmented Dickey-Fuller (1979), and Phillips-Perron (1988) Fisher Chi-Square tests which state that null hypothesis = unit root at conventional significance levels. Hence at a p-value <0.05% significance, the null hypothesis is accepted. All the variables at level (I(0)) are non - stationary hence, reiteration was performed and it was found that all variables are stationary at 1st difference(I(1)) with exogenous repressor at constant. Thus concluding that all variables are station at I (1) for which the statistics and relative probability are stated in Table 4.

Table 4. First-generation panel unit root tests

Variables Names	Levin, Lin & Chu t*	Levin, Lin & Chu t*	ADF - Fisher Chi-square	ADF - Fisher Chi-square	PP - Fisher Chi-square	PP - Fisher Chi-square	order of Integration
	Statistic	Prob.	Statistic	Prob.	Statistic	Prob.	
LnFDI	-3.61723	0.0001*	29.5878	0.0032*	51.0394	0.0000*	I(1)
LnGDP	-7.49988	0.0000*	67.6661	0.0000*	94.1081	0.0000*	I(1)
LnCONST	-3.85801	0.0001*	28.2324	0.0051*	43.3131	0.0000*	I(1)
CPI	2.753348	0.0029*	22.5619	0.0317*	32.0915	0.0013*	I(1)
EFI	-7.79051	0.0000*	80.6264	0.0000*	124.943	0.0000*	I(1)
Oil	-8.85849	0.0000*	83.1284	0.0000*	122.496	0.0000*	I(1)

Note: * is p-value <0.05% Source: Developed by authors

Second-generation panel unit root tests are required to be undertaken to seek asymptotic results for cross-sectional dependence, we conduct the Breusch-Pagan Lagrange Multiplier (LM), the Pesaran Scaled Lagrange Multiplier (LM), and the Pesaran Cross-sectional Dependence (CD). The null hypothesis of no cross-sectional dependence, i.e., there is cross-section dependence among the repressors at the significance level. Evidence from Table 5 the null hypothesis is rejected at a 1% level of significance indicating there is cross dependence and which also confirms confirming the appropriateness of the first-generation panel unit root tests for this study.

Table 5. Cross-Sectional Dependents Test

Variables Names	Breusch-Pagan LM		Pesaran scaled LM		Bias-corrected scaled LM		Pesaran CD	
	Statistic	Prob.	Statistic	Prob.	Statistic	Prob.	Statistic	Prob.
LnFDI	327.5432	0.0000*	57.06233	0.0000*	56.93733	0.0000*	18.08203	0.0000*
LnGDP	296.7872	0.0000*	51.44708	0.0000*	51.32208	0.0000*	17.19477	0.0000*
LnCONST	331.9510	0.0000*	57.86707	0.0000*	57.74207	0.0000*	18.21267	0.0000*
CPI	334.9549	0.0000*	58.41550	0.0000*	58.29050	0.0000*	18.28290	0.0000*
EFI	61.86011	0.0000*	8.555447	0.0000*	8.430447	0.0000*	0.034348	0.9726
Oil	360.0000	0.0000*	62.98809	0.0000*	62.86309	0.0000*	18.96525	0.0000*

Note: * is p-value <0.05% Source: Developed by the authors

(Pedroni 1999, 2004), and (Kao 1999) tests are conducted to establish a long-term co-integration relationship between panel variables. The null hypothesis for the Pedroni Residual Co integration Test is no integration. The test was performed under the three deterministic trends: no intercept or Trend, Individual, Intercept and Individual Intercept and individual Trend. The results in Table 6 indicate that out of 11 tests of which four tests for within-dimension and three tests for between-dimension, the majority of the test have a p-value above 5% of significance which explains that there is strong co-integration between the series. The second co-integration test i.e. Kao residual co-integration test administered in individual intercept with the null hypothesis of no integration. The results with a p-value below 5% significance reaffirm the result received under the Pedroni test set forth a stronger proof of co-integration amongst the analyzed variables. We can, therefore, conclude that the variables being analyzed possess a long-term relationship.

Table 6. Co-integration Test

Deterministic trend	Parameters	Pedroni Residual Cointegration Test					
		No intercept or Trend		Individual Intercept		Individual Intercept and Individual Trend	
		Statistic	Prob.	Statistic	Prob.	Statistic	Prob.
within-dimension	Panel v-Statistic	0.411668	0.3403	0.130931	0.4479	-	0.5194
	Panel rho-Statistic	1.302734	0.9037	1.72753	0.9580	2.516635	0.048561
	Panel PP-Statistic	0.2658	0.5106	0.805513	0.7897	0.297044	0.9941
	Panel ADF-Statistic	-1.331953	0.0914	-	0.4069	-	0.6168
between-dimension	Panel v-Statistic	0.422901	0.3362	0.235488	0.3159	3.090974	0.001*
	Panel rho-Statistic	0.422901	0.3362	0.479216	0.3159	0.227002	0.4102
	Panel PP-Statistic	1.121314	0.8689	1.350284	0.9115	2.261329	0.9881
	Panel ADF-Statistic	-0.330299	0.3706	0.272074	0.6072	0.011147	0.5044
for between-dimension	Group rho-Statistic	-1.77194	0.0382*	-	0.3851	-	0.0088*
	Group PP-Statistic	2.01969	0.9783	0.292091	0.9896	2.371839	0.0000*
	Group ADF-Statistic	0.094858	0.5378	0.985689	0.8379	3.000602	0.9987
	Group ADF-Statistic	-3.197363	0.0007*	-	0.0577	-	0.355
		Kao residual cointegration test (individual intercept)					
		t-					
		Statistic	Prob.				
ADF		-3.539922	0.0002*				

Note: * is p-value <0.05% Source: Developed by the authors

Considering that the PMG/ARDL model is reactive to lag length; therefore, to determine the optimal lag structure. As per Table 7, we have based our decision on SC: Schwarz information criterion HQ: Hannan-Quinn information criterion for which results exhibited that ARDL (1, 1, 1, 1) was optimal.

Table 7. Lag structure

Lag	Lolo	LR	FPE	AIC	SC	HQ
0	-1418.963	NA	128011.2	28.78713	28.94441	28.85077
1	-601.1990	1519.885	0.017740	12.99392	14.09488*	13.43937*
2	-552.8511	83.99837	0.013931	12.74447	14.78911	13.57173
3	-526.6349	42.36950	0.017314	12.94212	15.93044	14.15120
4	-474.8814	77.36888	0.013084	12.62387	16.55587	14.21476
5	-438.5711	49.88083	0.013855	12.61760	17.49328	14.59031
6	-400.3779	47.83802	0.014615	12.57329	18.39265	14.92781
7	-356.6110	49.51403	0.014405	12.41638	19.17942	15.15272
8	-295.1570	62.07479*	0.010532*	11.90216*	19.60888	15.02031

Note -* indicates lag order selected by the criterion.LR: sequentially modified LR test statistic (each test at 5% level) FPE: Final prediction error AIC: Akaike information criterion SC: Schwarz information criterion HQ: Hannan-Quinn information criterion

Source: Developed by the authors

To determine the determinants for bivouac of inward foreign direct investment stock in the region and country-specific in hydrocarbon-based economies. The Pooled Mena Group Autoregressive Distributed Lag Model (PMG ARDL) method was adopted as Autoregressive Distributed Lag Model (ARDL)s are standard least squares regressions with lags of the dependent variable and explanatory variables as repressors (Greene, 2008). The model permits intercept and slopes to vary between the cross-section of countries along with differentiating between the short-run and the long-run estimation. The advantage of using PMG /ARDL is that it provides a solution to the situation in which there is short-run heterogeneity and long-run homogeneity of the estimated coefficients in a panel framework (Pesaran, Shin, & Smith, 1999) Based on lag structure criteria we have run the model at lag 1 for Independent variable LN FDI and ln GDP, Ln Cont, CPI, OIL EFI as the repressors.

As per the test results depicted in Table 8 during the period of study the coefficients for the Log of gross domestic product per capita, and log of construction value-added are statistically significant. They have a positive impact on the dependent variable while Oil prices are statistically insignificant to the dependent variable Log of foreign direct investment in the long run equation. The consumer price index and Economic freedom Indices have an inverse relationship with inward foreign direct investment stock. From table 9, the findings state that in long term a percentage increase in LN GDP and LN CONST elevates the LN FDI by 1.5% and 2.56%. A unit increase of CPI and EFI decreases the LN FDI by 0.109% and 0.17% respectively. This indicates that construction value-added capital formation and economic growth are the main drivers for foreign investors to invest and hold investments in the region. Oil prices have no impact on foreign investment in the host region. Results show that cost of living indicators CPI and Economic freedom indices do not drive the inward foreign direct investment in the region.

On the contrary, in the short run, during the period of research, none of the variables are statistically significant which indicates that collectively they may not

have an impact on FDI. However, in that way, we would have to investigate the short-term effect on individual countries. The rate of adjustment toward long-run equilibrium was -0.1018, which indicates that inclusive growth's deviation from the previous was reduced by 10.18% in the following year. Therefore, a lengthy period would be necessary to reach a long-term balance or equilibrium (roughly 10 years).

Table 8. PMG Panel Autoregressive Distributed Lagged (ARDL (1, 1, 1, 1, 1, 1))

Dependent Variable: ln FDI					
	Regresso	Coefficient	Std. Error	t-Statistic	Prob.
rs					
Long Run Equation					
LnGDP		1.506180	0.843550	1.785527	0.0772***
LnCONST		2.568995	1.069795	2.401389	0.0182**
CPI		-0.109096	0.056795	-1.920888	0.0576***
EFI		-0.178904	0.079411	-2.252894	0.0265**
Oil		0.012641	0.012518	1.009787	0.3150
Short Run Equation					
COINTEQ0		-0.101824	0.038252	-2.661931	0.0091*
D(LnGDP)		0.012097	0.250175	0.048355	0.9615
D(LnCONS'		0.070813	0.522488	0.135531	0.8925
D(CPI)		0.013691	0.028326	0.483326	0.6299
D(EFI)		0.006296	0.013888	0.453360	0.6513
D(Oil)		0.002396	0.003200	0.748589	0.4559
C		-4.171515	1.658240	-2.515629	0.0135**

Note: *, **, *** is p-value <0.01%, 0.05%, 0.10% Source: Developed by the author

Analyzing the individual cross-sectional short-run coefficient Annexure -1 during the period of the investigation indicates that there is a mixed range of rates of adjustment toward long-term equilibrium in individual countries. Even though UAE has a non-negative coefficient it means that there is no convergence to long-run equilibrium. Bahrain, Oman, Kuwait, Qatar, and Saudi Arabia indicate varied tenor that is required to reach a long-term balance. Bahrain takes the longest period at approx. 37 years. The shortest period shows Qatar with approx. 4 years duration. The difference may be attributed to different economic and social structures. It is witnessed that Economic Freedom Indices is the driver for each nation on inward foreign direct investment except UAE.

Thus, in long run, GCC collectively draws policy that increases the economic health of the GCC region as reflected by improved GDP per capita and the capital formation from construction activity. These variables affect positively the total equity share and net loans provided by foreign investors to local enterprises in the region. However, results show that in the short run, country-specific policies towards improving the composite factors included in economic freedom indices may improve the inward foreign direct investments held in recipient nations.

5. Conclusion

We examine the determinants of inward Foreign Direct Investment stock in the Gulf Cooperation Council countries. The panel data of the countries Bahrain, Oman, Kuwait, Saudi Arabia, and UAE were from 1996 to 2019 and for Qatar from 1999 to

2020. In this paper, we study the gulf council nation's economic growth, capital formation by construction activity, cost of living, economic freedom, and global oil prices as determinants for foreign investors to invest in domestic enterprises in the host region of GCC. The research employs Pooled Mean Group ARDL as the method that enables finding the long-term and short-term effects collectively and independently. As discussed, various research has been conducted to determine the factors which attract inward FDI such as economic growth, trade openness inflation, etc. However, this research provides novel parameters which impact the foreign investor's decision to invest in domestic enterprises of hydrocarbon-based economies. As a result, by offering quantitative metrics that independent nations and regions can use as a whole, this research fills a research need. Both short-term and long-term impacts are supported by empirical findings. The study demonstrates that the nations in the Gulf Economic Integration have a significant economic cross-sectional dependency for encouraging foreign direct investment. It is well established that the GCC's member nations are highly interdependent economically.

The empirical results suggest that in the regional integration among the variables with economic growth, capital formation due to construction activities demonstrate a beneficial impact on foreign direct investment stock in the long run. However, the cost of living and economic freedom index have long-term detrimental effects and global oil prices are statistically insignificant to influence the foreign investors for FDI stock in the GCC. In the short run, the block remains statistically insignificant and the speed of adjustment toward long-run equilibrium appears medium-term at about 10 years for the chosen nation. Further analysis of the cross-section short-run coefficients indicates that singularly all countries in short term have the FDI stock positive, affected by economic freedom except the UAE who has a negative effect. However economic growth remains statistically insignificant for all countries except for Bahrain which has a positive influence on other predicted variables. In general, each country shows a diverse impact on FDI stock in its economies. Global oil prices remain insignificant to the region as these are hydrocarbon exporting countries.

Further research is suggested to be conducted in a large number of countries that are non-hydrocarbon-based economies for more robustness of the result. Our research results suggest bringing regional common policies for long-term economic development and capital formation in terms of construction activities.

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Appendix- 1

Country	Variable	Coefficient	Std. Error	t-Statistic	Prob.
ARE	COINTEQ01	0.003711	0.000684	5.426477	0.0123
	D(LnGDP)	-0.632869	1.008287	-0.627668	0.5747
	D(LnCONST)	2.580843	1.903508	1.355835	0.2682
	D(CPI)	-0.056767	0.001487	-38.17406	0.0000
	D(EFI)	-0.061508	0.000865	-71.08551	0.0000
	D(Oil)	0.001819	4.62E-05	39.38285	0.0000
	C	0.344533	1.382210	0.249262	0.8192
BHR	COINTEQ01	-0.027067	0.000233	-116.0857	0.0000
	D(LnGDP)	0.932739	0.183684	5.077944	0.0148
	D(LnCONST)	-0.224895	0.019905	-11.29840	0.0015
	D(CPI)	-0.020303	9.90E-05	-204.9827	0.0000
	D(EFI)	0.011475	7.45E-05	153.9941	0.0000
	D(Oil)	-0.000419	3.30E-06	-127.0852	0.0000
	C	-0.856516	0.189720	-4.514628	0.0203
KWT	COINTEQ01	-0.084455	0.001783	-47.36281	0.0000
	D(LnGDP)	-0.714882	0.701329	-1.019324	0.3831
	D(LnCONST)	-0.650841	0.316139	-2.058722	0.1317
	D(CPI)	0.143868	0.001743	82.52715	0.0000
	D(EFI)	0.018903	0.001211	15.61126	0.0006
	D(Oil)	0.017609	8.23E-05	213.9144	0.0000
	C	-3.665131	2.325043	-1.576371	0.2130
OMN	COINTEQ01	-0.114123	0.002855	-39.97638	0.0000
	D(LnGDP)	0.063731	0.103172	0.617717	0.5805
	D(LnCONST)	-0.044272	0.012663	-3.496300	0.0396
	D(CPI)	-0.012768	0.000127	-100.3169	0.0000
	D(EFI)	0.012848	9.36E-05	137.2482	0.0000
	D(Oil)	0.001739	6.69E-06	259.8612	0.0000
	C	-4.337183	1.982610	-2.187612	0.1165
QAT	COINTEQ01	-0.263561	0.010080	-26.14573	0.0001
	D(LnGDP)	0.173028	0.169404	1.021394	0.3823
	D(LnCONST)	-0.218466	0.054310	-4.022561	0.0276
	D(CPI)	0.001731	0.000111	15.59489	0.0006
	D(EFI)	0.030797	0.000108	284.1740	0.0000
	D(Oil)	-0.004731	1.15E-05	-409.6437	0.0000
	C	-11.21003	6.472918	-1.731836	0.1817
SAU	COINTEQ01	-0.125448	0.002520	-49.78620	0.0000
	D(LnGDP)	0.250835	0.120687	2.078397	0.1292
	D(LnCONST)	-1.017489	0.147379	-6.903903	0.0062
	D(CPI)	0.026382	8.02E-05	328.9397	0.0000
	D(EFI)	0.025261	4.79E-05	527.0555	0.0000
	D(Oil)	-0.001643	6.02E-06	-273.1864	0.0000
	C	-5.304761	1.476998	-3.591583	0.0370