MOTIVES OF FOREIGN DIRECT INVESTMENT (FDI) IN ETHIOPIA: AN EMPIRICAL ANALYSIS

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Abstract

The central aim of this paper is to investigate the major motives of inward FDI to Ethiopia from 1992-2015. Various economic and financial variables were taken into consideration to assess the relationship between FDI and its motivational factors. Ordinary Least Square method was applied to estimate the association, while Johansen's co-integration test was employed to examine the combination, and Vector Auto-regressive (VAR) model was used to check whether there is a long run relationship between FDI and explanatory variables. The statistical results show that there is positive and significant relationship between FDI and market size, trade openness, exchange rate and financial freedom whereas inflation had negative and significant association with FDI. However, investment freedom and economic globalization indicated an insignificant relation. Even though all variables jointly affect FDI in the long run, the VAR result didn't reveal any long term relationship between FDI and its motivational factors individually.

Keywords: *FDI, motives, Ethiopia, VAR model, OLS regression method*

JEL classification: *F21, C32*

1. Introduction

One of the indispensable constituent of the movement vis-à-vis economic globalization is international capital flows, in which portfolio investment and FDI figure outstandingly. FDI entails that the investor exercises a considerable degree of authority on the management of the enterprise dwelling in the other economy. Such investment engages mutually the original business deals among the two entities and the entire succeeding transactions between them and amongst foreign associates, incorporated and unincorporated. Both individuals as well as business entities can be the important actors in FDI process (UNCTAD 2007). Such investment involves both the initial transaction between the two entities and all subsequent transactions between them and among foreign affiliates. FDI has innumerable effects on the host country's economy. It influences the income, production, prices, employment, economic growth, development and general welfare of the recipient country. FDI creates significant channels for the dissemination of modern technology (Blomstrom and Wang 1992). Therefore, we can say that FDI plays a key role in development of emerging economy because the very essence of economic development is the rapid and efficient transfer and adoption of "best practice" across borders.

Currently, the issue of FDIs is being paid more attention, both at national and international level and playing an important role in improving and modernizing the productive structure of emerging economies. However, the driving forces for investment abroad are inconclusive as different factors might motivate investors to undertake investments on various sectors of the host countries' economy. Investing entities or individuals' characteristics, capacities and strategies on one hand and the political, social cultural and economic situations of the host and investing countries on the other hand can be taken into account when we think of the desire in FDI. Over the past decades, FDI (FDI) became a major source of funding for capital projects in the majority of world economies. Theories and existing literature have given incompatible outcomes about the association between FDI and its determinants. Some researchers affirmed that FDI inflows could trigger technological change through the implementation of foreign technology, essential capital and skills to speed up huge levels of output.

In the region, FDI inflows to a dozen beneficiaries dropped, and vigorous gains were documented in only two countries: Ethiopia (an increase of 26 per cent to $1.2 billion) and Zambia (up 37 per cent to $2.5 billion). The intensifying textile sector remained to catch the attention of FDI in Ethiopia with its stumpy wages and inexpensive

power. Ethiopia set foot in the top five FDI flows to landlocked developing countries for the first time, in terms of worth of inflows, joining Zambia, Kazakhstan, Turkmenistan and Azerbaijan.

The role of FDI in the global economy is becoming progressively imperative, leading to ever greater emphasis on the drivers of FDI in the recent two decades. Ethiopia's recent enormous achievement in creating a centre of attention in FDI in terms of joining the top five FDI flows to landlocked developing countries for the first time creates some sort of curiosity about what attracts those foreign direct investors to Ethiopia. It is clearly shown on figure 1 that the amount of FDI flow to Ethiopia dramatically surged following the year 2012.

There are several potential factors which make Ethiopia a preferred investment destination from both developed and developing countries like the general political trade and investment agreements with the main investor countries in addition to cheap unskilled labour, market attractions, investment guarantee, tax exemptions and other incentives. Therefore, the central aim of this paper is to examine the major motivations of FDI in Ethiopia taking into considerations various economic and financial variables.
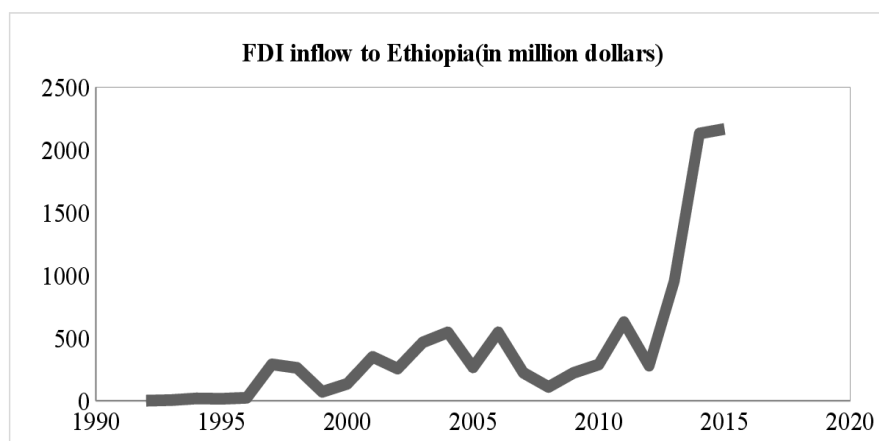

Figure 1: FDI flow to Ethiopia from 1992-2015
Source: World Bank and author's computation

2. Literature Review

Several empirical studies have been conducted concerning the motives and determinants of inward and outward FDI on developing and developed countries employing various methods. Larimo & Arslan (2013) examined the determinants of FDI in four Nordic countries in central and Eastern Europe region for the period of 1990-2007. Superior R&D strength of the industry of the investment, insignificant host country risk, enormous economic size and extraordinary economic progress in the target country enhance likelihood of the creation of wholly-owned subsidiary. For FDIs that took place in 1990s, additional thorough analysis discovered that product variety, transnational experience and supremacy of market compatible standards in the host country were substantial elements of ownership mode preference for Nordic FDIs. Likewise, Villaverde & Maza (2015) argued that competitiveness, economic potential, technological progress and labour market characteristics were the chief location-specific determinants of FDI in the region. Nevertheless, the remaining factors such as labour regulation and market size reveal insignificant effect on the above mentioned location-specific variables.

A conference paper by Castro, et al. (2013) uncover that trade openness and gross domestic product play a crucial role in drawing FDI to Brazil whereas trade liberalization became a significant element for Mexico. Focusing on FDI investments of two countries, Tahir & Weijing (2011) pointed out that ANZ manufacturing firms will engage in efficiency-seeking ownership structures, market-seeking and/or wholly owned subsidiary FDI due to low levels of

cultural gap and huge market potential. On the other hand, low exchange rate variation intensifies the likelihood that ANZ manufacturing firms will embark on wholly owned subsidiary-type risk reduction-seeking FDI.

According to the panel data analysis of Ranjan & Agrawal (2011), trade openness, macroeconomic stability, market size, growth prospects, infrastructure facilities and probable labour cost stimulated FDI inflow in Brazil, Russia Federation, India and China. However, labour force and gross capital formation remained trivial even though the effect of growth prospects and macroeconomic stability is slightly low. The other region which attracts foreign direct investors is Sun-Saharan Africa. Several studies focused on motives FDI in Sub-Saharan African (SSA) countries. As stated by Asiedu (2002) trade openness stimulates FDI to SSA countries whereas enhanced infrastructure and considerable return on investment don't show substantial result in attracting FDI. The paper argues that non- SSA countries are in advantageous position in terms of trade liberation and geographical location as compared to SSA countries. A study based on a sample of 45 African countries from 1980-2009 indicated that real GDP growth, natural resources, agglomeration economies and Worldwide investment arrangements are some of the critical factors to attract inward FDI to the continent (Sichei and Kinyondo 2012). In the same way, Olatunji & Shahid (2015) mentions that effective implementation of privatization; foreseeable and reliable policy and macroeconomic atmosphere efforts at regional integration, wide-ranging human resource development; adequate infrastructural amenities and diligent investment campaign.

Furthermore, a sequence of panel data models is utilized by Ross, (2015) to evaluate the determinants of Chinese OFDI into eight African countries: Nigeria, Egypt, Kenya, Zambia, Sudan, South Africa, Algeria, and Ghana. The outcome of the study emphasized that infrastructure superiority, regulatory environment imposed by host governments and access to natural resources are the main factors which motivate Chinese investment in African countries.

Wafure & Nurudeen (2010) scrutinizes the driving factors of FDI in Nigeria. The results disclose that the scope of the market in the target country, political uncertainty, deregulation, and depreciation of exchange rate are the chief contributing factors of FDI in Nigeria. In addition, Bekhet & Al-Smadi (2015) observed long-run and short-run links between FDI and financial market development, money supply, gross domestic product, stock market index, consumer price and index economic openness. The empirical findings of Tang, et al., (2014) show that real exchange rate, financial development, GDP, and macroeconomic instability are positively associated with inward FDI in electronic and electrical industry in Malaysia in the long term. Nevertheless, social uncertainty and corporate income tax registered an adverse effect on inward FDI in the industry. Additionally, the Granger causality outcomes point out that, in the long run, all the above variables Granger-cause FDI; however, social and macroeconomic uncertainties merely Granger-cause FDI in the short-run.

When we come to Ethiopian case, some studies shed light on motives and determinants of inward FDI at different times. The empirical study made by Getinet & Hirut (2006) from 1974 to 2001 illustrates that export orientation, growth rate of real GDP and economic liberalization brings a positive significant effect on FDI. Conversely, inadequate infrastructural facilities and uncertain macroeconomic variables entail adverse effect on FDI. Another study supports the previous findings that the recent substantial FDI growth is unswervingly linked with the enormous development of infrastructure such as road access, telecommunication, electricity, and outstanding airline facility in the country (Atlaw, Teklemariam and Dong-Geun 2014). In addition to that, Amanuel's (2015) study based on time-series data demonstrates that inflation rate and trade openness level have had a compelling influence on the movement of FDIs to Ethiopia. However, infrastructural growth, human capital and market size remained insignificant for the study period.

To sum up, there are number of studies which focused on FDI vis-à-vis its motives and/or determinants but this study took the tip of the iceberg emphasizing on the most recent ones. Though the above studies focused on different countries and regions, employed a variety of models and methodologies, covered diverse time periods, it seems possible to summarize that macroeconomic and political stability, infrastructural development, cheap labour, trade openness and effective regulatory environment are significant to attract FDI to countries.

3. Variables and Hypothesis

Based on the theoretical and empirical evidences that were discussed in the previous parts of the paper, the following hypothesizes are proposed.

3.1. Dependent variable
3.1.1. FDI (FDI)

FDI can be expressed either FDI values in monetary terms or FDI as a percentage of GDP. In this study, the later was employed as endogenous variable to assess the major driving forces of inward FDI in Ethiopia.

3.2. Independent Variables
3.2.1. Market Size

The size of the recipient country's market is customarily intended to be one of the most chief contributing factors, particularly for market-seeking FDI. A larger market is an indication of superior demand for goods and services and, consequently, makes the host country more eye-catching for FDI. Numerous empirical studies have supported the significance of market size, and the association between FDI and market size has been evidenced to be positive and unambiguous in many of these studies.

H1 Larger market size/growth is positively associated with FDI inflows

3.2.2. Openness to Trade

The relationship between FDI inflows and trade openness of the host country is subject to primarily on the motives of FDI in the recipient country. For instance, in market-seeking FDI, the intention of the investing firm is to serve the domestic market. It is anticipated that the more the trade permitted and/or accessible with a country, the more opportunities it brings for the investors and improved incentives for foreign investors to involve in the countries' business and economic development.

H2. The expected effect of openness to international trade on FDI is to be positive.

3.2.3. Exchange Rate

Currency devaluation measured by the exchange rate is likely to encourage inward FDI in the host country as it makes the host country's assets undervalued, reduces the unit cost of the host country's factor of production and increases the relative wealth position of foreign investors. However, the counter argument also holds that as foreign investors might take a depreciating domestic currency as a signal of future depreciation and thus reduce investment.

H3. Exchange rate is expected to have an impact on inward FDI

3.2.4. Inflation Rate

High and volatile inflation increases uncertainty and thus, leads to higher investment risk. Therefore, FDI will be discouraged by such conditions. Moreover, high inflation rate increases the user cost of capital in the host country and negatively influences profitability of FDI.

H4. High and volatile inflation affects FDI inflow negatively

3.2.5. Business, Financial and Investment Freedoms

The US based Heritage Foundation publishes countries' business, financial, investment and other freedom scores annually. Business freedom measures individuals' choices to form and manage a business without government intervention whereas financial freedom deals with the accessibility of varied savings, credit, payment and investment facilities in the country and investment freedom shows the independence of individuals/firms to decide on where and how to invest.

H5. Business, financial and investment freedoms affect FDI flow positively

3.2.6. Economic Globalization

KOF Globalization Index which is issued by Swiss Economic Institute constitutes economic, political and social globalization scores. The economic globalization takes into consideration universal trade, investment and revenue flows corresponding to GDP along with the impact of limitations on trade and capital dealings to gauge economic globalization of countries.

H6. Economic globalization will have a positive effect on FDI flow

3.2.7. Infrastructure

The accessibility of improved quality infrastructure in the host country is believed to be vital for the process of production as it smooths the development of supply and circulation of production factors. Foreign investors favour to place their investment in countries that have a full-figured physical infrastructure such as unswerving telecommunication facilitates (e.g. mobile, fixed telephones and internet), railways, paved roads, sea, a power supply and air ports.

H7. Infrastructure development is a positive determinant of FDI inflows

3.2.8. Country Risks

Political instability and corruption are supposed to measure countries' risk level in the current study. The two components are presumed to affect FDI inflow unfavourably. Corruption impedes investment directly and indirectly although the relationship between political instability and FDI is not unresolved. Several countries in this analysis are characterized by a high degree of instability, such as frequent military interventions and religious and ethnic conflicts.

H8. There is a negative relationship between country risks (corruption and political instability) and FDI inflows

3.2.9. Human Capital

An educated workforce has been recognized as an important determinant of FDI especially when firms are efficiency seeking. Some studies argued that a higher level of education in the workforce can lead to higher flows of FDI. Over the last few years, great attention has been given to education as it is one of the central tenets of the millennium development goals. Also, quality of labour is important and raising the levels of human capital through education leads to skill acquisition

H9. Human capital accumulation has a positive impact on FDI inflows

4. Data and Methodology

In order to examine motives of inward FDI in Ethiopia, time series data from 1992-2015 were collected from secondary sources. These data were collected from both domestic (i.e. Ethiopia) sources like National Bank of Ethiopia and Central Statistical Agency and international data sources such as World Bank and IMF as well as specific indices from The Heritage Foundation and Swiss Economic Institute.

The study employed a quantitative approach to assess the relationship between FDI and the above mentioned explanatory variables to document the real motivational factors of inward FDI in Ethiopia. Therefore, using the above variables, the following model can be formed to explain the short and long run association between FDI and the expected motivational variables:

$$FDI = \beta_0 + \beta_1 GDP + \beta_2 TRADE + \beta_3 EXRA + \beta_4 INFLA + \beta_5 INVFRE + \beta_6 FINFRE + \beta_7 ECOGLO + \beta_8 INFRAS + \beta_9 COR + \beta_{10} HUMCAP + e_t \qquad (1)$$

Where GDP stands for market size, *TRADE* is openness of trade, *INFL* is inflation rate, *EX* is exchange rate, *FINFR* is financial freedom*, INVFR* is investment freedom*, ECGL* signifies economic globalization*, INFRAS* is infrastructure *COR* stands for corruption and *HUMCAP* indicates human capital.

Ordinary least square regression method was used to determine the estimation of the relationship between FDI and the explanatory variables whereas the VAR model was employed to check whether there is a long run relationship. The time series data were analysed using Eviews 8.0 software package.

5. Results and Discussion
5.1. Multi-collinearity test
Various testes were made in order to determine both short and long run relationships among variables accurately. The first is multi-collinearity test which occurs when two or more of the explanatory variables in a regression model are reasonably or extremely interrelated. When this happens, it can adversely affect our analysis and inferences we make. Therefore, the result of the multi-collinearity test shows that human capital, labour force, infrastructure and country risk are highly correlated with each other and with other explanatory variables and are removed from the study.

5.2. Unit Root Test
Numerous economic and financial time series data reveal trending behaviour or non- stationarity in the mean. A series is supposed stationary if the mean and auto-covariances of the series do not depend on time and an alteration in time doesn't affect a variation in the form of the distribution. It is inaccurate to perform hypothesis tests concerning the regression parameters if the variables in the regression model are not stationary. Hence, unit root tests are used to test for stationarity in these time series data.

As it shown in table 1, we reject the null hypothesis because the unit root test of ADF shows that FDI, INFLA and TRADE are stationary at level whereas EXRA, FINFRE, INVFRE and ECOGLO are stationary at first difference. Besides, GDP per capita became stationary at second difference. Therefore, it is plausible to undertake a regression test since the result implies that all variables are stationary.

5.3. Co-integration Tests
Economic theory often recommends that some sets of economic or financial variables ought to be interrelated by a long-run economic association.

Two time series variables x_t and y_t are assumed to be co-integrated if there occurs a parameter α;

$$u_t = y_t - \alpha x_t \qquad (2)$$

Table 1: Unit root test result based of Augmented Dickey-Fuller (ADF)

Variable	Level	First difference	Second difference
LNFDIPERS	-5.076 ***		
LNTRADE	-3.139 **		
LNINFLA	-4.926 ***		
LNEXRA	0.787	-8.213 ***	
LNFINFRE	0.821	-4.690 ***	
LNINVFRE	-2.046	-4.393 ***	

LNGDPPERGR	-1.039	-0.795	-8.462***
LNECOGLO	-2.353	-2.830*	

*** significant at 1% level, ** significant at 5% level and * significant at 10% level
Source: author's calculation

The above formula follows a stationary process as it appears that plenty of economic series tracks that approach and because this is often anticipated by theory. Table 2 demonstrates that H0 of no co-integration among the variables in the INVFRE, GDP and ECOGLO models are rejected at 1% level of significance which indicates that there is a co-integration between FDI and the three variables. Similarly, TRADE and FINFRE are co-integrated with FDI at 5% significance level. Conversely, INFL and EXRA did not show any co-integration among the variables.
A regression analysis which indicates the relationship between our dependent variable FDI and the independent variables stated below displayed in table 3. In addition, the regression equation enables us to forecast or predict the relation between variables. Three variables namely EXRA, FINFRE and GDP became significant at 1% level while TRADE and INFLA are significant at 5% with positive and negative coefficients respectively. However, the other independent variables INVFRE and ECOGLO turn out to be insignificant. R2 which gauges the success of the regression in forecasting the values of the dependent variable within the sample is 94% that is quite high and supports appropriateness of the regression model. The p-value just below the F- statistics signifies the marginal significance level of the F-test. The value is 0.0000 which is fundamentally zero that shows all the independent variables jointly affect the dependent variable.
The market size represented by GDP growth draws the attention of investors since it is an indication of the Ethiopia's potential to produce goods and services. This finding is supported by Omar & Anil (2015); Chan et.al (2014); Castro (2013) and Mangir et.al (2012). Investment freedom is essential for the development of FDI in countries like Ethiopia because the existence of it may encourage foreign investors to invest more. Comparable results were found in the studies of Fofana (2014); Sinha et.al (2007). Economic globalization is noteworthy for the smooth movement of trade, investment and capital in the country and this statement is backed by the empirical findings of Neto & Veiga (2009) and Leitão (2012).

Table 2: Johansen's co-integration test result

	H_0	Trace statistics	Critical value	Probability
TRADE	r=0	15.533*	15.494	0.0493
	r ≤ 1	2.271	3.841	0.1318
INFL	r=0	14.318	15.494	0.0746
	r ≤ 1	2.209	3.841	0.1372
EXRA	r=0	12.245	15.494	0.1455
	r ≤ 1	0.599	3.841	0.4387
FINFRE	r=0	15.543*	15.494	0.0492
	r ≤ 1	1.156	3.841	0.2822
INVFRE	r=0	35.437*	15.494	0.0000
	r ≤ 1	3.532	3.841	0.0602

GDP	r=0	21.711[*]	15.494	0.0051
	r ≤ 1	9.735	3.841	0.0018
ECOGLO	r=0	24.182[*]	15.494	0.0019
	r ≤ 1	7.701	3.841	0.0055

* denotes significance at 5% level
Source: author's calculation

Trade openness is an imperative determinant of FDI for Ethiopia. The more the country allows trade openness the more it boosts investors' confidence favouring productivity surge of transnational firms by means of importing capital goods and innovative technologies. Rogmans & Ebbers (2013), Assefa, et al. (2013) and Vijayakumar, et al. (2010) found identical results emphasizing the significance of trade openness. Like the investment freedom, financial freedom plays a vital role for the improvement of FDI flows to Ethiopia. The accessibility of varied loans, payment and investment facilities in the country can be a catalyst to enhance FDI. The research results of Matallah & Ghazi (2015) and Ajide (2014) strengthens the finding.
Concerning exchange rate, one of the two outcomes was expected which supports the literature. The Ethiopian birr, which is known for devaluation and depreciation, encouraged foreign investors to invest more probably due to boosting their relative wealth position. Tang et.al (2014), Bilawal, et al. (2014) and Omankhanlen (2011) found positive relation between FDI and exchange rate. Like anticipated the coefficient of inflation was negative which indicates that skyrocketed and volatile inflation exacerbates uncertainty and brings about higher investment risk in Ethiopia. The inquiries of Demirhan & Masca (2008) and Bekhet and Al-Smadi (2015) illustrated the same outcome.

Table 3: regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-38.52405	8.437083	-4.566038	0.0003
LNTRADE	2.288860	0.922883	2.480119	0.0246[**]
LNINFLA	-0.409517	0.160085	-2.558126	0.0211[**]
LNEXRA	2.761572	0.859337	3.213607	0.0054[*]
LNFINFRE	4.590394	1.217472	3.770431	0.0017[*]
LNINVFRE	0.352702	0.420885	0.838000	0.4144
LNGDPPERGR	0.365058	0.100309	3.639325	0.0022[*]
LNECOGLO	2.974410	2.044748	1.454658	0.1651
R^2	0.942			
F-statisitcs	37.141			
Prob(F-statisitcs)	0.000000[*]			

*significant at 1% ** significant at 5% *** significant at 10%
Source: author's calculation

The VAR model is a generalization of the univariate autoregressive model for predicting a pool of variables; that is to say, a vector of time series. It encompasses one equation per variable measured in the system (Hyndman and Athanasopoulos 2013). A constant and lags of all the variables in the system is incorporated in the right hand side of each equation.

$$Y = c + a_1 y_{t-1} + \ldots\ldots a_p y_{t-p} + e_t \tag{3}$$

A VAR model was used to check whether there is a long run relationship between FDI and its motivational variables. As it is indicated in table 4, even though the model elucidates all the variability of the response data around its mean (R^2= 89%), the statistical result didn't reveal any long term relationship between FDI and its motives individually.

Table 4: VAR model result

	Coefficient	**Std. Error**	**t-Statistic**	**Prob.**
C(1)	-0.156045	0.694880	-0.224564	0.8235
C(2)	-0.409910	0.639143	-0.641343	0.5250
C(3)	-0.227505	3.634674	-0.062593	0.9504
C(4)	-0.024379	2.524838	-0.009656	0.9923
C(5)	-0.179777	0.509827	-0.352623	0.7262
C(6)	-0.205026	0.509865	-0.402119	0.6897
C(7)	2.090154	8.809459	0.237262	0.8137
C(8)	3.494414	6.898746	0.506529	0.6153
C(9)	2.912830	3.144400	0.926355	0.3598
C(10)	-0.471326	4.293347	-0.109781	0.9131
C(11)	1.815790	1.797713	1.010055	0.3185
C(12)	-0.294549	1.869495	-0.157555	0.8756
C(13)	-0.057391	0.603190	-0.095146	0.9247
C(14)	0.010464	0.374173	0.027965	0.9778
C(15)	-0.027134	11.57848	-0.002344	0.9981
C(16)	1.437435	10.44722	0.137590	0.8913
C(17)	1.590414	27.25607	0.058351	0.9538
R-squared	0.893571			
Adjusted R-squared	0.552999			

Source: author's calculation

In the same way, Wald test was carried out to show the effect of two or more variables together on Independent variables. Here the results found confirm Chi square value with probability of above 1%, 5% and 10% level of significance signifying that the variables jointly cannot influence the dependent variable. Therefore, there is no statistical evidence for the considerable FDI investments into Ethiopia greatly inspired by the trends in the explanatory variables used in this study.

6. Conclusion

The study assessed the major motives of inward FDI in Ethiopia employing time series data from 1992-2015. OLS regression method, Johansen's co-integration test and VAR model were used to predict, check combinations and examine long run relationship between FDI and the explanatory variables during the stated period of time. The statistical results show that there is significant and positive relationship between FDI and market size, trade openness exchange rate and financial freedom whereas inflation had negative and significant link with FDI. The remaining variables which are investment freedom and economic globalization indices were found positive but insignificant. This shows that Ethiopia's double digit growth for the last decade, impressive performance in trade, devaluations and depreciations of Birr and the availability of credit and investment facilities for foreign investors play a substantial role to attract inward investments to the country. However, high and volatile inflation rate became one of the challenges for investors in form of escalating uncertainty and aggravating investment risk. Therefore, Ethiopian government should take appropriate macroeconomic policy measures to tackle this and other investment related impediments in order to attract and motivate investors.

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