

-RESEARCH ARTICLE-

## MACROECONOMIC DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN VIETNAM: A TIME SERIES ANALYSIS

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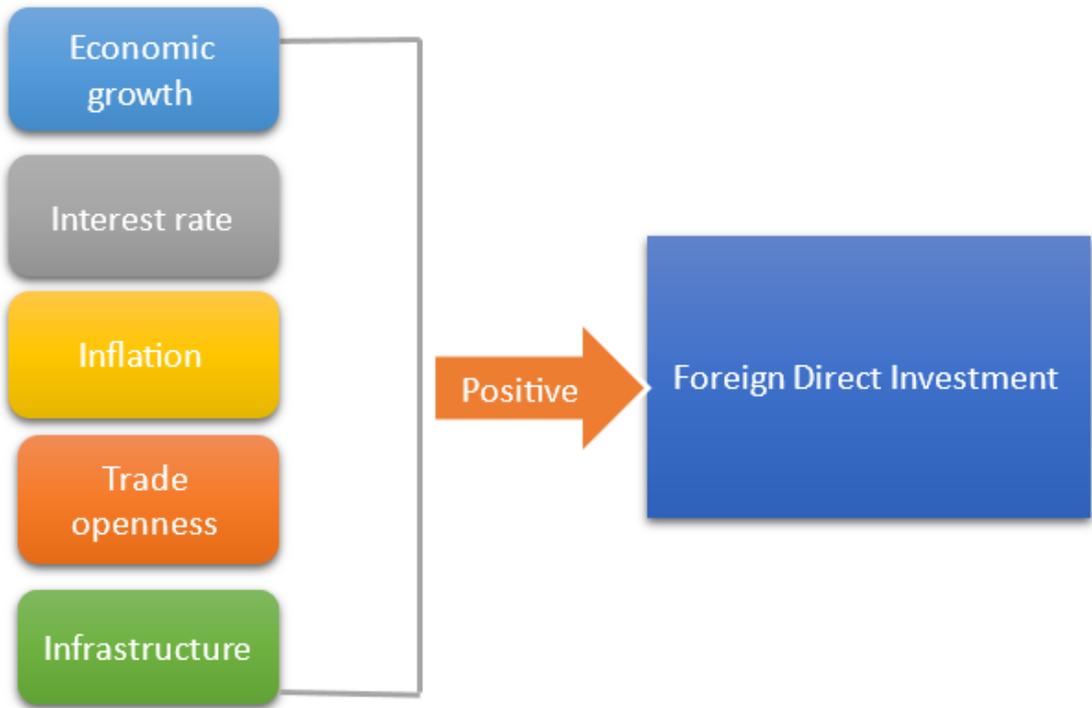
### —Abstract—

The foreign direct investment plays a significant role in the economic development of developing countries. In this regard, the present study aims at finding the macroeconomic determinants of foreign direct investment in Vietnam particularly focusing on interest rate, inflation, trade openness, infrastructure and economic growth controlling for labour force and gross capital formation. Time series data spanning over 1990 to 2023 period is analyzed for this purpose using Autoregressive Distributed Lag Model approach. The outcomes indicate that in the long run interest rate, inflation, trade openness, economic growth and infrastructure, all have statistically significant and positive impact on FDI. However, in the short run, infrastructure does not show any significant relationship with FDI. On the basis of these findings, a number of policies are recommended to policymakers and Vietnamese government to effectively monitor the selected macroeconomic determinants to attract more FDI inflows in Vietnam.

**Keywords:** Macroeconomic determinants; FDI; Vietnam; ARDL Bound testing approach.

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## GRAPHICAL ABSTRACT



## INTRODUCTION

The early stages of the development lead to the over exploitation of the resources by countries to achieve a targeted and sustainable growth rate (Nguyen, 2021). However, in order to achieve a faster rate of development, countries are looking for more effective ways to attract foreign resources such as foreign direct investment (FDI). FDI is an investment type by which capital moves from one to another country to disperse risks, seek profits, transfer technology and expand markets (Nguyen, 2021). FDI is the investment of a foreign individual or firm to the business in the host country. FDI is a source of foreign currency and capital flows through investments which provide necessary funds for domestic capital needs and also provide several other benefits such as improved managerial skills, technology transfer, increase in employment opportunities and competitiveness of domestic countries (Dang & Nguyen, 2021). Particularly, in many developing economies, FDI is considered to be the only source of external financing which surpasses aid, portfolio investment and remittances. Developing countries need a significant increase in capital flows to achieve the sustainable development and the only way for developing countries to accomplish this task is the private-sector investment. In this situation, FDI not only provides necessary funding but also helps these economies to improve their

productivity level through knowledge transfer and competition and help them to integrate into global markets. In simple words, FDI is a type of foreign investment capital which can be used to invest in business, production, and services to earn profits. FDI also contributes to increase the total investment in an economy which can majorly affect the aggregate demand and consequently employment and output (Van Anh et al., 2025). Moreover, in the long run, FDI can be beneficial for the host and home countries by facilitating more access to international markets, enhancing human capital development, providing needed foreign currency, transferring latest technologies, and enhancing competition in domestic markets- all of which can lead to job creation, improved living standards for people in host and home countries and increase in economic growth (TA et al., 2021).

Therefore, for developing countries which focus on attracting FDI, understanding the factors which influence investment decisions of foreign investors is important for implementing policies to attract foreign investors. According to the World Bank, absorptive capacities or macroeconomic determinants are necessary for the FDI inflows (Ghahroudi & Chong, 2020). Alfaro et al. (2004) posit that absorptive capacities include macroeconomic determinants such as trade openness and inflation, infrastructure such as roads and telephone lines and skilled labour force. The countries with liberalized trade policies, skilled labour force and increased growth prospects attract more foreign investors who seek to maximize their returns because these countries provide conducive environment for foreign investors. Moreover, interest rate is also one of the main factors which influence the FDI inflows to the host countries. Lower interest rates attract foreign investment by minimizing the cost of borrowing for foreign investors. On the other hand, when interest rates are high in host country, domestic investors may hesitate to invest and borrow due to the increased capital costs, but for foreign investors, it presents an opportunity of gaining higher returns on their investments. Foreign investors are always in search of the markets which provide competitive returns on their investments. When compared to the lesser returns offered in nations with lower interest rates, foreign investors may find the possibility of generating sizable returns on their investments in high-interest countries more appealing (Zahid, 2018).

In the same vein, inflation rate is one of the important macroeconomics determinants of FDI. Inflation rate affect the overall financial performance of a country and it is also related to macroeconomic mismanagement which discourage FDI inflows to host countries (Farazmand & Moradi, 2014). Similarly, trade openness has a significant role in attracting the foreign investments to the country. The trade barriers of a country have direct negative effect on the FDI inflows. Consequently, a low import barrier will lessen FDI tariff-jumping (Kueh & Soo, 2020). Likewise, Information Communication Technology (ICT) infrastructure has achieved immense attention of the foreign investors as they always prefer to invest in a country where labour cost is not high, transport cost is low, less communication gap and smooth availability of

natural resources, easy investment policies, and easy availability of infrastructure. The easy availability of ICT infrastructure is the top priority of foreign investors if they are export orientated or efficiency seeking because foreign investors mostly prefer a country where they face less cost and have high returns. It is evident that reliability and availability of good ICT infrastructure reduces search time and related costs by increasing efficiency as well as productivity (Wang & Ruhk, 2021).

Given this background, the present study aims at analyzing the role of the important macroeconomic determinants of FDI in Vietnam over 1990 to 2023 period. Vietnam is a developing country which has put enormous efforts to attract FDI to reap benefits of this capital resource. Vietnam has experienced an average growth rate of 6.4% between 1996 and 2021 which has transformed Vietnam from a low to middle income economy. One of the main factors which contributed to this rapid development was FDI. The involvement of the FDI sector in multiple industries in Vietnam has played a significant role in modernizing the economic structure of the country, enhancing its production capabilities and providing a dynamic business environment. Moreover, FDI has stimulated growth by significantly enhancing trade surpluses and promoting exports in Vietnam (Ngo, 2024). However, Vietnam is still facing difficulties in attracting FDI inflows as the country has faced fluctuations in FDI inflows over last two decades as shown in Figure 1 (LIEN, 2021). This fact raises an important question that what needs to be done to further attract FDI inflows in Vietnam. Therefore, it is useful to evaluate some important determinants of FDI in Vietnam such as infrastructure, trade openness, inflation, interest rate and economic growth to achieve economic development and growth in Vietnam. However, may be due to the lack of data, not many research studies have been conducted in the context of Vietnam regarding the determinants of FDI.

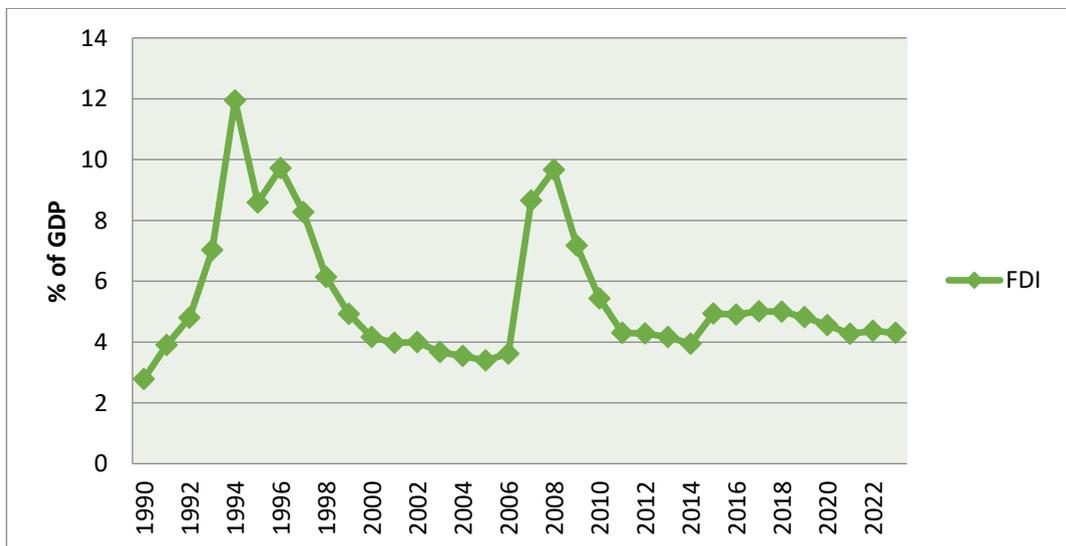


Figure 1: FDI Inflows in Vietnam (1990 to 2023)

Therefore, by analyzing the role of interest rate, inflation, economic growth, infrastructure and trade openness, the study is a novel addition to the literature as follows: First of all, several studies have attempted to explain the relationship between underlying macro-economic determinants and FDI but do not reach any definite conclusion about their relationship. Secondly, only a few researchers have considered Vietnam to study this relationship. Therefore, the present research attempts to fill these gaps by identifying how the considered macroeconomic determinants impact FDI in Vietnam in the long run and the short run both. The following are the research questions which the present study aims to answer:

- a. What is the role of inflation in FDI?
- b. What is the role of interest rate in FDI?
- c. What is the role of infrastructure in FDI?
- d. What is the role of trade openness in FDI?
- e. What is the role of economic growth in FDI?

The remaining sections of the study are ordered in the following manner. Section 2 provides literature review and hypothesis development. Theoretical framework and method of analysis are given in section 3. The findings of the study and discussion on them are given in section 4. Last section 5 provides the conclusion of the study and provides worthy policy recommendations.

## REVIEW OF LITERATURE AND HYPOTHESIS DEVELOPMENT

FDI is important for an economy because it helps enhance the rate of growth and leads it to be in a balanced situation (Kueh & Soo, 2020). To determine whether the selected variables determine FDI in Vietnam, this section reviews all available literature and we find mixed findings from countries to countries and region to region. Nguyen (2021) analyzed the impact of labour force and many other factors on FDI in Vietnam over 1995 to 2018 period. The findings of the study indicated that labour force, economic growth, business freedom and inflation all had positive impact on FDI. In case of ASEAN economies, Dang and Nguyen (2021) analyzed the determinants of FDI attractiveness over 1996 to 2019 period using Fixed Effects model and seemingly unrelated regression. According to the outcomes, tax burden, economic growth, inflation and quality of economic institutions attracted FDI whereas quality of political institutions and population growth had negative relationship with FDI. Considering provincial level data in Vietnam, TA et al. (2021) studied the impact of provisional competitiveness index on FDI attractiveness over 2017 to 2021 period. The outcomes of the study established that there was significant variation in FDI attractiveness in Vietnam provinces. In another study for Vietnam, Ngo (2024) studied the impact of inflation, infrastructure, natural resources, market size and trade openness on FDI and according to the outcomes of OLS approach, natural resources and infrastructure had positive, whereas inflation had negative impact on FDI. Market

size and trade openness had no significant impact on FDI in Vietnam. Taking the panel of Myanmar, Laos, Cambodia and Vietnam, [Kueh and Soo \(2020\)](#) analyzed the role of exchange rate, labour force, inflation, trade openness and market size in FDI inflows over 2000 to 2016 period. The outcomes of FMOLS regression reveal that economic growth, exchange rate and labour force had positive, whereas trade openness and inflation had negative impact on FDI.

In continuation, taking panels of GCC and G-7 countries, [Alshubiri \(2022\)](#) analyzed the impact of political stability, exchange rate, inflation, trade openness and interest rate on FDI over 2005 to 2019 period. The outcomes of FMOLS and DOLS regression revealed that exchange rate and political stability decreased, but inflation and interest rate increased FDI inflows in G7 and GCC countries. However, trade openness decreased FDI in G-7 countries but increased FDI in GCC countries. In case of Iran, [Ghahroudi and Chong \(2020\)](#) studied the role of economic growth, inflation, trade openness, infrastructure, governance and investment returns on FDI. The findings of the study indicated that trade openness and governance had no significant impact on FDI. On the other hand, inflation had negative whereas exchange rate and investment returns have positive impact on FDI in Iran. [Mohanty and Behera \(2017\)](#) studied the role of economic growth and trade openness on FDI inflows in India. The findings of ARDL approach revealed that trade openness and economic growth increased FDI inflows in India. Taking panel data of D8 countries, [Wang and Rukh \(2021\)](#) analyzed the role of ICT infrastructure and trade openness on FDI inflows over 1997 to 2018 period. Both ICT infrastructure and trade openness were found to increase FDI inflows in D8 countries. In case of 66 BRI countries, [Rehman et al. \(2024\)](#) studied the effect of infrastructure development on FDI inflows over 2000 to 2019 period. Using GMM analysis, the authors found that telecommunication, transport, energy and financial infrastructure increased the flows of FDI to selected countries. Similarly, [LIEN \(2021\)](#) analyzed the role of trade openness on FDI in Vietnam using VECM approach. The outcomes of the study established that trade openness had positive impact on FDI.

On the basis of the above presented review of literature, the following hypotheses are proposed in the present study:

- H1: Inflation impacts FDI significantly.
- H2: Interest rate impacts FDI significantly.
- H3: Infrastructure impacts FDI significantly.
- H4: Economic growth impacts FDI significantly.
- H5: Trade openness impacts FDI significantly.

## Literature Gap

Considering the review of the existing studies, it is clear that a literature gap exists

about the determinants of the FDI inflows in Vietnam. Besides, a large number of studies exploring the role of economic growth, infrastructure, labour force, trade openness, inflation and interest rate on FDI in the context of different countries, a little attention have been paid to Vietnam for the empirical estimation of the relationship between these variables and FDI. Moreover, the ambiguity in the findings of the existing studies reveals that no definite conclusion can be reached which necessitate further investigation of the matter. Therefore, to fill in these gaps in literature, the present study analyzes important determinants of FDI in Vietnam which would lead to generate practical policies for the country to promote FDI inflows.

## THEORETICAL FRAMEWORK AND MODEL SPECIFICATION

As the main goal of the present research is to analyze the role of macroeconomic factors in FDI in Vietnam, the secondary data of the dependent and independent variables is obtained for the period 1990 to 2023. For the empirical analysis of the relationship, the model of the study is specified on the basis of the Eclectic theory or Ownership Location-Culture (OLI) model developed by (Dunning, 1980). He proposed the OLI model to evaluate the inflows of FDI on the basis of transaction theory proposed by (Williamson, 1993). According to the transaction theory, transaction costs provide basis for business organizations to perform activities. This theory is concerned with the comparison of the costs of running a business in domestic country with the costs of running that business in foreign markets. The OLI model assumes that the activities of multinational enterprises are determined by three main determinants: merits of locations, merits of ownership and benefits of cultural acquisition or internalization. Merits of ownership include advantages arising from the ownership of intangible assets including enhanced technology, access to raw materials, and some competitive advantages over other firms (Dang & Nguyen, 2021). Merits of location entail the advantages resulting from the expansion of business either in a foreign country or at home. As a result, foreign countries provide certain advantages to firms or businesses, such as availability of resources, size of local market, government incentives, inflation levels, and many other location variables. Last but not least, "internalization advantages" would be significant when multinational corporations had to decide whether to carry out more expansion internally or by selling their rights for the expansion to other businesses (Yi et al., 2020).

Therefore, OLI model and transaction cost theories provide foundation for this study to develop a model analyzing the important determinants of FDI and thus, taking support from existing literature, inflation, interest rate, infrastructure, trade openness and economic growth are taken as main explanatory variables. Thus, the baseline model of the study is formulated as:

$$FDI_t = \beta_0 + \beta_1 INT_t + \beta_2 INF_t + \beta_3 TO_t + \beta_4 INFS_t + \beta_5 EG_t + \varepsilon_t \quad (1)$$

Furthermore, following [Nguyen \(2021\)](#) and [Ranjan and Agrawal \(2011\)](#), labour force and capital formation are added into model to avoid model misspecification and the resultant model becomes:

$$FDI_t = \beta_0 + \beta_1 INT_t + \beta_2 INF_t + \beta_3 TO_t + \beta_4 INFS_t + \beta_5 EG_t + \beta_6 LF_t + \beta_7 CF_t + \varepsilon_t \quad (2)$$

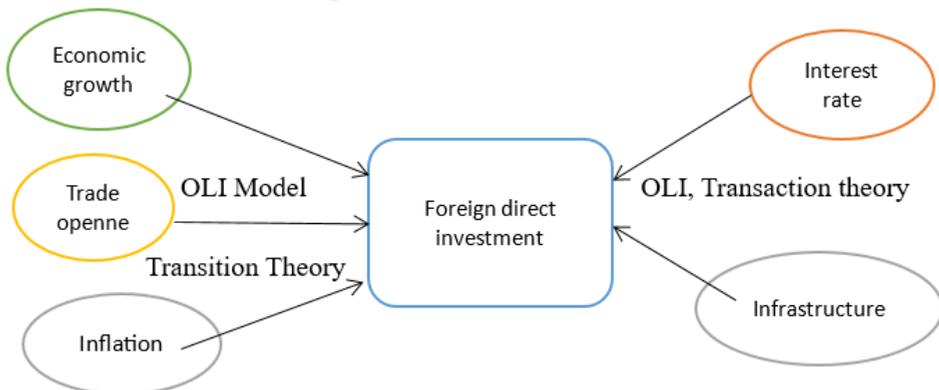
Where, FDI= Foreign direct investment, INT= interest rate, INF= inflation, TO= trade openness, INFS= infrastructure, EG= economic growth, LF= labour force, CF= capital formation and  $\varepsilon$  is the error term. A positive relationship is expected between interest rate and FDI inflows. Infrastructure and inflation are expected to be positively and negatively related with FDI, respectively Since trade openness and economic growth have important roles in enhancing FDI inflows, both of these variables are expected to have a positive relationship with FDI ([Shaari et al., 2023](#)). The variables of the study and their necessary details are given in [Table 1](#).

**Table 1: Description of Variables of the Study**

Variables	Measurement	Data Source
Foreign direct investment	FDI, net inflows (% of GDP)	World Development Indicators
Interest rate	Real interest rate (%)	World Development Indicators
Inflation	Inflation, GDP deflator (annual %)	World Development Indicators
Economic growth	GDP growth, annual %	World Development Indicators
Trade openness	Trade (% of GDP)	World Development Indicators
Infrastructure	Fixed telephone subscription (per 100 people)	World Development Indicators
Labour force	Labour force, total	World Development Indicators
Capital formation	Gross fixed capital formation (% of GDP)	World Development Indicators

## Conceptual Framework

The conceptual framework of the study on the basis of Eclectic theory and Transition cost theories is illustrated in [Figure 2](#).



**Figure 2: Conceptual Framework of study model**

## Method of Analysis

### ARDL Bound Testing Approach

The study uses ARDL model for empirical analysis. Before that, the Augmented Dickey Fuller (ADF) and Philips Perron (PP) tests are used to check the stationarity properties of the variables. After that, F-Bound test is applied to estimate the long run co-integration among the variables of the study. Error correction model analysis tests the short-run relationship between the dependent and independent variables. The Akaike Information Criteria is used for the selection of the optimal lag length because it is considered as the optimal criterion in case of small sample (Pesaran & Shin, 1995). The null hypothesis co-integration assumes that no co-integration equation is present, whereas the alternative hypothesis assumes that cointegration equation exists (Mahara & Dhakal, 2020).

In order to analyze the long run relationship, we conducted bound test for cointegration developed by (Pesaran et al., 2001). This method is applicable irrespective of the order of integration of the series, i.e., it can be applied whether the data series is integrated of order 1, order 0 or has mixed order of integration. This approach is considered to be superior as it provides consistent result even for small size of sample. We compare the calculated Wald or F statistic to the critical value of f-statistic at different significance levels and decides that cointegration is present if F-statistics is greater than the critical upper bound value I (1). On the other hand, if F-statistics is lower than the lower bound critical value, no cointegration is concluded. And if the calculated F-statistics lies between the upper and lower bound I (1) and I (0), the test output is considered to be inconclusive.

The ARDL estimation involves two steps: the first step involves finding the long run relationship between dependent and independent variables. The long run equation of ARDL estimation is given as follows:

$$\begin{aligned} \Delta FDI_t = & \alpha_0 + \\ & \sum_{i=1}^r \alpha_{1k} \Delta FDI_{t-j} + \sum_{i=0}^r \alpha_{2k} \Delta INT_{t-j} + \sum_{i=0}^r \alpha_{3k} \Delta INF_{t-j} + \sum_{i=0}^r \alpha_{4k} \Delta TO_{t-j} + \\ & \sum_{i=0}^r \alpha_{5k} \Delta INFS_{t-j} + \sum_{i=0}^r \alpha_{6k} \Delta EG_{t-j} + \sum_{i=0}^r \alpha_{7k} \Delta LF_{t-j} + \sum_{i=0}^r \alpha_{8k} \Delta CF_{t-j} + \beta_1 FDI_{t-1} + \\ & \beta_2 INT_{t-1} + \beta_3 INF_{t-1} + \beta_4 TO_{t-1} + \beta_5 INFS_{t-1} + \beta_6 EG_{t-1} + \\ & \beta_7 LF_{t-1} + \beta_8 CF_{t-1} + \varepsilon_t \quad (3) \end{aligned}$$

Where,  $\Delta$  is a first difference operator,  $\varepsilon$  is error term,  $\alpha_0$  denotes intercept and  $r$  shows lag order. The second step of the ARDL estimation is finding of the short run relationship between dependent and independent variables. The following equation gives short run relationship and ECM in ARDL model.

$$\Delta FDI_t = \alpha_0 + \sum_{i=1}^r \alpha_{1k} \Delta FDI_{t-j} + \sum_{i=0}^r \alpha_{2k} \Delta INT_{t-j} + \sum_{i=0}^r \alpha_{3k} \Delta INF_{t-j} + \sum_{i=0}^r \alpha_{4k} \Delta TO_{t-j} + \sum_{i=0}^r \alpha_{4k} \Delta INFS_{t-j} + \sum_{i=0}^r \alpha_{4k} \Delta EG_{t-j} + \sum_{i=0}^r \alpha_{4k} \Delta LF_{t-j} + \sum_{i=0}^r \alpha_{4k} \Delta CF_{t-j} + \alpha ECM_{t-1} + \varepsilon_t \quad (4)$$

## RESULTS AND DISCUSSIONS

First of all, [Table 2](#) represents descriptive statistics indicating the values of mean, standard deviation, minimum and maximum values of all concerned variables. The average or mean value of FDI (dependent variable) is 5.417 with standard deviation of 2.168. The data range of FDI lies between 2.781 and 11.939. Similarly, the values of average and standard deviation of INT and INF are 3.30, 12.413 and 6.183 and 15.217, respectively. Likewise, the mean and standard deviation values of INFS and EG is 5.878 and 6.617 and 5.378 and 1.562, respectively. LF and CF have average and standard deviation of 45572807 and 30.138 and 8574476 and 2.5772. Lastly, TO has mean of 124.89 and standard deviation of 33.893. Data range of all explanatory variables is also provided in descriptive statistics.

**Table 2: Descriptive Statistics of variables**

Variable	Mean	Standard deviation	Minimum value	Maximum value
FDI	5.417	2.168	2.781	11.939
INT	3.330	6.183	-20.497	12.577
INF	12.413	15.217	-1.716	72.546
INFS	5.878	5.378	0.150	20.200
EG	6.617	1.562	2.553	9.540
LF	45572807	8574476	315352	567990
CF	30.138	2.5772	25.421	35.159
TO	124.89	33.893	66.212	186.67

Next, the findings of unit root tests namely Augmented Dickey Fuller (ADF) and Philips Perron (PP) are given in [Table 3](#). These tests are applied to check the stationarity properties of variables to select appropriate technique to avoid spurious regression. The outcomes of both tests reveal that a mixed order of integration exists among variables, as some of the variables are stationary at level and some are stationary at the first difference.

After selecting an ideal model on the basis of AIC criterion of lag length selection, the next step involves finding the cointegration among variables of the study ([Pesaran et al., 2001](#)). [Table 4](#) indicates the outcomes of the ARDL Bounds test.

**Table 3. PP and ADF Unit Root Tests**

Variables	ADF Test		PP Test	
Level	Intercept	Intercept and Trend	Intercept	Intercept and Trend
FDI	-2.831**	-3.299*	-2.644*	-2.976
INT	-3.718***	-3.618**	-3.718***	-3.558**
INF	-3.105**	-3.368*	-2.955**	-3.368*
INFS	1.891	2.165	-1.307	-0.869
EG	-3.518**	-3.771**	-3.515**	-4.235**
LF	-1.319	0.175	-1.378	-0.470
CF	-2.383	-2.147	-2.354	-2.094
TO	-0.9111	-2.474	-0.805	-2.581
First Difference	Intercept	Intercept and Trend	Intercept	Intercept and Trend
FDI	-----	-----	-----	-----
INT	-----	-----	-----	-----
INF	-----	-----	-----	-----
INFS	-4.831***	-4.741**	-4.746***	-4.648**
EG	-----	-----	-----	-----
LF	-3.387**	-3.617**	-3.391**	-3.633**
CF	-5.441***	-5.468***	-5.468***	-5.601***
TO	-5.553***	-5.402***	-5.762***	-5.776***

Where, \*\*\*, \*\* and \* reveal significance at 1, 5 and 10%, respectively.

It is revealed that the estimated F-statistics is greater than I1 bound value which confirms that cointegration relation exists among the variables of the study.

**Table 4: ARDL Bound Test**

statistics	Value	K
F-stat	10.208	7
Significance	I(0)	I(1)
10%	1.92	2.89
5%	2.17	3.21
2.5%	2.43	3.51
1%	2.73	3.9

The findings of long run ARDL estimation are given in [Table 5](#) which demonstrates the response of dependent variable to changes in independent variables. The outcomes endorse that all of the variables are statistically significant and impact FDI either in positive or negative way. First of all, the impact of interest rate on FDI is positive. For 1 percent increase in interest rate, FDI increases by 0.606 percent. This finding is consistent with a priory expectation and consistent with [Zahid \(2018\)](#) and [Fazira and Cahyadin \(2018\)](#) who argued that there is a positive relationship between interest rate and FDI. Thus the finding implies that interest rate is the factor which captures the return on investment in a host country is a leading factor which attracts FDI ([Faroh & Shen, 2015](#)). Higher interest rate offers greater return on investment for foreign investors which makes country more attractive for capital investment.

Moreover, higher interest rate is a reflection of tight monetary policy and macroeconomic stability of an economy which further enhances the confidence of foreign investors (Zahid, 2018).

Secondly, in contrast to a-priory expectations, a statistically significant and positive relationship between inflation and FDI is observed in the long run. Regarding the size of the coefficient, it is evident that one unit increase in inflation enhances FDI by 0.361 percent in the long run. This finding is in line with Alharthi et al. (2024) and Morshed and Hossain (2022) who argued that higher the rate of inflation, higher is the level of FDI inflows to the host countries in their studies. This implies that a moderate rate of inflation is a signal of increase in consumer demand which leads to great profit margin for foreign investors.

Third, trade openness also enters the estimation with a positive sign and significant impact. For 1 percent increase in trade openness, FDI increases by 0.155 percent. This is a justifiable finding because opening or liberalization of trade enables Vietnam to attract more FDI and foreign investment. The more opening of the economy and more trade balance leads to attract more FDI (LIEN, 2021). The long run findings are consistent with Kayani et al. (2024) and Ismail and Ismail (2023) who argued that trade openness and FDI are positively associated.

**Table 5: ARDL Estimation Long Run Results**

Dependent variable (FDI)	Coefficient	t-stat	P-value
INT	0.606*	2.006	0.0757
INF	0.361**	2.396	0.040
LF	-0.000037***	-3.599	0.0058
CF	-0.545*	-2.102	0.0649
TO	0.1554***	6.135	0.000
EG	0.989***	5.108	0.0006
INFS	0.487**	4.152	0.0025

\*\*\*=p<0.05 and \*\*=p>0.05

Fourth, the relationship between economic growth and FDI is also positive and significant at 1% level of significance. For one percent increase in economic growth, FDI increases by 0.989 percent in the long run consistent with Kueh and Soo (2020) and Syamni et al. (2024). This outcome implies that higher economic growth creates profit generating opportunities for foreign investors by realizing the greater potential for product sales. Economic growth enhances employment opportunities, technology and productivity for recipient countries and therefore catalyzes FDI attraction.

Fifth, the study finds significant and positive relationship between infrastructure and FDI in the long run in Vietnam. A one percent increase in infrastructure is found to be associated with 0.487 percent increase in FDI. This finding is also consistent with a priori expectation and the findings of Wang and Rukh (2021) and Khan and Raza

(2024) who found that a positive relationship exists between infrastructure and FDI. This finding is justifiable in the light of the fact that improved and reliable availability of information communication infrastructure enhances the productivity level and attractiveness of the FDI inflows to the host countries. Especially ICT infrastructure can increase productivity and FDI inflows by reducing the cost of holding inventories by improving inventory management which permits a direct relationship between producers and consumers (Wang & Rukh, 2021).

Lastly, in contrast to interest rate and inflation, labour force is evident to have a statistically significant but negative impact on FDI in the long run. The very small coefficient indicates that there is very little impact of labour force on FDI in Vietnam. A possible explanation of this finding can be that in the long run, the increase in number of laborers but not the quality of labour lead to decline in FDI inflows. Therefore, a quick transition from unskilled to skilled labour would help attract FDI in Vietnam (Nguyen, 2021). Similarly, the fourth variable i.e., gross capital formation also has negative relationship with FDI in the long run. In terms of the coefficient size, for one percent increase in gross fixed capital formation, FDI reduces by 0.545 percent in the long run. This outcome is partially consistent with Ranjan and Agrawal (2011) who found that labour force and gross capital formation have negative but insignificant relationship with FDI.

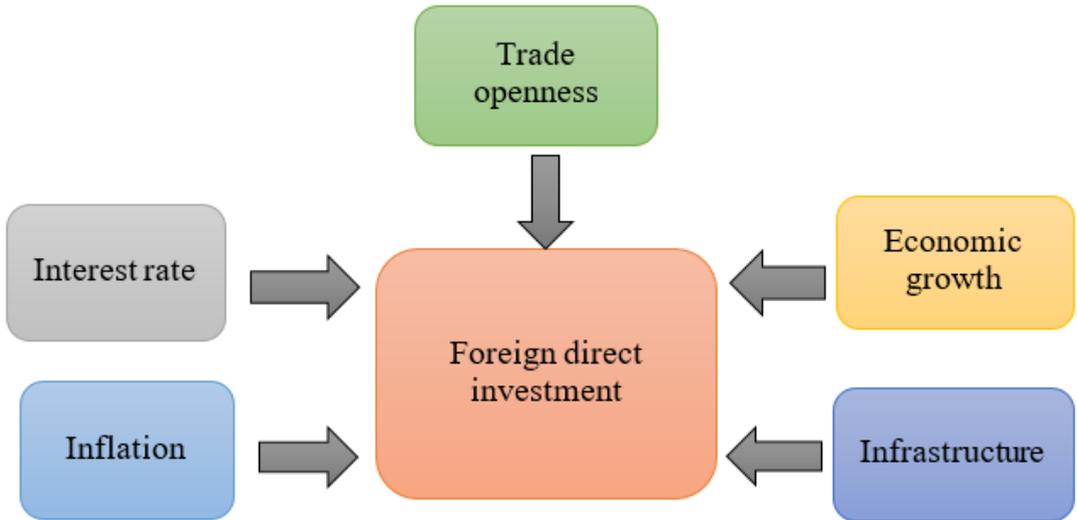
After long run estimation, the short run findings of ARDL estimation are given in Table 6. The value of ECT shows the speed of adjustment towards long run equilibrium. The value of ECT is statistically significant, negative and the size of the coefficient is less than one. This shows that ECT satisfies all requirements of the long run equilibrium. The magnitude of the coefficient is -0.735 which indicates that model achieves 73 percent adjustment towards long run equilibrium.

**Table 6: ARDL Short Run Results**

Variables	Coefficient	P- value
Error correction term (ECM)	-0.735***	0.000
D(INT)	2.287**	0.0014
D(INF)	0.210***	0.0007
D(LF)	-0.00018*	0.0682
D(CF)	-0.098	0.1380
D(TO)	0.125***	0.000
D(INFS)	-0.0131	0.724
D(EG)	0.180**	0.0038

Where, \*\*\*, \*\* & \* show significance at 1, 5 and 10 %, respectively.

In the short run, all of the explanatory variables are statistically significant, except infrastructure and gross capital formation. The long run findings of the study are graphically represented in Figure 3.



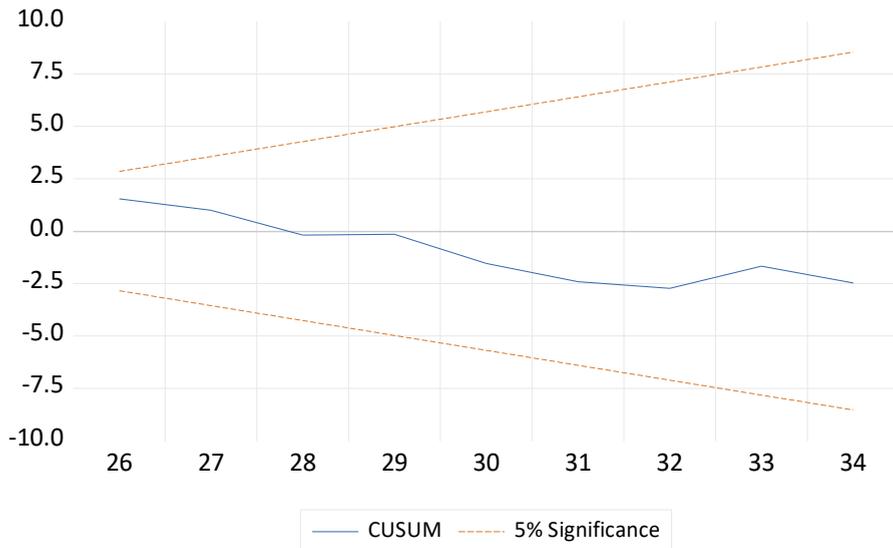
**Figure 3:** Findings of the Study Graphically Represented

After the long and short run estimation of the relationship between dependent and independent variables, some post estimation diagnostics are performed which are reported in [Table 7](#). The results of diagnostics tests reveal that our model is free from all of the estimation problems. Generally speaking, the model of the study does not experience any type of diagnostic problems because none of the test statistics is statistically significant. This indicates that model is free from the issues of heteroscedasticity, serial correlation and non-normality.

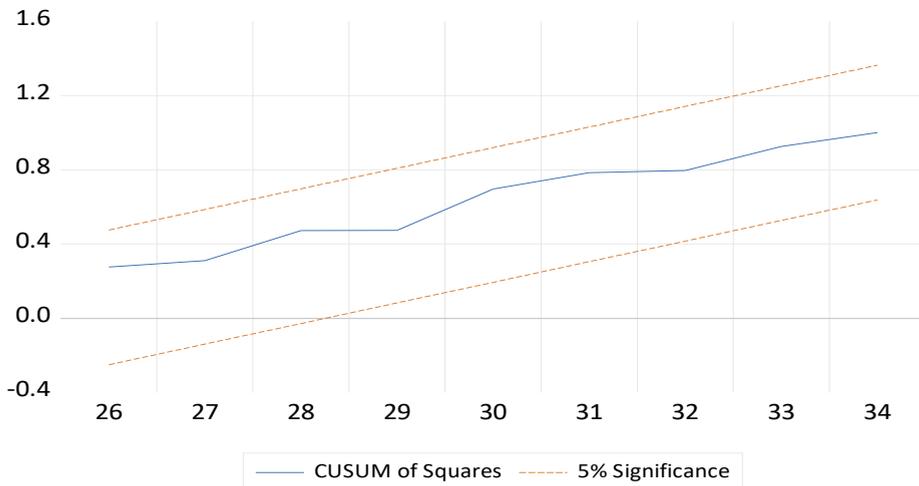
**Table 7: Results of Diagnostic Test**

	Test stat	P-value
Heteroskedasticity Test	0.893	0.593
Serial Correlation	2.933	0.118
Normality Test	0.719	0.697
Ramsey RESET Test	0.1447	0.185

Lastly, the CUSUM and CUSUMSQ tests proposed by [Brown et al. \(1975\)](#) are applied to check the coefficient stability as there is a possibility of structural changes in variables resulting from multiple or single structure breaks. The displayed CUSUM and CUSUMQ graphs also do not provide any indication for the instability of coefficients. These graphs along with the approval of post estimation diagnostic tests conclude that the ARDL model estimation fulfills the basic requirements of an appropriate econometric model.



**Figure 4:** CUSUM Graph for Parameter Stability



**Figure 5:** CUSUMSQ Graph for Parameter Stability

## CONCLUSION AND POLICY IMPLICATIONS

Using time series data of Vietnam spanning over 1990 to 2023 period, this study provides a significant insight into the macroeconomic determinants of FDI. Particularly, the study focused on interest rate, inflation, trade openness, infrastructure and economic growth as major determinants. ARDL bound testing approach was used to evaluate the short run and the long run relationship between selected determinants and FDI. The study reached following important findings. In the long run, all the determinants have significant and positive relationship with FDI. However, in the short run, all other variables exhibit significant relationship with FDI, except infrastructure. In conclusion, our findings confirm and highlight the importance of the

selected determinants in FDI mechanism in Vietnam.

On the basis of the study findings, a number of useful policies are recommended to the policymakers for taking the advantage of these macroeconomic determinants to attract more FDI inflows. First, the Vietnamese government is recommended to maintain and continue improved economic relations with other countries to enhance trade liberalization or openness. Specifically, there should be a focus on promoting the production and export of technologically advanced products while increasing trade openness with the aim of export value and decreasing import value. Likewise, the government should adopt policies to maintain consistent rate of economic growth, as this will attract foreign investors to domestic country and increase FDI inflows. Stable macroeconomic policies, better financial access, and a well-designed tax framework can all help to attain this goal. Moreover, government should focus on maintaining infrastructure especially communication infrastructure to be more reliable and faster as it has significant positive impact on FDI. Particularly, the availability of internet and communication facility must be ensured in all parts of the country to attract and facilitate foreign investors. Likewise, the stability in interest rates and inflation is also very important. A stable rate of inflation and interest rate would indicate the macroeconomic stability which reduces the uncertainty for foreign investors and makes Vietnam a more attractive avenue for FDI inflow. For this, the government should enable the implementation of effective monetary policies that would maintain a stable rate of inflation and interest rate.

The present study also has some limitations like all other studies. First, the time span of the study covers 1990 to 2023 period due to unavailability of data. Second, the focus of the study is Vietnam only, whereas the cross-country comparison of different countries can offer more comparable and comprehensive analysis. Third, the study did not consider any moderating variable that moderate the relationship between selected macroeconomic determinants and FDI. Therefore, future research studies can elaborate the scope of the present research by considering different countries and making comparison of developing and developed countries. Moreover, future studies can consider the interactive effects of governance with selected macroeconomic determinants and FDI.

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