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Analyzing the Impact of Governance, Environment and Trade on Inward FDI: A Case of Cambodia, Thailand and Vietnam from ASEAN

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ABSTRACT

The purpose of the study is to analyze the empirical link between governance, environmental quality, and trade as it relates to foreign direct investment in Cambodia, Thailand, and Vietnam for the period ranging from 1996 to 2022. Mixed order of integration (0 and 1) was discovered after applying four panel unit tests (IPS-W stat, ADF- Fisher, PP-Fisher, and LLC t). The Kao Residual Co-integration test was carried out to determine whether there was co-integration among the variables of the study. The results of the test demonstrated that some variables are, in fact, co-integrated during the investigation. The findings of unit root tests reveal the use of Panel ARDL, and the results demonstrate that governance has a positive overall effect on FDI. This is because tightening the control of corruption, improving regulatory quality, and strengthening the rule of law are all contributing to an increase in FDI in Cambodia, Thailand, and Vietnam. The study concluded that there is a link between a negative opinion of the efficacy of the government and foreign direct investment; however, this association did not reach the level of statistical significance required to be considered significant. To encourage FDI, trade also provides access to natural resources as the free flow of raw materials and intermediate goods is being supported by the initiatives connected to the promotion of FDI, which is made possible through trade.

Keywords: Control of Corruption, Environmental Quality, Government Effectiveness, Rule of Law, Trade Openness, Foreign Direct Investment
JEL Classifications: C19, C55, F21, G38

1. INTRODUCTION

Since the 1980s, Foreign Direct Investment (FDI) and the market economy have seen a rise due to liberal economic policies including increased international production (Arfaoui et al., 2024; Kayani, et al., 2023; Nasim et al., 2023). This phenomenon of globalization has assisted the developing economies to fulfil their capital requirement through inward FDI. The global liberalization has removed the borders between countries and the free movement of capital from one country to another has now become a topic of economic and political interest (Saleem et al., 2023; Wang et al., 2024). Particularly for the developing world, inward FDI has emerged as an efficient way to address the issue of undercapitalization (Mizirak and Altıntaş, 2018). Inward FDI helps in creating more employment opportunities, tapping the latest technology, and economic development of the host country. FDI brings external funding, better production technology and is helping China in climbing up the technological ladder (Kayani, 2017). In this context, FDI's source, destination, and effects on the country are major subjects of interest and attention (Madani, 2017; Mizirak and Altıntaş, 2018). Also, the endogenous growth theory has suggested that inward FDI plays a crucial role in economic development of emerging economies even higher FDI also helps to reduce carbon emissions (Jahanger and Usman, 2022). Some countries have been fortunate in attracting inward FDI flows, however, others face challenges in this process (Sabir et al., 2019).

It is interesting to note that Chinese economy is quite resilient and even it did not undergo a period of recession during this COVID-19 pandemic, but instead it underwent a prolonged period of economic stagnation (Kayani, 2022).

One of the major barriers for developing countries to promote economic development is the lack of capital needed to achieve potential growth (Moghadam et al, 2019). Countries develop economically by using physical and human capital along with domestic capital (Choudhury et al., 2023; Khan et al., 2023). When foreign companies bring their operations into the host country, they bring with them advanced technology, knowledge, and resources which ultimately stimulates the economic health of the country (Kayani et al., 2021). Evidence proves that inward FDI has several advantages such as the transfer of technology which assists in increasing the production efficiency and minimizing the gap between technological developments, both locally and internationally (Mizirak and Altıntaş, 2018). The global dynamics are changing at a very fast pace like political risks which are more country-specific, transactional costs of investments, transparency, accountability, level of confidence, and control of corruption. For any country, the inflow of FDI is hampered by these above-mentioned factors. The willingness of any country to abide by the indicators of governance is indicated by these factors which consequently cause increased attraction of FDI inflows (Sabir et al., 2019). The governments which are in search of ways to encourage FDIs should be able to produce a favorable environment that facilitates multilateral ventures. The literature survey highlights the relation between FDI and economic development; financial markets interdepending on one another; effects of stock markets; technology and resident patents. All this has gained attention significantly over the past years (Kayani and Ganic, 2021).

Attracting FDI is an important policy objective of the economies (UNCTAD 2020). Over the past few decades, the world has experienced a technological transition, as the developing countries are aiming to become technologically advanced countries and to achieve the swift and speedy industrialization (Aysan et al., 2020; Kayani and Gan, 2022). Governance generally means managing the developmental process in both the public and private sectors. The following are the six elements of good governance: "Accountability and voice, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law and finally Control of Corruption" (Khan et al., 2019). Although a wide range of evidence is available that explains the governance-FDI nexus, however, this evidence lacks comprehensiveness on the governance-inward FDI relationship in the case of developing countries particularly ASEAN economies by considering government effectiveness as a measure of governance.

Government effectiveness implies capturing the "perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies" (Khan et al., 2021). The inward FDI-governance nexus has gained much attention in the recent years. It has been observed that investors prefer to invest in a country which possesses good governance. Based on the governance indicators mentioned above, as of now, more than 200 countries are being governed based on these six indicators (Raza et al., 2019). Generally, the investors are reluctant to invest in those countries where there is corruption, poor implementation of rules and regulations, and a culture of red tape exists in the administrative matters. Therefore, the existing literature verifies that good governance is a key driving factor that helps to attract FDI especially in developing economies (Kayani and Ganic, 2021).

Two distinct trade blocks have been formulated for the integration of South Asian and Southeast Asian countries. These include the "South Asian Association for Regional Cooperation" (SAFTA) and the "Association of Southeast Asian Nations" (ASEAN). The aim of establishing these blocks is to foster regional peace and trade relations. However, recently over the past few decades, both SAFTA and ASEAN are taking measures to promote foreign investments to improve economic stability, technology transfer, and resource flow in the region. For providing a favorable environment to foreign investors, the SAFTA and ASEAN regions have relaxed the export-import rules by making necessary policy amendments (Regmi et al., 2017; Chetthamrongchai et al., 2020). In addition, these countries have steered trade sanction laws and provided attractive financial Besides welcoming unilateral FDI, Thailand, Vietnam, and Cambodia have become signatories to different bilateral trade agreements as well (Ratna et al., 2016).

Although the year 2019 saw growth in terms of FDI inflows particularly among the ASEAN member countries, however, these investments were cut short in 2020 mainly owing to pandemic. All these economies are heavily interconnected with the value chains; globally and regionally therefore lockdown measures curtailed the production and led to a drop in the level of investments. For example, in Thailand, production was stopped by Mazda, Mitsubishi, and Nissan, while production was slowed by Ford in Vietnam and Thailand. Toyota also stopped production in Thailand and Indonesia for the time being. There were other sectors too that faced shutdowns in production such as the textile and apparel sector. Although these factories have been shut down on a temporary basis, these shutdowns mean lower investment levels overall which might move through 2021 as well (Duan et al., 2020).

As far as the future is concerned, South-East Asia may have seen a downturn in terms of FDI, however, there is hope that recoveries will be made either in the medium or long term. This is mainly due to the well-established networks of trade and supply chain in the region, increasing middle-income class, and a workforce which mainly comprises of the young and educated individuals. The ASEAN member countries also benefited from the trade tensions between the USA and China since many companies relocated their operations to South-East Asia. The firms are now facing double pressure in terms of increased automation and more demand and supply particularly due to the COVID-19 pandemic therefore they are now rethinking to make the supply chains more resilient and compact (Denton, 2020).

In this study, the major focus is on validation of impact of governance, environmental quality, and trade on FDI in three regions of ASEAN, Thailand, Vietnam, and Cambodia by

collecting the data of 1996 to 2022. The empirical validation is through the panel unit root tests, IPS, ADF-Fisher, PP-Fisher and LLC. The results of these tests confirm that there is a mixed order of integration (0 and 1). Kao residual Co-integration test also confirms the existence of long run relation among the variables. The study uses the Panel ARDL that is reflecting that governance and trade has positive impact on FDI whereas greenhouse gases emission and government effectiveness are pushing down FDI in selected countries. The remainder of the article is organized as follows. Section 2 discusses the literature review in detail. Section 3 explains the data and methodology. Section 4 comprises of results and discussions about our empirical findings. The article concludes with an overall summary along with the policy recommendations.

2. LITERATURE REVIEW

Over the past few decades, policymakers and researchers have tried to identify the major factors contributing to the fostering FDI inflows to developing and least developed countries. However, there are a comparatively limited number of studies that have focused on ASEAN countries. Inward FDI is a significant driver of economic development in developing host countries, however, the use of more empirical estimation methods reveals that the extent of economic growth largely depends on the institutional characteristics of the host country. These characteristics are broadly categorized as absorptive capacities of the country like the structure of the economic system, trade liberalization, human capital, and most importantly good governance (Becha, H., 2023). Thus, the role of governance becomes significant for long-term economic prosperity as it both directly and indirectly regulates FDI inflows.

Hoang and Bui (2015) conducted research based on a panel data approach and identified market size, trade liberalization, nature of human capital, infrastructural development, and institutional accountability as the primary factors positively impacting inward FDI in the ASEAN region. The authors also postulated some recommendations for strengthening institutional governance and accountability in developing countries such as third-party auditing. In another recent research by Hossain and Rahman (2017), the impact of governance indicators on inward FDI has been assessed by analyzing the trade statistics from 80 middle-income countries from 1998 to 2014. The authors concluded a significant positive correlation between the 09 selected governance indicators and FDI inflows. Similarly, Sabir et al., (2019) also conducted a meta-analysis that employed the panel data evaluation approach and the Generalized Method of Moments technique to scrutinize important correlations in relevant literature from 1996 to 2016. The results revealed that FDI drivers are positively influenced by a regime of good institutional and corporate governance in the host country.

2.1. Impact of Governance on Cambodia's Inward FDI

Many researchers and the economists are recently focusing their studies on identifying the drivers of inward FDI in Cambodia. Inward FDI has been one of the most prominent drivers in the swift growth of Cambodia as it has been in other ASEAN developing countries (Sokang, 2018). Cashore and Nathan (2020) used a series of holistic approaches to analyze the impact of good governance on FDI inflow in countries struggling for economic stability like in the case of Cambodia. They compared large data sets from developed and developing countries. For 70% of the assessed data sets, a significantly positive correlation has been found between governance and FDI inflows. Narayanan et al., (2020) also added to the economic literature by analyzing the correlation between democratic structure and inward FDI in ASEAN countries and the findings presented that the former facilitates FDI in countries where natural resources have a low share in total export volumes.

Considering the importance of good governance for FDI inflow and subsequent economic growth, Cambodia has directed its efforts towards the development of its bureaucratic sector (Kueh and Soo, 2020). The measure taken in this regard has been exclusively documented in different national frameworks and policy plans including the Governance Action Plans. It has been analyzed that economic growth is directly proportional to FDI inflows in Cambodia and other ASEAN countries as reported by Mizirak and Altıntaş (2018). According to the neoclassical and endogenous models of economic development, foreign investment derived by governance and accountability significantly determines economic growth (Sokang, 2018). Ly et al., (2021) also investigated the nexus between GDP growth rate and FDI inflow in Cambodia while exploring the determining factors of improved FDI in developing countries. The researchers reported both the long-term and short-term impact of good governance on GDP growth, export volumes, import flow, and international trade lobbying. Furthermore, the research also identified a bi-directional correlation between three variables of development i.e., economic growth, inward FDI, and international trade.

Alvarado et al., (2017) also conducted similar research and postulated that FDI, economic growth, and good governance are directly proportional to each other while FDI and short-term policy frameworks are inversely proportional to each other with reference to the statistics from 2011 to 2017 retrieved from Cambodian government databases. In addition, the results of a study conducted by Soeng et al. (2017) reported a direct relation between GDP and inward FDI while a poor governance system has been categorized as the major determinant of outward FDI from Cambodia. The reason explained is the contribution of FDI to the employment sector, technology transfer, labor wages, and enhancement of indigenous manufacturing. Kueh and Soo (2020) made essential research contribution by analyzing the drivers of FDI inflows in Cambodia, Myanmar, Vietnam, and Laos over a span of 10 years from 1990 to 2001 by deploying a dynamic panel data model, it has been reported that corporate governance and degree of openness are the largest determinants of inward FDI.

2.2. Impact of Governance on Thailand's Inward FDI

The trade market of Thailand has recently gained great attention from international corporate sector seeking to expand the businesses abroad. As reported by Fareed et al. (2018), the economic growth of the country has been monumental since 1960 with an annual rate of 7.5% till 1996, 5% from 1999 to 2007, and 6.2% from 2007 to 2017. The strategic location in the continental ASEAN, thriving tourism sector, and state stability of Thailand have attracted FDI. Chongvilaivan and Menon (2017) revealed that the economic system of Thailand is primarily derived

by inward foreign direct investment particularly over the last two decades. The country has become a hub of manufacturing industries including the automotive and information technology (IT) industry. Many established multinational corporate groups from Japan, the USA, and European Union has found Thailand safe for their massive investments. On outlining the drivers of the inward FDI in Thailand, it has been found that good governance and institutional accountability are positively correlated with FDI growth. Bunnag (2020) found the evidence that demonstrate the significance of voice and accountability, political stability and absence of violence, regulatory quality, and control of corruption to inward foreign direct investment in case of Thailand.

Janda and Nuangjamnong (2021) postulated that good governance mediated inward FDI from developed countries in Thailand has contributed significantly towards technology transfer while creating employment opportunities and augmenting economic stability. Bunnag (2020) conducted a comprehensive systemic review aimed at evaluating the role of governance and political structure of FDI inflow in Thailand which included in-depth literature analysis from 2007 to 2016. The results identified four governance indicators to have a major influence on the inward FDI. These include voice and accountability (VA), political stability and violence control (SV), regulatory quality (RQ), and corruption mitigation (CM).

2.3. Impact of Governance on Vietnam's Inward FDI

This section aims to present a thorough update of the literature regarding the relationship between governance and FDI in Vietnam. The impact of governance on the inward FDI has long been a topic of interest particularly in the emerging economies like of Vietnam. Over the years Vietnam has undergone a drastic increase in international trade agreements. Vietnam has joined various international and regional forums such as the "World Trade Organization" (WTO), the "Asia Pacific Economic Co-operation" (APEC), and the "ASEAN Economic Community" (AEC). The Vietnamese government adopted the outward-looking strategy with hopes that the economic growth of the country will be promoted through international trade and FDI. Tam and Khac (2016) highlighted that FDI and economic growth in Vietnam are strong determinants of one another and have a positive correlation. It has been concluded in this research that FDI and economic growth are complementary to one another in the case of Vietnam. Anwar and Nguyen (2011) reported a similar positive correlation between FDI and economic development in Vietnam concluding that Vietnam is seeing significant economic growth due to the technology and knowledge transfers occurring from FDI inflows.

Hoa and Lin (2016) examined the determinants of governance in attracting FDI in Vietnam between 2006 to 2014. The significant determinants of governance are identified as accountability, fairness, time costs of regularity compliance, and Business Support Services (BSS). Nguyen et al., (2018) contributed to the literature further by studying the interrelation of governance institutions and FDI in 63 provinces of Vietnam between 2006 and 2015. The results supported that the governance institutions are strong predictors of FDI in Vietnam. Van Bon (2015) studied the impact of corporate governance and institutional integrity on FDI in 43 provinces of the country. The results depicted that in all the provinces, institutional quality significantly contributes to increasing the FDI inflows. Narayanan et al. (2020) investigated the ASEAN member countries in terms of the FDI-Good Governance-Economic growth nexus. The results depicted that good governance has a significantly greater impact on the economy of the country and thus helps attract FDI. Therefore, the authors conclude that countries which have good governance policies are more capable of attracting FDI since it creates an optimal investment environment. Van Bon (2019) investigated the relationship between national quality, FDI, and GDP trajectory in Vietnam between 2005 and 2012. The results confirmed a strong positive impact of institutional quality upon economic growth and FDI. Cung and Nhung (2020) used an empirical method to analyze how the Economic freedom index and the Corruption Perceptions Index affect the flow of FDI in Vietnam from 1999 to 2018. The results depicted that both indexes have a positive significant effect on FDI which were noted as 1% and 5%, respectively.

3. DATA AND METHODOLOGY

The current study focuses on the empirical validation of relationship of national governance, environmental quality, economic growth, and trade on foreign direct investment in Cambodia, Thailand, and Vietnam. These countries are members of ASEAN as well (Severino, 2008; Jetschke, 2012). The data is collected from various sources like world development indicators and world governance indicators from 1996 to 2022. Indicators of national governance can be either quantitative or qualitative assessments, and they are employed to evaluate the standard of governance of a nation in addition to its efficiency. These indicators offer a framework for assessing several facets of governance and may be used to compare and track changes over time (Yoshikawa et al., 2014). They also give a framework for analyzing various components of governance. Indicators of national governance that are often used include the following:

The Rule of Law refers to the degree to which a nation's laws are respected, obeyed, and easily available to all its residents (Munck, 2003; Johnston, 2006). It involves things like the impartiality of the judicial system, the security of private property rights, the lack of corrupt officials, and the efficiency of the legal system. The rule of law is a fundamental principle of governance that establishes the supremacy of the law and guarantees that all persons, including government officials, are subject to the law and accountable to it. It also ensures that the law is obeyed by those who are subject to it (Bhole et al, 2023; Blair, 2021; Mahmood et al., 2021). It is a term that refers to a system that protects the rights and liberties of individuals while also ensuring that the laws are understood, administered fairly, and in a consistent manner.

The term "Government Effectiveness" refers to an evaluation of the government's ability to carry out its duties, such as providing public services, carrying out policies, and enforcing laws. It considers aspects such as the caliber of public administration, the efficacy of public institutions, and the effectiveness of public spending (Tan et al., 2023; Almustafa et al., 2023). When it comes to fostering economic growth and looking out for the welfare of the general populace, rules from the government may be evaluated according to

their "Regulatory Quality." It considers aspects like the transparency and coherence of legislation, the ease with which businesses may operate, and the degree of competition in the market.

The term "control of corruption" refers to the actions taken within a country's governance structure with the goals of avoiding and reducing instances of corrupt behavior (Li et al., 2021; Chong et al., 2020). The misuse of entrusted power for the purpose of obtaining personal benefit is the definition of corruption. Corruption is detrimental to the rule of law, the trust of the public, and the growth of the economy. These indicators are used often by international organizations, scholars, and policymakers to evaluate the effectiveness of governance, determine areas in which governance may be improved, and compare the governance systems of other nations (Bhagat and Hubbard; 2022; Andronicean et al., 2021). It is essential to keep in mind that various organizations may employ various sets of indicators, and that the selection of indicators may change based on the context and aims of the evaluation.

Trade and foreign direct investment have a strong relationship with one another, and the influence that trade has on FDI may be substantia (Essandoh et al., 2020; Keller, 2021). It is possible for foreign companies to get easier access to domestic markets through the liberalization of trade and the elimination of trade obstacles, such as tariffs and quotas. It is possible for a nation to entice foreign direct investment (FDI) when it opens its markets to international commerce since this allows foreign businesses to establish a presence in the market, which allows them to get access to new clients and grow their operations. Global supply chains are made possible by international commerce, which allows for the different phases of manufacturing to be dispersed over several different nations (Asongu and Odhiambo, 2021; Kahouli and Chaaben, 2022). Businesses could consider investing in other nations to take advantage of cost savings, availability of inputs, or closeness to existing markets. To integrate into these supply chains, overseas businesses may choose to set up manufacturing facilities or buy local businesses, both of which might result in greater foreign direct investment.

When corporations want to create a physical presence in a foreign market to better service their customers and compete more effectively there, this might drive foreign direct investment (Tiwari et al., 2022). Foreign direct investment enables businesses to overcome trade restrictions, obtain a greater understanding of the realities of local markets, and customize their products and services to fit the demand in those markets. When foreign corporations invest in a nation to manufacture products or services for export to other markets, this is an example of trade driving foreign direct investment (Shahbaz et al., 2022). These investments in export-oriented businesses have the potential to increase a nation's export capability, bring in revenues in foreign currency, and provide job opportunities. The exchange of goods and services between nations can help advance the spread of knowledge and new technologies. When international businesses invest in a host nation, they bring with them cutting-edge technology, managerial techniques, and industry know-how (Sadiqa et al., 2022). This can result in technology spillovers, which is when domestic enterprises gain an advantage by being exposed to foreign technologies and knowledge through links with foreign-owned companies that are involved in trade-related activities (Li et al., 2022; Arvin et al., 2021). Trade and foreign direct investment, in general, are both beneficial to one another. Over the past few decades, the world has experienced a technological transition, as the developing countries are aiming to become technologically advanced countries (Aysan and Kayani, 2022).

Foreign direct investment is stimulated by open markets, which in turn encourages more economic and commercial integration. Because of the potential benefits that international commerce and foreign direct investment may offer to an economy, governments frequently enact policies that encourage both types of investment as part of their economic development initiatives (Jijian et al., 2021). It has also been observed that Free Trade Agreements also encourage greater trade and foreign direct investment (FDI) among the member countries through the liberalization of goods and service trade (Kayani, 2021). There is a wide range of potential influences that the environment, which includes natural resources, climatic conditions, and biological aspects, might have on foreign direct investment. Companies who are looking to get access to natural resources like minerals, oil, gas, or wood may be interested in investing foreign direct capital in countries that are rich in these resources (Luo et al., 2021; Udemba and Yalçıntaş, 2021; Sun et al., 2022). Foreign direct investment in extractive sectors may contribute to economic growth and development, but it must be handled carefully to ensure that these investments are environmentally sustainable and that benefits are distributed. It is vital to keep in mind that economic development on its own might not be enough to ensure foreign direct investment (Djellouli et al., 2022). Investing decisions are also

Table 1 : Description of variables and data sources

Variable names	Acronyms	Measurements	Data sources	Expected relationships
Foreign direct investment	FDICu	Foreign direct investment, net inflows (BoP, current US$)	World Development Indicators (World Bank Organization)	Dependent variable
Economic growth	GDPGR	GDP growth (annual %)		Positive relation is expected.
Trade openness	TRADE	Trade		
Environmental quality	TGHG	Total greenhouse gas emissions (kt of CO_2 equivalent)		
National governance	COC	Control of Corruption	World Governance Indicators (World Bank Organization)	
	RQ	Regulatory Quality		
	GE	Government Effectiveness		
	ROL	Rule of Law		

This table explains the variables of the study, unit of measurements and data sources along with expected relation. The study is focusing on the behavior of FDI keeping in view the variables of GDPGR, TRADE, national governance (COC, RQ, GE and ROL) and environmental quality (TGHG)

impacted by a variety of other elements, including political stability, legal frameworks, the regulatory environment, infrastructure, and geopolitical concerns. On the other hand, prolonged economic growth often produces an environment that is favorable for attracting foreign direct investment, and it can function as a spur for future investment and development. The detailed description of the variables and data source is reflected in Table 1 as given below.

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics

The estimated results of the descriptive analysis, which are provided in Table 2, are based on a common sample for each variable. We compute the means, medians, and modes of the locations while taking into consideration a panel after first merging all the data from the research on a whole panel basis. Both skewness and kurtosis are aspects of descriptive analysis that reveal the distribution of each variable. Both aspects may be found in kurtosis and skewness (Marshall and Jonker, 2010; Nick, 2007). A variable's skewness can be measured to determine the extent to which it leans more towards one extreme or the other (Ho and Yu, 2015). Monitoring the residuals of regression equations allows for the assessment of the normality of residuals, which offers an indicator of the robustness of the model against the possibility of misspecification. Monitoring the residuals of regression equations also allows for the estimation of the normality of residuals. All the variables indicate that the null hypothesis is correct, which proves that the residuals follow a normal distribution and that there are no mistakes in the model's specification (Altman and Bland, 1996). All the variables verify that the null hypothesis is correct.

4.2. Correlation Matrix

During this study, a correlation matrix is constructed so that the we can acquire a deeper understanding of the interdependence of the variables. Table 3 displays the findings obtained from the correlation matrix that was generated with the help of the EVIEWS program (Agung, 2011). The findings that are shown in Table 3 suggest that there is no correlation between the variables, and the severity of the multicollinearity problem is inadequate for it to influence the empirical findings (Mansfield and Helms, 1982). The data also indicate that the multicollinearity problem has no influence on the empirical findings. None of the variables' computed associations will have their orientations reversed, and neither will any of the possible outcomes.

4.3. Panel Unit Root Test

Panel unit root tests may be carried out in EViews to determine whether the variables in a panel dataset are stationary or whether they display a unit root, which indicates non-stationarity and hence not leading towards the existence of co-integration (Banerjee, 1999). EViews offers many panel unit root tests, such as the Im, Pesaran, and Shin (IPS) test, the Fisher-type tests (ADF and PP), and the Levin, Lin, and Chu (LLC) test. Among these tests, the IPS test is the most widely used. The values of unit root tests in Table 4 indicate that the variables of study are stationary at level and first difference. Estimating econometric models with lagged values of the dependent variable and possibly other control factors is part of the IPS test. The null hypothesis says that each time series has a unit root, which shows that they are not stationary. The other possibility is that each of the time series is stable. Other panel unit root tests include the Levin-Lin-Chu (LLC) test and the Fisher-type panel unit root tests, account for the complexity of panel data,

Table 2: Descriptive statistics (As common sample, n=80)

Indicator	FDICu (Million)	COC	RQ	GE	ROL	GPDGR	TRADE	TGHG
Mean	5490.00	−0.67	−0.28	−0.26	−0.47	5.55	125.41	209101.40
Median	3530.00	−0.53	−0.41	−0.25	−0.49	6.31	124.87	228238.80
Maximum	16100.00	−0.14	0.48	0.42	0.77	13.25	186.47	554862.90
Minimum	81.581	−1.34	−0.79	−1.00	−1.24	−7.63	69.16	18928.55
SD	4940.00	0.36	0.35	0.45	0.54	3.28	21.83	157436.50
Skewness	0.83	−0.50	0.42	−0.17	0.26	−1.06	0.15	0.19
Kurtosis	2.48	1.85	1.80	1.60	2.12	2.95	2.91	1.75
Jarque-Bera Probability	0.1725	0.2194	0.2839	0.3147	0.1760	0.250	0.218	0.5981

Table 2 explains the descriptive statistics of panel. Descriptive statistics are used to summarize and describe a dataset. These statistics help organize, summarize, and explain data. Descriptive statistics include the mean, median, mode, standard deviation, range, and interquartile range. Range, median, and mode are examples. Descriptive statistics may be used to numerical and categorical data to reveal data features, patterns, and trends. They provide a foundation for future study and a snapshot of data characteristics

Table 3: Correlation matrix

Variables	LFDICU	COC	RQ	GE	ROL	GPDGR	TRADE	TGHG
LFDICU	1.00							
COC	0.57	1.00						
RQ	0.19	0.52	1.00					
GE	0.79	0.74	0.59	1.00				
ROL	0.68	0.77	0.61	0.69	1.00			
GPDGR	−0.39	−0.37	−0.38	−0.46	−0.47	1.00		
TRADE	0.49	0.06	−0.16	0.30	0.10	0.12	1.00	
TGHG	0.79	0.71	0.47	0.72	0.70	−0.37	0.43	1.00

A correlation matrix is a table that depicts the coefficients of correlation between numerous variables in a dataset. It gives a thorough picture of the connections between variables, including the strength and direction of their linear relationship. Correlation coefficients quantify how closely two variables are connected to one another. The correlation matrix may be used for a variety of reasons, including finding highly linked variables, and measuring multicollinearity in regression analysis. It elucidates the interdependence of factors and may lead to subsequent analysis or decision-making processes

Table 4: Panel unit root tests

Variables	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square	Levin, Lin and Chu t*	Order of Integration
FDICu	−2.5068*** (0.0061)	16.8981*** (0.0097)	20.8029*** (0.0020)	−1.3626* (0.0865)	Level
TRADE	−3.2516*** (0.0006)	22.6157*** (0.0009)	33.5366*** (0.0000)	−2.02654** (0.0214)	1st Diff
TGHG	−2.32198*** (0.0101)	18.0145*** (0.0062)	39.0248*** (0.000)	−2.15846** (0.0154)	1st Diff
GPDGR	−4.94951*** (0.000)	34.3727*** (0.0000)	31.1474*** (0.000)	−5.76885*** (0.000)	Level
COC	−3.2794*** (0.0005)	22.4158*** (0.0010)	82.0203*** (0.000)	1.90531 (0.9716)	1st Diff
ROL	−2.39693*** (0.0083)	16.5355** (0.0112)	11.2806* (0.0801)	−1.70361** (0.0442)	Level
RQ	−4.36755*** (0.000)	29.6489*** (0.000)	93.7589*** (0.000)	−0.7246 (0.2343)	1st Diff
GE	−4.45123*** (0.000)	30.043*** (0.000)	62.1335*** (0.000)	−4.56163*** (0.0000)	1st Diff

The values of unit root tests indicate that the variables of study are stationary at level and first difference. Estimating econometric models with lagged values of the dependent variable and possibly other control factors is part of the IPS test. The null hypothesis says that each time series has a unit root, which shows that they are not stationary. The other possibility is that each of the time series is stable. Other panel unit root tests include the Levin-Lin-Chu (LLC) test and the Fisher-type panel unit root tests, account for the complexity of panel data, these methods look at things like the appearance of cross-sectional dependence and different effects on different people

Table 5: Kao residual co-integration test

ADF	t-Statistic	Prob.
	−0.91138	0.0081

The Table 5 provides the information about the long-run relationship among the selected variables of the study the rejection of null hypothesis that no co-integration exists, is rejected and confirming the co-integration

Table 6: Long run and short run results of panel ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long run results				
COC	4.133	1.384	2.985	0.005
RQ	1.844	0.454	4.064	0.000
GE	−0.681	0.433	−1.572	0.123
ROL	1.145	0.338	3.390	0.002
GPDGR	−0.012	0.034	−0.371	0.712
TRADE	0.037	0.008	4.520	0.000
TGHG	−0.139	0.025	−5.617	0.000
Short run results				
D (LFDICU(−1))	0.4122	0.0515	7.9980	0.0000
D (COC)	−1.8096	1.4066	−1.2865	0.2051
D (RQ)	0.8195	0.5028	1.6300	0.1104
D (GE)	−3.0924	3.3055	−0.9355	0.0547
D (ROL)	−0.6242	0.8115	−0.7692	0.0460
D (GPDGR)	0.0562	0.0384	1.4632	0.1507
D (TRADE)	−0.0224	0.0266	−0.8417	0.4046
D (TGHG)	0.0000	0.0000	−0.2399	0.0115
C	8.6272	8.2240	1.0490	0.3000
Convergence and speed of adjustment				
COINTEQ01	−0.1579	0.5641	−1.0268	0.0013

The idea behind the Panel ARDL model is to figure out the long-run and short-run factors autonomously. It uses lagged values of the dependent variable, lagged values of the explanatory variables, and maybe even more control factors. The model allows for different levels of integration and co-integration among the variables, describing both the short-term behavior and the long-term stability relationships. The Panel ARDL method is a way to use the standard ARDL model with panel data. It allows for effects that are unique to each person and differences between cross-sectional units. It is especially helpful when working with time series data for various organizations or people who have been studied over time

these methods look at things like the appearance of cross-sectional dependence and different effects on different people.

4.4. Kao Residual Co-Integration Test

A test known as co-Integration can be carried out to ascertain whether a group of variables are in a state of long-term equilibrium or connection. In the field of econometrics, it is a technique that is frequently used because of its utility in the analysis of time series and panel data (McCoskey and Kao, 1998). The Kao Residual Co-Integration test is a popular option for those interested in doing a co-Integration analysis (Chaiboonsri et al., 2010). The result is reported in Table 5 under the null hypothesis, that no co-Integration exists among the variables. As per the value of probability, the null hypothesis is rejected and empirically existence of long run is validated.

4.5. Panel ARDL Results

Table 6 reports the estimated values of impact of governance, trade, environment, and economic growth on foreign direct investment. Table 6 has three portions; the first portion shows the long run results generated by EViews using Akaike info criterion (AIC) for lag length selection of model. The maximum lag length is 2 and a total 72 observations are included in the model.

The elimination of corrupt practices in a nation has a multitude of beneficial effects for the socioeconomic and political growth of that nation. There is a list of important good effects that can result from effective control of corruption. A stricter handling of corruption creates a favorable investment atmosphere locally and internationally (Bayar and Alakbarov, 2016; Usman et al., 2022). A more stringent handling of corruption results in a more favorable investment atmosphere. Businesses can function in an atmosphere that is open and fair when corruption is kept to a minimum. This helps to reduce the risks that relate to bribery, fraud, and other illegal practices (Nguyen et al., 2021; Nguyen et al., 2018; Le, 2021; Zander, 2021; Zangina & Hassan, 2020a). This stimulates investments both domestically and internationally, which ultimately results in higher economic growth, the creation of new jobs, and improvements to living standards. Our results also show the significant positive impact of control of corruption on FDI.

A regulatory framework that is effective in creating a favorable environment for business generates a favorable business environment by establishing rules, laws, and processes for enterprises to function that are clear and predictable (Akisik, 2020; Zangina and Hassan, 2020b). This eliminates uncertainty and the costs associated with transactions, which encourages investment on both the domestic and international levels. A climate that is friendly to business helps foster innovation and entrepreneurship, which in turn leads to the expansion of the economy and the creation of new jobs (Chen et al., 2021). The trust of investor is boosted by high standards of regulatory quality (Yeboua, 2021). Investors have the reassurance that their assets will be safeguarded

and that they will have a level playing field when rules are well-designed, clear, and efficiently implemented. This is because such regulations offer investors a fair playing field. This helps to attract foreign direct investment and enables capital movements, both of which contribute to economic growth.

When there is inefficiency in government, it frequently results in a loss of public trust and confidence in public institutions as well as in the administration of such institutions. It is possible for residents to have the impression that their government is incompetent, unresponsive, and corrupt; this, in turn, can foster cynicism, indifference, and disengagement from civic and political processes (Tan et al., 2023). This image also creates discouragement for international investors. This can make it more difficult for people to get along with one another, damage democratic processes, and interfere with society's ability to operate effectively. Maintaining a low level of efficacy on the part of the government might lead to political instability. Social unrest, demonstrations, and political movements can be fueled by citizen discontent with government performance, a lack of faith in the government, and impatience with the performance of the government. This can result in political crises, frequent changes in administration, and a climate that is fraught with political unpredictability (Mehmood, 2022). The result of the study also indicates the negative impression of government effectiveness on FDI, but this relationship is statistically insignificant.

The rule of law is an extremely important factor in the growth of an economy. It does this by providing a legal framework that is stable and predictable, which in turn encourages entrepreneurialism, innovation, and investment (Blair, 2021). Businesses are more likely to operate in nations that have a stable legal framework and property rights that can be enforced, therefore having a strong rule of law may attract investment from both local and international sources. The primacy of the rule of law is essential to the protection of human rights (Mahmood et al., 2021). It guarantees that everyone, regardless of their background, is treated fairly and protects vulnerable groups, promotes gender equality, and works to eliminate discrimination. The rule of law offers a means to combat prejudice, preserve human dignity, and make progress towards social justice (Bohle et al., 2023).

It is important to remember that the adverse effects of economic expansion on foreign direct investment are not consistent across all nations; rather, they are unique to the conditions that prevail in each one. The negative effects of these factors can be mitigated by governments by resolving infrastructural restrictions, supporting environmentally friendly practices, guaranteeing social inclusion, and preserving macroeconomic stability (Jahanger and Usman, 2022; Iqbal et al., 2023). Even in the face of the obstacles that come along with rapid economic expansion, the provision of a favorable investment climate that includes transparent rules, an efficient bureaucracy, and strong governance systems may assist attract and keep FDI (Appiah et al., 2023; Rao et al., 2023). Here in our results, the impact of economic growth is low and negative on FDI, and it is statistically insignificant at the same time in the case of selected countries.

It is essential to keep in mind that the favorable effects of trade on foreign direct investment are contingent on a wide range of circumstances, such as the sectors, the conditions of the market, the regulatory frameworks, and the general investment environment of the nation (Dingru et al., 2023; Kahouli and Chaaben, 2022; Ganda, 2021). Governments can further boost the beneficial consequences by enacting laws that are favorable to trade, creating an environment that is stable and predictable for business, and providing infrastructure and institutions that are supportive of foreign investment. Foreign enterprises who participate in commerce can get market expertise as well as network connections. Companies that are active participants in trade can improve their understanding of the dynamics of local markets, the tastes of local consumers, and the best practices for conducting business. This market expertise and network might be of great use in luring and maintaining foreign direct investment in the nation.

The provision of access to vital resources through commercial exchange can encourage foreign direct investment. For instance, a nation that is abundant in natural resources may be able to entice foreign direct investment from businesses that are interested in gaining access to those resources for their operations. Trade makes it easier to move resources including raw materials, intermediate inputs, and specialized services, which in turn supports activities related to foreign direct investment (Zubair et al., 2020; Pietrucha and Żelazny, 2020). Countries and businesses throughout the world are progressively implementing efforts to cut emissions, transition to clean and sustainable energy sources, and encourage environmentally responsible practices as a reaction to the adverse effects of greenhouse gas emissions and climate change. These steps are being taken to lessen the effects of climate change, safeguard the environment, and advance the cause of sustainable living over the long run (Opoku and Boachie, 2020; Rokhmawati, 2021). Although lowering greenhouse gas emissions and taking measures to combat climate change may have a good impact on the environment and society, these endeavors are not directly connected to the process of attracting or luring foreign direct investment. A variety of factors, including market possibilities, infrastructure, political stability, regulatory environment, labor costs, and business climate, amongst others, have a role in determining whether a country will receive foreign investment (Liobikienė and Butkus, 2021).

In Table 6, convergence and speed of adjustment is given having value −0.15. It indicates the convergence from short-run to long-run equilibrium and its value may be interpreted as there will be almost 15% annual adjustment towards long run due to any disturbance occurs in the short run.

5. CONCLUSION AND POLICY RECOMMENDATIONS

This study focused on the empirical validation of relationship of governance, environmental quality, and trade on foreign direct investment in Cambodia, Thailand, and Vietnam from ASEAN. The data is collected from world development indicators and world governance indicators from 1996 to 2022. The long run results of

the study are obtained after the prerequisite tests that are descriptive analysis that indicate the normality of variables as a robustness test. Four panel unit tests (IPS-W stat, ADF- Fisher, PP-Fisher and LLC t) are applied and mixed order of integration (0 and 1) has been found. For the existence of co-integration among the variables of the study, Kao Residual Co-integration test was used, and it validates that selected variables are co-integrated in the long run.

The findings of unit root tests indicate the application of Panel ARDL, and results are showing that governance is overall positively affects FDI as increasing control of corruption, regulatory quality and rule of law are pushing FDI upward in Cambodia, Thailand, and Vietnam. It is much needed that a good and effective governance in the form of ROL and COC provide a stable and predictable legal framework that encourages local and international businesses, innovation, and investment. Businesses prefer the boundaries with the enforcement of stable legal framework and property rights, guarantee that every individual regardless of their backgrounds, are treated fairly. However inefficient government results in a loss of public trust and confidence in public institutions as well as in the administration of institutions. This may lead to political crises, frequent changes in administration, and an environment that is plagued with uncertainty on the political front. According to the findings of the study, foreign direct investment is associated with a poor perception of the effectiveness of the government; however, this correlation did not reach statistical significance. Trade also provided an access to natural resources to entice FDI as trade facilitates the movement of raw materials and intermediate goods to support the activities related to the promotion of FDI.

Trust and confidence in government institutions and public officials can be built up because of successful anti-corruption efforts, which lead to an increase in both trust and confidence among the public. When individuals have the impression that efforts are being made to combat corruption, they are more likely to have faith in the legitimacy of the judicial system, the public administration, and the governing institutions. This has the potential to build social cohesiveness and stability, as well as a stronger social compact between citizens and the government. Controlling corruption helps to strengthen the rule of law by ensuring that rules and regulations are adhered to and that legal institutions work independently and impartially. This adds to the fact that the rule of law is strengthened. When corruption is kept to a minimum, the judicial system can operate more efficiently, which guarantees that all people, regardless of their social level or connections can afford equal treatment and have access to justice on an equitable basis. This results in a more equal society and fosters a culture in which individuals are held accountable.

This strategy must incorporate legislative frameworks, institutional changes, transparency, public awareness, and citizen participation. The positive effects of controlling corruption are intertwined with other components of good governance, including accountability, trade openness, and the rule of law. It is essential to keep in mind that the negative effects of ineffective governance are not exhaustive and can take on a variety of forms depending on the nation and the circumstances. To ensuring that public institutions are efficient, responsive, and responsible to the demands and aspirations of the population, improving the effectiveness of the government involves institutional changes, capacity-building activities, greater transparency and accountability systems, and citizen involvement.

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