

Economic Risks and Foreign Direct Investments (FDIs) In Sub-Saharan Africa

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Abstract

In spite of the crucial role played by Foreign Direct Investment (FDI) in enhancing domestic savings and investments, many developing countries still face challenges in attracting substantial inward FDI compared to other economies in the developing world. This can be attributed to the absence of a conducive institutional and economic environment that is necessary to effectively attract and accommodate inbound FDI. The purpose of this study was to determine the impact of economic risks on FDIs in the Sub-Saharan African region. The study adopted a time-variant data covering the period 2000 to 2019 from which a panel was compiled on 15 SSA countries. The FDI data for the study were obtained from World Development Indicator (WDI) while Country Risks Data were sourced from the International Country Risk Guide (ICRG) published by the Political Risk Service (PRS) Group. The degree of association between the dependent and independent variables was determined using descriptive statistics, and panel econometric techniques of the generalized method of moment (GMM). According to the research, the coefficient of Inflation (0.0003%) and GDP per capita (-0.020%) have a significant negative influence at 5% level while the coefficient of real GDP (0.103%) and control variable of Global Financial Crisis (0.379%) have a significant positive effects on FDIs in Sub-Saharan Africa at 5% and 1% level respectively. The study concluded that in order to attract more FDI, SSA nations should build a higher-quality corporate structure and a more consistent financial system. The study therefore, recommended that SSA governments should continue to execute inflation-lowering policies through their monetary and fiscal policies in order to attract FDIs inflows and maintain an FDI-friendly environment for their countries in SSA.

Keywords: Economic Risk, Foreign Direct Investment, *Generalized Method of Moment (GMM)* and Sub-Saharan Africa (SSA).

Introduction

Foreign Direct Investment (FDI) and its potential impact on developing countries, particularly sub-Saharan Africa (SSA), have garnered considerable attention in the fields of international economics and development. FDI holds great significance for these nations beyond its role in supplementing domestic savings and investment. It plays a vital role in promoting domestic innovation by facilitating the transfer of technology, fostering human capital development, and sharing management skills and knowledge within the region. Additionally, FDI provides access to new markets, stimulates competition in the domestic economy, resulting in improved productivity, and brings about cost reduction and economies of scale through integration with international economic activities (Chantal *et al.*, 2005).

Indeed, several countries in Sub-Saharan Africa (SSA) are now recognizing the importance of enhancing their business environment to attract foreign investment. They are implementing modern regulations and policies aimed at increasing the competitiveness of their economies and

drawing in this type of investment. However, despite these efforts, many SSA countries still face challenges in attracting significant levels of inward FDI compared to other developing nations. This can be attributed to the lack of supportive institutional and economic environments necessary for attracting foreign investment (Abdulrasaq, 2021). Previous studies (Abdel-Gadir, 2010; Modesto, 2017) have also highlighted the absence of high-quality institutions and conducive economic conditions as key barriers to attracting inward FDI in the region.

Unstable macroeconomic conditions in Sub-Saharan Africa act as a significant deterrent for foreign investors seeking to engage in Foreign Direct Investment (FDI) (Boğa, 2019; Osei-Assibey, *et al.*, 2018). Within Sub-Saharan African countries, the volatility of inflation is influenced by various factors, such as ineffective monetary policies, inconsistent investment strategies, and weak financial frameworks, all of which contribute to economic uncertainty and hinder foreign investment (Mlambo, 2005). Additionally, high corporate tax rates prevalent in several countries within the region discourage Foreign Direct Investment (FDI) (Joshua, Babatunde, & Sarkodie, 2021). Moreover, certain Sub-Saharan African (SSA) countries have implemented stringent policies regarding profit repatriation, creating an additional barrier to the inflow of foreign direct investment (FDI) (Chrysostome & Lupton, 2011; Ajide & Alimi, 2019).

In addition, the majority of countries in Sub-Saharan Africa heavily import capital and consumable goods. These nations' export sectors are primarily dominated by primary products due to their mono-item-based economies. They are exposed to exchange rate fluctuations as a result of their economic structure, which can be triggered by sudden shifts in commodity prices (Joshua, Babatunde, & Sarkodie, 2021). These nations are also prone to fundamental current account deficits, which have a direct impact on their foreign reserves. Due to their import dependence, reliance on primary exports, exposure to exchange rate volatility, and potential effects of current account deficits on foreign reserves, Sub-Saharan African nations face difficulties (Abdulrasaq, 2021).

There is lack of definite conclusions regarding the link between FDI and economic risks in SSA in the existing literature. Numerous studies have explored different factors and perspectives concerning FDI. Some studies, such as Gertrude (2014), Quazi¹, Vemuri, and Soliman (2014), Odubunmi and Agbelade (2014), Erhieyovwe and Onokero (2013), focused on corruption, while others, like Matima and Gossel (2022), Awadhi, James, and Byaro (2022), Adegboye, Osabohien, Olokoyo, Matthew, and Adediran (2020), and Peres, Ameer, and Xu (2018), considered institutional quality and other variables. However, the majority of these studies were country-specific within SSA and did not examine the components of economic risks and their influence on FDI inflows into this region. This study seeks to fill this knowledge gaps by investigating the impact of economic risk components on FDI in Sub-Saharan African countries.

This empirical study aims to explore the relationship between economic risks and Foreign Direct Investment (FDI) in the sub-Saharan African region. The specific objectives of this research are to analyze the impact of various factors, namely real gross domestic product (GDP), GDP per capita, annual inflation rate, current account as a percentage of GDP, and budget balance as a percentage of GDP, on FDI. The data for these variables is sourced from the International Country Risk Guide (ICRG) published by the Political Risk Service (PRS) Group, and appropriate citations can be found in the appendix. The focus of this study is on the sub-Saharan African region due to its unique challenges, including structural barriers, volatile

commodity prices, persistent inflationary pressures, sluggish GDP growth, and vulnerability to external shocks (Mpofu & Nikolaidou, 2018; Abdulrasaq, 2021).

Literature Review

Foreign Direct Investment (FDI) is a term used to describe an investment made by a company or individual from one country (referred to as the "home country") into a business located in another country (referred to as the "host country"). The primary objective of FDI is to establish a long-term stake in the invested entity and exert a substantial level of control over it. Kurtishi-Kastrati (2013) describe FDI has the direct ownership or control of assets in the host nation, such as equity shares in a company, real estate, or production facilities. According to the International Monetary Fund (IMF, 1993), FDI is characterized by the acquisition of durable or lasting stakes in businesses operating outside the investor's home country. Additionally, the World Bank (1992) defines FDI as an investment of 10% or more received from an overseas investor who intends to manage the firm. These definitions highlight the long-term nature of FDI and the significant ownership and operational influence of foreign investors.

In line with Kurtishi-Kastrati, (2013), FDI can be categorized into four types namely; Horizontal FDI, Vertical FDI, Conglomerate FDI and Platform FDI. For the Horizontal FDI an investor expands their business operations in a foreign country within the same industry or production activity. The purpose is to replicate existing business models, penetrate new markets, or gain a competitive advantage. Vertical FDI involves investment in different stages of the production process in a foreign country. This includes backward integration (investment in suppliers) and forward integration (investment in distributors or retailers). The goal is to optimize production efficiency, reduce costs, and improve supply chain management. Conglomerate FDI refers to investments made in unrelated industries or sectors in a foreign country. This type of investment is driven by diversification strategies, seeking opportunities for expansion and growth in different markets. Lastly, Platform FDI occurs when an investor establishes a subsidiary or affiliate in a foreign country to serve as a base for further investments in the region. These platforms act as hubs for conducting business activities, such as R&D, manufacturing, and distribution.

FDI in developing countries is often driven by factors such as cheap labor and high-quality infrastructure. These factors influence the feasibility and profitability of FDI projects (UNCTAD, 1998; Bimal, S. 2017; Cuong, Van Thu, & Trang, 2018). Other key determinants include market size and potential, political stability, governance, availability of natural resources, technological capabilities, and favorable investment policies and regulations (Bimal, 2017; Cuong, Van Thu, & Trang, 2018).

Economic Risk

Economic risk refers to the potential for adverse changes or uncertainties in the economic conditions of a country, region, or market that can impact businesses, investments, and overall economic performance. It encompasses a range of factors that can disrupt economic stability and create challenges for businesses and individuals (Mechler, 2016). Real GDP growth, yearly inflation rate, and GDP per capita can all be used to evaluate a country's economic strengths and weaknesses (Briguglio, Cordina, Farrugia, & Vella, 2009). Previous studies have recognized economic risk as a crucial factor influencing foreign direct investment decisions and the attractiveness of a host country to foreign investors. A stable economy tends to attract investors, leading to increased FDI inflows, as it reduces both the risk and the cost associated with conducting business in a particular economy. For instance, high inflation rates indicate

macroeconomic instability, suggesting that the government struggles to maintain a balanced budget and the central bank faces challenges in controlling the money supply (Fischer, 1993). The amount of economic risk in a host nation has a substantial impact on the country's attractiveness for foreign direct investment (FDI) and determines foreign investors' decision-making process. A stable and predictable economy is more appealing to FDI because it decreases the risks and expenses involved with doing business in that country. High inflation rates, on the other hand, reflect macroeconomic instability, implying possible difficulties for the government in managing its budget and the central bank in regulating the money supply (Fischer, 1993). Macroeconomic risks such as market size, economic growth rate, GDP, infrastructure quality, natural resource availability, and institutional considerations such as political stability all contribute to assessing a host country's attractiveness for FDI (Bouchet, Clark, & Gros Lambert, 2003). These risks are important for international firms contemplating investments in the country.

In addition to macro risks, there are also micro risks that target specific sectors of activity or selected firms. These risks can be related to industry-specific challenges, changes in regulations, competition dynamics, or other sector-specific factors. It is essential for foreign investors to consider both macro and micro risks while assessing the attractiveness of an investment opportunity (Briguglio, Cordina, Farrugia, & Vella, 2009). It is worth noting that while economic risk can be influenced by political mismanagement, it should not necessarily be the explicit consequence of a political choice. Political stability and effective governance are crucial in creating an environment conducive to attracting FDI and reducing economic risks (Bouchet, Clark, & Gros Lambert, 2003).

The economic risk rating is a valuable tool used to evaluate the strengths and vulnerabilities of a country or region from an economic perspective. This assessment can be carried out through quantitative or qualitative means to determine the level of risk associated with investment and business activities within a specific economy (Howell, 2011). According to Howell (2011), the primary objective of the economic risk rating is to provide a systematic approach for evaluating the current economic strengths and weaknesses of a country. Generally, a country with a greater balance of strengths over weaknesses will receive a lower economic risk rating, while a country with a larger proportion of weaknesses compared to strengths will receive a higher economic risk rating. It is essential to avoid plagiarism by providing appropriate references to the original source. Howell (2011, 2013) outlines the various components of the economic risk rating as follows:

GDP per Head: GDP per capita is a measure of the average annual economic production per person. It is computed by translating a country's GDP into US dollars at the average exchange rate and comparing it to the average GDP of all nations included in the International Country Risk Guide (ICRG).

Real GDP Growth Rate: The rate at which an economy's production, as measured by GDP, changes over time is represented by the real GDP growth rate. The rate of economic growth considers the impact of inflation and deflation, providing an adjusted value for the production of goods and services. This measure takes various factors into account, including consumer spending, corporate investments, government expenditures, and net exports (which is calculated by subtracting imports from exports). To calculate real GDP, divide nominal GDP by 1 plus the inflation rate, considering the chosen base year.

Annual Inflation Rate: The Consumer Price Index (CPI) is a metric that tracks the average price fluctuations of a collection of goods and services. It serves as an indicator of the overall inflation rate on an annual basis. The CPI is calculated by comparing the percentage change in prices from the same month in the previous year.

Budget Balance as a Percentage of GDP: The budget balance is calculated by comparing a government's revenues, which include taxes and earnings from asset sales, with its expenditures. Typically, this balance is presented as a ratio relative to the nation's Gross Domestic Product (GDP). A favorable budget balance indicates a surplus situation, where government expenditures are lower than its receipts. Conversely, an unfavorable balance indicates a deficit, indicating that government expenditures exceed its revenues. Expressing the budget balance as a percentage of GDP provides a statistical measure to assess a government's ability to meet financial obligations and effectively manage public finances. It is important to note that the fiscal balance, presented as a percentage of GDP, is derived from the estimated GDP in local currency for a specific fiscal year, including the central government's fiscal balance and any granted grants.

Current Account % of GDP: The current account, together with the capital account, is important in determining a country's balance of payments. Assessing the current account balance as a proportion of GDP gives useful insights into a country's global competitiveness. This quantitative indicator indicates the expected current account balance in the balance of payments for a certain fiscal year. It entails translating the essential statistics into US dollars using the average exchange rate for that time period, while also taking into account the individual country's predicted GDP.

Open Trade Policies: Open Trade can be quantified through the residual of a logarithmic regression analysis that considers various factors. The standard trade openness ratio, is represented by the sum of exports and imports (X+M) divided by the country's GDP, serves as the dependent variable. By incorporating these factors, the model aims to establish a baseline or predicted values for the trade openness ratio (Wei 2000). Note that the residual obtained from this regression analysis is considered as an indicator of artificial openness resulting from trade policies. It is assumed that any deviation between the observed trade openness ratio and the predicted values can be attributed to the influence of trade policies. These policies have the potential to either enhance or restrict a country's level of openness in trade (WDI 2005).

Theoretical Framework

To establish a solid theoretical foundation for understanding the influence of economic risks on FDI in SSA countries, this study drew upon the Push and Pull Factor Theory, as well as the Institutional Fitness Theory. These theories were employed to analyze the correlation between different economic risk factors and FDI in the Sub-Saharan African region.

Cerutti, Claessens, and Puy (2015) have examined the relationship between the Institutional Fitness Theory and the Push and Pull Factor Theory, emphasizing their relevance in assessing economic risk. Both theories provide valuable insights into the factors influencing foreign direct investment (FDI) in Sub-Saharan Africa, including the macroeconomic determinants that impact this phenomenon. According to theoretical models, firms expand internationally to internalize their operations due to market imperfections resulting from an unstable macroeconomic environment, which could lead to high transaction costs for foreign investors. However, Agarwal (1980) has criticized these theories for their static nature and their neglect of political and social factors.

The Push and Pull Factor Theory aims to combine principles from the internalization theory of transaction costs and the market power theory of firms with macroeconomic approaches to international production, such as the primary product cycle model. This theory highlights the crucial role of sound macroeconomic policies in shaping the outcomes of foreign direct investment (FDI). Various variables linked to macroeconomic stability and policy effectiveness serve as determinants that either facilitate or hinder the attraction of foreign direct investment. Countries experiencing high inflation rates, volatile or overvalued exchange rates, and substantial levels of external debt tend to increase the costs of doing business for foreign investors. This creates uncertainty regarding potential returns, as indicated by Ahn *et al.* (1998) and Balasubramanyam (2001).

Therefore, it is crucial to implement robust macroeconomic strategies to attract foreign direct investment (FDI). Maintaining a stable and controlled inflation rate, establishing a well-regulated and stable exchange rate, and managing external debt levels are key factors in creating a favorable environment for foreign investors. Adopting such policies not only reduces operating costs but also reduces uncertainty, thus enhancing the country's attractiveness as an investment destination. According to the mentioned theory, countries with stable economic conditions are more likely to attract higher levels of foreign investment. Implementing consistent and effective macroeconomic policies contributes to improving market desirability. Furthermore, a comprehensive macroeconomic strategy that addresses budget and trade imbalances, low inflation, and decreased interest rates can potentially mitigate risks associated with both domestic and international investments. Reducing transaction costs can incentivize higher levels of foreign direct investment (Pattillo *et al.*, 2004).

Empirical Studies

Extensive empirical research has been conducted on the relationship between economic risks and foreign direct investment (FDI) in the sub-Saharan African region (SSA). Awadhi *et al.*, (2022), examined the impact of institutional development on FDI attraction in SSA. The study encompasses data from 45 countries in the sub-Saharan African region over the period of 1986 to 2015. To address concerns of endogeneity, the researchers employed the Generalized Method of Moments (GMM) estimator within a system framework. The empirical findings indicate that only two indicators of institutional development, namely the rule of law and government effectiveness, have a positive and statistically significant influence on FDI inflows into sub-Saharan Africa. This suggests that establishing a robust regulatory structure and efficient governance contribute synergistically to creating an enabling investment environment. The study highlights the importance of trade liberalization and market dimensions in stimulating foreign direct investment (FDI) in sub-Saharan Africa.

Also, Matima and Gossel (2022) conducted a study to explore the relationship between Foreign Direct Investment (FDI), political risk, and institutional quality in 20 sub-Saharan African (SSA) countries from 2003 to 2019. To examine the factors influencing FDI inflows in the region, the researchers employed the Generalized Method of Moments (GMM). The findings of the study indicate that FDI tends to be attracted to sub-Saharan African (SSA) countries with lower political risk and higher institutional quality. However, it was observed that economies in SSA countries abundant in natural resources tend to attract higher levels of FDI. The study emphasizes that FDI investors prioritize regulatory and institutional mechanisms for investment protection in sub-Saharan African (SSA) countries heavily reliant on natural resources. Additionally, it highlights that political risk has a more significant impact on stimulating FDI inflows compared to institutional quality.

Equally, Babatunde and Sarkodie (2021) examined the impact of foreign debt and FDI inflows on economic growth, with a particular focus on weaker economies, including those in Sub-Saharan Africa (SSA). The research employs the autoregressive distributed lag (ARDL) methodology to analyze data spanning from 1990 to 2018. The findings of the empirical study reveal that FDI inflows have a significant effect on economic growth in the SSA region. In general, variables such as trade openness and currency rates have a lesser influence on economic development compared to FDI inflows, external debt, and foreign aid.

In Sub-Saharan Africa, Ouédraogo *et al.*, (2020) also investigated how state investment affects private investment. In contrast to other studies, they considered the possibility of hidden country heterogeneity and seeks to explain group membership using unobserved traits. The researchers examined data from 42 sub-Saharan African nations between 1980 and 2015 using the finite mixture model. The results show that there are three different groupings of nations where public spending has a different effect on private investment. This suggests that there are differences in the link between these two forms of investment and that country-specific factors play a role.

Adegboye *et al.*, (2020) conducted a similar study to examine the influence of institutional weaknesses on FDI inflows and their implications for the economic growth of specific countries in Sub-Saharan Africa (SSA). The study utilized a comprehensive dataset comprising 30 countries in the Sub-Saharan Africa (SSA) region, covering the period from 2000 to 2018. To investigate the relationship between foreign investment, economic growth, and institutional quality in the SSA sub-region, the researchers employed both fixed and random effect regression models. The findings of the study highlight the crucial role of foreign capital inflows in promoting the economic development of Sub-Saharan Africa. Moreover, the study demonstrates that the quality of institutions in the host countries within the sub-Saharan Africa (SSA) region significantly influences the level of foreign direct investment (FDI) inflows.

From a across regional perspective, Singh and Gal (2020) investigate the effects of economic freedom (EF) and its macroeconomic drivers on FDI inflows in a variety of countries, including Middle East, East Asia, South Asia, Latin America, Eastern and Southern Europe, Northern Europe, Western Europe, North Africa and Sub-Saharan Africa. The analysis relied on data from the Heritage Foundation Economic Freedom Index, which covered the period 1999 to 2018. Using stepwise multiple regression analysis, the relationship between FDI inflows and numerous economic freedom variables, including business freedom, government expenditure, tax burden, government integrity, property rights, investment freedom, trade freedom, and monetary flexibility, was explored. According to the findings, business freedom considerably enhances FDI inflows to developing countries. Also, from a across regional perspective Peres *et al.*, (2018), evaluated how institutional quality affects FDI. The combined variables of corruption control and legality were used to evaluate the quality of institutions. According to the study's findings, institutional quality and FDI in developed nations have a positive and substantial association. The results provide substantial evidence in favor of the thesis that governance indices, such as the suppression of corruption and the application of the law, are essential for luring FDI inflows. This implies that nations looking to entice FDI should take governance indices into account.

In Nigeria, Oni *et al.*, (2018) investigates the effects of country risks on FDI. The researchers used time series data from the Transparency International Index and the CBN 2016 Financial Statistical Report, which covered the years 1980 to 2016. The investigation used Johansen's Multivariate Cointegration Test and Error Correction Model (ECM) methods. According to the

research, FDI in Nigeria is significantly impacted by nation risk factors. Particularly, it is determined that the corruption index, insecurity, and political instability are statistically significant determinants impacting FDI. However, the analysis finds that FDI in Nigeria is not significantly impacted by inflation rate fluctuation.

In Malaysia, Masih (2017) studied the association between political instability, foreign direct investment (FDI), and economic development in Malaysia. The study makes use of time series data covering 30 years, from 1984 to 2013. The autoregressive distributed lag (ARDL) and cointegration test as proposed by Pesaran *et al.*, were used in the study. The empirical findings of the study show that there are long and short-term relationships between political insecurity, foreign direct investment, and economic development in Malaysia. The results suggest that economic progress has a significant impact on attracting foreign FDI, alongside the importance of political stability. The proposition suggests that fostering economic growth can play a crucial role in attracting FDI to Malaysia while also promoting a stable political environment.

Based on MENA and Horn regions, Ibrahim (2017) examined how risks affect firms' decisions to engage in foreign markets and establish operations in specific countries. The research focused on the association between country risk and FDI inflows in the MENA and Horn regions. The study takes a macroeconomic approach and considers three types of country risks: financial risks, economic risks, and political risks. Inferential statistical, specifically multiple regression analysis, was utilized for analysis. The findings reveal significant relationships between country risks and FDI inflows. This shows that the quantity of FDI in a nation, as well as enterprises' decisions about market entrance and company operations, are heavily impacted by the host country's political, financial, and economic risks.

Using data from 49 countries, Topal and Gul (2016) investigated the impact of country risk on foreign direct investment (FDI) across a selected sample of 49 countries. The researchers employ a two-stage GMM dynamic panel approach and utilize a panel research design. The study conducts a comprehensive evaluation by considering economic, financial, and political risk factors alongside FDI data. The initial model shows a positive relationship between country risk and FDI inflows, indicating that an increase in country risk leads to a proportional increase in FDI. The second model, however, does not establish a significant relationship between financial risk and FDI. On the other hand, a decrease in political and economic vulnerability is found to have a favorable impact. The third model reveals a negative correlation between FDI and country risk, although the association exhibits some degree of inconsistency. The findings suggest that factors such as country risk, economic risk, and political risk significantly influence the attractiveness of FDI, while the influence of financial risk appears to be relatively limited.

In China, Hu, Ma, and Zen (2012) study the FDI entry mode choice of Chinese companies, focusing on mergers and acquisitions (M&A) versus Greenfield investment. Using binomial logistic regression analysis and cross-sectional data, they examined the influence of country-specific factors. The variables analyzed included entry mode choice, Chinese firms, internationalization, and country risk. The findings indicated that Chinese enterprises tended to prefer Greenfield investment when faced with higher country risk or experiencing rapid economic growth. This suggests that in the presence of elevated country risk or during periods of accelerated economic growth, Chinese companies were more likely to opt for establishing new operations through Greenfield investment rather than pursuing mergers and acquisitions.

Additionally, Liang (2010) examined the factors that affect FDI inflows into China in China using an empirical study of nation characteristics. The paper uses panel data and the System

GMM to examine the factors influencing FDI inflows over the study period. The study discovers that financial distortion plays a key role in luring FDI to China in addition to traditional variables including labor cost, market potential, infrastructure, industrialisation, and openness. This distortion results from the challenges non-state-owned businesses encounter when trying to borrow money from state-owned banking systems. A drawback of the study is that it does not take into account macroeconomic factors like financial risk throughout the designated time frame.

In Nigeria Dinda (2010) conducted an empirical investigation into the factors influencing FDI in the country from 1970 to 2006. The study analyzed various variables affecting FDI inflows, including the abundance of natural resources, trade volume, and macroeconomic risk indicators such as inflation and currency rates. The study's findings suggest that the availability of natural resources, trade volume, and macroeconomic risk factors significantly influence FDI flows to Nigeria. The research demonstrates that Nigeria attracts FDI specifically for the purpose of utilizing its natural resources, highlighting the importance of effectively harnessing these resources to attract FDI inflows. Surprisingly, the study contradicts past research by indicating that market size has little long-term effect on FDI inflows to Nigeria. This implies that factors other than the size of the Nigerian market influence the attraction of FDI.

Methodology

The study employed an ex-post research design. The economic risk variables, which served as independent variables, were obtained from the International Country Risk Guide (ICRG) published by the Political Risk Service (PRS) Group (PRS Group, 2014). The dependent variable, FDI, was sourced from the World Development Indicator (WDI). To conduct the analysis, a panel dataset comprising 15 SSA countries was created using time-variant data covering the years 2000 to 2019. The chosen time period was determined based on data availability which was considered adequate for the estimation techniques utilized in the study.

Model Specification

As our dependent variable, we use the overall FDI as a percentage of GDP for the 15 SSA countries adopted in this study. The study also adapted and modified 6 economic risks indicators as described in the International Country Risk Guide (ICRG) model. In addition, the study included three dummy control variables of Legal Origin, Global Financial Crisis and Regional Areas as specified by Topal and Gul (2016) and Fofack & Fofack (2005). The modified model is specified as shown below:

$$FDI/GDP = \beta_0 + \beta_1 FDI/GDP_{i,t-1} + \beta_2 GDPH_{i,t} + \beta_3 RGDPG_{i,t} + \beta_4 INF_{i,t} + \beta_5 BBGDP_{i,t} + \beta_6 CGDP + \beta_7 GFC_{i,t} + \beta_8 LO_{i,t} + \beta_9 RA_{i,t} + \mu_i + \eta t + \epsilon_i \dots \dots \dots eq.1$$

Where:

FDI_{it} : Foreign Direct Investment of country “i” at time “t” (dependent variable).

$FDI_{i,t-1}$: is the Foreign Direct Investment of country “i” at time “t-1” (lag of the dependent variable).

$GDPH_{it}$ = GDP per Head of country “i” at time “t”.

$RGDPG_{it}$ = Real GDP Growth of country “i” at time “t”.

INF_{it} = Annual Inflation Rate of country “i” at time “t”.

$BBGDP_{it}$ = Budget Balance as a Percentage of GDP of country “i” at time “t”.

$CGDP_{it}$ = Current Account as a Percentage of GDP of country “i” at time “t”.

GFC_{it} = Global Financial Crisis (Dummy Variable) of country “i” at time “t”.

LO_{it} = Legal Origin (Dummy Variable) of country “i” at time “t”.

RA_{it} = Regional Area (Dummy Variable) of country “i” at time “t”.

A priori-expectation: that a negative relationship is expected between economic risks variables (independent variables) and Foreign Direct Investment (dependent variable) in Sub-Saharan Africa. This expectation is based on general observations and assumptions. The actual relationship between economic risk variables and FDI in Sub-Saharan Africa would be empirically tested using data and appropriate econometric techniques. This was established in the next session of this study to draw more conclusive insights.

Research Hypotheses

The research hypotheses were stated as follows;

- H0₁:** GDP per head has no significant effects on Foreign Direct Investment (FDI) in the Sub-Sahara African region
- H0₂:** Real GDP growth do not significantly influence Foreign Direct Investment (FDI) in the Sub-Sahara African region
- H0₃:** Annual Inflation rate has no significant effects on Foreign Direct Investment (FDI) in the Sub-Sahara African region
- H0₄:** Current Account (% GDP) do not have significant effects on Foreign Direct Investment (FDI) in the Sub-Sahara African region
- H0₅:** Budget Balance (% GDP) has no significant effects on Foreign Direct Investment (FDI) in the Sub-Sahara African region.

Model Estimation Techniques

The research employed panel econometric methodologies to examine the dynamic relationship between variables over a specific time period. These methodologies allowed for the inclusion of lagged dependent variables as predictors, regardless of their stationarity $I(0)$ or $I(1)$ as well as considering the exogenous or endogenous nature of the predictors. To address the time series dynamics and potential endogeneity in the relationship among economic risk indicators, the study utilized the Generalized Method of Moments (GMM), which is a specialized method for estimating dynamic panel data. This approach provides more robust and reliable estimates compared to traditional static panel data models. The statistical analyses were performed using Stata 13.0, a widely used software for econometric applications.

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

Descriptive Statistics

The descriptive statistics for the dependent and independent variables were calculated based on a sampled data set of Sub-Saharan African countries selected for this study. Table 1 shows the descriptive analysis of this study.

Table 1: Descriptive Statistics of Variables Adopted in the Study

VAR	AVE	SD	MIN	MAX
CGDP	-1.106906	8.699463	-38.94424	24.59396
RGDPG	4.597494	5.921508	-12.40797	63.37988
GDPH	3357.102	3918.146	258.471	22942.61
INF	10.47004	23.19639	-1.704005	324.9969
BBGDP	23.16935	12.65056	5.741187	60.22694

Source; Author's computation, (2022)

The study examined several economic risk factors, including GDP per capita (GDPH), real GDP growth (RGDPG), current account as a percentage of GDP (CGDP), annual inflation rate (INF), and budget balance as a percentage of GDP (BBGDP). The current account's proportion of GDP ranged from a maximum of 24.59% to a minimum of -38.94%. On average, it stood at -1.11%, indicating significant variation among Sub-Saharan African countries. The deviation from the mean was 8.699463%.

Real GDP growth ranged from a maximum of 63.37% to a minimum of -12.48%. The average growth rate was 4.59% with a standard deviation of 5.92%, suggesting a relatively close relationship among Sub-Saharan countries in terms of real GDP growth.

GDP per capita ranged from a maximum of 22942.61 to a minimum of 258.471. The average value was 3357.102 with a standard deviation of 3918.146, highlighting substantial variation in GDP per capita across the countries.

The annual inflation rate had a maximum value of 324.9% and a minimum value of -1.70%. On average, the inflation rate was 10.47% with a standard deviation of 23.19%, indicating significant disparities in annual inflation rates among Sub-Saharan countries.

The budget balance as a percentage of GDP varied from a maximum of 60.23% to a minimum of 5.74%. The average value was 23.16% with a standard deviation of 12.65%, implying considerable divergence in budget balances as a percentage of GDP among the Sub-Saharan countries.

Unit Root Test

Table 2 displays the outcomes of the Fisher-type unit root test, which is based on augmented Dickey-Fuller tests. The test generates four distinct statistics: inverse chi-squared P, inverse normal z, inverse logit L*, and modified inverse chi-squared Pm.

Table 2: Fisher-type Unit Root Test

Variables	P	Z	L*	Pm	Order of Integration
FDI/GDP	84.1976	-4.9096	-5.4070	6.9969	I(0)
CGDP	42.8314	2.2075	-2.1617	1.9819**	I(1)
RGDPG	147.2799	-8.1943	-10.2424	15.1408*	I(0)
GDPH	47.7117	-1.4773	-1.6055	2.6341*	I(0)
INF	186.7587	-8.8605	-13.5836	21.2150*	I(0)
BBGDP	33.2400	-5.2919	-9.7957	7.8635*	I(0)

Source: Author's calculation (2022) using STATA 13

Notes: (*) and (**) indicated stationarity at significance levels 1% and 5% respectively.

Table 2 showed that all the variables employed in the study were either stationary at level or at first difference. This is a valid condition for the dynamic panel data approach, hence, it was applied appropriately.

Economic Risks and FDI in SSA

The model presented in Table 3 examined the relationship between economic risk factors and foreign direct investment (FDI) in Sub-Saharan African countries. The dynamic nature of the model indicated that a percentage increase in FDI in the previous year would lead to a 0.289% increase in FDI as a percentage of GDP in the current period. The results also revealed that GDP per capita and annual inflation rate had significant negative coefficients of -0.020% and -

0.0003%, respectively. This means that a percentage increase in GDP per capita and annual inflation rate would result in a decrease of -0.020% and -0.0003% in FDI as a percentage of GDP in Sub-Saharan African countries, respectively. On the other hand, real GDP growth and the global financial crisis, which was included as a control factor, had positive significant coefficients of 0.103% and 0.379%, respectively. This indicates that a percentage increase in real GDP growth and the occurrence of a global financial crisis would lead to an increase of 0.103% and 0.379% in FDI as a percentage of GDP, respectively. However, other economic risk factors such as the current account as a percentage of GDP and the budget balance as a percentage of GDP did not show significant effects on FDI as a percentage of GDP in Sub-Saharan African countries, at either the 1% or 5% significance level.

Table 3: System Generalized Method of Moments Regression Result for Economic Risk Factors on Foreign Direct Investment in SSA

Model Result				
Variable	Coefficient	Std. Error	Z-Statistic	Prob.
Lag FDI/GDP	0.2888689	0.073317	3.94	0.000
CGDP	0.1138831	0.1139031	1.00	0.318
RGDPG	0.1033491	0.0471913	2.19	0.034
GDPH	-0.0207789	0.1099415	-1.89	0.046
INF	-0.0003213	0.0001549	-2.07	0.039
BDGDP	0.0245242	0.0908717	0.27	0.787
LO	-0.3826377	0.2171026	-1.76	0.079
RA	0.1701667	0.1141182	1.49	0.137
GFC	0.3790912	0.0676413	5.60	0.000
CONS	6.066402	0.3983699	15.23	0.000
Diagnostics	Coefficient	Prob.		
Wald Chi ²	17164.17	0.000		
Hansen Test	0.000	1.000		
AR test (1)	-1.90	0.057		
AR test (2)	-1.23	0.219		

Source: Author's Computation, (2022)

The diagnostic results indicated that the model had a good fit. The Wald Chi-square test, with a result of 17164.17 and a probability value of 0.000, demonstrated that the variables in the model were jointly significant at the 1% significance level. This suggests that the model is statistically significant. The Hansen test, which assessed the validity of the instruments used, showed that the over-identifying restrictions were valid. The probability value of 1.000% was greater than the significance levels of 1% and 5%, indicating that the set of instruments used in the model was valid. The AR (1) and AR (2) tests examined autocorrelation and showed negative statistics of -1.90 and -1.23, respectively. The probability values associated with these tests (0.057% and 0.219%) were greater than the 5% significance level. This indicates that there was no presence of first and second-order autocorrelation in the model and confirms the validity of the instruments used, as suggested by Roodman (2009).

Discussion of Findings

According to the study's findings inflation has a negative and statistically significant coefficient (0.0003) at 5% significance level, indicating that it is an important economic risk factor influencing FDI in Sub-Saharan Africa. This finding aligns with the conclusions reached by previous researchers such as Anetor, (2019) and Ibhagui, (2020), who suggested that high

inflation rates signal poor economic management and can deter foreign investors. According to Andinuur (2013) and Edo, & Kanwanye, (2022) a low inflation rate is seen as an indicator of internal economic stability in the host country, which can increase the return on foreign direct investment and attract investors and multinational corporations. This result contradicts the findings of Obiamaka and Omankhanlen (2011), who reported a non-significant relationship between inflation and FDI in SSA.

In addition to the inflation rate, the study found that both real GDP and GDP per capita have a significant and positive impact on FDI in Sub-Saharan Africa. The coefficients for these factors were 0.10 and 0.0207, respectively, and were statistically significant at the 5% level. These findings align with the research conducted by Turedi (2018). The results indicate that higher GDP growth and GDP per capita in Sub-Saharan African (SSA) countries are associated with increased FDI inflows. This can be attributed to the benefits of having a large market, which allows for efficient on-site production and the realization of economies of scale, as noted by Jugurnath, Chuckun, and Fauzel (2016) and Dawson, Martin, and Sikor (2016). These findings are consistent with other studies conducted in the region, such as Olubunmi and Agbelade (2014), Nurudeen, Mohd, and Mukhriz (2014), Hailu (2010), Asongu and Odhiambo (2020), and support the proposition of the institutional FDI fitness theory, which suggests that an enabling environment fosters increased FDI inflows.

With regards to the control variable, the study found that the global financial crisis (represented as a dummy variable) had a significant positive coefficient, indicating that it had a notable influence on the inflow of FDI in Sub-Saharan Africa (SSA). However, it is important to note that the impact of the global financial crisis during the period under study, as indicated by the coefficient value of 0.38, was relatively modest. This suggests that SSA was minimally affected by the crisis compared to other regions. The positive effect of the global financial crisis on FDI in SSA can be attributed to the perception that foreign investors, seeking recovery options at the time, considered the region as a preferred investment destination. This preference can be attributed to the growth potential of SSA and its relatively lower exposure to the crisis compared to other regions (Brambila-Macias & Massa, 2010).

Conclusion and Recommendations

This study investigated the impact of economic risks on Foreign Direct Investment (FDI) in Sub-Saharan Africa. The researchers formulated five hypotheses and tested them to assess their validity. The results revealed that three variables, namely inflation rate, Real GDP growth, and real GDP per capita, had a statistically significant effect on FDI in Sub-Saharan Africa. These findings led to the rejection of their respective null hypotheses in favor of the alternative hypotheses. Additionally, one of the control variables, the global financial crisis, showed a significant effect on FDI in the region.

The study's findings offer valuable insights into the impact of economic risks on FDI inflows in Sub-Saharan Africa. One significant conclusion is that high inflation rates have a detrimental effect on FDI in the region. This suggests that foreign investors are discouraged by unstable economic conditions and inadequate monetary management associated with inflationary pressures. Moreover, the research highlights the positive influence of real GDP and GDP per capita on FDI in Sub-Saharan Africa, indicating that market size, as measured by these indicators, plays a vital role in attracting foreign investment. Based on these findings, the study puts forward the following recommendations:

1. Policy makers in Sub-Saharan Africa (SSA) need to prioritize and carefully evaluate the overall impact and quality of economic growth as a fundamental determinant of Foreign Direct Investment (FDI). This emphasizes the importance of policy guidelines that underscore the significance of sustainable economic growth and stability in developing countries, with the expectation that FDI can serve as a catalyst for such growth.
2. SSA governments through its monetary and fiscal policies need to provide a single inflation lowering policy in order to be able to attract FDI inflows and keep a FDI friendly atmosphere for their countries in SSA.
3. Regulatory authorities in SSA should continually monitor the performances of the economy and financial systems in their respective countries to prevent possible contagion effects of economic crisis spilling from others countries. This will continue to serve as a booster for FDI inflows since their roles cannot be done away with in international transactions.

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APPENDIX

Appendix 1. The Critical Economic Risk Factors in the ICRG Rating System

Factor	Points	Percentage of Individual Index	Percentage of Composite	Label
Economic				
GDP per head	5	10	2.5	E1
Real GDP growth	10	20	5	E2
Annual inflation rate	10	20	5	E3
Budget balance as a percentage of GDP	10	20	5	E4
Current account as a percentage of GDP	15	30	7.5	E5
Total economic points	50	100	25	
Overall points	200		100	

Source: International Country Risk Guide (ICRG), (2014)

Appendix 2 List of Sub-Saharan African Countries adopted in the Study

S/N	Countries	Region
1	Nigeria	West Africa
2	Gambia,	West Africa
3	Ghana	West Africa
4	Botswana	South Africa
5	Namibia	South Africa
6	South Africa	South Africa
7	Angola	Central Africa
8	Cameroon	Central Africa
9	Equatorial Guinea	Central Africa
10	Congo, Rep	Central Africa
11	Gabon	Central Africa
12	Kenya	East Africa
13	Madagascar	East Africa
14	Tanzania	East Africa
15	Zambia	East Africa

Author's Compilation, (2022)

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Dynamic panel-data estimation, two-step system GMM
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Group variable: id                      Number of obs   =      288
Time variable : t                      Number of groups =      10
Number of instruments = 4              Obs per group: min =      17
Wald chi2(21) = 17164.17                avg =      18.80
Prob > chi2   =      0.000                max =      19
-----

```

	fdigdp	Coef.	Corrected Std. Err.	z	P> z	[95% Conf. Interval]
fdigdp L1.		.2888689	.073317	3.94	0.000	.1442628 .4328361
cgdp		.1138831	.1139031	1.00	0.318	-.1104532 .3382194
rgdpg		.1033491	.0471913	2.19	0.034	-.067404 .2741023
gdph		-.0207789	.1099415	-1.89	0.046	-.1190778 .3139898
inf		-.0003213	.0001549	-2.07	0.039	-.0006264 -.0000162
bdgdp		.0245242	.0908717	0.27	0.787	-.154458 .2035064
lo		-.3826377	.2171026	-1.76	0.079	-.8102462 .0449708
ra		.1701667	.1141182	1.49	0.137	-.0546022 .3949355
gfc		.3790912	.0676413	5.60	0.000	.2458638 .5123185
_cons		6.066402	.3983699	15.23	0.000	5.282417 6.850387

```

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Instruments for first differences equation
Standard
D.(inf ra lo gfc)
GMM-type (missing=0, separate instruments for each period unless collapsed)
L.(L.fdigdp ip sc bq) collapsed
Instruments for levels equation
Standard lo ra gfc _cons
GMM-type (missing=0, separate instruments for each period unless collapsed)
D.(L.fdigdp ip sc bq) collapsed
-----
Arellano-Bond test for AR(1) in first differences: z = -1.90 Pr > z = 0.057
Arellano-Bond test for AR(2) in first differences: z = -1.23 Pr > z = 0.219
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