



FOREIGN DIRECT INVESTMENT AND MACROECONOMIC STABILITY IN AFRICA DOES GOVERNANCE MATTER

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Abstract

This article explores the relationship between foreign direct investment and macroeconomic stability in Africa from 2012 to 2021, including the moderating effect of governance quality. Using panel data gathered from the World Bank and a Generalized Method of Moments (GMM) estimator, the study discovered a substantial correlation between FDI and macroeconomic stability in Africa. In addition, it is shown that governance quality measures have a significant association with foreign direct investment and macroeconomic stability. These empirical findings indicate that fluctuations in inflation, unemployment rate, exchange and interest rates, which make up the macroeconomic stability index and the quality of governance, can considerably impact the growth of foreign direct investment in Africa. With the potential to attract more FDI, African governments should implement purposeful procedures to improve macroeconomic stability and governance quality in order to encourage large increase in FDI.

Keywords: Foreign Direct Investment, Macroeconomic Stability, Inflation, Governance quality, Exchange rate, interest rate

INTRODUCTION

Global foreign direct investment (FDI) flows reached \$1.58 trillion in 2021, an increase of 64 percent from the level in the first year of the COVID-19 pandemic, which was less than \$1 trillion (Arvin, Pradhan, & Nair, 2021; Ullah, Pinglu, Ullah, & Elahi, 2021; Stawska & Jabłońska, 2021). FDI flows appeared to have significant momentum due to booming merger and



acquisition markets and rapid growth in international project finance as a result of lax financing conditions and significant infrastructure stimulus packages (Aykut & Goldstein, 2006; Benton, Froggatt, Wellesley, & Schröder, 2022; Cheng, 2022). With the outbreak of war in Ukraine in 2022, which occurred at a time the world was still recovering from the pandemic, the global environment for international business and cross-border investment changed drastically (Mariotti, 2022; Ozili, 2022). The war has far-reaching effects, causing a triple food, fuel, and financial crisis, with rising energy and basic commodity prices driving inflation and worsening debt spirals. Uncertainty among investors and aversion to risk could exert significant downward pressure on global FDI in 2022 (Coomer & Gstraunthaler, 2011). The war, with its direct implications for investment in and out of the Russian Federation and Ukraine, as well as its ripple effects via sanctions, supply shortages in energy and basic commodities, and broader macroeconomic impact, is not the only factor dampening FDI expectations for 2022 (Hassen & Bilali, 2022; Barth-Obi, 2022).

Acquisitions and investments across international borders are increasingly triggering foreign direct investment screening requirements. A great number of nations all over the world are currently strengthening the standards for foreign direct investment, in addition to tightening the pre-existing legislation that provided investors the authorization to conduct business. Foreign direct investment has become a significant source of private external financing for developing countries. It differs from other major types of external private capital flows in that it is primarily motivated by investors' long-term expectations of profiting. Foreign bank lending and portfolio investment are not invested in activities controlled by banks or portfolio investors. Foreign direct investment flows to developing countries remained positive in 2021, but bank lending and equity investment flows declined sharply (NGUYEN, 2022; Kaya & Haan, 2022; Ashraf & Umar, 2022; Camara, 2022). FDI can contribute to investible resources and capital formation, but it is also a means of transferring production technology, skills and practices.

Foreign direct investment in African countries reached a record high of \$83 billion in 2021, Africa received only 5.2 percent of global FDI in 2018, up from 4.0 percent in 2020 (Echandi, Roberto, Maryla, Maliszewska, & Steenbergen, 2022; Aongola, 2022; Jaoui, Amoussou, & Kemeze, 2022). 45 percent of the increase was attributable to intercompany financial transaction in South Africa (Misati, Ngoka, Kamau, & Odongo, 2022). The largest holders of foreign assets in Africa remained European, with the UK and France holding \$65 billion and \$60 billion respectively (Duffy, 2022; Nthenya & Donzé, 2022; Anim-Odame, 2022). Foreign direct investment has the potential to play a key role in accelerating growth and economic transformation, for this reason most developing countries are eager to attract it. Developed countries have begun liberalizing their national policies in order to create a

favourable regulatory environment for foreign direct investment. These core policies are crucial because FDI will not occur where it is prohibited or severely impeded.

According to Othman (2022) the governance quality variables of economic freedom, ease of doing business, and international country risk have a positive and statistically significant effect on foreign inflows in Arab economies. This implies that for investors to decide to conduct business in a country there must be a regulatory framework and positive institutional quality that provide a conducive business environment. Using panel data analysis Wang (2022) and Purwins (2022) demonstrated China's clear interest in Africa's mining, oil, and infrastructure. Southern Africa was the most popular region for China's foreign direct investment programs. Chinese outward foreign direct investment to Africa was concentrated in diversification, medium growth economic performance, with southern Africa being the most popular region (Joshua, Güngör, & Bekun, 2022). Korsah, Amanamah, and Gyimah (2022) conducted similar studies utilizing panel data and a random effect model and concluded that economic growth, inflation; economic openness, international reserves, and the availability of natural resources are all significant factors influencing FDI growth in Africa. Similarly, Jama and Nayan (2022), and Sun, Chang, Vasbieva, and Andlib (2022) examined the impact of Chinese investments on the economies of 25 Asian and North African nations, as well as the belt and road initiative, from 2007 to 2016 using the johansen-fisher panel cointegration test and the panel dynamic ordinary least Square model. The study concluded that there is cointegration between the variables and that Chinese investments have a positive effect on economic growth in the host countries.

Khan, et al., (2022) discovered that domestic investment has a positive and significant correlation with growth in both OLS and fixed effects estimations, whereas foreign direct investment is only positive and significant in the OLS estimation. In terms of gauging foreign direct investment in Africa, macroeconomic stability and quality of governance are gaining importance. However, research has consistently focused on the impact of FDI on economic growth without paying much attention to the synergy's macroeconomic stability and quality of governance play in the nexus (Ofori, Dossou, & Akadiri, 2022). Due to the inability of existing literature to deal with the contradiction between FDI, macroeconomic stability, and institutional quality in Africa, the literature on FDI and the relative importance of macroeconomic stability and the quality of governance in Africa has generated considerable academic debate. Consequently most previous literature on the subject matter focused on the systems theory which explains how the interaction processes of systems and the way they influence each other over time to permit the continuity of some larger whole (Anjum, 2022; Nyalihama & Kamanzi, 2022; Khyareh & Rostami, 2022). This study deviates to use the classical and the Keynesian macroeconomic

theory which form the foundation for demand and supply to assume market equilibrium and disequilibrium with excess supply of goods and labour.

The study's objective is to examine the effect of foreign direct investment on macroeconomic stability in the moderating role of governance quality in Africa using panel data from 2012 to 2021. Base on the research objectives outlined above, the study proffered the following research questions to enable the research achieve its aims and the objectives; what is the impact of foreign direct investment on macroeconomic stability in Africa; what is the impact of institutional quality on foreign direct investment in Africa; what is the moderating effect of governance quality on foreign direct investment and macroeconomic stability in Africa.

The scope of the study outlines both the extent to which the research question will be looked into as well as the boundaries within which the analysis will be conducted. The investigation will encompass all fifty-four (54) African countries; however a convenient sample method will be used to select 42 of the countries for further examination. Data for the years 2012 to 2021 will be extracted via the databases of the International Monetary Fund (IMF), the World Development Indicators, and the World Governance Indicators. The research will be based on classical, Keynesian, and endogenous growth theories, and comprising five (5) chapters, the introduction, literature review, methodology, analysis and discussion, and policy implications and recommendation.

LITERATURE REVIEW

The impact of FDI on economic growth cannot be adequately explained from a single theoretical perspective (Asekomeh, Azubuike, & Gershon, 2022). Consequently, the traditional convergence model, neoclassical models of growth, and endogenous growth models are among the most widely used theories. These models support the majority of empirical research on the FDI-growth correlation (Herrera, 2022; Chandra, 2022; Romero, 2022; Dukec, 2022). In addition to employing these theoretical pillars, the study adopts a model that combines traditional and contemporary theories of economic growth (Calandra, Secinaro, Massaro, Mas, & Bagnoli, 2022).

Convergence of economic growth and per capita incomes across nations has been a central theme of neoclassical growth theory and vast economic literature for decades (Klarl, 2022; Sopiana, Mursinto, & Sugiharti, 2022). Consequently, the traditional analysis of convergence entailed determining whether or not poor countries are on a convergence path that is whether or not their real per capita incomes will eventually catch up to those of rich countries. In recent decades, however, a greater emphasis on development strategies based on regional economic integration has necessitated a strengthening of macroeconomic policy credibility,

effectiveness, and stability, resulting in the formulation of a specific objective of macroeconomic convergence among regional economic groupings. Typically, the objective of macroeconomic policy convergence is defined in terms of price stability and budget deficits consistent with debt-to-GDP ratios, with price stability allowing for the limitation of inflation's distorting effects (Canzoneri, Cumby, & Diba, 2002). Currently, the majority of regional economics communities in Africa are distinguished by significant differences in tariffs, inflation rates, exchange rates, debt-to-GDP ratios, monetary growth, lack of deepening of financial markets and institutions, and other crucial macroeconomic indicators required to foster economic integration. Inadequate macroeconomic and financial conditions impede economic integration (Lunogelo & Mbilinyi, 2009).

Indicators of macroeconomic stability and policy convergence are not an end in themselves; rather, they are a strategy to promote deeper integration. By facilitating cross-border trade links and technological spill overs, successful economic integration should, in the long run, result in convergence to similar per capita income and growth rates among member economies. Thus, macroeconomic policy strategies should be designed based on the actual degree of economic structure convergence (Woodford, 2009; Fagiolo & Roventini, 2016). Therefore, the analysis of macroeconomic convergence should serve as an indicator of the degree of success of the integration promotion strategy. According to Solow (1999) neoclassical growth theory, short-term equilibrium results from varying labour and capital inputs to the production function. Additionally, the theory argues that technological change has a significant impact on an economy and that economic growth cannot continue without technological advancements. The neoclassical growth theory describes the three factors necessary for economic expansion (Saunders, 1992; Solow, 1999). These include labour, capital, and innovation. Neoclassical growth theory clarifies, however, that temporary equilibrium is distinct from long-term equilibrium, which does not require any of these three factors. Due to the limited contributions of the neoclassical growth theory, the endogenous growth theory suggests that FDI could ultimately contribute to economic growth through technology transfers and capital formation (Adhikary, 2011; Arisoy, 2012). This may occur through the enhancement of knowledge, skill acquisition and labour training (Newell & Rosenbloom, 1981; Nimmi, Mathew, & Donald, 2022).

Considering endogenous growth models, there are three primary factors that could contribute to the growth of FDI in developing nations. It is necessary to increase domestic reserves, enhance knowledge skills, and promote the private sector through a competitive business environment. The expansion of Africa's private sector will enhance the endogenous growth of foreign direct investment and the continent's macroeconomic stability. Hansen,

Lüdeke-Freund, Quan, and West (2018) also emphasized the significance of international trade in the diffusion of technology as a stimulus for economic growth. This was also supported by Matyushok, Krasavina, Berezin, and García (2021) who researched on the significance of technological diffusion in fostering economic growth in developing nations. In order to achieve the goal of accelerating economic growth in developing economies, Sergi, Popkova, Bogoviz, and Ragulina (2019) concluded that FDI should be encouraged. According to Azam and Feng (2022) the various transmission mechanisms between FDI and improved economic growth are frequently cited as the most important instrument for reducing poverty in the majority of developing nations.

According to Obiakor, Okere, Muoneke, and Nwaeze (2022) non-extractive FDI in Nigeria contributes positively to economic growth, but the overall effect is insignificant. Bouchoucha (2019) concludes that FDI positively affects economic growth by stimulating domestic investment, increasing human capital formation, and facilitating the transfer of technology in host nations.

However, a number of studies have reported a negligible or negative impact of FDI on economic growth in developing host countries. FDI may have a negative impact on the growth prospects of the recipient economy if they generate significant reverse flows in the form of remittances of profits, especially if resources are remitted through transfer pricing and dividends and if transnational corporations obtain substantial concessions from the host country. In addition, Kar (2022) and Sokhanvar and Jenkins (2021) discovered a positive FDI–growth nexus in the Baltic States by applying dynamic panel analysis to data collected between 2017 and 2021. These findings concur with those of a number of other researchers (Shahzad, Radulescu, Rahim, Isik, Yousaf, & Ionescu, 2021; Simionescu, 2021). Furthermore, Hongxing, Abban, Dankyi, and Boadi (2021) examined the relationship between FDI, foreign aid, and economic growth in the ECOWAS trading bloc. Using the generalized method of moments (GMM) estimator, the author determined that FDI is one of the primary growth drivers. In addition, Adika (2022), and Ogundipe, Oye, Ogundipe, and Osabohien (2020) contributed to this discussion in the context of 43 Sub-Saharan Africa (SSA) by employing ordinary least squares (OLS) and Fixed Effect (FE) regressions on secondary data collected from 1980 to 2009.

Hussain and Shahzad (2021) analysed the relationship between foreign direct investment and economic growth using 124 cross-country data from 1971 to 2010. The simultaneous system of equations approach revealed that while FDI is positively correlated with growth, its effect is contingent on the absorptive capacity of the host nation. Acquah and Ibrahim (2020) argue that the growth effects of FDI vary by country of origin and host country characteristics such as the robustness of the financial sector and trade openness. Studies on a

global scale concurred that the growth-enhancing effect of FDI is contingent on certain characteristics, such as trade openness and financial sector development, but there was no consensus on the education level of the host countries. Mohamed, Liu, and Nie (2021) use the auto regressive distributed lag (ARDL) model to examine the relationships between Inflation, Foreign Direct Investment (FDI), and economic growth. They conclude that inflation rate had no significant impact on FDI, while GDP per capita had a significant positive relationship with FDI. Further, the researchers found that FDI increases capital stock and employment, stimulates technological change through technological diffusion, and generates technology spill overs for domestic firms. In contrast, despite the fact that FDI is one of the most dynamic resources flowing into developing countries and can be an important component of economic growth, its contribution to domestic savings, capital accumulation, employment creation, and growth has been negligible (Nguyen, Luu, & Do, 2021; Onafowora & Owoye, 2019).

Foreign Direct Investment and Economic Growth

Threshold externalities reduce the impact of FDI on economic growth in least developed countries, it seems emerging nations need a certain level of knowledge, technology, and infrastructure before they can gain from foreign participation in their markets, underdeveloped financial markets might also limit a country's FDI gains. Ineffective financial intermediation hurts domestic companies' more than foreign ones (Quist, 2022; Akinci, Kalemli-Özcan, & Queraltó, 2022; Saavedra, 2022). It's unlikely they'll be able to leverage on economic growth potentially than their global footprints can afford, with the correct legislative frameworks, foreign investors may benefit from creating and maintaining physical infrastructure and the financial industry. The degree of competition in the host country's market could be significantly affected by factors such as the level of rivalry within the host country, the level of foreign direct investment, and the presence of multinational firms (Hiep & Trung, 2022). The lack of a standardized way to measure market rivalry limits the usefulness of empirical findings, foreign investment has the potential to boost economic growth by increasing domestic competition, which in turn boosts productivity, lowers prices, and more efficiently allocates scarce resources. Multinational firms tend to promote market concentration, which is harmful to competition. All of the following factors increase this danger: the host country being a distinct market, the host country having high entry barriers, the host country being small, the entrant having a dominant position in the international market, and the host country having a lax or non-existent competition law framework.

It suggests that government efforts to promote human capital in order to attract foreign direct investment (FDI) have a bigger impact on improving human capital in developing

countries than Multinational Enterprises-led initiatives. This is due to the increased likelihood of government projects being carried out. A person may have the chance to further develop their human capital through the pursuit of formal education and experience obtained on the job if they are employed by a subsidiary of a multinational company (Zhang & Lan, 2022; Spalding, 2022). By helping to improve the human resource capabilities of the companies they work with, such suppliers, these subsidiaries may have a favourable impact on those companies. The increased output of employees may have other knock-on effects, such as the potential for those employees to decide to leave their current employers and start their own businesses. The optimal way to invest in human capital is therefore related to other, more general development issues. Foreign direct investment has the ability to greatly stimulate firm development in host nations, the immediate influence on the targeted enterprise consists of the accomplishment of synergies within the acquiring Multinational Enterprises, attempts to increase efficiency and decrease costs within the targeted enterprise, and the creation of new operations (Wilton, 2022; Chelladurai & Kim, 2022). Additionally, efficiency gains may emerge in unrelated businesses due to demonstration effects and other spill overs similar to those that result in technology and human capital spill overs. Although the degree of improvement varies by region and industry, the available evidence indicates a significant improvement in the economic efficiency of firms purchased by multinational corporations, notwithstanding varying degrees. In industries with economies of scale, the evidence of improvement is strongest. Here, the incorporation of a small business into a larger corporation typically results in significant efficiency improvements.

There is growing consensus that the relationship between FDI and trade must be viewed in a broader context than the direct impact of investment on imports and exports, despite the fact that the empirical evidence on the effects of FDI on host-country foreign trade varies by country and economic sector. The most important trade-related benefit of FDI for developing nations is the long-term contribution it makes to more closely integrating the host economy into the global economy. There is a multiplicative effect between international trade and investment. When the current account is tight, it is especially important for the host country to assess the short and medium-term implications of foreign direct investment on international trade. Also, they need to consider the impact on foreign reserves of any transactions involving foreign-owned subsidiaries and their parent corporations (Aguilar, 2022; Mufika, 2022).

METHODOLOGY

The study relies on an annual panel data spanning 2012 to 2021 obtained from forty-two African countries using convenient sampling technique. Panel data is pooled from world development indicators and two-step system GMM was used for estimation. Panel data involves

at least two dimensions a cross-sectional dimension of size N and a time series dimension of size T . Multidimensional asymptotics are significantly more complex than traditional one-dimensional asymptotics. Phillips and Moon (2000) point out that sequentially applying a one-dimensional asymptotic can be misleading when both N and T increase at the same or arbitrary rate. First is the Arellano-Bond (1991) estimator, which is also available with `xtabond` without the two-step finite-sample correction. The second is an enhanced version outlined by Arellano and Bover (1995) and developed in full by Blundell and Bond (1998). Arellano-Bond (1991) created an estimator for the Generalized Method of Moments that treats the model as a system of equations, one for each time period. Instrument condition sets are the only difference. Predetermined and endogenous variables have level lags in first differences. Exogenous regressors and other instruments can be entered into the instrument matrix as initial differences, one column per instrument. Lagged levels are often poor instruments for initial differences in the original Arellano-Bond estimator, especially for random walk variables. Arellano and Bover (1995) illustrated how adding moment conditions could boost system efficiency. In these equations, endogenous and exogenous level variables have starting lags. Blundell and Bond (1998) detailed the augmented estimator's assumptions and validated it with Monte Carlo simulations. Original estimator is called difference GMM and upgraded estimator is system GMM. Two-step estimates of standard errors are asymptotically more efficient but substantially downward biased (Arellano and Bond 1991; Blundell and Bond 1998) because it is a dynamic panel estimator that controls for endogeneity in the lagged dependent variable when there is correlation between the explanatory variables and the error term. It also controls for omitted variable bias, unobserved panel heterogeneity and measurement error. `Xtabond2` offers a finite-sample correction to Windmeijer's two-step covariance matrix.

In accordance with the aforementioned economic theories and following in the footsteps of Akram, Iqbal, Daniyal, and Khan (2017), Kamara and Papamanthou (2013) the following models have been specified in order to test the empirical relationship between foreign direct investment (FDI) and macroeconomic stability in Africa, while also moderating for the quality of the governance.

$$Y_{it} = \phi Y_{it-1} + \gamma X_{it} + \mu_i + \delta_t + \varepsilon_{it} \text{-----} (1)$$

$$Macro_{it} = \phi Macro_{it-1} + \alpha FDI_{it} + \gamma IQI_{it} + \theta X'_{it} + e_{it} \text{-----} (2)$$

$$Macro_{it} = \phi Macro_{it-1} + \alpha FDI_{it} * IQI + \theta X'_{it} + e_{it} \text{-----} (3)$$

Where, *Macro* is the dependent variable and represents macroeconomic stability and $Macro_{it-1}$ is the lagged dependent variable, *FDI* represents the proxy for foreign direct investment, IQI_{it} the vector of governance qualities; $\theta X'_{it}$ is the vector of set of control variables; μ_i is the unobserved country specific effect; δ_t represents the time trend; ϕ , α , γ , and θ are the parameters of the

equation; i is the number of cross-sections ($=1,..,N$); t is the number of time series ($=1,..,T$) and, e represents the error term. The purpose of including the control variables is to examine if the effect of macroeconomic stability on foreign direct investment remains significant after accounting for the effects of these covariates on foreign direct investment.

Table 1. Description of variables

Variable	Notation	Description and Measurement of variables
Macroeconomic Stability	Macro	Inflation consumer price (annual %), GDP growth per capita (annual %), unemployment youth total (% of total labour force ages 15-24), government finances (central government debt, total (% of GDP), interest rate, and exchange rate stability, extracted from the WDI.
Foreign Direct Investment	FDI	FDI is net inflows (% of GDP) of investment, It defines a company's choice to invest heavily in, or perhaps buy completely, a foreign company in order to enter a new market.
Institutional Quality Index	IQI	The index is consisting of six dimensions of governance indicators obtained from the WDI. Control of corruption, government effectiveness, political stability and absence of violence, regulatory quality, the rule of law and voice and accountability (Dwumfour, 2018), (PCA index)
Natural resources (export of goods and services)	Natural	Export of Goods and services (% of GDP)
Population)	POP	It is the difference between the total population and urban population
Trade openness	Trade	Represents a control variable extracted from the WDI

RESULTS AND DISCUSSION

The findings of the descriptive statistics, which summarize the data in terms of mean, standard deviation, minimum, and maximum values, are presented in Table 2. It also provides the panel's summary statistics, which include the complete dataset, the cross-section within the data, and the time series dimensions. The statistic with the greatest mean value is Gross Domestic Product (GDP), followed by voice, natural resources (export and import), population, corruption, and trade. Due to the fact that outliers can significantly exaggerate the range of data, the standard deviation of each variable provides more precise and thorough estimates of dispersion. Population has the greatest standard deviation, followed by natural resources (import and export), trade, exchange rate, and corruption, whereas governance effectiveness has the smallest standard deviation, followed by rule of law, unemployment, and natural resources correspondingly. In terms of the lowest and greatest values in each series, minimum

and maximum values conclude the description of each variable. When the minimum observation is compared to the maximum observation, the range of observation values for each variable of analysis can be determined.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Gdp	420	71.115	24.074	39.650	132.360
inf	420	68.080	19.770	37.690	134.560
unemp	420	41.406	28.662	11.310	133.930
govfin	420	49.986	27.414	22.250	180.000
intrest	420	50.193	28.484	21.250	167.750
exchange	420	70.552	38.737	28.960	222.150
fdi	420	49.888	27.387	22.250	180.000
vo	420	71.086	38.589	28.960	222.150
po	420	50.004	25.941	26.050	126.260
ge	420	2.867	1.095	1.170	6.620
rq	420	11.170	2.218	4.650	15.980
rl	420	2.794	0.881	1.300	5.550
ccor	420	56.215	38.659	15.200	173.480
natural	420	67.200	49.414	-3.360	225.690
pop	420	63.200	66.240	31.000	450.000
trade	420	54.140	45.553	23.500	197.120

Correlation matrix

The correlation matrix displays correlation values and measures the linearity of each pair of variables. The correlation values range from -1 to 1. The value is positive if the two variables tend to increase and fall in tandem. A coefficient is negative if one variable grows while the other variable reduces. The degree of association between the dependent variable (macroeconomic indicators) and the explanatory variables is displayed in Table 3 as a result of the correlation analysis. The relationship between all variables in the table below is positive, with the exception of governance quality, which has a weak negative relationship with voice and accountability, and regulatory quality, which has a weak negative relationship with government finances, foreign direct investment, political stability, and governance effectiveness. There is also a weak negative association between regulatory quality and trade, with trade demonstrating a similar weak negative relationship. Except for the coefficient of regulatory quality and government finance, government effectiveness, interest, and exchange rates, as well as the coefficients of voice and accountability, corruption and governance effectiveness, natural resources and regulatory quality, each coefficient has a 1 percent significant relationship.

Linear regression assumes residuals have equal variance at each predictor level, known as homoscedasticity. When broken, regression results are unreliable. According to the Breusch-Pagan test for heteroskedasticity, the null hypothesis should have a constant variance. When p-values are more than 0.05, we fail to reject the null hypothesis that there is no constant variance and no heteroskedasticity. When p-values are less than or equal to 0.05, there is no constant variance, indicating heteroskedasticity. The model in this paper has constant variance and random effect, according to heteroskedasticity, Hausman, and Lagrangian Multiplier tests.

Table 3. Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) inf	1.000															
(2) gdp	0.874*	1.000														
(3) unemp	0.748*	0.812*	1.000													
(4) govfin	0.735*	0.770*	0.839*	1.000												
(5) int	0.675*	0.870*	0.682*	0.628*	1.000											
(6) exc	0.584*	0.807*	0.740*	0.615*	0.817*	1.000										
(7) fdi	0.689*	0.775*	0.743*	0.760*	0.641*	0.687*	1.000									
(8) vo	0.523*	0.609*	0.687*	0.464*	0.596*	0.681*	0.388*	1.000								
(9) po	0.692*	0.641*	0.589*	0.623*	0.522*	0.424*	0.676*	0.204*	1.000							
(10) ge	0.162*	0.161*	0.287*	0.282*	0.041	0.061	0.409*	-0.043	0.355*	1.000						
(11) rq	0.167*	0.074	0.002	-0.035	0.142*	0.135*	-0.192*	0.317*	-0.220*	-0.491*	1.000					
(12) rl	0.632*	0.655*	0.622*	0.571*	0.559*	0.525*	0.575*	0.423*	0.769*	0.343*	0.090	1.000				
(13) ccor	0.739*	0.907*	0.787*	0.722*	0.838*	0.807*	0.686*	0.726*	0.525*	0.082	0.119	0.631*	1.000			
(14) nat	0.735*	0.703*	0.841*	0.832*	0.553*	0.605*	0.713*	0.564*	0.579*	0.375*	0.092	0.653*	0.669*	1.000		
(15) pop	0.639*	0.591*	0.603*	0.583*	0.398*	0.354*	0.532*	0.253*	0.699*	0.315*	-0.176*	0.602*	0.487*	0.515*	1.000	
(16) trade	0.750*	0.728*	0.727*	0.665*	0.597*	0.583*	0.753*	0.386*	0.768*	0.497*	-0.187*	0.723*	0.621*	0.713*	0.581*	1.000

* shows significance at $p < 0.01$

Table 4. Dynamic two-step system GMM estimation for foreign direct investment and macroeconomics stability in Africa

	(1) Macro	(2) Foreign	(3) Natural	(4) Population	(5) Trading
L.Macro	0.813*** (1.72)				
Macro		0.110*** (1.08)	0.325*** (0.62)	0.0802*** (0.42)	0.134*** (1.07)
Foreign	0.360*** (0.43)		0.427*** (1.08)	0.176* (0.61)	0.0422*** (0.23)
Natural	0.106** (0.37)	0.0100*** (0.82)		0.0247* (0.95)	0.00629*** (0.20)
Population	0.354*** (0.76)	0.250** (1.22)	0.372*** (0.86)		0.251 (1.46)
Trading	0.201*** (0.58)	0.00121*** (0.01)	0.885* (0.98)	0.235 (0.89)	

Voice	0.00566** (0.84)	0.000368*** (0.21)	-0.000716 (-0.09)	0.000221** (0.04)	0.00100 (0.44)	Table 4...
Politics	0.00491*** (0.17)	0.00265*** (1.11)	0.0164** (0.96)	0.00421 (1.04)	0.00283*** (0.48)	
Governance	0.0978*** (0.29)	0.00497*** (0.52)	0.0140* (0.18)	0.0126 (0.67)	0.00946*** (0.48)	
Regulatory	-0.0153*** (-0.80)	-0.00923*** (-1.65)	0.0187** (0.88)	-0.00156 (-0.09)	0.0108*** (1.58)	
Rule	0.160*** (0.65)	0.0151*** (0.32)	0.0517* (0.49)	0.109 (1.08)	0.0209*** (0.46)	
Corruption	-0.00432*** (-0.71)	-0.00411*** (-1.04)	-0.00257*** (-0.32)	-0.00899 (-2.77)	-0.00536 (-1.39)	
L.Foreign		1.081*** (10.86)				
L.Natural			1.004*** (7.60)			
Population				0.686*** (2.31)		
L.Trading					0.694*** (2.22)	
_cons	1.160*** (0.51)	0.997*** (0.68)	1.216*** (0.54)	2.714*** (1.40)	2.426*** (1.41)	
<i>N</i>	376	376	375	376	376	
<i>AR2</i>	0.68	0.25	0.68	0.41	0.74	
<i>Sargan</i>	0.46	0.66	0.31	0.21	0.035	
<i>Hansen</i>	0.67	0.65	0.63	0.24	0.21	
<i>No of Instr.</i>	14	18	19	19	19	
<i>No of groups</i>	42	42	42	42	42	
<i>Prob>chi2</i>	0.000	0.000	0.000	0.000	0.000	

Foreign Direct Investment and Macroeconomic Stability in Africa

The foreign direct investment lag is significant, indicating that the forecast for the following period is dependent on the values of the same series from the previous period. There is also a significant relationship between foreign direct investment and macroeconomic stability in Africa. As foreign direct investment increases in Africa, macroeconomic stability also improves (Chen, Zhang, Wu, & Ji, 2022; Zhang & Zhang, 2022). According to Dankyi, Abban, Yusheng, and Coulibaly (2022) foreign direct investments stimulate economic development by providing external capital and increasing the country's revenues, thereby enhancing the macro-economy. Typically, it results in the opening of factories in the country of investment that utilize local equipment, materials, and labour force based on employee skill levels. Foreign direct investment (FDI) boosts employment in the host country, especially in poor countries, argues (Adegboye, Osabohien, Olokoyo, Matthew, & Adediran, 2020). Specifically, the service and

manufacturing sectors are bolstered, resulting in more employment, which creates money for the inhabitants. Economic expansion, both in the short and long terms, benefits from this revenue. A country's human capital grows in tandem with its level of foreign investment because of the flow of information and expertise (Su & Nguyen, 2022). When investments are made in training and education, the economy flourishes.

According to studies conducted by Saleem, Nasreen, and Azam (2022) FDI has a positive effect on the economy as a whole because it encourages industrialization, which in turn increases the availability of goods and services for sale within the host country and for export, generating foreign currency and strengthening the economy. As Vukmirović, et al., (2021) found, however, FDI reduces domestic investment by giving foreign companies a foothold in the home market. Ultimately, this makes domestic companies vulnerable to political shifts on the outside and can also determine exchange rates, which can impact the economy as a whole. According to Androjna, Brcko, Pavic, & Greidanus (2020) FDI can affect interest rates, threaten native businesses if they aren't competitive, and make host countries vulnerable to cybercrime. There is also a substantial association between natural resources and foreign direct investment; African countries with more natural resources will attract more FDI than those with fewer natural resources. Therefore, natural resources can impact the expansion of FDI in an economy. Asiamah, Agyei, Bossman, Agyei, Asucam, and Arku-Asare (2022) revealed that while developing countries utilize their natural resources to attract FDI, they also have a propensity to experience the resources curse impact in terms of their economies. The researchers urge that African nations to attract FDI in non-resources sectors to minimize FDI-induced economic development. There is also a major relationship between FDI and population growth, as FDI relates to the production of products and services, which depends on the size of the market and the availability of trained labour. A developing nation with a relatively larger market is more likely to attract FDI than one with a small market. There is also a considerable positive association between FDI and trade; as FDI increases, so does trade. According to Waterworth and Bradshaw (2018) the relationship between FDI and trade is complementary rather than competing. All determinants of governance, with the exception of corruption control, are significantly positively related to FDI. Despite the negative positive correlation between corruptions controls and FDI, the extent to which corruption slows FDI expansion in Africa is yet to be empirically established. The prevalence of corruption has a negative impact on foreign direct investment (FDI) in Africa because it raises the cost of conducting business to the point where it is no longer profitable. Because of the bigger negative effects of mortgage behaviours, which increase economic transaction costs, corruption in this sense is a part of a broader negative phenomenon. These costs may be expended instead of acquiring intelligence

regarding potential alliances and current market conditions. Economic distortions generated by corrupt authorities in order to earn payoffs are a much bigger cost of corruption than the transaction costs associated with it. Economic distortions include things like inefficient privatization and government contracts, delays in production, licensing of low-quality products, and illegal actions. Furthermore, corrupt officials may gain access to a disproportionate share of a country's wealth due to inflated contract pricing. Such hefty expenses must be covered by increased taxes and reduced spending in the future (Alagidede, Mensah, & Ibrahim, 2018). Corruption also redirects funds from foreign direct investment (FDI) to other forms of investment, such as bank loans and stock market speculation (Duramany-Lakkoh, Jalloh, & Jalloh, 2021). Two possible explanations exist for this finding. To begin, local officials in countries with a higher prevalence of corruption may be more prone to exploit and fool international investors into paying bribes to avoid imposing hurdles than lenders from foreign banks. Furthermore, international institutions provide greater protection for foreign bank lenders' loans than do international investors, who run the risk of having their money extorted or nationalized by a country with inadequate governance. Since bank loans and other portfolio flows can be readily withdrawn if economic troubles arise, this renders a country more vulnerable to currency crises (Tsurumi, 2019; Lewis & Dangerfield, 2021). Corruption may indirectly impact FDI by reducing domestic investment. Evidence linking public perceptions of corruption to decreased investment was found by (Gründler & Potrafke, 2019; Erum & Hussain, 2019).

Table 5. Dynamic two-step system GMM estimation for moderation effect of governance quality on foreign direct investment and macroeconomics stability in Africa

Variable	(1) Macro	(2) Macro	(3) Macro	(4) Macro	(5) Macro	(6) Macro
L.Macro	1.113*** (7.82)	1.105*** (10.66)	0.359*** (0.21)	1.156*** (8.15)	1.048*** (8.00)	1.128*** (9.15)
Foreign	0.0618** (0.29)	0.186* (0.43)	1.471** (0.42)	0.00199** (0.01)	0.222 (0.64)	0.172*** (0.51)
Natural	0.0203* (0.63)	0.0227 (0.94)	0.138** (0.49)	0.00528** (0.17)	0.0278* (0.92)	0.00942** (0.30)
Population	0.262*** (0.57)	0.42*** (1.01)	1.187*** (0.55)	0.019*** (0.04)	0.270*** (0.59)	0.112*** (0.24)
Trading	0.168*** (0.55)	0.0960*** (0.31)	0.488*** (0.76)	0.0567*** (0.12)	0.0718* (0.22)	0.178*** (0.66)
VO	0.00781*** (0.79)	0.000159* (0.02)	0.0160 (0.55)	0.000214** (0.04)	0.00162* (0.53)	0.00219*** (0.71)
PO	0.00547*** (0.85)	0.0266*** (0.61)	0.000721** (0.05)	0.00194*** (0.28)	0.00224*** (0.36)	0.00336*** (0.53)
GE	0.00740**	0.00481*	0.714*	0.0104**	0.00429**	0.00830**

Table 5...

	(0.81)	(0.85)	(0.43)	(1.22)	(0.55)	(1.01)
RQ	0.00728 ^{***}	0.00895 ^{***}	0.0575 ^{***}	0.0611 ^{***}	0.00544 ^{**}	0.000942 [*]
	(0.46)	(0.73)	(0.48)	(0.54)	(0.37)	(0.06)
RL	0.0546 ^{***}	0.0330 [*]	0.325 [*]	0.00967 [*]	0.369 ^{***}	0.0115 ^{**}
	(0.84)	(0.57)	(0.49)	(0.09)	(1.04)	(0.14)
Ccor	-0.00205 ^{***}	-0.000470 ^{**}	-0.00480 ^{***}	-0.00136 ^{**}	-0.00197 ^{***}	-0.00814 ^{***}
	(-1.65)	(-0.09)	(-0.64)	(-0.69)	(-1.38)	(-0.50)
Foreign*Vo	-0.00148 ^{***}					
	(-0.62)					
Foreign*Po		0.00496 ^{***}				
		(0.49)				
Foreign*Ge			0.211 ^{***}			
			(0.43)			
Foreign*Rq				0.0158 ^{***}		
				(0.59)		
Foreign*RI					0.0902 ^{***}	
					(0.94)	
Foreign*Ccor						0.00180 ^{***}
						(0.38)
_cons	0.515 ^{***}	0.426 ^{***}	1.974 ^{***}	0.763 ^{***}	0.469 ^{***}	0.923 ^{***}
	(0.24)	(0.22)	(0.84)	(0.24)	(0.22)	(0.46)
N	376	376	376	376	376	376
AR2	0.69	0.39	0.71	0.75	0.55	0.71
Sargan	0.35	0.37	0.87	0.37	0.29	0.32
Hansen	0.36	0.56	0.92	0.64	0.55	0.51
No of Instr.	16	16	16	16	16	16
No of group	42	42	42	42	42	42
Prob>Chi2	0.000	0.000	0.000	0.000	0.000	0.000

Dynamic two-step system GMM estimation for moderation effect of governance quality on foreign direct investment and macroeconomics stability in Africa

There is a negative significant relationship between foreign direct investment and voice and accountability, as shown in Table 4. When FDI dominates a sovereign country, it becomes an impediment to domestic investment, and local businesses in the host country lose interest in financing their domestic household businesses, but are unable to compete with foreign investors due to a lack of start-up capital and voice and accountability (Schena & Gouett, 2022; Shoaib, 2022). Citizens lack absolute control over the type of products or quality of goods and services that FDI will generate, in part because sovereign nations lack control over FDI. As voice and accountability diminish in developing nations, foreign direct investment could result in modern economic colonialism, leaving host nations defenceless against foreign companies' oppression (Fon & Alon, 2022; Babic, Garcia-Bernardo, & Heemskerk, 2020).

Political stability has a considerable association with foreign direct investment; nations with high political stability have greater FDI inflows. Due to its tendency to

minimize transaction and information costs, political stability is a major predictor of FDI in Africa (Abdella, Naghavi, & Fah, 2018). This attracts foreign investment and contributes to economic growth; as political stability and democracy strengthen, investor confidence in the host nation's economy grows. Governance effectiveness and regulatory quality also have a statistically significant link with FDI in developing nations, suggesting that government in the form of independent public and civil services supports investment in developing countries. Political stability has a statistically significant impact on FDI in Africa because international investors do not have to worry about rapid policy reversals, meaning that FDI prefers to invest in nations with stable governments even when policy uncertainty is present (Hsieh, Boarelli, & Vu, 2019). There is also a significant negative relationship between FDI and regulatory quality in Africa; as foreign direct investment increases, regulatory quality decreases. This is partially due to the fact that Africa has generally weak institutional quality systems and is therefore unable to formulate and implement viable policies to manage and regulate the activities of foreign investors in host nations. This conclusion corroborates the findings of Makoni (2021) and Djellouli, Abdelli, Elheddad, Ahmed, and Mahmood (2022) who conducted comparable study and concluded that FDI has a negative, statistically significant link with regulatory quality in Africa. According to the authors, the creation and implementation of government policies in Africa are hampered by inadequate institutional structures. Rule of law has a significant relationship with FDI, as the perception that agents have confidence in and adhere to the rules of society, as well as the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence, all influence FDI operations in developing countries.

The use of foreign direct investment data based on the balance of payments, which features expanding financial flows and massive FDI components, and the cross-interdependence of rent-generating assets with perceived corruption and FDI are all possible explanations for this positive relationship between corruption control and FDI (Moustafa, 2021; Alencar, Strachman, Barbosa, & Puty, 2019).

RECOMMENDATIONS AND POLICY IMPLICATIONS

This study examines the effect of foreign direct investment on macroeconomic stability in Africa, with governance quality serving as a moderator. Foreign direct investment is measured as the net inflows on investment, which describes a firm's decision to invest extensively in or maybe acquire a foreign company to enter a new market. Extracted from the WDI, macroeconomic stability is also a composite index of inflation consumer price, per capita

Gross Domestic Product growth, unemployment, government finances, interest rates, and exchange rate. Governance quality is also a composite index of the institutional quality characteristics included in the World Governance Indicators (WGI) from 2012 to 2021. By employing a two-step system GMM model and including control variables, the results indicate that foreign direct investment inflow and macroeconomic stability in Africa are significantly related. Natural resources, population, and trade demonstrated a positive and substantial association with foreign direct investment and macroeconomic stability among the control variables. When foreign direct investment improves, both macroeconomic stability and economic growth in emerging countries increase (Hanif, Raza, Gago-de-Santos, & Abbas, 2019).

With the exception of control of corruption, all institutional quality indicators are statistically significant when FDI is present, demonstrating that FDI can operate effectively in Africa when political institutions are strengthened to improve macroeconomic stability. Governance appears to be a significant factor in attracting foreign direct investment (FDI) in emerging economies, as well as playing an important role in enhancing macroeconomic stability. Inflationary pressures, increased natural resource availability, market efficiency, trade, foreign exchange, and interest rates are all important determinants of FDI in Africa. Investment in Africa in the coming years should ideally be directed toward the primary areas and opportunities that will define the continent's short and long-term prosperity (Karavardanyan, 2021; Friederici, Wahome, & Graham, 2020). When renewable energy is prioritized, the region will be at the frontline of the renewable energy industry worldwide. It is expected that mobile and internet usage would increase as Africa prepares to establish the Africa Continental Free Trade Area (AfCFTA) (Apiko, Woolfrey, & Byiers, 2020). For this reason, policymakers ought to give e-commerce their full attention, if Africa wants to attract more foreign direct investment, improve country's infrastructure and logistics. The adoption of a circular economy that promotes the sharing, reusing, repairing, and stimulating of materials to achieve environmental sustainability can present huge FDI opportunities in Africa. The shortcoming of the research on foreign direct investment and macroeconomic stability in Africa is that, moderating governance qualities, the impact of technology on FDI is not thoroughly investigated in the nexus. In the future, researchers might examine if and how technological advances mitigate the impact of FDI on human development in Africa.

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